



Driving transformation for the future

Umicore
Integrated Annual Report 2023

Disclaimer

This report contains forward-looking information that involves risks and uncertainties, including statements about Umicore's plans, objectives, expectations and intentions. Should one or more of these risks, uncertainties or contingencies materialize, or should any underlying assumptions prove incorrect, actual results could vary materially from those anticipated, expected, estimated or projected. Readers are cautioned that forward-looking statements include known and unknown risks and are subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond the control of Umicore. As a result, neither Umicore nor any other person assumes any responsibility for the accuracy of these forward-looking statements.

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The Umicore integrated annual report offers a comprehensive and integrated view of our performance for 2023. This report is produced in accordance to the [GRI Standards](#). For more, please see [About this report](#). Definitions for the terms used throughout this report can be found in the [Glossary](#) for the report.

Access all items in this report, in English and in Dutch, online:

 [ANNUALREPORT.UMICORE.COM](https://annualreport.umicore.com)

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Corporate research and development researcher preparing a battery cell assembly in our solid-state battery prototyping center in Olen, Belgium

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CEO & Chair review



Chair Thomas Leysen and CEO Mathias Miedreich at Umicore's Headquarters in Brussels, Belgium

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Umicore’s 2023 results demonstrated our ability to deliver strong cash flows and margins in the face of challenging market conditions. Our Catalysis and Recycling Business Groups showed a very strong performance with a ROCE of respectively 28.8% and 67.9%, whilst the Energy & Surface Technologies Business Group saw increased investments in order to ramp up our capacities. This currently weighs down the ROCE, which came in at 4%. We continued to invest € 281 million in R&D, including major projects such as battery recycling and solid-state battery materials.

In Rechargeable Battery Materials we have built a sizeable and diversified order book on three continents, safeguarded by solid contractual terms. We were also able to secure substantial government grants of close to € 1 billion for our expansions in Europe and North America. With these grants and an optimized capacity ramp-up phasing, we could reduce our anticipated net capital expenditure needed to execute our order book and remain well within our self-financing capability. As we move into 2024, our teams are now focusing on executing this ambitious investment program.

In order to provide more insight on our high-growth, but capital intensive Battery Materials business as well as on the performance of our attractive niche

businesses in Specialty Materials, we have decided to report these two businesses separately as of June 2024.

Business highlights

Revenues for the Group decreased in 2023, mainly impacted by lower PGM (Platinum Group Metal) prices. Our profitability remained high with a 25% EBITDA margin demonstrating Umicore’s ability to mitigate the headwinds of declining PGM prices as well as reduced volumes in some of our end markets. In particular, we generated good cash flows in 2023 through strict working capital management in Catalysis and Recycling. This resulted in a cash conversion of 125% from EBITDA to operating cash flow in 2023 compared with 73% in the previous year.

We also worked intensively in 2023 on ways to further boost and accelerate EBITDA and cashflow generation in the medium- to long- term through our Efficiency-for-Growth program, while reducing exposure to future PGM price volatility by increasing our strategic metal hedging.

Capital expenditure amounted to € 857 million, up 82% year-on-year, mainly driven by investments to execute the contracts



Chair Thomas Leysen and CEO Mathias Miedreich at Umicore’s headquarters in Brussels, Belgium

As we move into 2024, our teams are now focusing on execution excellence, remaining firmly committed to delivering on our targets.

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Aerial view of our Precious Metals Refining site in Hoboken, Belgium

Umicore marked several milestones in 2023 and celebrated some anniversaries – 135 years of our Hoboken site in Belgium and 20 years of our site in Hanau, Germany.

secured in the order book for Rechargeable Battery Materials. Operational free cash flow remained strong at € 332 million, despite the significantly increased capital expenditure. Net financial debt slightly increased to € 1.3 billion resulting in a leverage ratio of 1.30x LTM adjusted EBITDA.

Catalysis delivered record results for the third consecutive year. Adjusted EBITDA amounted to € 436 million, up 4% compared with the previous year. The business group's performance was mostly driven by higher sales volumes and revenues in Automotive Catalysts reflecting

a rebound in Chinese heavy-duty diesel production as well as year-on-year growth in global light-duty internal combustion engine (ICE) production. In addition, Automotive Catalysts made further strong progress on efficiency improvements. Catalysis generated substantial free cash flow and recorded an adjusted EBITDA margin of 24.2%. We see this business group as continuing to generate attractive returns even as the ICE cars will slowly decline. Furthermore, it remains a useful portfolio hedge in case the transition electric vehicles were to somewhat slower than anticipated. It also constitutes a reservoir of talent for the other businesses.

Revenues for **Energy & Surface Technologies** were below the level of 2022. The decrease mainly results from lower revenues for Rechargeable Battery Materials, which reflected the combined impact of a lower non-recurring lithium effect and lower volumes for cathode active materials from legacy contracts. Adjusted EBITDA amounted to € 259 million, with a slight increase in earnings for Rechargeable Battery Materials supported by a substantial one-off related to lower costs from mass production test runs and valuation of battery production scraps. Cobalt & Specialty Materials reported, as expected, a substantial decline in earnings. This combined with the solid performance of the Business Units Electro-Optic Materials and Metal Deposition Solutions resulted in an EBITDA margin of 24.6% for the Business Group. In the years to come, we will continue to build on our strong positions in the Specialty Materials part of this business while executing our investment program to secure our position as a leading global supplier of Battery Materials.

Recycling produced again very high returns on invested capital. Although it was below the exceptional performance of 2022, it was well above pre-2020 levels, the year in which the rhodium price started to peak. Adjusted EBITDA amounted to € 372 million, down 30%, reflecting a context of substantially declining PGM prices during 2023, as well as the impact of cost inflation mainly in the first half of the year. These headwinds were partially mitigated by the strong performance of the Precious Metals Management Business Unit as well as strategic metal hedges. The introduction of an efficiency program, which going forward will result in increased cost efficiencies to counteract the decreased PGM price environment, played an important part in the 2023 performance. Also the Jewelry and Industrial Metals Business Unit did well in this respect.

Strategic milestones

Umicore marked several milestones in 2023 and celebrated some important anniversaries – 135 years of our Hoboken site in Belgium and 20 years since the

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acquisition of the former Degussa precious metals business, headquartered in Hanau, Germany. This transformative acquisition propelled Umicore to a new level at the time, just as we are now preparing the next quantum leap for our Group.

We secured our North American strategy for Rechargeable Battery Materials with the start of construction of the plant in Ontario, Canada, after securing a long-term off-take contract as well as significant government funding for the project. The joint venture backed by Umicore and Volkswagen Group-owned PowerCo – **IONWAY** – announced construction of **its first cathode materials production plant in Nysa, Poland**, adjacent to Umicore’s existing plant. The project also received financial support from the Polish Government.

We made significant headway in **Fuel Cells & Stationary Catalysts with the groundbreaking ceremony** on December 1st, 2023 of a greenfield plant in Suzhou, China. Due to be operational in early 2026, this plant is set to be the world’s largest fuel cell catalyst production facility.

The **Management Board has been further strengthened** with the appointments of Veerle Slenders, Executive Vice President (EVP) of Recycling, Geert Olbrechts Chief Technology Officer & EVP Specialty Materials and Ana Fonseca Nordang our new EVP

of People & Organization. We have also instilled a mindset of **Efficiency for Growth** and continuous improvement throughout the entire Group, which will stand us in good stead in these challenging times.

The fatal accident which tragically occurred in our Hoboken plant in March 2023 brought home again that we can never relent **our focus on safety**. Our overall recordable injuries showed a positive trajectory, but clearly our safety journey still has a way to go.

Non-financial targets

During the past year, we made good progress in our decarbonization roadmap, with 41% global renewable energy use now compared with a 35% baseline in 2021. In Europe, it is close to 60%, and we are on track for our 2025 target of 100% renewable energy use. We unveiled the Umicore Climate Transition Plan underlining our commitment to climate action, resilience and transparency. We also remain committed to upholding the Ten Principles of the United Nations Global Compact in the areas of Human Rights, Labor, Environment, and Anti-Corruption. In this Integrated Annual Report, we outline our efforts towards implementing these principles and how we contribute to the United Nations’ Sustainable Development Goals. All this ensures the sustainable aspects of future growth.



20-years anniversary of Umicore Hanau, Germany

Confidence in the future

As we embark on the next stage of our journey, we look ahead with confidence. Umicore has demonstrated in the past decades that it could reinvent itself as new opportunities and challenges arose. We have unrivalled technological capabilities in each of our businesses, from advanced and proprietary catalysts to germanium semiconductor wafers, from an absolutely unique set of metallurgical capabilities to next generation battery chemistry. We have deep customer relationships with virtually every automotive manufacturer in the world, but are also a preferred supplier and business partner to many other high-

end industries. And we have talented, committed and global teams which have shown courage, persistence and resilience.

Whilst our major investment program in battery materials will still take some time to generate its full potential, our other businesses will continue to generate the cashflows required to invest in our future and remunerate our shareholders. We would like to thank our customers and business partners for continuing to place their confidence in us, as well as our talented colleagues for their continued dedication to our common purpose.

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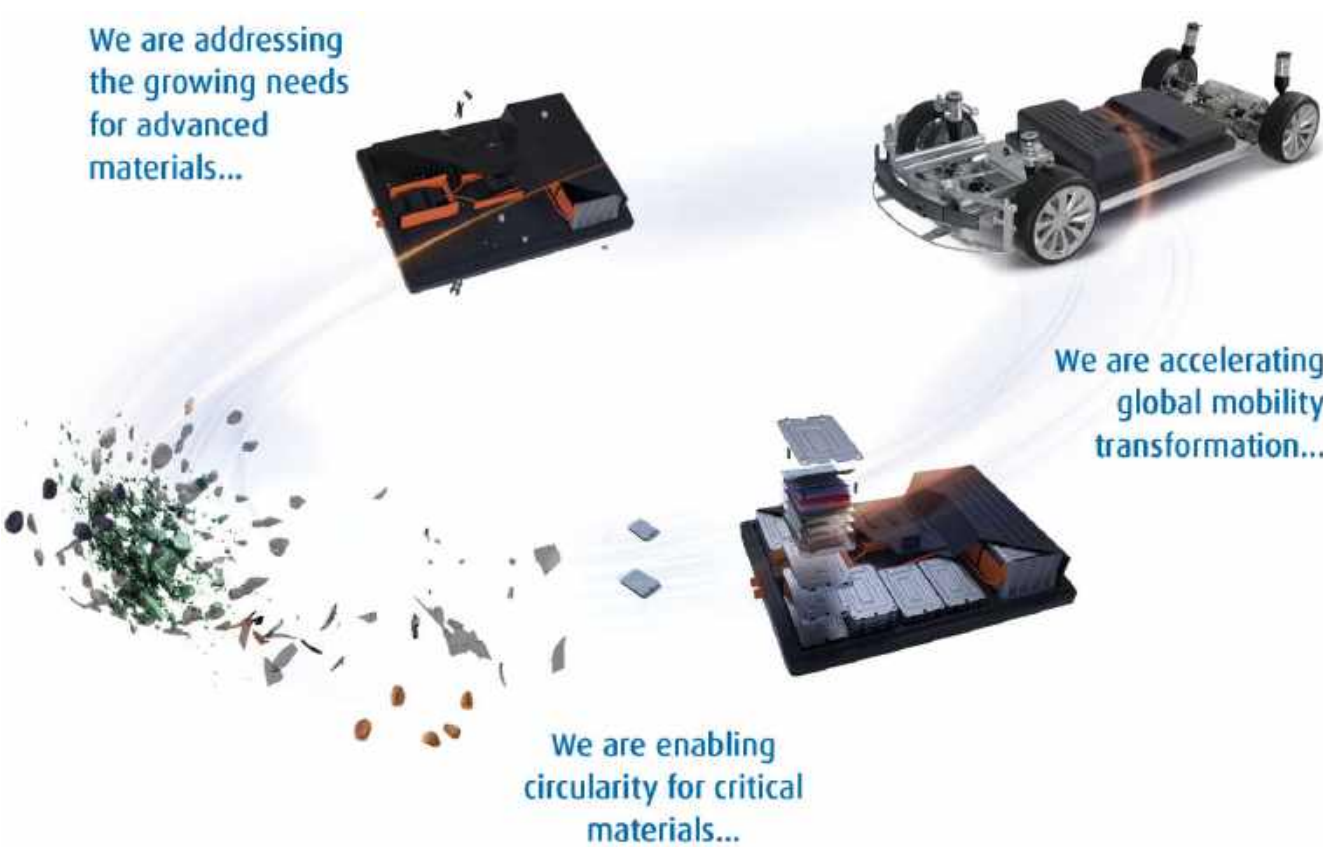
About us

Umicore: the *circular* materials technology company

Reducing harmful vehicle emissions.
Giving new life to used metals.
Powering the cars of the future.
Umicore is world a leader in *circular* materials technology and recycling, employing 11,948 people and spanning 29 countries over five continents.

Umicore’s operations are divided into business groups: **Catalysis**, **Energy & Surface Technologies** and **Recycling**. Each business group is in turn comprised of several business units that serve different end markets, resulting in an overall diversified revenue and customer base. Read more about it in [Our complementary business groups](#).

Drawing on its extensive expertise in the fields of **chemistry**, **material science and metallurgy**, Umicore is a key enabler of the mobility transformation and circularity of critical metals.



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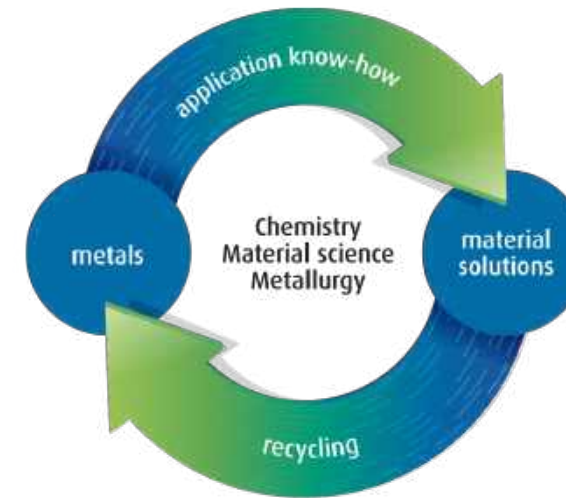
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Mobility transformation

We lead the way in emission control catalysts for passenger cars and heavy-duty applications; a leading supplier of cathode active materials for lithium-ion batteries used in electric vehicles; a front-runner in battery recycling; and we are a leading supplier of proton exchange membrane fuel cell catalysts used in the emerging hydrogen economy (in particular, focusing on transportation applications).

Circularity of critical metals

We operate one of the world's most **sophisticated precious metals** recycling facilities and our plants can recover 28 precious and non-ferrous metals from - industrial residues, electronic scrap, batteries, automotive and industrial catalysts and fuel cells. The recovered materials are transformed into pure metals or new products. Umicore is also a pioneer in recycling batteries: its plant in Belgium has an annual capacity of 7,000 tonnes of lithium-ion batteries and battery production scrap.



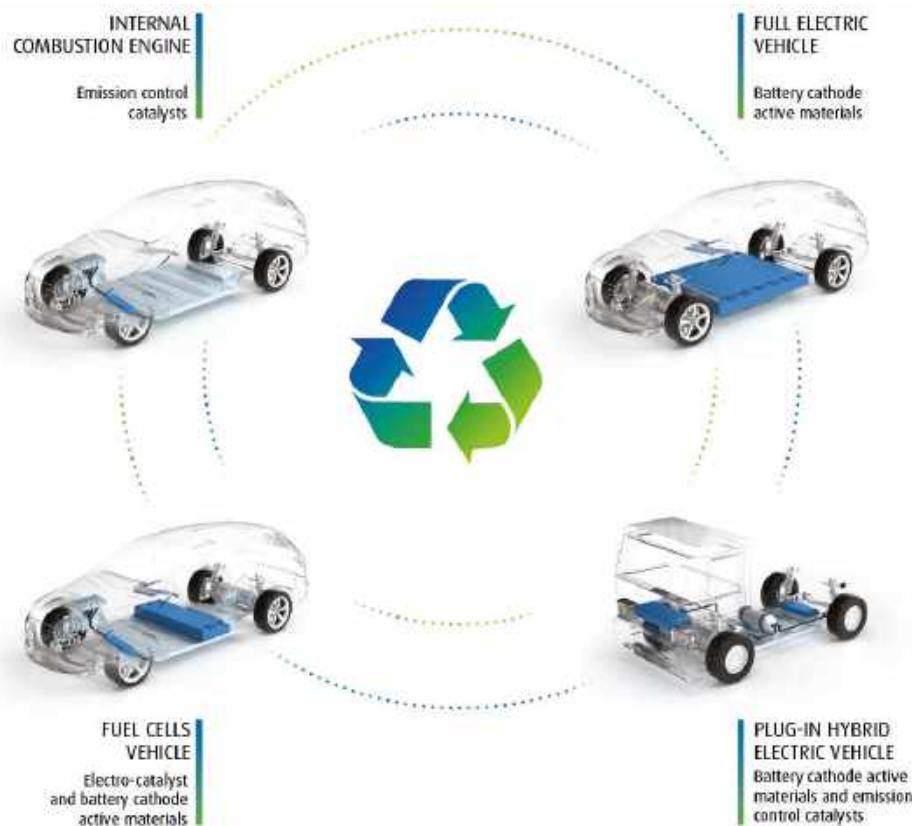
Closed-loop business model not only defines how we run our business and build our strategy but sets us apart from our competitors.

All our materials are customized and developed with processes that accommodate health and safety, recyclability, cost efficiency, waste reduction and energy efficiency, in our own facilities and throughout the value chain.

We have made sustainability a priority in all we do. Our **integrated approach to sustainability** minimizes the impact of our industrial operations and our commitment to ethical and responsible sourcing delivers value and distinguishes us from our competitors.

This positive impact enhances quality of life by reducing harmful vehicle emissions, giving new life to used metals and powering the cars of the future.

Our success depends on balancing the economic, environmental and social impact of our operations, while looking to our highly skilled people to uphold our values and mission.



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Materials for a better life



Materials are at the core of our daily lives, and are key for wealth creation and, ultimately human progress.

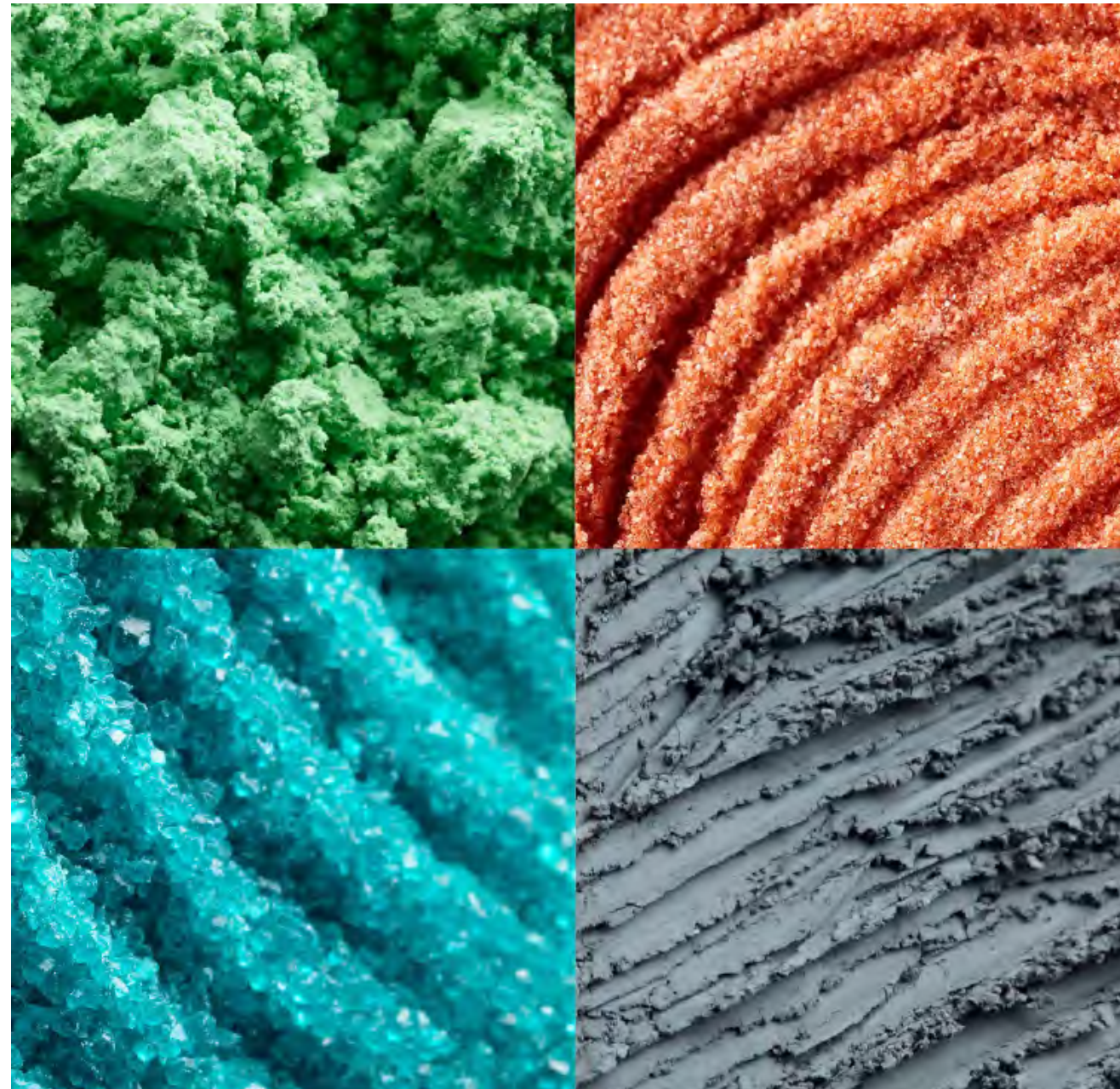
At Umicore, we stand by our convictions of making materials that will improve our quality of life and the health of our planet, while delivering sustainable value to our stakeholders. That's why we place great emphasis on our closed-loop business model and, more particularly, in the sound and efficient recycling of metal-related materials, making them vital for sustainable products and services.

We also actively invest in and pursue activities that have a positive impact on society from reducing harmful vehicle emissions, giving new life to used metals powering the clean cars of the future.

We want Umicore to lead the way in creating and providing material-based solutions that live up to our mission of Materials for a better life.

The  [Umicore Way](#) is the cornerstone of everything we do at Umicore. Our strategy sets out our business goals and growth ambitions for the coming years, as well as our sustainability and broad environmental, social and governance objectives. The Umicore Way outlines our values and the way in which we wish to achieve these goals as well as our overall commitment to the principles of sustainable development. We believe that the broad values and aspirations captured in this document should be applicable in all contexts – in different regions, cultures and business situations.

The Umicore Way is not only for Umicore employees but also covers our relationships with all our stakeholders. The Umicore Way is supplemented by detailed company codes and charters including the  [Umicore Code of Conduct](#), the 2020 Belgian Code on Corporate Governance, the  [Umicore Corporate Governance Charter](#) and the Umicore Dealing Code.



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Our values are vital to our success

Openness

We communicate openly, accurately and enthusiastically. We provide reliable and relevant information about our activities promptly and regularly while respecting commercial confidentiality. We consider interaction important and welcome constructive dialogue with all our stakeholders.

Innovation

We believe in continuously searching for improvement and that innovation is the ultimate driver for long-term profitability and growth. We are open to new ideas and prepared to take considered risks.

Teamwork

We encourage sharing of information across divisional, functional and geographical borders to make full use of all our knowledge and experience. By working together towards shared goals, our employees are expected to derive pride, satisfaction and fun from their work.

Respect

We show respect for each other and for cultures, customs and values in our dealings with employees and other stakeholders. We do not compromise on occupational health and safety and act with responsibility to the environment.

Commitment

We believe in keeping our promises, adhering to high performance standards and continuously searching for the best possible solutions.



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Complementarity of Umicore’s activities continues to give us a true competitive edge

Our operations are divided into three business groups, each consisting of decentralized business units that serve multiple end markets (automotive being the most sizeable). Within these three business groups the focus is on areas in which Umicore not only adds value, but can excel and is recognized as market leader by its customers.

Our ambition is to be the preferred partner of our customers. We are committed to the growth of our businesses through the competence of our people, excellence in operations and technological innovation.

We have a unique portfolio of mutually reinforcing activities in which every Business Group, unit and department has an important role to play in achieving our ambition to be the *circular* materials technology company.



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Automotive Catalysts

Leading producer of emission control catalysts for gasoline and diesel on-road and non-road applications, power generation and industrial processes to meet environmental standards around the world.

Fuel Cells & Stationary Catalysts

Leading player in emissions control catalysts for industrial plants and shipping, and supplier of state-of-the-art fuel cell catalysts for zero emission mobility and green hydrogen production.

Precious Metals Chemistry

Experts in metals-based catalysis for life-enhancing applications. Emission treatment technologies, the production of fine chemicals and advanced electronics – all are made possible with our organometallic technology know-how.



Cobalt & Specialty Materials

Experts in sourcing, production and distribution of cobalt and nickel products. Our materials are at the heart of everyday products such as batteries, tools, paints and tyres. Our recycling and refining processes, give new life to cobalt and other metals.

Electro-Optic Materials

Leading supplier of material solutions for the space, optics and electronics sectors, including products for thermal imaging, wafers for space solar cells, highbrightness LEDs and chemicals for fiber optics.

Metal Deposition Solutions

World leader in supplying products for (precious) metal-based electroplating and PVD coating of surfaces in the nano and micrometre range. The highest demand for our solutions comes from products in daily use or the solutions that enable their production in the first place.

Rechargeable Battery Materials

Pioneer in battery materials and a leader in cathode material supplies for rechargeable lithium-ion batteries to power electric vehicles, giving them added range and performance.



Battery Recycling Solutions

Leader in closed-loop technology for batteries. We use proprietary high-quality recycling processes to recover all valuable metals in an environmentally sound manner. We offer a unique sustainable and circular approach.

Jewelry & Industrial Metals

Experts in developing products and processes based on precious metals such as gold, silver and platinum. Our customers use these materials to make fine jewelry, coins, high-purity glass and industrial catalysts. We provide our customers with sustainable and responsible sourcing of these metals and closed-loop recycling.

Precious Metals Management

We supply and handle all precious metals, ensuring physical delivery by using both the output of our precious metals refineries and our network of industrial partners and banks. We offer our customers tailor-made solutions for delivering, hedging and trading precious metals.

Precious Metals Refining

Experts in treating the most complex materials and operator of the world's most sophisticated precious metals recycling facility. Our refining and recycling technology gives used metals a new life, while our processes add value to the circular economy.

This strong portfolio and solid foundations provide the basis point for our onward journey to 2030.

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Introduction of a new organization and reporting structure

Since the introduction of our 2030 RISE Strategy in June 2022, Umicore has strengthened its governance structure by aligning it with its ambitious growth plan towards 2030. As a next step, a new organizational structure is to be put in place as of 2024 to support the significant business growth in Battery Materials. In 2024, Umicore’s business units will be housed in four business groups, instead of the current three. The new organization is based on important synergies and common characteristics, while at the same time bringing increased focus on the different business activities. The former Rechargeable Battery Materials Business Unit will be reported as the new Battery Materials Business Group. This set-up will provide the focus and structure needed to support the anticipated strong

growth of the battery material business. It will also provide additional transparency and insights into the business group’s performance.

The Cobalt & Specialty Materials, Electro-Optic Materials and Metal Deposition Solutions Business Units, now part of the Energy & Surface Technologies Business Group, will be grouped into a fourth Business Group called Specialty Materials. There are no changes to Catalysis and Recycling.

External reporting according to this new organizational structure will be implemented as from the fiscal year 2024.



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Rising up for impact

Planning for the best possible future, while addressing society's most pressing challenges


Umicore plans for the best possible future by remaining healthy and competitive, while addressing society's most pressing challenges. We take our commitment to our people and our planet seriously, while considering global economic, social and environmental aspects carefully.

Stakeholder engagement at the heart of our approach

To support our 2030 RISE Strategy's growth ambitions and strive to be a sustainability champion using it to our competitive advantage, it is essential to develop a full understanding of the impact that our products and operations have on the world. That is why we work closely both internally with our business units and externally with all our stakeholders to deliver products and services that have specific sustainability benefits.

As a publicly listed company, we interact with many parties interested in how we conduct business. The relationship we foster with our stakeholders directly influences our success and our impact on society.

In addition to stakeholder engagement at Group level, all sites must identify their respective stakeholders and establish suitable ways of engaging with them. In many cases, such as the dialogue with customers and suppliers, stakeholder relationships are managed by the business units.

Stakeholder	Key topics	How we engage
 Shareholders & Investors	1 2 3 4 6	<ul style="list-style-type: none"> • Capital Markets Day • Direct contact • Market trends research • Perception study • Questionnaires • Shareholder meetings • Shareholder study • Roadshows & conferences
 Suppliers	2 3 4 7 8	<ul style="list-style-type: none"> • Direct contact • Supplier portal • Questionnaires • Market trends research
 Employees	6 7 9 11 12	<ul style="list-style-type: none"> • Internal social media • Surveys • Workshops & Training • Market trends research
 Public Sector & Authorities	4 7 9 11 12 13	<ul style="list-style-type: none"> • Direct contact • Partnerships • Society & regulatory trends research
 Customers	1 3 5 9 10	<ul style="list-style-type: none"> • Direct contact • Customer satisfaction survey • Conferences • Questionnaires • Market trends research
 Sector Organizations	2 4 3 7 8 10	<ul style="list-style-type: none"> • Direct contact • Market trends research

- | | | |
|---|--|--|
| 1 Umicore's product quality and production capacity | 5 Quality and capacity of Umicore's recycling services | 9 GHG & metal emissions |
| 2 Responsible governance and human rights compliance of Umicore's suppliers | 6 2030 RISE strategy | 10 Umicore's closed-loop services |
| 3 Sustainability of Umicore's products | 7 Occupational health and safety within Umicore's own operations | 11 Waste from Umicore's own operations |
| 4 Umicore's responsible governance and human rights compliance | 8 Material sourcing & input content of Umicore's products | 12 Water use from Umicore's own operations |
| | | 13 Jobs created by Umicore |

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Materiality

To deliver impact and transparency related to sustainability in a timely and relevant manner, we engage with internal and external stakeholders. Umicore completed a **double impact materiality assessment** in 2023, in line with the GRI Sustainability Reporting Standards, to identify and prioritize the social, environmental, and governance issues that are most significant to our business and stakeholders. The voice of seven stakeholder groups is reflected in our materiality analysis both through research and direct engagement: employees & leadership, customers, business partners, shareholders and investors, suppliers, local communities, and regulators and authorities.

To define the universe of material topics, we started from a comprehensive third-party repository of possible environmental, social and corporate governance themes. We pulled a shortlist of ESG topics from this universe, using a combination of SASB materiality, materiality as defined by ESG ratings agencies (including but not limited to S&P, MSCI and Refinitiv) and from a peer review of material topics. The resulting list was aligned with global trends, our activities and our 2030 RISE Strategy.

To determine priorities, we conducted internal and external dialogues with stakeholders. We first assessed our stakeholder groups concerning the stakeholders' interest in and influence on Umicore. We then asked internal and external stakeholders to prioritize topics according to the impact on their decisions towards Umicore. We consulted customer and supply representatives, employees worldwide and across all functions from the production site to senior management, as well as shareholders and fund providers through online surveys and interviews. Desk research complemented the survey and interview results. All stakeholder feedback was consolidated to define the top and final 18 material topics. These topics were then assessed against risk and opportunities.

The result was a matrix identifying material ESG topics with three dimensions, one being the importance to stakeholders, the second being business impact and the third risk management/ business differentiation. The outcome of this materiality exercise was presented to, and approved by, the Management Board. The outcome of the materiality exercise was also presented to the Supervisory Board. The materiality matrix defines the scope of disclosure in this report.

To prepare for the upcoming European Sustainability Reporting Standards (ESRS), Umicore is preparing a new double materiality analysis for 2024 reporting.

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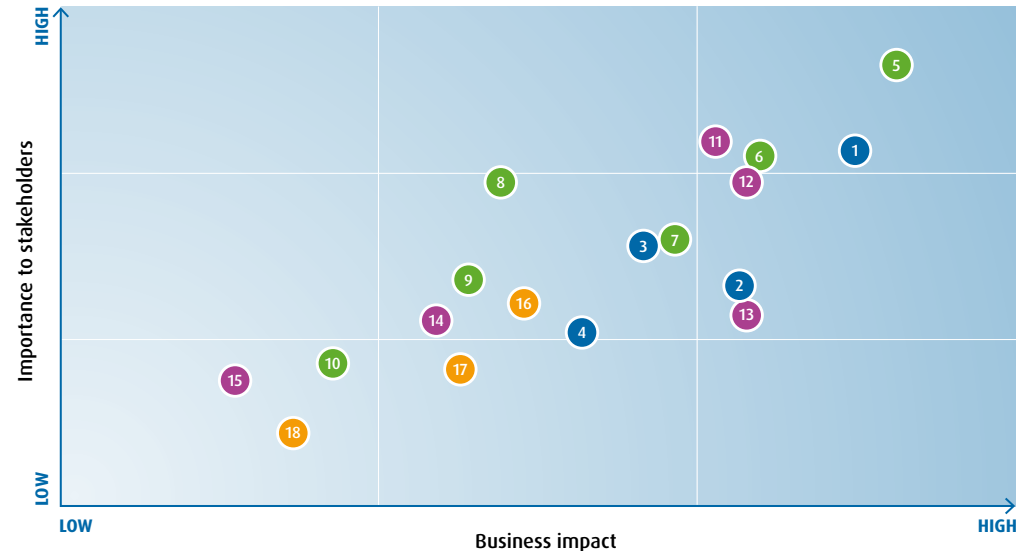
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Material topics and definitions



Environment

- 5 GHG Emissions from Operations (Scope 1 and 2 Decarbonization)**
Management of direct (Scope 1) and indirect (Scope 2) GHG emissions, focusing on reducing the climate impact of operations through strategic decarbonization and energy efficiency measures.
- 6 GHG Emissions from Value Chain (Scope 3 Decarbonization)**
Management of Scope 3 emissions, covering GHG emissions in the value chain, focusing on the carbon footprint of purchased goods and services, collaborative reduction efforts and the promotion of low-carbon solutions in the value chain.
- 7 Waste Management**
Management of waste generated by operations focusing on resource efficiency and minimizing environmental impact through process efficiency (reduce), and reuse of materials (recycle).
- 8 Air Emissions**
Management of air emissions to minimize the impact on the environment, biodiversity, and local community health, focusing on reducing emissions from operations.
- 9 Water Management**
Management of water and wastewater focusing resource stewardship to enhance efficiency and minimize environmental impact.
- 10 Biodiversity**
Management of operational impacts on biodiversity focusing on mapping impacts and driving sustainable coexistence with the ecosystems in which we operate.

Social

- 11 Employee Health, Safety & Wellbeing**
Management of a safe, healthy work environment, focusing on occupational health and safety, a safety culture, and wellness programs to ensure the wellbeing of the workforce.
- 12 Ethical Supply**
Management of ethical practices across the supply chain, including anti-corruption, anti-fraud, anti-money laundering, and human rights safeguards.
- 13 Talent Attraction, Retention & Engagement**
Management of culture, hiring, promotion and recruitment practices focusing on continuing to grow a skilled, agile, and engaged workforce.
- 14 Diversity & Inclusion**
Management of a diverse and inclusive workforce focusing on fostering a culture of respect, equity, and inclusion.
- 15 Investment in Local Communities**
Management of community impact through job creation, community initiatives, and local support activities beyond business operations focusing on contributing to the well-being of local communities.

Governance

- 16 Responsible & Sustainable Governance**
Management of policies and practices to ensure responsible business behavior (e.g., anti-corruption, anti-fraud, anti-money laundering, anti-discrimination, anti-harassment), respected human rights (e.g., related to child labor, bonded labor, safety hazards), environmental and social impacts governance, and overall accountability and stakeholder trust.
- 17 ESG Reporting & Ratings**
Management of ESG reporting, ensuring transparency, accuracy, and alignment with global standards, along with management of ESG ratings through ongoing performance monitoring and stakeholder engagement.
- 18 Digitalization & Cybersecurity**
Management of digitalization, ICT systems, and secure data management for business continuity and trust, focusing on cybersecurity and on operational excellence.

Products & Services

- 1 Circularity & Sustainable Sourcing**
Management of resource utilization and supply management, focusing on sustainable sourcing practices, including climate and environmental management in the supply chain and the use of secondary materials, as well as our unique complex non-ferrous metal-containing waste recycling services, and closed-loop/circular offer to address resource scarcity.
- 2 Products as an Enabler for Sustainability**
Management of product design and development, focusing on innovative solutions for the transition to a sustainable future transition.
- 3 Product Quality & Safety**
Management of product quality and safety of metal containing materials to ensure high standards and minimize impacts, while leveraging innovation and capacity volumes to meet the demand for low-carbon and sustainable technologies.
- 4 Sustainable & Resilient Business Model**
Management of business strategy integration of economic, social, environmental, and geopolitical considerations, building sustainable business in terms of impacts and over time, focusing on maintaining business resilience and responsiveness to market transitions.

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Maximizing positive impact

As a leading *circular* materials technology company, **Umicore is committed to accomplishing the United Nations' Sustainable Development Goals (SDGs)**.

Umicore supports the United Nations Global Compact on Human Rights, Labor, Environment, and Anti-Corruption. We strive to integrate these principles into our strategy, culture, and day-to-day operations. We value our partnerships with like-minded organizations in advancing the SDGs and we remain steadfast in our pursuit of providing meaningful contributions towards societal development.



To support sustainable consumption and production patterns (SDG12), we deliver technologies that provide resource efficiency and sustainability throughout industrial supply chains. Our recycling services – processing over 200 types of metal-containing materials, including industrial residues and “end-of-life” materials – deliver sustainable sourcing solutions to our customers. Our pioneering role in implementing sustainable sourcing practices in the supply chain has raised the bar for the industry and thus reduces waste generation on a large scale. At the same time, we continue to innovate to minimize negative impacts, for example, by limiting emissions and reducing waste in our industrial operations.

Umicore supports **building strong infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation (SDG9)**. We strive to address society's resource scarcity and environmental concerns through our strategic approach. Our closed-loop business model supports the circular economy, and our clean mobility solutions help our automotive customers reduce negative environmental impacts. As a prominent producer of catalysts and catalytic filters used in emission abatement systems for light- and heavy-duty vehicles, both on-road and non-road, our catalysts and particulate filters help convert harmful pollutant emissions into harmless gases and trap particulate matter. This allows our customers to meet present and future environmental standards. We continue to invest in R&D to advance technological capabilities and remain committed to open innovation. A dedicated team facilitates collaboration with dozens of research institutes, start-ups, and universities worldwide. See [Innovation](#)

Through our electromobility technologies, Umicore contributes to **ensuring access to affordable, reliable, sustainable, and modern energy for all (SDG7)**. As a producer of cathode activematerials for lithium-ion batteries, we play a crucial role in determining the power and energy density of rechargeable batteries, which maximizes the driving distance of electrified vehicles. By improving efficiency for downstream customers who manufacture batteries and electric vehicles, we help to make electric transportation more accessible, reliable, and affordable for users.

Additionally, our hydrogen fuel cell technologies serve as a new chemical carrier for energy, which is set to become a major energy carrier of the future and can be used to decarbonize the industry. See [Society: Indirect procurement and transport](#).

We play an essential role in the energy transition with our products and continuously work to improve energy efficiency and increase renewable energy use in our own processes. See [Environment](#).

Umicore supports the goals of the Paris Agreement. The Net-Zero pillar of our Let's Go for Zero ambition sets the tone for our actions to **combat climate change (SDG13)**. Umicore aims to achieve Net Zero Scopes 1+2 emissions by 2035, with intermediate milestones along the way. Additionally, by 2030, our target is to reduce the carbon intensity of purchased materials by 42% with 2019 as a baseline. This means we will cap our emissions at the baseline of 2019, despite the growth projected in our 2030 RISE Strategy. We share our ambitions and how we plan to meet them in our [Climate Transition Plan](#). Our circular business model enables us to avoid GHG emissions through our sustainable products and services.

Our 2030 decarbonization targets have been validated by the Science-Based Targets initiative (SBTi), confirming that our targets align with evidence-based science and the goals of the Paris Agreement. Our clean mobility solutions and closed-loop business model support the societal journey to decarbonization. We lend our experience and expertise to governments, trade associations, and industry alliances on reducing the use of primary materials and increasing the use of recycled materials. Our advocacy focuses on clean mobility (lower emissions, electric mobility, and hydrogen-based mobility) and responsible sourcing, i.e., conflict minerals and battery regulations. Updates on our advocacy efforts can be found in our annual report. See [Society](#).

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Water availability and sustainable management of water (SDG6)

are comprised in the Zero Harm pillar of our Let's Go for Zero ambitions. Umicore has set out to implement a water stewardship program for all its industrial activities, with extra focus on areas facing water stress. The program focuses on two main objectives: raising global awareness about water sustainability and addressing local water risks where they exist. This program enables our sites to identify and mitigate water risks, share best practices with other sites and limit our impact on the environment, preventing water pollution from our production sites and continuously reducing water usage in our operations. See [Environment](#).

Umicore aims to **make communities as inclusive, safe, resilient, and sustainable as possible (SDG11)**. We work actively to minimize the negative societal and environmental impact that our operations may cause. We are committed to reducing diffuse emissions with a target of -25% diffuse emissions by 2025. We ensure that the local communities and our operations can coexist sustainably. In Hoboken, for example, we are accelerating investments to reduce diffuse emissions further and are creating a green zone between the residential area and our operations. See [Society](#).

At Umicore, we promote our people's professional, physical, mental and social wellbeing through employee engagement and prevention programs and regular health assessments. We provide training for all managers and supervisors to support their teams with mental wellbeing. Umicore also provides voluntary physical health programs for all employees.

We aim for zero work-related adverse health effects. We firmly believe in **promoting the overall wellbeing of our employees and helping them lead healthy lives (SDG3)**. See [Employees](#).

Decent work and economic growth (SDG8)

are an important focus for Umicore. Umicore actively advances economic productivity through extensive research and development, investing in innovative technologies and processes. This commitment not only improves operational efficiency, but also contributes to job creation, offering opportunities that align with the evolving landscape of high-value and labor-intensive sectors. Anticipating substantial growth under the 2030 RISE Strategy, Umicore plays a crucial role in driving the development of these sectors. Also aligned with SDG8, Umicore respects the principle of collective bargaining and is committed to fair

wages and equal pay for work of equal value. We ensure a safe and secure working environment within our organization and ensure that human rights are respected within our supply chain. See [Society](#).

To **ensure gender equality (SDG5)** and cultivate diversity of thought within the Group, Umicore strives to build an inclusive culture and increase women among our employees and our management. We have set ourselves an ambitious goal of gender parity as soon as possible, with 35% of women in management by 2030. See [Employees](#). Umicore's commitment to gender diversity extends



Employees working at Umicore Battery Materials in Kokkola, Finland

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beyond internal measures, encompassing initiatives to promote anti-discrimination against women and enforce equal opportunities within our supply chain through adherence to our [Global Sustainable Sourcing Policy](#). See [Society](#).

Emphasizing the importance of collaborative efforts, we highly value our partnerships with like-minded organizations that share our commitment to **advancing the Sustainable Development Goals (SDG17)**. In our steadfast pursuit of meaningful contributions to societal development, we recognize the power of collective action and strive to amplify our positive impact through these collaborations. See [Society](#).



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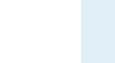
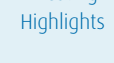



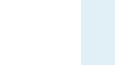




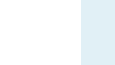



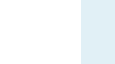
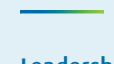



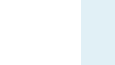


























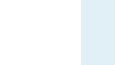
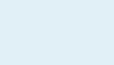





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		Risk and Opportunity							Strategy					SDGs					
Topics		Regulatory & legal context	Sustainable & ethical supply	Technology & substitution	Information & data protection	Market	Metal price	Talent attraction & retention	Climate & environment	Net Zero	Zero Harm	Zero Inequality	Best-in-class governance	Clean Mobility & Recycling					
Products & services	Circularity & Sustainable Sourcing	✓	✓				✓				✓			✓	 				
	Products as an Enabler for Sustainability	✓	✓	✓					✓					✓	    				
	Product Quality & Safety	✓		✓		✓					✓			✓	    				
	Sustainable & Resilient Business Model			✓		✓		✓						✓	   				
Environment	GHG Emissions from Operations*		✓	✓		✓			✓	✓					    				
	GHG Emissions from Value Chain**		✓	✓		✓			✓	✓					    				
	Waste Management	✓								✓	✓				 				
	Air Emissions	✓		✓					✓	✓					  				
	Water Management	✓		✓					✓	✓					 				
	Biodiversity	✓							✓	✓					 				
Social	Employee Health, Safety & Wellbeing	✓						✓			✓				  				
	Ethical Supply	✓	✓								✓								
	Talent Attraction, Retention & Engagement							✓		✓	✓				  				
	Diversity & Inclusion	✓						✓			✓				  				
	Investment in Local Communities										✓				  				
Governance	Responsible & Sustainable Governance	✓										✓			    				
	ESG Reporting & Ratings	✓	✓			✓		✓		✓			✓		 				
	Digitalization & Cybersecurity	✓			✓								✓		  				

* Scopes 1 and 2 Decarbonization **Scope 3 Decarbonization

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Investing in Umicore

Creating value as an established *circular* materials technology partner

Investing in Umicore is an investment in a net beneficiary of a changing world. Driven by powerful megatrends, in particular the rapidly accelerating mobility transformation, Umicore is set to deliver profitable growth to 2030 and beyond as a leading *circular* materials technology company.

Investing in Umicore is also an investment in sustainability. Sustainability is in our DNA, it's part of our history and our future. Our Let's Go for Zero sustainability ambitions continue to build on our clear purpose to produce Materials for a better life through businesses that will help shape a healthier planet and society, while delivering sustainable value to our stakeholders. See [Strategy](#).

10 strategic assets of Umicore

- 1 Global leader in key business and unique circular business model.
- 2 Acceleration of profitable organic growth driven by three powerful megatrends.
- 3 Unique value proposition, in particular to automotive customers on their path to clean mobility transformation.
- 4 Excellent track record in delivering upon strategic objectives and strong financial profile providing solid foundation for growth.
- 5 Strict focus on strategic execution.
- 6 Strong synergies within the Group, resulting in unique value proposition to customers and a clear competitive differentiation.
- 7 Strong progress in strategic execution with significant milestones achieved only 18 months after the introduction of the 2030 RISE strategy.
- 8 Phased investments in innovation and growth while maintaining commitment to financial discipline and return on investment.
- 9 Strong commitment to innovation to maintain competitive lead with R&D spending of 7.3% of revenues in 2023.
- 10 Industry-leader in sustainability, with ambitious objectives to reduce GHG emissions Scopes 1, 2 and 3 proving to be also a strong competitive lever.

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1 Global leader in key businesses and unique circular business model.

- **Umicore aims to be a technology leader in the markets it serves**, predicated on its expertise in material science, chemistry and metallurgy. As such, it is one of three global players in emission control catalysts for passenger cars and heavy-duty applications; a leading supplier of cathode active materials for lithium-ion batteries used in electric vehicles; a front-runner in rechargeable battery recycling and a leading supplier of proton exchange membrane fuel cell catalysts used in the emerging hydrogen economy (in particular focusing on transportation applications).
- **Umicore is the world's largest recycler of complex non-ferrous metal containing waste streams.** Across its recycling activities, it can recover up to 28 precious and non-ferrous metals from industrial residues, electronic scrap, rechargeable batteries, automotive and industrial catalysts, fuel cells and more. The recovered materials are then transformed into pure metals and new products.
- **Umicore's other activities focus on producing advanced metal-based materials** that are key enablers for advanced technologies (used for example in portable electronics, electroplating, industrial catalysts, healthcare products, optic fibers and thermal imaging).

2 Acceleration of profitable organic growth driven by three powerful megatrends.

- **Mobility transformation:** The mobility transformation is accelerating and the shift to cleaner mobility is expected to grow substantially by 2030. Through its complementary portfolio and presence in all drivetrain technologies, Umicore is uniquely positioned to capture this growth opportunity.
- **Growing need for advanced materials:** Advanced materials are key enablers for faster, more scalable, more efficient, and more sustainable solutions that tackle the challenges of society today and tomorrow. Umicore develops the next generation of sustainable advanced materials ensuring that they are used again and again through its recycling technologies.
- **Circularity for critical metals:** Umicore enables full circularity for critical metals. Circularity is integrated in our everyday business within the transformation of mobility and the growing need for advanced materials.

3 Unique value proposition, in particular to automotive customers on their path to clean mobility transformation.

- Umicore is positioned as a trustworthy partner that covers clean mobility solutions for all automotive drivetrains (internal combustion engine, electric vehicles and hydrogen-based transportation). On top of this, Umicore has in-depth upstream expertise in sustainable and low CO₂ metal sourcing and transformation; proven industrial scale high-quality production in automotive catalysts and rechargeable battery materials; and closes the loop through metal recycling.

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4 Excellent track record in delivering upon strategic objectives and strong financial profile providing solid foundation for growth.

- Umicore delivered successfully on its previous Horizon 2020 strategic targets, with a doubling of the adjusted EBIT objective achieved two years ahead of expectations.

5 Strict focus on strategic execution.

- Scaling-up through four 2030 RISE implementation pillars: Reliable transformation partner, Innovation & technology leader, Sustainability champion, Excellence in execution. See [Strategy](#).

6 Strong synergies within the Group, resulting in unique value proposition to customers and a clear competitive differentiation.

- **Financial synergies:** strong internal free cash flow generation in Automotive Catalysts and Precious Metals Refining, re-invested in growth businesses Rechargeable Battery Materials, Battery Recycling Solutions and Fuel Cells.
- **Commercial synergies:** shared know-how in material science, chemistry and metallurgy as well as strong synergies in circularity and customer intimacy, covering the full spectrum of clean mobility solutions for automotive customers.
- **Operational synergies:** digital initiatives and Environmental, Social and Governance (ESG) (strong decarbonization objective across activities).
- **People:** Global talent management, talent mobility e.g. from established businesses to growth activities and a strong culture of innovation evolving towards scaled material applications.

7 Strong progress in strategic execution with significant milestones achieved only 18 months after the introduction of the 2030 RISE Strategy.

- **Rechargeable Battery Materials** concluded several value-creative customer agreements in Europe, North America and Asia. These agreements have already resulted in an order book of 190 gigawatt hours (GWh) contracted cathode active materials volumes for 2027 and 270 GWh for 2030. The long-term contractual agreements¹ include significant protection mechanisms that provide visibility on future returns, particularly if additional capacity investments are required.
- Also secured nearly €1 billion in non-repayable government grants for its capacity expansions in North America and Europe. Construction started on the 35GWh equivalent battery materials manufacturing facility in Ontario, Canada, to serve the North American local-for-local electric vehicle supply chain and a final step in the build out of a truly global footprint.
- In **Automotive Catalysts**, the Group continued to build further on its industry leading gasoline emission control solutions and confirmed further market share gains in Europe, with the majority of future Euro 7 platforms contracted in this region. See [Operations](#). About 84% of Umicore's revenues in 2023 were generated by the segments with the longest longevity (light-duty gasoline (LDG) and heavy-duty diesel), while the geographical distribution of LDG revenues was well spread across the globe with Europe, China and North America each averaging around 30%.

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¹ For more information on these long-term contracts, the capacity expansions and profitability targets of Rechargeable Battery Materials we refer to the section Operations.

8 Phased investments in innovation and growth while maintaining commitment to financial discipline and return on investment.

- A phased investment approach with investments committed only if returns are sufficiently above Umicore's cost of capital, based on value-creative contractual agreements with customers.
- Introduction in 2023 of an Investment Committee, at the level of the Supervisory Board, focused on overseeing the Group's capital expenditure that support the growth linked to the 2030 RISE Strategy.
- Net capital expenditure for the Group of € 3.8 billion from 2022-26 and yearly Group net capital expenditure run rate of ~ € 800 million until 2027.
- Diversified funding base with net financial debt of € 1.27 billion in 2023, corresponding to 1.30 net debt to LTM adj. EBITDA. Clear ability to fund 2022-27 investment plan while respecting a maximum debt leverage of 2.5x throughout the plan.
- Umicore stepped up its investments related to **innovation and growth** while maintaining its commitment to **financial discipline and return on investment**. See [innovations](#).

9 Strong commitment to innovation to maintain competitive lead with R&D spending of 7.3% of revenues in 2023.

- Track record of being a technology leader in key activity fields, combining rich expertise in the field of metal-based chemistry, science and complex metallurgy.
- Short and long-term innovation roadmap, to unlock transformational growth over 2030 RISE time period.
- 14 R&D centers around the world and an intensification of our R&D efforts, reflected in our new innovation hub in Shanghai and the further optimization and strengthening of our global presence with the solid-state battery (SSB) prototyping center in Olen.
- Over 75% of Group Capex to be spent between 2022 and 2027 will be dedicated to battery materials, battery recycling and fuel cells, all focused on secular growth opportunities, with rechargeable battery materials being the most significant growth project.
- As a *circular* materials technology company, innovation is at the heart of Umicore's success. During the  ["At the Core of Battery Materials"](#) event in November 2023, the Group demonstrated its technology leadership and provided the market with an insight into the breadth and depth of its technology roadmap, highlighting its strong R&D position in battery materials.

10 Industry-leader in sustainability, with ambitious objectives to reduce GHG emissions Scopes 1, 2 and 3 proving to be also a strong competitive lever.

- Mission to be an industry leader in terms of sustainability with strong track record: strategic focus on those activities that provide solutions to society's needs and a pioneer in ethical supply.
 - In 2021: introduction of "Let's Go for Zero" sustainability ambitions, achieving on Net-Zero Scopes 1 and 2 GHG emissions by 2035.
 - In the framework of the 2030 RISE Strategy, ambitious target to reduce Scope 3 emissions to drive decarbonization in the value chain: a 42% reduction of carbon dioxide equivalent per tonne (CO₂e/tonne) of its purchased materials by 2030.
 - Strong competitive differentiator in light of automotive customers' ambitions to decarbonize the electric vehicle value chain.
- Introduction in 2023 of a Sustainability Committee, at the level of the Supervisory Board, focused on delivering on the Let's Go for Zero ambitions.

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Capital, shares and shareholders

Capital structure

On December 31st, 2023 there were 246,400,000 Umicore issued shares, representing a share capital of € 550,000,000.

Umicore's focus is on maintaining a strong balance sheet and to pursue the growth opportunities under the 2030 RISE Strategy taking into account strict capital allocation criteria. The financial policy in this respect is to have a maximum debt leverage ratio (net financial debt / EBITDA of the last 12 months) of 2.5x. Our synergetic and complementary portfolio of activities offers diversified funding opportunities. Firstly, the strong internal free cash flow generation in Automotive Catalysts and Precious Metals Refining can be re-invested in the growth businesses.

Secondly, there is an increasing appetite in the market to fund sustainable ESG projects and sustainable funding instruments are being favored in Umicore's financing mix [link to financial review and debt instruments]. We also strongly believe in co-funding through joint ventures or other strategic partnerships, a third funding lever. As Umicore is an established player with proven technology and industrialization skills, combined with increased funding support for strategic electrification and green transformation projects. As such, Umicore secured substantial financial support from the governments of Canada and Ontario in 2023 to establish a local battery materials production footprint. The Polish Government also granted strategic support under the European Union's Temporary Crisis and Transition Framework (TCTF) for the construction of the cathode active materials production plant of IONWAY, its joint venture with PowerCo.

Finally, as a listed company, we have the option to seek capital market funding in different forms, conditional upon the fact that it presents the right opportunity, from both a business and return perspective. The disciplined balance sheet management and solid debt leverage ratio of 1.30x at December 31st, 2023, provide us with the clear ability to finance the 2022-27 investment plan.

Umicore shares

Umicore shares (UMI - BE0974320526) are listed on the Euronext Brussels stock exchange. The total number of outstanding and fully paid-up shares and the number of voting rights are 246,400,000.

During the year, Umicore used 133,700 of its treasury shares in the context of the exercise of stock options, 42,237 for bonus conversions and 24,321 for shares granted. In the course of 2023, Umicore did not buy back own shares. On December 31st, 2023, Umicore owned 5,999,083 of its own shares representing 2.43 % of the total number of shares issued as of that date.

Indices

Next to being a member of the BEL20 index, Umicore shares are part of several other major indices such as the Euronext 100 and several MSCI, Bloomberg and STOXX indices. In 2023, Umicore also joined the Euronext Tech Leaders index. This recognition not only highlights that technology and innovation are at the core of Umicore's activities but also the power of our materials technology that creates sustainable value for people and planet.

Umicore is also a member of the Financial Times Stock Exchange (FTSE) FTSE4Good Index Series. This is a series of ethical investment indices designed to measure the performance of companies demonstrating specific ESG practices and minimizing ESG risks. Umicore is also a member of the Corporate Knights Global100 and Clean200.



Indices and ratings

Index membership (selection) at December 31st, 2023

Bloomberg	Bloomberg Belgium Large & Mid Cap Price Return Index
	Bloomberg Electric Vehicles Price Return Index
	Bloomberg Goldman Sachs Global Clean Energy Index Price Return
	Bloomberg ESG Data Index
Euronext	BEL20
	Euronext Low Carbon 100 Eurozone PAB NR
	Euronext1500
MSCI	MSCI ACWI 100% Hedged to SGD
	MSCI EMU SRI S-Series PAB 5% Capped Index
	MSCI Europe SRI S-Series PAB 5% Capped Index
	MSCI Europe ex-UK Select Quality Yield EUR NR Index
	MSCI World Custom ESG Climate Series A Net in EUR
	MSCI WORLD ESG SEL IMPACT ex FOSSIL FUEL
STOXX	STOXX Europe 600 Price Index EURS
	STOXX Europe Climate Impact Ex Global Compact CW & T EUR P

ESG Ratings 2023

	Rating
Sustainalytics	24.5 (medium risk)
MSCI	AA
CDP	A-
WDI	58%
S&P Global CSA	49
S&P Global ESG	55
ISS ESG	Prime (B-)
Ecovadis	Gold
Moody's Analytics	59/100
Refinitiv	80.5 A

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Share performance in 2023

Umicore's share price started the year at € 35.37. During 2023, the average share price at end of day close was € 27.32 while the 52-week range was € 21.39 to € 36.21 (closing price) per share. Umicore's closing share price on December 31st, 2023 was € 24.9, which represents a decline of 27.4 % compared with the end of 2022. Average daily trading volume as reported by Euronext was 455,238 in 2023, compared with 564,943 in 2022.

Umicore's share under-performed the main indices in 2023 (BEL20, Euro Stoxx STOXX Chemicals, Euro Stoxx STOXX 50) with a share price performance stabilizing at 72.55% (Base 100) versus 100.18%, 115.65% and 119.19% for the respective indices.

Total shares

<i>Total shares issued as at December 31st 2023</i>	246,400,000
<i>of which treasury shares</i>	5,999,083
<i>of which shares outstanding</i>	240,400,917
<i>Weighted average number of outstanding shares</i>	240,381,166
<i>Potential dilution due to stock option plans</i>	31,674

Shareholder structure

Umicore has a high free float with a broad base of international shareholders which at the end of 2023 were primarily situated in Europe and North America. For an overview of the shareholders with a declared participation of 3% or more we refer to [the Governance section](#).

Dividend policy and payment

Umicore aims to create value for its shareholders. There is no fixed pay-out ratio and the dividend policy supports a stable to growing dividend.

Umicore's Supervisory Board will propose a gross annual dividend of € 0.80 per share for the full year 2023. This compares to a full dividend of € 0.80 per share paid out for the financial year 2022.

Taking into account the interim dividend of € 0.25 per share paid out on August 23rd, 2023 and subject to shareholder approval, a gross amount of € 0.55 per share will be paid out on May 2, 2024.

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Engagement with financial analysts, shareholders and investors

Umicore maintains an open, ongoing and constructive dialogue with the investment community. We strive to provide timely and accurate information on our strategy, performance and prospects to ensure our businesses are well understood and informed assessments and judgements can be made by the financial community. In this respect, Umicore adheres to the guidelines issued by the FSMA (Belgian Financial Services and Markets Authority) and complies with the disclosure obligations defined by Belgian law and contained in the Market Abuse Regulation (EU) 596/2014 (MAR).

Umicore’s annual integrated reports, full year and half year financial releases and other media contain extensive information on the various aspects of our strategy, activities, financial and ESG performance. The full year and half year presentations are webcasted and accessible via Umicore’s website, along with the annual reports and other relevant presentations. Visit [Financial Results](#), [Annual Report](#), [Presentations](#) and [Sustainability](#) sections on the Umicore website.

Throughout the year, the Investor Relations team maintained close contact with shareholders, potential investors, financial analysts and other financial stakeholders. Umicore’s CEO and CFO also engaged in regular dialogues with investors and shareholders during virtual and in-person roadshows, investor conferences, full year and half year financial webcasts and the Annual General Meeting of shareholders.

As a publicly listed company, we interact with many parties. For more information on the relationship we foster with our stakeholders we refer to the stakeholder engagement section of the Annual Report. See [Rising for impact](#).

Interactions with financial analysts (sell-side)

Umicore is covered by various financial analysts, who provide their own independent research analyses and earnings estimates in respect of the company. Some 20 brokerage firms actively covered Umicore at the end of 2023, reflecting strong and global interest from

the financial market in our equity story and growth opportunities. The overview of analyst research and consensus information can be found on Umicore’s website under [share information & Consensus](#).

Umicore’s investor relations team has regular interactions with the analyst community throughout the year. At the occasion of the full year and half year financial results publication, a dedicated conference call and webcast with opportunity for questions is set up between Umicore’s CEO and CFO and the financial community. Although mainly geared towards the financial analysts, these conference calls and live webcasts are accessible to all investors. The recording of the webcast and the transcript is published afterwards on the [Financial Results section](#) on Umicore’s website. Umicore’s management also takes the opportunity for face-to-face interactions with the analyst community during roadshows.

Interactions with Umicore investors

In 2023, Umicore’s management and the Investor Relations team continued to foster a close dialogue with investors and shareholders. In total¹, Umicore participated in 17 events, 14 of which involved senior management. This included 4 virtual and in-person roadshows, and 9 investor conferences across North America, Europe and Asia and the "At the Core of Umicore Battery Materials" event.

Topics discussed included the full-year and half-year financial performance; the market environment; macro-economic evolutions; the outlook for next year; and Umicore’s long-term 2030 RISE Strategy. Significant attention was given to the achieved milestones in the execution of the 2030 RISE Strategy, in particular:

- The signing of several long-term customer contracts and the announcement of the building of precursor and cathode active materials capacity in Canada in Rechargeable Battery Materials.
- The net investment plan for the Group also taking into account substantial government subsidies granted in Poland and Canada for Rechargeable Battery Materials.
- Umicore’s commitment to financial discipline and return on investment.

Umicore also organized on November 8th and 9th its “At the Core of Umicore Battery Materials” event for investors and analysts confirming its **position as technology leader**. The event provided a deep dive into Umicore’s battery materials innovations roadmap and highlighted our strong technology position to cover the full spectrum of future EV segments and next generation technologies such as solid state and sodium-ion batteries. See [At the Core event website](#).

Umicore’s annual shareholders’ meeting took place on April 27th, 2023. A special shareholders’ meeting was also held on the same day. The shareholders’ meeting took place physically but could also be viewed via a live webcast, available on the [Umicore website](#). For more information on the shareholders’ meetings and the resolutions we refer to G3 Shareholders in the [Governance statements](#) of the Annual Report.

Interactions with stewardship teams and ESG research providers

Throughout the year, Umicore’s CEO, CFO, EVP ESG, the ESG Strategy & Engagement Director and the Investor Relations team met with several stewardship teams of institutional investors and ESG Research providers to provide information on Umicore’s “Let’s Go for Zero” sustainability ambitions, governance, and achievements.

In 2023, Umicore engaged with 12 investor stewardship teams and participated in four physical and virtual sustainability conferences with investors from Belgium, London and Paris. Umicore’s efforts in terms of transparent communication on sustainability issues and the integration of clear sustainability information in its annual report were recognized with the “Best Belgian Sustainability Report 2022” award from the Institute of Registered Auditors.

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¹ Total excludes the daily ad-hoc virtual and in-person meetings with Umicore's broad investment community.

In 2023, main topics included:

- The progress booked and investments made to:
 - Achieve Net Zero emissions for Scopes 1 and 2 by 2035, with intermediate milestones of already reaching a 20% reduction in GHG emissions by 2025 and a 50% reduction by 2030.
 - Achieve a reduction of the carbon intensity of purchased materials by 42% by 2030, despite the exponential growth projected in our 2030 strategy. See [Sustainability Strategy](#).
 - Our ambition to operate fully on renewable electricity in Europe and 60% globally by 2025. [Read more about Umicore's climate action measures](#)
- The continued fit-for-purpose ESG organization within the Group by establishing a [Supervisory Board Sustainability Committee](#) in 2023 following approval from the annual general meeting.
- Implementation of a [water stewardship program](#) for all industrial activities facing water stress.
- Launch of a global biodiversity impact analysis to evaluate potential biodiversity hazards at our sites; recognize areas where we can make a beneficial contribution to nature; and create a framework for developing a comprehensive [biodiversity action plan](#).
- Governance topics related to ESG in risk management, the evolution of the disclosure landscape, ESG regulations and ratings, as well as due diligence in the supply chain.



Employees at Umicore Automotive Catalysts site in Nowa Ruda, Poland

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Highlights of 2023

135 years in
Hoboken, Belgium



20 years in
Hanau, Germany



Joined the Euronext Tech
Leaders index
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Industrialization of manganese-
rich battery materials technology
for electric vehicles
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Umicore launches responsible sourcing
frameworks for nickel and lithium
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Inaugurated unique large-scale
prototyping center for solid-state
battery materials
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Presented IONWAY and located its first production plant in Nysa, Poland
[Read more](#)



Broke ground for our large-scale fuel cell catalyst plant in China
[Read more](#)



Confirmed our expansion of EV battery materials production footprint in Ontario, Canada
[Read more](#)



Signed 5 long-term power purchasing agreements to power our sites in Belgium and Poland
[Read more](#)

Our first "At the core of battery materials" event
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Stock images composition
of operators and nature

Driving transformation for the future

Progress on Umicore 2030 RISE

Umicore’s 2030 RISE Strategy was launched in June 2022. It is underpinned by a number of powerful megatrends such as the mobility transformation with the rapid acceleration towards cleaner transport; the growing need for high-tech advanced materials for various applications; and the need for circularity through recycling. All areas for which Umicore is intending to deliver profitable growth and value creation.

From strategic plan to execution

Our 2030 RISE Strategy comprises **four distinct pillars** with each letter of “RISE” referring a specific element of the strategy. Each pillar plays a vital role in our strategic success going forward.



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Being a reliable transformation partner means more than simply supplying technology. It means building and maintaining long-term relationships with our customers; listening to them; focusing on solving their issues; and supporting them in becoming sustainable and circular companies.

Significant milestones were reached as we prepared for accelerated growth in **Rechargeable Battery Materials**. The year 2023 concluded our preparation for the volume ramp-up in Europe, Asia and North America. We have secured a sizeable and diversified order book, safeguarded by strong contractual terms. The order book stood at 190 gigawatt hours (GWh) contracted cathode active materials volumes for 2027 and 270 GWh for 2030. We have also been able to secure substantial government grants for our expansions in Europe and North America amounting to close to € 1 billion. With these grants, and an optimized capacity ramp-up phasing, we have been able to decrease our anticipated net capital expenditure needed to execute our orderbook. All the foundations are now laid for the start of Umicore Battery Materials 2.0.

While the world is preparing for a gradual decline in ICE car production with the increasing penetration of electric vehicles, Umicore's **Automotive Catalysts** activity set another record performance in 2023. The business unit benefited from its strong market positioning in light-duty gasoline and heavy-duty diesel applications, representing the so called "longevity segments" of the ICE market, which are here to stay also in the longer run. Umicore continues to work closely with its global customer base in these segments as we embark together the mobility transformation.

Our catalyst technologies are a key part of our clean mobility strategy and our technology offering to automotive customers: we continue to develop the latest technologies, providing innovative solutions for upcoming emission regulation and PGM-reduction programs, we provide security of supply and technical support and while implementing a flexible operational approach, we remain committed to a critical regional presence close to our customers to serve their needs during these unprecedented transforming times. We are and will remain their reliable transformation and technology partner.

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Innovation and technology are at the heart of everything we do, whether we are developing the next generation fuel cell catalysts; the best-in-class battery materials technologies; developing the most efficient battery recycling technologies; or finding novel ways to reduce carbon emissions and capture green-house gas emissions (GHG).

With over 30 years of experience, our **fuel cell catalyst** R&D team is reshaping the future of mobility with a clear focus on decarbonization. Our tailor-made Proton Exchange Membrane (PEM) fuel cell catalysts, which emit nothing but water vapor and warm air, provide superior performance to accelerate the development of fuel cell vehicles. **On December 1st, Umicore held the groundbreaking ceremony in Changshu, Suzhou for its new large-scale fuel cell catalyst plant.** Leveraging its durable and high-performance fuel cells catalysts and working closely with customers across the value chain, the greenfield plant in China – expected to become the world’s largest PEM catalyst production facility to date – will enable Umicore to cater for the rapidly growing customer demand, serving demand through to 2030.

Solid-state batteries are expected to propel electric mobility as the next-generation batteries with performance improvements on several fronts. Their **superior** energy density will increase the driving range of electric vehicles and allow for faster charging. The replacement of today’s liquid electrolyte with a solid one will enhance the safety and lifespan of rechargeable batteries, reduce their size, weight and ultimately, cost. **Umicore is working with many car and cell makers, start-ups and partners on advancing solid-state battery technology, including with Idemitsu of Japan to develop a catholyte as a possible game changer.** In June, Umicore inaugurated one of the world’s largest and most advanced solid-state battery material prototyping facilities in Olen, Belgium.

The 600 m² facility with state-of-the-art installations and equipment supports the full chain of solid-state battery development, from the formulation of the materials, their characterization and production, to battery cell assembly and subsequent testing on the battery level. Umicore’s unique prototyping center will further scale up and advance our innovation and technology leadership in solid-state battery chemistries which we’ve been developing since 2017 with multiple key patents. **The expectation is that full solid-state batteries will be introduced in 2028, following a semi-solid form in 2027, and with solid-state battery demonstration cars driving around in 2024.**

In 2023, at [Umicore’s Science and Technology Days](#) several organizations showcased how their digital solutions are helping to accelerate innovation and technology within Umicore. See [Innovation](#).

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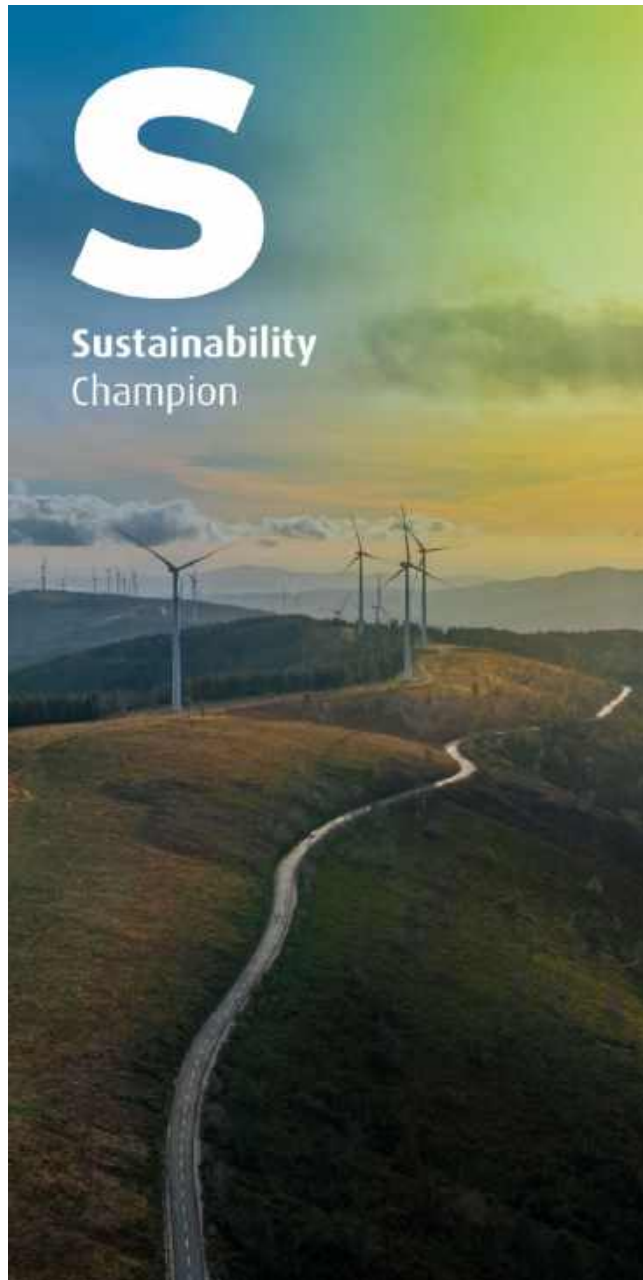
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Umicore’s “Let’s Go for Zero” ESG ambitions (Scopes 1+2 greenhouse gas (GHG) emissions, Zero Harm, Zero Inequality, Best-in-Class Governance) capture the strong commitment to maximize Umicore’s positive impact on society, and minimise our negative impact.

Umicore unveiled its  **Climate Transition Plan** in 2023, underscoring its commitment to climate action, resilience and transparency. This plan not only captures ongoing efforts to reduce GHGs across the Group’s operations but also how Umicore engages its entire value chain in driving meaningful climate impact.

Efficiency and securing long-term green **Power Purchase Agreements** (5 PPAs for Belgium and Poland) are key levers for the Group’s sustainable growth. In 2023, Umicore secured 41% of its global electricity needs from renewables, up from 35% in the previous year, and Umicore’s European activities were powered by 56% renewable electricity in 2023.

In 2023, Umicore added dedicated  **lithium and nickel sourcing frameworks** to its sustainable battery materials sourcing approach.

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We want to excel in all aspects of our business. In 2023, Umicore has embarked on a transformation journey, preparing the ground for the ambitions of the 2030 RISE Strategy. A journey that is evolving the organization's culture and mindset to become more performance driven and cost conscious, while improving operational excellence.

On this journey, all areas of the business have been assessing their way of working. **A new organizational structure** has been put in place to support the growth in Rechargeable Battery Materials, which will be reported as the new Business Group **Battery Materials**. This set-up will provide the needed focus and structure to support the battery material business and will provide additional transparency into the business group's performance. The smaller but well-performing Business Units Cobalt & Specialty Materials, Electro-Optic Materials and Metal Deposition Solutions will be grouped in the new fourth Business Group **Specialty Materials**. There is no change to the Catalysis and Recycling Business. External reporting according to this new organizational structure will be implemented as from the fiscal year 2024. See [Our complementary business groups](#).

We have also reinforced certain central functions (People & Organization (P&O), procurement, investment in R&D) and **strengthened our Management Board** with the addition of three new members: Executive Vice-President Recycling Veerle Slenders and Executive Vice-President People & Organization represented by newcomer Ana Fonseca Nordang. A new Chief Technology Officer position has also been created. Geert Olbrechts took up this position as of August 1st, 2023. At **Supervisory Board level we added two new committees**: an Investment Committee and a Sustainability Committee.

The **Efficiency for Growth program**, introduced in 2023, allows us to drive efficiency improvements across the different business groups. Every business unit and corporate function is already contributing with the goal of creating a more efficient, competitive, and sustainable business. Umicore expects Efficiency for Growth to deliver at least € 70 million EBITDA contribution in 2024 and as from 2025 a run-rate exceeding € 100 million EBITDA contribution.

“In 2023, we established foundations for the success of our 2030 RISE Strategy: attractive commercial contracts, future-proof investments and an improved organizational set-up with a focus on performance.”

Frank Daufenbach
Chief Strategy Officer



Balancing growth, returns and cash flows. We have been able to reduce our funding needs for the expansion of our Battery Materials activities by securing substantial government grants and subsidies for our expansions in Europe and North America amounting to close to € 1 billion as well as by partially funding joint venture capital expenditure by non-recourse debt. We have also been able to bring down anticipated net capital expenditure by applying a disciplined capacity phasing strictly in line with customer contracts and orders, an improved utilization of existing capacities in APAC and an optimized, asset-light upstream model. As we move into 2024, our teams are now focusing on execution excellence, remaining firmly committed to delivering on our targets.

[For more information on performance see the Operations Section.](#)

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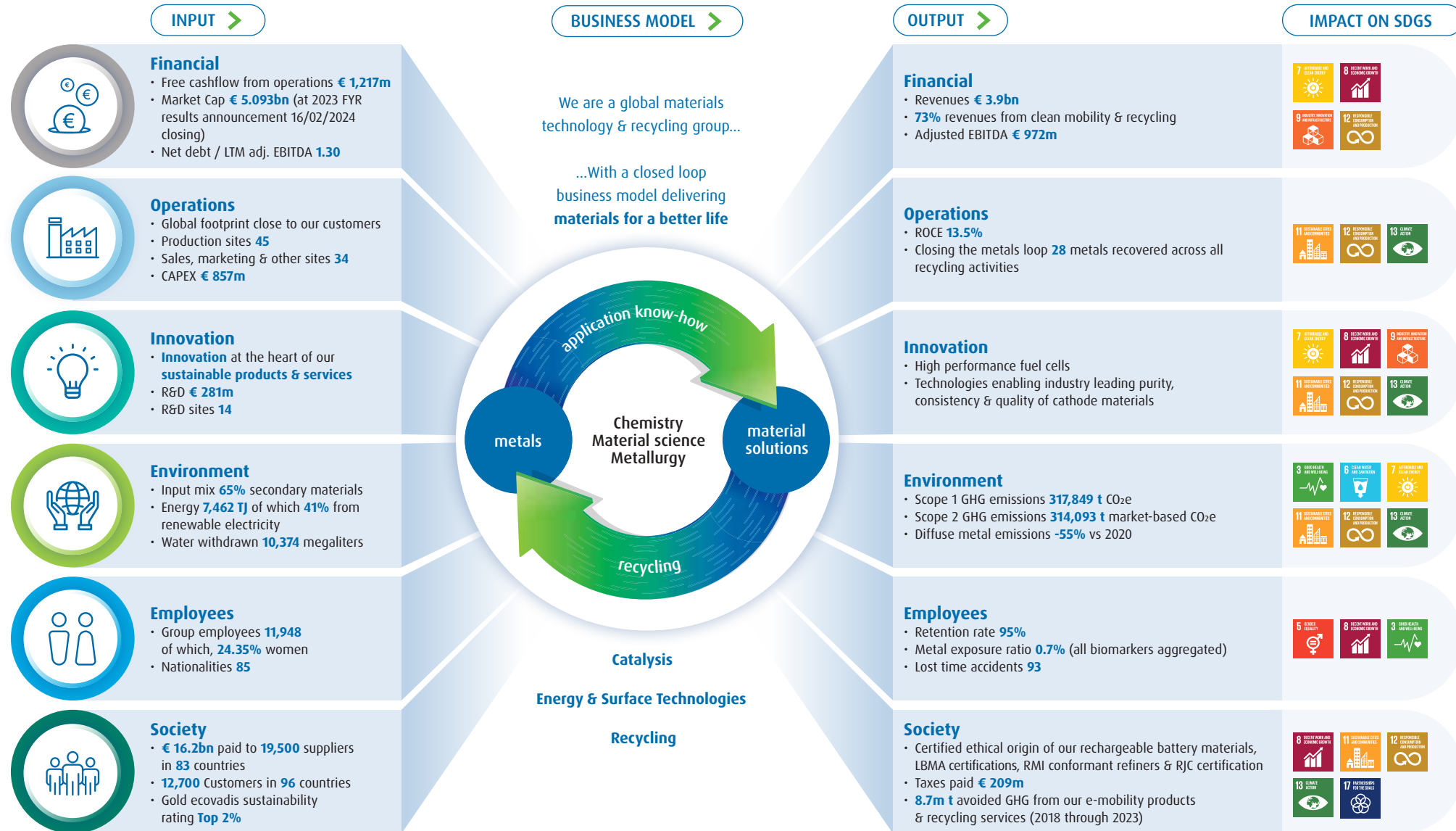
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Corporate research and development researcher preparing a roller mill experiment for our battery materials in Olen, Belgium

How we create value



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(in million € unless stated otherwise)	2019	2020	2021	2022	2023
Economic performance					
Revenues (excluding metal) ¹	3,361	3,239	3,791	4,155	3,876
Adjusted EBITDA	753	804	1,251	1,151	972
Adjusted EBIT	509	536	971	865	674
Return on Capital Employed (ROCE) (in %)	12.6	12.1	22.2	19.2	13.5
R&D expenditure	211	223	245	316	281
Capital expenditure	553	403	389	470	857
Adjusted EPS (in €/share)	1.30	1.34	2.77	2.47	1.86
Gross dividend (in €/share)	0.38	0.75	0.80	0.80	0.80
Social and environmental performance					
Revenues from clean mobility and recycling (in%)	75	79	79	78	73
Total donations, including staff freed time (in thousands of euro)	1,614.00	1517.21	1623.99	2,005.75	2,151.86
CO ₂ e emissions (scope1)	389,101	330,451	372,699	346,439	317,849
CO ₂ e emissions (scope2) - Market based (in tonne)	402,714	402,094	473,738	352,210	314,093
CO ₂ e emissions (scope2) - Location based (in tonne)	426,074	421,089	421,990	372,820	377,705
Energy consumption (in terajoules)	7,476	7,591	8,308	7,471	7,462
Workforce (fully consolidated companies)	11,152	10,859	11,050	11,565	11,948
Lost Time Accidents (LTA)	90	49	73	96	93
LTA frequency rate	4.60	2.50	3.70	4.87	4.50
LTA severity rate	0.20	0.47	0.12	0.16	0.16
Exposure ratio 'all biomarkers aggregated' (in %)	1.8	2.0	1.5	1.1	0.7
Average number of training hours per employee	48.73	36.33	41.59	46.60	45.72
Voluntary leavers ratio	5.99	4.20	5.82	6.53	4.68

¹ Revenues of 2021 and 2022 have been restated to exclude the pass-through value of the purchased lithium and manganese.

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Umicore colleagues from
Battery Materials in
Loyalist, Canada

Zahra
Production Cathode
Active Materials

Randy
Management

Dianne
Technical
Analytical Lab

Victor
Projects



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Resilient business performance in a volatile market

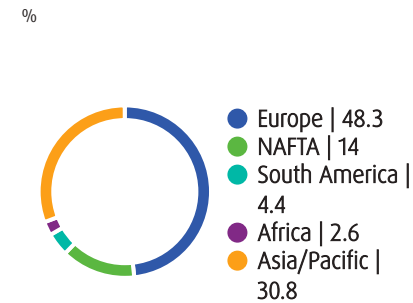
Umicore continued to deliver strong cash flows and margins in a tough year, while significantly stepping up investments for future growth.

Umicore’s Group revenues for the full year 2023 amounted to €3.9 billion versus € 4.2 billion in 2022. The adjusted EBIT for the Group stood at € 674 million and the adjusted EBITDA at € 972 million, both below the levels of 2022, including a more than € 200 million PGM price and inflation headwind. Umicore maintained a strong adjusted EBITDA margin of 25% in 2023, which is well in line with its 2030 RISE target of above 20%.

Capital expenditure amounted to € 857 million, up 82% year-on-year, mainly driven by investments to execute the contracts secured in the order book for Rechargeable Battery Materials. Operational free cash flow remained strong at € 332 million, despite the significantly increased capital expenditure, enabled through a Group-wide working capital improvement focus. Net financial debt slightly increased to € 1.3 billion resulting in a leverage ratio of 1.30x LTM adjusted EBITDA.

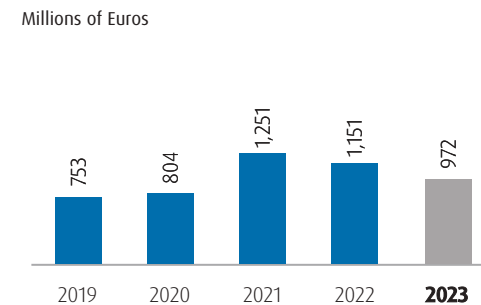
A gross annual dividend of € 0.80 per share, of which € 0.25 was already paid out in August 2023, will be proposed at the Annual General Meeting in April.

GROUP REVENUES BY GEOGRAPHY (EXCLUDING METALS)

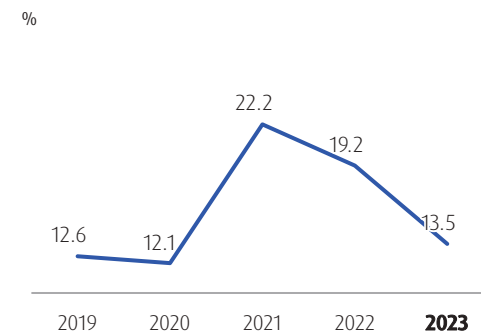


Revenues by geography (excluding metals)

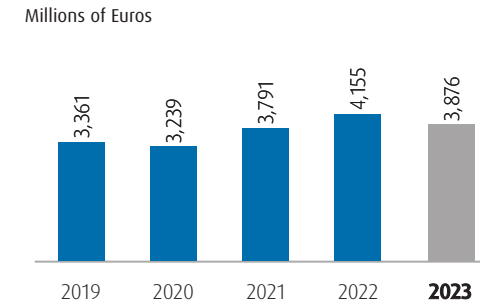
GROUP ADJUSTED EBITDA



GROUP RETURN ON CAPITAL EMPLOYED (ROCE)

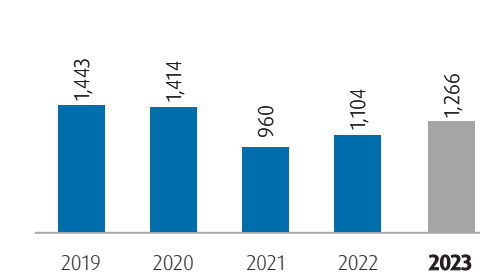


GROUP REVENUES (EXCLUDING METAL)¹

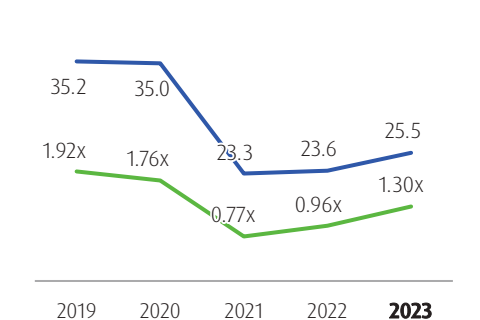


¹ Revenues of 2021 and 2022 have been restated to exclude the pass-through value of the purchased lithium and manganese.

GROUP NET DEBT



GEARING RATIO AND NET DEBT / LTM ADJUSTED EBITDA



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Catalysis delivered record results for the third consecutive year. Adjusted EBITDA amounted to € 436 million, up 4% compared to the previous year. The Business Group's performance was mostly driven by Automotive Catalysts. Sales volumes and revenues for the business unit increased, benefiting from a rebound in the Chinese heavy-duty diesel production as well as year-on-year growth in global light-duty ICE production. In addition, Automotive Catalysts made further strong progress on efficiency improvements. The Business Group generated substantial free cash flow. The adjusted EBITDA margin for the Business Group amounted to 24.2%.



Revenues for **Energy & Surface Technologies** were below the level of 2022. The decrease mainly results from lower revenues for Rechargeable Battery Materials. These reflect the combined impact of a lower non-recurring lithium effect and lower volumes for cathode active materials from legacy contracts. Adjusted EBITDA amounted to € 259 million, with a slight increase in earnings for Rechargeable Battery Materials supported by a substantial one-off related to lower costs from mass production test runs and valuation of battery production scraps. Cobalt & Specialty Materials reported, as expected, a substantial decline in earnings. This combined with solid performance of the business units Electro-Optic Materials and Metal Deposition Solutions resulted in an EBITDA margin of 24.6% for the Business Group.



The **Recycling** performance in 2023 was resilient. Although it was below the exceptional performance of 2022, it was well above pre-2020 levels, the year in which the rhodium price started to peak. Adjusted EBITDA amounted to € 372 million, down 30%, reflecting a context of substantially declining PGM prices over 2023, as well as the impact of cost inflation mainly in the first half of the year. These headwinds were partially mitigated by the strong performance of the Precious Metals Management business unit, strategic metal hedges, as well as the introduction of an efficiency program which going forward will result in increased cost efficiencies to counteract the decreased PGM price environment. In a challenging market environment, the Recycling segment delivered an overall robust performance, resulting in an EBITDA margin of 36.7%.

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Group key figures

	Annex	2019	2020	2021	2022	2023
Total turnover		17,485	20,710	24,054	25,436	18,266
Total revenues (excluding metal) ¹		3,361	3,239	3,791	4,155	3,876
Adjusted EBITDA	F9	753	804	1,251	1,151	972
Adjusted EBITDA margin (in %) ¹		22.1	24.6	32.5	27.3	25.0
Adjusted EBIT	F9	509	536	971	865	674
of which associates and joint ventures	F9	11	8	21	16	1
EBIT adjustments	F9	-30	-237	-75	-32	-82
Total EBIT	F9	479	299	896	832	591
Adjusted EBIT margin (in %) ¹		14.8	16.3	25.1	20.4	17.4
Return on Capital Employed (ROCE) (in %)	F31	12.6	12.1	22.2	19.2	13.5
Effective adjusted tax rate (in %)	F9	24.7	24.2	23.1	20.0	21.6
Adjusted net profit, Group share	F9	312	322	667	593	447
Net profit, Group share	F9	288	131	619	570	385
R&D expenditure	F9	211	223	245	316	281
Capital expenditure	F34	553	403	389	470	857
Net Cash flow before financing	F34	-271	99	787	153	94
Total assets, end of period		7,023	8,341	9,045	9,942	9,966
Group shareholders' equity, end of period		2,593	2,557	3,113	3,516	3,661
Consolidated net financial debt, end of period	F24	1,443	1,414	960	1,104	1,266
Gearing ratio, end of period	F24	35.2	35.0	23.3	23.6	25.5
Net debt / LTM adjusted EBITDA		1.92x	1.76x	0.77x	0.96x	1.30x
Capital employed, end of period	F31	4,442	4,457	4,377	4,716	5,002
Capital employed, average	F31	4,048	4,451	4,384	4,511	4,977

¹ Revenues of 2021 and 2022 have been restated to exclude the pass-through value of the purchased lithium and manganese.

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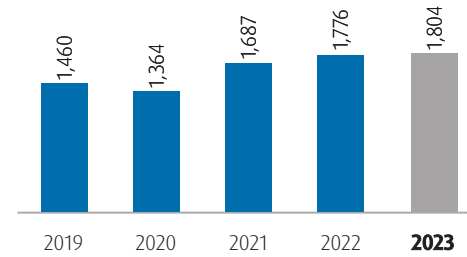
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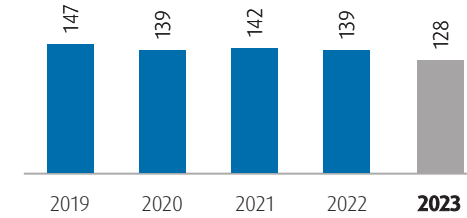
CATALYSIS REVENUES (EXCLUDING METAL)

Millions of Euros



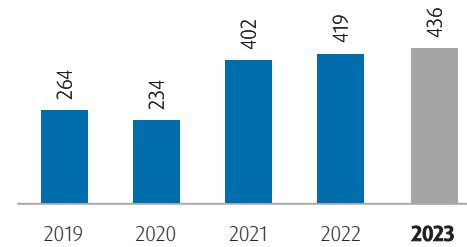
CATALYSIS R&D EXPENDITURE

Millions of Euros



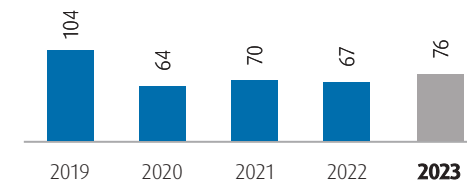
CATALYSIS ADJUSTED EBITDA

Millions of Euros



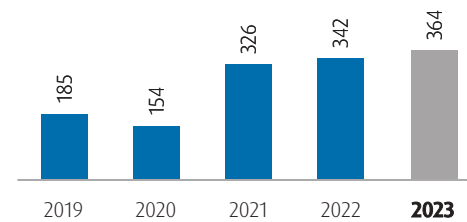
CATALYSIS CAPITAL EXPENDITURE

Millions of Euros



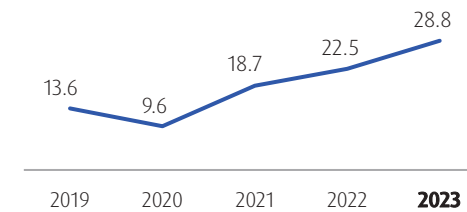
CATALYSIS ADJUSTED EBIT

Millions of Euros



CATALYSIS RETURN ON CAPITAL EMPLOYED (ROCE)

%



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Overview 2023 performance

The **Catalysis** Business Group delivered record results for the third consecutive year. Revenues reached € 1,804 million and adjusted EBITDA amounted to € 436 million, up respectively 2% and 4% compared to the previous year. Catalysis' performance was mostly driven by Automotive Catalysts. Sales volumes and revenues for the business unit increased, benefiting from a rebound in the Chinese heavy-duty diesel production as well as year-on-year growth in global light-duty ICE production. In addition, Automotive Catalysts made further strong progress on efficiency improvements. The Business Group generated substantial free cash flow. The adjusted EBITDA margin for the Business Group amounted to 24.2%.



Quality inspection of our automotive catalyst coating product in Suzhou, China

2023 Business Review

Global ICE car production grew (+7.8%) over the course of 2023 on the back of improved market conditions. In particular the resolution of the supply constraints, that impacted the automotive market over the past years, and a related catch-up in the backlog, resulted in a significant rebound in car production. All regions benefited from this upward trend, with in particular Europe (+9.1%), China (+9.8%) and North-America (+7.1%) posting robust year-on-year growth.

The business unit **Automotive Catalysts** increased revenues following strong performance in Europe, as well as in other regions, which was partially offset by a weaker performance in China due to a less favorable customer mix in the light-duty gasoline activities. The solid increase in the business unit's earnings was supported by the higher volumes as well as continuous efforts on efficiency gains. As announced previously and as part of the 2030 RISE Strategy, Automotive Catalysts has implemented an agile operational approach to capture peak profitability. In that context, Umicore has decided to transfer (over the coming years) the catalyst production activities of the Himeji plant (Japan) into other Umicore automotive catalyst production plants.

The **light-duty vehicle segment** accounted for 84% of Automotive Catalysts' revenues in 2023, of which 81% is related to the light-duty-gasoline activities.

The European ICE market, which represented 27% of Umicore's global light-duty catalyst volumes, increased with 9.4% year-on-year, reflecting robust demand and a gradual resolution of supply chain hurdles resulting in a catch-up in car production. Umicore again substantially outperformed the European market, both in volumes (+14%) and revenues, benefiting in particular from a good customer mix combined with the launch of new light-duty gasoline platforms.

The Chinese ICE market, which represented 25% of Umicore's global light-duty catalyst volumes, grew 5.5% compared to the previous year. After a weaker start of the year, the Chinese ICE car market was particularly strong in the second half of the year, mainly driven by the solid performance of the local OEMs. Umicore's volumes (-11%) and revenues were lower year on year due to a less favorable platform and customer mix.

The North and South American ICE markets, which represented together 27% of Umicore's global light-duty catalyst volumes, were up (+6.5%) compared to the previous year reflecting continued robust consumer demand in both markets.

Umicore's volumes (+3%) also grew year on year. While in the North American market Umicore's volumes only slightly increased versus 2022 as a result of a less favorable customer mix, volumes were well up in the South American market driven by a favorable customer mix. Umicore's volumes (+87%) and revenues grew substantially compared to an overall flat ICE market in India and Thailand (+0.8%). Umicore benefited in particular from the ramp-up of new platforms as well as a very favorable customer and platform mix in India which allowed it to strongly outpace the market.

The **heavy-duty diesel (HDD) segment** accounted for 16% of the business unit's revenues in 2023. Umicore's global HDD volumes grew in line with the global market (+23%).

The Chinese HDD market, which accounted for 40% of Umicore's global heavy-duty diesel volumes, grew substantially over the course of 2023, recovering from the significant contraction incurred in 2022. Umicore's volumes and revenues in the region reflected the pickup in truck production.

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The European HDD market represented 49% of Umicore’s global heavy-duty diesel volumes. Umicore’s volumes and revenues outperformed the European market as a result of a favorable customer and platform mix.

Revenues for **Precious Metals Chemistry** declined compared to the previous year. Revenues for homogenous catalysts decreased, reflecting the combined effect of continued low activity in the construction sector which negatively impacted demand from bulk applications, as well as a slowdown in demand from catalysts used in life science applications in the second half of the year. This could only be partially compensated by substantially higher revenues for inorganic chemicals, benefiting from increased demand from the automotive market. Performance of the business unit was further affected by the decline in PGM prices, although this could to a certain extent be mitigated by existing strategic metal hedges.

Revenues for **Fuel Cell & Stationary Catalysts** were above the level of the previous year, reflecting substantially higher revenues for stationary catalysts. The activity benefited from solid demand in the chemical, refining, power and large engine end-markets, as well as a favorable product mix throughout the year. Revenues in proton-exchange-membrane (PEM) fuel cell catalysts for the transportation sector were impacted by a general slowdown in PEM fuel cell catalysts’ key markets for fuel cellpowered vehicles.

The foreseen pick-up in demand in this segment was in addition delayed by the current unfavorable environment in China. Volumes of PEM catalysts used in green electrolysis increased versus 2022 on the back of growing customer demand. The expansion of production capacity as well as R&D efforts in order to continue to provide market leading technology and services to customers result in lower earnings.

Based on a strong customer pipeline, Umicore launched the construction of its greenfield plant for the mass production of PEM fuel cells and electrolysis catalysts in Changshu, China with a [groundbreaking ceremony](#) held on 1 December 2023. This new greenfield plant is expected to be the world's largest PEM catalysts production facility to date. It will be scalable to meet the future growth of the business unit's customer portfolio. The plant is expected to become operational early 2026.

Catalysis key figures

	2019	2020	2021	2022	2023
Total turnover	4,539	5,917	8,155	7,738	6,243
Total revenues (excluding metal)	1,460	1,364	1,687	1,776	1,804
Adjusted EBITDA	264	234	402	419	436
Adjusted EBITDA margin (in %)	18.1	17.2	23.8	23.6	24.2
Adjusted EBIT	185	154	326	342	364
Total EBIT	185	96	308	331	355
Adjusted EBIT margin (in %)	12.7	11.3	19.3	19.2	20.2
R&D expenditure	147	139	142	139	128
Capital expenditure	104	64	70	67	76
Capital employed, end of period	1,537	1,727	1,551	1,564	1,014
Capital employed, average	1,358	1,596	1,743	1,522	1,263
Return on Capital Employed (ROCE) (in %)	13.6	9.6	18.7	22.5	28.8
Workforce, end of period (fully consolidated)	3,190	3,073	3,007	3,080	3,076

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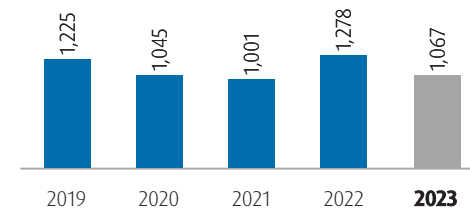
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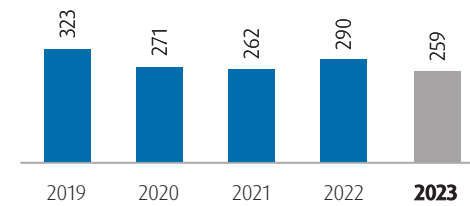
E&ST REVENUES (EXCLUDING METAL)

Millions of Euros



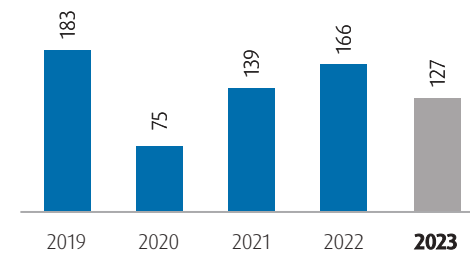
E&ST ADJUSTED EBITDA

Millions of Euros



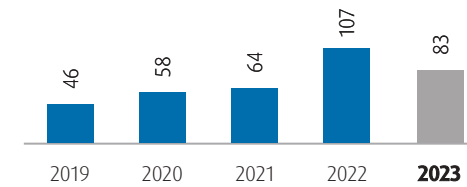
E&ST ADJUSTED EBIT

Millions of Euros



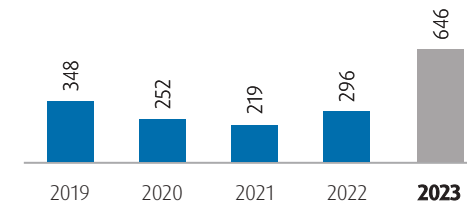
E&ST R&D EXPENDITURE

Millions of Euros



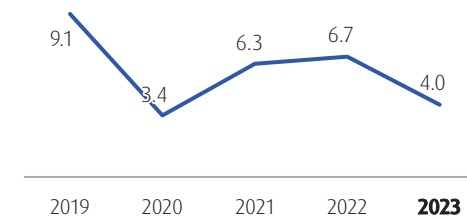
E&ST CAPITAL EXPENDITURE

Millions of Euros



E&ST RETURN ON CAPITAL EMPLOYED (ROCE)

%



Overview 2023 performance

Revenues for **Energy & Surface Technologies** amounted to € 1,067 million in 2023 compared to € 1,278 million in 2022. The decrease mainly results from lower revenues for Rechargeable Battery Materials. These reflect the combined impact of a lower non-recurring lithium effect and lower volumes for cathode active materials from legacy contracts. Adjusted EBITDA amounted to € 259 million, with a slight increase in earnings for Rechargeable Battery Materials supported by a substantial one-off related to lower costs from mass production test runs and valuation of battery production scraps. Cobalt & Specialty Materials reported, as expected, a substantial decline in earnings. This combined with solid performance of the business units Electro-Optic Materials and Metal Deposition Solutions resulted in an EBITDA margin of 24.6% for the Business Group.



Battery cathode active material in Umicore laboratory in Nysa, Poland

2023 Business Review

In 2023, revenues for **Rechargeable Battery Materials** were below the level of the previous year reflecting a lower non-recurring lithium effect and lower revenues for cathode active materials from legacy contracts. Revenues for upstream refining activities were up year on year. Earnings for Rechargeable Battery Materials were slightly above the level of the previous year supported by a substantial one-off related to lower costs from mass production test runs and valuation of battery production scraps.

Over the course of 2023 Umicore made further strong progress in the execution of its 2030 RISE Strategy, reaching key milestones:

- Umicore secured close to **€ 1 billion** of non-refundable government **grants** for its capacity expansions in North America and Europe.
- It signed a long-term CAM supply agreement with a **Chinese battery OEM** which will further improve capacity utilization in China over the course of 2024.
- IONWAY, the JV backed by Umicore and Volkswagen Group-owned PowerCo, decided to build its **first cathode materials production plant** in Nysa, Poland, adjacent to Umicore's existing plant. The project received strong support from the Polish Government with € 350 million in cash grants under the Temporary Crisis and Transition Framework. IONWAY will produce high-performance battery materials to supply PowerCo's European battery cell gigafactories.
- Umicore **launched the construction of a 35 GWh equivalent battery materials production plant in Ontario, Canada**, combining the production of precursor (pCAM) and CAM to serve the North American market. It received substantial financial support of €0.58 billion from the Governments of Canada and Ontario for this key project given its significance in the establishment of a North American local-for-local EV supply chain. This follows the signature with **AESC** of a ten-year agreement to supply high-nickel battery materials to AESC's North American manufacturing facilities. The supply agreement will run from 2026 to 2035 and

secures an annual volume offtake equivalent to 50 GWh by the end of the decade.

Umicore's order book for battery materials currently stands at 190 GWh contracted CAM volumes for 2027 and 270 GWh for 2030. End 2023, Umicore's global battery materials production capacity amounted to 85 GWh, with its gigafactories in Asia (China & Korea) representing 65 GWh. In Europe, Umicore expanded its capacity to 20 GWh by the end of 2023. The planned expansions - based on secured value creative customer contracts and partnerships will closely match the customer ramp-up trajectories, resulting in a total global installed cathode active materials production base of 195 GWh¹ by end 2026. The capacity in Europe and North America will be optimally utilized through secured contracts beyond 2030 with the production footprint in Asia providing flexibility and further upside on capacity utilization.

As a circular materials technology company, innovation is at the heart of Umicore's success. During the **"At the Core of Battery Materials"** event in November 2023, the Group demonstrated its technology leadership and provided the market with an insight into the breadth and depth of its technology roadmap, highlighting its strong R&D position in battery materials.

As anticipated, revenues for **Cobalt & Specialty Materials** were well below the previous year which was marked by an exceptionally strong first half. The combination of a slowdown in demand and related customer destocking behavior, substantially declining cobalt and nickel prices - after record levels in 2022 - and lower premiums, impacted the performance of the cobalt and nickel chemicals refining and distribution activities. Revenues for tool materials were well below the level of the previous year as the segment faced a decline in demand from the diamond and hard metal tools end-markets in a context of weaker economic activity. After the exceptional order levels recorded in 2021 and 2022, revenues from carboxylates decreased significantly following a slowdown in demand from the industrial sector as a result of the more challenging economic environment. In an extremely competitive market context, distribution margins were adversely affected resulting, combined

¹ Including the IONWAY capacity in Europe

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with lower revenues, in a further decline in earnings for the business unit.

Revenues for **Metal Deposition Solutions** were stable compared to the previous year. The successful introduction of new electrolytes for portable electronics combined with solid demand for decorative applications resulted in higher year-on-year revenues in electroplating activities. This was offset by revenues well below the previous year in thin film products where demand from the semiconductor industry slowed down in an overall challenging market environment.

Revenues for **Electro-Optic Materials** increased substantially year on year. Revenues for germanium solutions were well above the level of the previous year reflecting high demand for germanium substrates particularly for space power applications in the second half of the year.

On August 1st 2023, the Chinese Ministry of Commerce introduced an export control on germanium and gallium. In a market context of constraint supply, the business unit benefited from its robust germanium supply portfolio to secure continued operations and supplies to customers. In addition, Umicore is one of a few companies that is capable of recycling germanium from different streams. In 2023 the business unit successfully increased refining and recycling throughput and the majority of Electro-Optic Materials' germanium needs came from recycled feed, reducing the business unit's dependence on primary germanium supplies.

Energy & Surface Technologies key figures

	2019	2020	2021	2022	2023
Total turnover	2,938	2,811	3,534	4,974	3,394
Total revenues (excluding metal) ¹	1,225	1,045	1,001	1,278	1,067
Adjusted EBITDA	271	186	262	290	259
Adjusted EBITDA margin (in %) ¹	21.7	17.3	25.4	22.3	24.6
Adjusted EBIT	183	75	139	166	127
of which associates and joint ventures	5	5	8	5	-3
Total EBIT	154	-36	141	169	95
Adjusted EBIT margin (in %) ¹	14.5	6.7	13.1	12.6	12.2
R&D expenditure	46	58	64	107	83
Capital expenditure	348	252	219	296	646
Capital employed, end of period	2,324	2,133	2,275	2,751	3,468
Capital employed, average	2,014	2,209	2,198	2,498	3,193
Return on Capital Employed (ROCE) (in %)	9.1	3.4	6.3	6.7	4.0
Workforce, end of period (fully consolidated)	3,997	3,761	3,836	3,991	4,277
Workforce, end of period (associates and joint ventures)	751	727	792	821	655

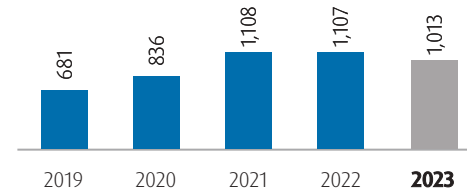
¹ Revenues of 2021 and 2022 have been restated to exclude the pass-through value of the purchased lithium and manganese.

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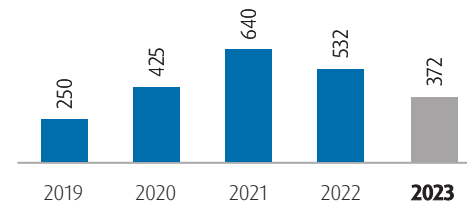
RECYCLING REVENUES (EXCLUDING METAL)

Millions of Euros



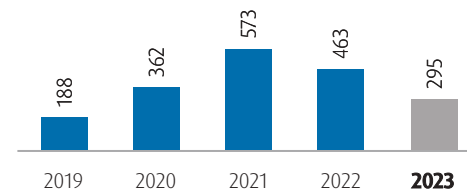
RECYCLING ADJUSTED EBITDA

Millions of Euros



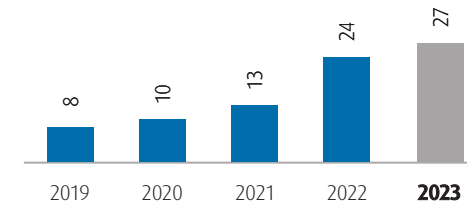
RECYCLING ADJUSTED EBIT

Millions of Euros



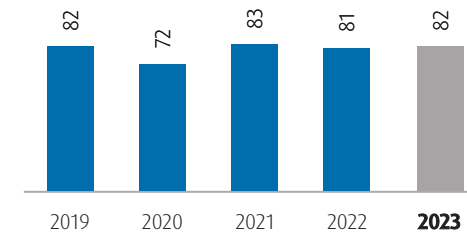
RECYCLING R&D EXPENDITURE

Millions of Euros

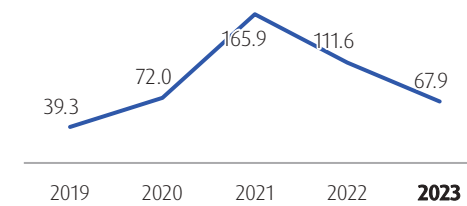


RECYCLING CAPITAL EXPENDITURE

Millions of Euros



RECYCLING RETURN ON CAPITAL EMPLOYED (ROCE)



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Overview 2023 performance

The **Recycling** business group revenues stood at € 1,013 million in 2023, down 9% year-on-year. Adjusted EBITDA amounted to € 372 million, down 30%, reflecting a context of substantially declining PGM prices over 2023, as well as the impact of cost inflation mainly in the first half of the year. These headwinds were partially mitigated by the strong performance of the Precious Metals Management business unit, strategic metal hedges, as well as the introduction of an efficiency program which going forward will result in increased cost efficiencies to counteract the decreased PGM price environment. In a challenging market environment, the Recycling segment delivered an overall robust performance, substantially above the pre-2020 levels, the year in which the rhodium price started to peak.

2023 Business Review

2023 was marked by a volatile precious metal price environment. The prices of gold and silver fluctuated, but remained overall at high levels. The PGM prices were, however, in continued decline over the course of the year. This was in particular the case for rhodium and palladium in a context of subdued end-market demand. Umicore was able to mitigate to a certain extent the impact of the lower PGM spot prices on revenues and earnings through previously secured strategic metal hedges.

Revenues for **Precious Metals Refining** were well below the level of the previous year, impacted by a less favourable metal price environment. Increased operating expenses mainly related to higher labour costs in Belgium further weighed on the business unit's earnings. The generally long-term nature of the contracts combined with a more challenging supply environment only allowed for partial passthrough of cost inflation into pricing. As part of the overall Efficiency for Growth program of the Group, the business unit further accelerated its operational excellence efforts to counter inflation with automation and digitization initiatives, as well as other measures to improve operational performance.



Composition of Umicore gold bar and silver bar surrounded by electronic scrap

Overall processed volumes in the Hoboken plant (Belgium) remained robust with the volumes roughly in line with the levels of 2022. The input mix was less favourable due to lower availability of PGM-rich recyclables, such as spent automotive and industrial catalysts, in an overall more challenging supply environment. In this context, Precious Metals Refining continued to focus on actively leveraging its unique recycling technology by maximizing as much as possible the intake of the most attractive, highly complex PGM materials, at the benefit of the value rather than the volume of the input mix.

Revenues for **Jewelry & Industrial Metals** decreased compared to a strong performance in 2022, reflecting primarily the impact of a substantial decline in PGM prices in its recycling and refining activities. Revenues from the product business were significantly below the level of previous year with volumes of platinum based glass applications facing lower customer demand after a very strong 2022. Order levels for gold investment products decreased over 2023 after a period of exceptional safehaven buying.

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The same trend impacted order levels for silver coins and investment products as of the second half of the year. This was partially offset by higher sales of jewelry products supported by a continued solid demand from the luxury end-market. In October 2023, Umicore finalized the disposal of Umicore Electrical Materials in the USA, which was previously part of Umicore Technical Materials, divested in 2017.

The earnings contribution from Precious Metals Management increased significantly year-on-year, with favorable trading conditions in a context of highly volatile precious metals prices - mainly in the first half of the year - more than offsetting lower demand for gold and silver investment bars.

Umicore's **Battery Recycling Solutions** business unit is a key enabler for sustainable electrification of the automotive industry. It provides access to critical recycled metals and allows closed-loop, environmentally friendly, low carbon battery manufacturing. The business unit is preparing for the exponential increase of battery scraps and end-of-life batteries to be recycled towards 2030, driven by regulatory frameworks and accelerating vehicle electrification. The business unit is evaluating the best location for its larger-scale European battery recycling plant, while continuing to focus on building the required ecosystem and on recycling scrap from European battery plants in their ramp-up at its industrial pilot plant in Hoboken (Belgium).

Recycling key figures

	2019	2020	2021	2022	2023
Total turnover	11,320	13,904	15,609	15,338	10,066
Total revenues (excluding metal)	681	836	1,108	1,107	1,013
Adjusted EBITDA	250	425	640	532	372
Adjusted EBITDA margin (in %)	36.8	50.8	57.7	48.1	36.7
Adjusted EBIT	188	362	573	463	295
Total EBIT	190	311	529	463	282
Adjusted EBIT margin (in %)	27.6	43.3	51.7	41.8	29.2
R&D expenditure	8	10	13	24	27
Capital expenditure	82	72	83	81	82
Capital employed, end of period	405	447	461	347	456
Capital employed, average	479	502	345	415	435
Return on Capital Employed (ROCE) (in %)	39.3	72.0	165.9	111.6	67.9
Workforce, end of period (fully consolidated)	2,849	2,769	2,867	2,996	2,861

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Element Six Abrasives' contribution to Umicore's adjusted EBITDA decreased compared to the previous year, reflecting lower revenues due to challenging market conditions across all business lines throughout 2023. Revenues from oil and gas drilling equipment decreased year on year, impacted by declining oil production targets and a related slowdown in drilling activity in the US. Revenues for carbide-based materials used in the mining, agricultural and road planing end-markets were affected by subdued demand in the European tungsten carbide market in particular in the second half of the year, as well as a limited ability to translate an increasing raw materials cost base into pricing. Revenues in the precision tooling business also decreased, reflecting a collapse in the Chinese construction market and customers' destocking behavior.

In August 2023, Umicore sold its non-strategic 40% stake in **IEQSA**, a Peruvian company active in the transformation and production of zinc-based products.

Research & development

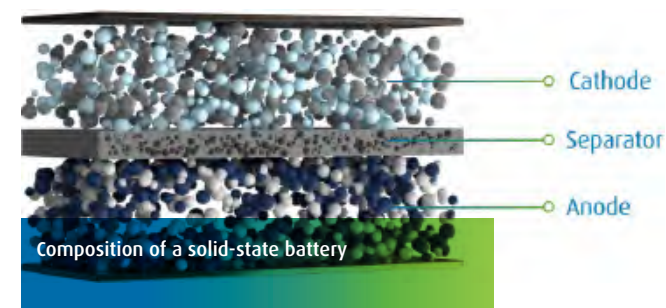
In 2023, R&D expenditure in fully consolidated companies amounted to € 281 million, down 11.1% compared to € 316 million in 2022, mainly enabled by R&D savings in Automotive Catalysts and the reduced costs for mass production test runs in Battery Materials. In 2023, Umicore continued to increase R&D spends on new product and process technologies in Rechargeable Battery Materials and increased R&D efforts in battery recycling.

As a circular materials technology company, innovation is at the core of Umicore's success. During its [“At the Core of Battery Materials”](#) event the Group demonstrated its technology leadership and provided the market with a view on its breadth and depth technology roadmap highlighting its strong R&D position.

In parallel with its own research and inhouse work, Umicore develops technologies with third parties, like start-ups and scale-ups, as well as academic organizations. Part of Umicore's innovation efforts are pursued through open innovation partnerships with external players of the innovation ecosystem. Co-developing products, processes or business models with different partners across the value chain is key to innovation success.

In that context Umicore invested in 2023 a minority stake in [Blue Current](#), a US based start-up. This investment complemented the joint development agreement whereby both companies were able to integrate Umicore's battery materials in Blue Current's solid-state battery technology. Solid-state batteries will bring a number of benefits compared to current lithium-ion battery technologies, allowing electric vehicle designers to create smaller, lighter, and lower-cost battery packs with greater safety, increased driving range and faster charging. In addition, over the course of the year, Umicore and Idemitsu also progressed on the joint development of their catholyte composite innovative product for solid-state batteries.

In the framework of its long-term battery materials technology roadmap, Umicore inaugurated in 2023 one of the world's largest [solid-state battery material prototyping facilities](#) in Olen, Belgium. This unique prototyping center will enable Umicore Battery Materials to further scale up and accelerate its innovation and technology leadership in solid-state batteries chemistries, one of the next generation technology on the horizon for electric vehicles.



In 2023 the Group continued to further expand its research activities globally. In October, Umicore opened a new research innovation center in Shanghai, China, in order to attract local talents and be at the source of the latest innovation trends in the region. In the near future, Umicore will set up applied technology laboratories in Loyalist, Canada as well as in Hanau, Germany.

The R&D spend represented 7.3% of Umicore's 2023 revenues and capitalized development costs accounted for € 28 million of the total amount.

Financial review

Financial result and taxation

Adjusted net financial charges totaled € 110 million, compared to € 125 million in the same period last year reflecting lower foreign exchange related costs. Net interest expenses remained largely in line with previous year.

The adjusted tax charge for the period amounted to € 121 million, down compared to € 145 million over the same period last year reflecting the lower year-on-year taxable profit, against a somewhat higher adjusted effective Group tax rate (21.6% versus 20.0% in 2022). Taking into account the tax effects on adjustments, the net tax charge for the Group amounted to € 105 million. The total tax paid in cash over the period amounted to € 209 million, versus € 216 million last year.

Cash flows and financial debt

Cash flow generated from operations including changes in net working capital amounted to € 1,217 million, compared to € 835 million last year. After deduction of € 885 million of capital expenditure and capitalized development expenses, the resulting free cash flow from operations came in at € 332 million, compared to € 344 million in the same period last year.

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At 31 December 2023 **adjusted EBITDA** amounted to € 972 million, 16% below the € 1,151 million registered in 2022. This corresponds to an adjusted EBITDA margin of 25.0% for the Group, well in line with Umicore's 2030 RISE target.

In Catalysis, EBITDA margin was favorably impacted by increasing volumes and operational efficiencies, compensating for the lower PGM price levels. In Energy & Surface Technologies, EBITDA margin improved thanks to the slight increase in earnings in Rechargeable Battery Materials combined with the solid performance of the business units Electro-Optic Materials and Metal Deposition Solutions. In Recycling, the decline in precious metal prices and further cost inflation resulted in a reduced EBITDA margin.

Net working capital for the Group decreased by € 346 million compared to the end of 2022. Working capital needs in Catalysis decreased due to the reduction of inventory levels, thanks to further optimization and lower PGM price levels. In Energy & Surface Technologies, increase in working capital in anticipation of growing volumes was largely offset by the decrease in battery metal prices, while in Recycling the working capital increased.

Capital expenditure amounted to € 857 million at the end of 2023, compared with € 470 million the previous year. Taking into account investments in Rechargeable Battery Materials' greenfield plants in Poland and Canada, Energy & Surface Technologies accounted for close to three quarters of Group capital expenditure. Capitalized development expenses amounted to € 28 million, up versus 2022. [In October 2023](#), Umicore announced that the total net capital expenditure¹ for the Group between 2022 and 2026 are expected to amount to € 3.8 billion, representing an average annual net capital expenditure run-rate of approximately € 800 million.

Dividend payments over the period amounted to € 196 million. Umicore contributed € 79 million in equity to IONWAY, its joint venture with PowerCo.

The reduction in working capital compensated to a large extent for the higher capital expenditure and lower EBITDA, resulting in

a moderate increase of net financial debt at the end of 2023 to € 1,266 million versus € 1,104 million at the end of 2022. In the last quarter of 2023, Umicore signed a new 5 - year Revolving Credit Facility (RCF) of € 600 million issued under the Sustainability-Linked Loan (SLL) format, with a solid pool of international banks. This RCF replaces the € 495 million Syndicated Bank Credit Facility expiring in 2025, and comes in addition to the existing € 500 million inaugural sustainability-linked RCF contracted in 2021. Early 2024, Umicore concluded an 8-year [loan agreement with the European Investment Bank](#) (EIB) for € 350 million financing the Group's R&D activities. The leverage ratio amounted to 1.3x LTM adjusted EBITDA (versus 1.0x end of 2022). The Group's equity amounted to € 3,697 million, corresponding to a net gearing ratio (net debt / net debt + equity) of 25.5%.

Adjustments

Adjustments had a negative impact of - € 82 million on EBIT of which - € 13 million was already accounted for in the first half. In Catalysis, - € 9 million is related to the announced plant closure and applied tech center restructuring in Japan (Himeji plant). In Energy & Surface Technologies, - € 32 million is primarily resulting from the impairment of capitalized development expenses and obsolete assets. In Recycling, - € 14 million is largely resulting from a loss on the divestment of an historical technical materials activity in North America (Umicore Electrical Materials).

In Corporate, - € 28 million is resulting from (i) the creation of a separate legal entity for the Rechargeable Battery Materials activities; (ii) the increase in some environmental provisions related to legacy remediation initiatives; (iii) the loss on the divestment of a historical activity in zinc chemicals (IEQSA); and (iv) the settlement of a historical litigation related to the divestment of Building Products.

Including positive adjustments to financial and tax items of € 1 million and € 16 million respectively, and taking into account minority interests of € 4 million, the total adjustments to net Group earnings over the period corresponded to a negative impact of € 62 million.

Hedging

Umicore is stepping up its strategic metal hedging approach to reduce volatility, to increase visibility on future cash flows and to protect future earnings of exposure to certain precious metal prices. Over the course of 2023, it has entered into forward contracts covering for a substantially longer period and a significantly larger portion of its structural price exposure compared to its past approach.

Umicore entered into forward contracts to cover a substantial part of its expected structural price exposure to certain precious metals already up to 2028. For 2024, based on the respective currently expected exposures, the following lock-ins have been secured: close to three quarters for palladium, more than two thirds for rhodium, close to two thirds for gold, close to half for silver, and above one quarter for platinum.

For 2025, the lock-in ratios are: close to three quarters for palladium and rhodium, more than half for gold and silver, and less than one quarter for platinum. For 2026, close to three quarters of the exposure has been locked in for palladium and rhodium, half for gold and silver, and less than one quarter for platinum. For 2027, more than half for palladium, more than one third for gold, and less than one quarter for silver, rhodium and platinum has been locked in. For 2028, more than one third for gold, close to one third for palladium, one quarter for silver, and less than a quarter for platinum has been locked in.

Next to strategic metal hedges, the Group manages a portion of its forward energy price risks by entering into energy hedges. Currently, Umicore has hedges in place that cover over two thirds of its expected European electricity and natural gas needs for 2024 and 2025. For 2026 and 2027, more than half of the electricity and over three quarters of the natural gas needs for the European activities are hedged. For 2028, over half of the electricity needs and less than a quarter of the natural gas needs for the European activities are hedged.

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¹ Net Capex

EU taxonomy

The European Union created an action plan to finance sustainable growth, aimed at redirecting capital flows to sustainable economic activities. This is part of the efforts to reach the objectives of the European Green Deal and make Europe climate-neutral by 2050.

In 2021, the European Union introduced the EU Taxonomy, which is a classification system to clarify which economic activities qualify as environmentally sustainable. The EU Taxonomy regulation has established six environmental objectives:

- Climate change mitigation
- Climate change adaptation
- Sustainable use and protection of water and marine resources
- Transition to a circular economy
- Pollution prevention and control
- Protection and restoration of biodiversity and ecosystems

Umicore has assessed the eligibility of its products and services with Taxonomy Regulation (EU) 2020/852 and the subsequently published Delegated Acts. In our Integrated Annual Report 2021, we reported on the Taxonomy-eligibility assessment of our economic activities for two of the six environmental objectives: Climate Change Mitigation and Climate Change Adaptation. In our Integrated annual report 2022, Umicore’s eligible activities have been assessed against the alignment criteria as set forward by the EU Taxonomy Regulation for the same two environmental objectives.

In November 2023, the EU published the Delegated Regulation (EU) 2023/2486 ("the Environmental Delegated Act") supplementing the EU Taxonomy Regulation (EU) 2020/852, establishing the list of activities and the technical screening criteria for determining under which conditions an economic activity qualifies as a substantially contributing to: sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention and control and protection and restoration of biodiversity and ecosystems.

	Turnover ¹	CAPEX ²	OPEX ³
EU Taxonomy "Climate Change Mitigation" aligned activities (in million EUR)	1,478	619	123
EU Taxonomy "Climate Change Mitigation" aligned activities (in %)	8.1%	67.5%	33.7%
Total Umicore activities (in million EUR)	18,266	916	366

¹ Umicore’s turnover includes metal prices that are subject to market fluctuations and thus our reporting on the EU Taxonomy will include those fluctuations.

² We used the CAPEX definition as defined by the EU Taxonomy, which is different from Umicore’s definitions of CAPEX. More information on these differences can read in the accounting policy below.

³ We used the OPEX definition as defined by the EU Taxonomy, which is different than Umicore’s definitions of OPEX. More information on these differences can read in the accounting policy below.

⁴ Umicore’s activities contribute to the EU Taxonomy Climate Change Mitigation objective and not to the EU Taxonomy Climate Change Adaptation objective.

The EU also adopted the Delegated Regulation (EU) 2023/2485 amending the Delegated Regulation (EU 2021/2139) establishing additional technical screening criteria for determining the conditions under which certain economic activities qualify as contributing substantially to climate change mitigation and climate change adaptation. The results of our 2023 Taxonomy-eligibility and alignment assessment are presented in the sections below.

Assessment results

Based on the list of eligible economic activities that the Taxonomy Regulation has defined so far as substantially contributing to the six objectives, we assessed which of the Umicore economic activities would qualify as eligible economic activities. This was done in two steps:

1. We reviewed the eligibility assessment carried out in 2021, as the new Delegated Acts from the EU include updates to the list of eligible activities and technical screening criteria for the earlier published objectives (Climate Change mitigation and Climate Change adaptation).
2. Based on the Delegated Act published in June 2023, we assessed which Umicore economic activities qualify as eligible economic activities in contributing to the other four EU Taxonomy objectives (Sustainable use and protection of water and marine resources, Transition to a circular economy, Pollution prevention and control, and Protection and restoration of biodiversity and ecosystems).

In this assessment, we considered Umicore’s turnover generating economic activities linked to products and services brought to the market and have excluded internal industrial activities that are not turnover generating. The “internal loop” between Umicore business units is a key feature of how Umicore’s unique business model maximizes the complementarity of its activity portfolio while also minimizing impact on climate and the environment.

This assessment reconfirmed that a subset of Umicore products and services contribute to two EU Taxonomy eligible activities defined as significantly contributing to the EU Taxonomy objective of Climate Change Mitigation. These activities are “Manufacturing of batteries” and “Manufacturing of equipment for the production and use of hydrogen”. These EU Taxonomy-eligible activities have been confirmed to be EU Taxonomy-aligned. Additionally, as required by the Commission delegated regulation (EU) 2022/1214, it should be explicitly noted that none of the Umicore activities assessed for Taxonomy reporting are linked to activities stated in the Complementary Climate Delegated Act on Gas and Nuclear activities.

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Manufacturing of rechargeable batteries

Umicore has activities that match the EU Taxonomy eligible business activity: “Manufacturing of batteries, battery packs and accumulators for transport, stationary and off-grid energy storage, and other industrial applications. This includes the manufacturing of respective components (battery active materials, battery cells, casings, and electronic components) and recycling of end-of life batteries.” Umicore supplies battery active materials for rechargeable batteries used in electric vehicles, energy storage systems, and portable electronics. This is an enabling activity as it can contribute to substantially reducing greenhouse gas (GHG) emissions in transport, stationary and off-grid energy storage.

The manufacturing of battery materials for the portable electronics market has not been considered as an eligible activity as there is no direct link with a substantial reduction in GHG emissions. Only the cathode active materials used for electric vehicles and energy storage systems have been considered in the assessment. This includes also specific R&D activities related to anode materials for electric vehicles and energy storage systems.

In addition to the manufacturing of rechargeable battery materials, Umicore provides recycling services for Lithium-Ion (Li-ion) batteries across the value chain from all possible applications across the globe. Umicore aims at becoming a total solutions provider for Li-ion batteries recycling services with industry leading material recovery levels for critical metals such Nickel, Cobalt, and Lithium. In this assessment the recycling services across the value chain have been considered.

Umicore’s activity contributes to the Climate Change Mitigation objective because batteries for electric vehicles and energy storage systems are an alternative to internal combustion engine vehicles and energy generation technologies emitting GHGs.

Manufacturing of equipment for the production and use of hydrogen

Umicore has activities that are eligible for the EU Taxonomy eligible business activity: “Manufacture of equipment for the production and use of hydrogen”¹. Umicore produces proton exchange membrane fuel cell catalysts for hydrogen power generation in vehicles. Fuel cell-powered vehicles combine the best of both worlds: long driving ranges and short refueling times combined with zero use-phase emissions. These advantages make the fuel cell-powered automotive particularly attractive in long-distance or energy-intensive haulage applications. Umicore’s activity is an enabling activity for the production and use of hydrogen as it can contribute to substantially reducing GHG emissions in transport. For this purpose, we only took the fuel cells business line into account and disaggregated this from the stationary catalysts business line.

Taxonomy-Eligibility Assessment Process

For the EU Taxonomy eligibility and alignment assessment, we engaged the external expertise of PwC. They assisted Umicore in the analysis of the EU Taxonomy definitions and criteria. In collaboration with the business units, we identified which Umicore products and services are eligible for the activities identified as contributing to the six EU Taxonomy objectives.

A key focus of the assessment was to avoid double counting, which we mitigated in two ways:

1. By excluding all intercompany transactions from the exercise, and only considering the turnover-generating economic activity for a specific business unit or business group,
2. By only counting an activity for a single objective where Umicore activities could be eligible for several objectives of the EU Taxonomy.

We re-assessed our Taxonomy reporting from previous years considering the latest version of the Delegated Acts.

In our previous years’ reporting, we had anticipated that our economic activities in Catalysis and Recycling would be most relevant for the environmental objectives of pollution prevention and control and transition to a circular economy, respectively. The 2023 amendments to the Delegated Act and the publication of the Environmental Delegated Act did not yet include a technical screening description that matched these Umicore activities. In our Catalysis business group, the activities which focus on mitigating toxic air pollution are excluded from the Taxonomy due to the eligible activity focus on zero-emission vehicles. Umicore’s Recycling businesses play a crucial role in transitioning from the utilization of primary resources to maximizing the use and reuse of secondary materials, which are inherently less carbon-intensive and, so far, fall outside the scope of EU Taxonomy reporting, as the Taxonomy-eligible activities defined to date in the Delegated Acts focus on transformation and pre-processing of waste. Economic activities not yet covered by the EU Taxonomy are listed as taxonomy non-eligible.

Umicore’s products and services are as much about delivering solutions today for a sustainable tomorrow, as they are about supporting the transition. We will continue to provide transparent reporting and we will closely monitor the ever-evolving landscape of eligible activities and the updates of the EU sustainable finance packages.

Taxonomy-Alignment Assessment Process

For the alignment assessment of Umicore’s eligible economic activities, we engaged the external expertise of PwC. They assisted Umicore in identifying and analyzing the alignment criteria as set out in the Delegated Acts of the EU Taxonomy Regulation. The process included three alignment assessment steps:

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¹ The activity is linked to the NACE code 27.1. Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus.

Technical Screening Criteria

For Umicore’s identified Taxonomy-eligible economic activities, the Technical Screening Criteria were closely analyzed. Both the ‘Manufacturing of batteries’ and ‘Manufacturing of equipment for the production and use of hydrogen’ have been assessed as making a substantial contribution to Climate Change mitigation in accordance with the activity-specific criteria. Both economic activities are enabling other industries to support in mitigation (reduce or avoid) GHG emissions through the electrification of transportation and application of energy storage systems.

Do No Significant Harm (DNSH)

For the assessment of whether Umicore’s eligible economic activities meet the Do No Significant Harm criteria, we have evaluated all relevant business operations against the specific criteria set out for the EU Taxonomy requirements. Our eligible activities for climate change mitigation have therefore been assessed not to harm the EU objectives related to the other five environmental objectives. Umicore has therefore assessed its economic activities against the specific requirements, including among others, the existence of required climate and vulnerability assessment of the operations, environmental degradation risk assessments, the implementation of circular business practices, avoidance of hazardous substances, and environmental impact assessments. Based on the assessment performed, Umicore concluded that its eligible business activities meet the Do No Significant Harm criteria.

Compliance with Minimum Safeguards

As the last step in the EU Taxonomy alignment assessment, Umicore has assessed its eligible economic activities against the Minimum Safeguards. The Minimum Safeguards require a Taxonomy activity to be carried out in alignment with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights (including the Declaration on Fundamental Principles and Rights at Work of the International Labour Organisation; the eight fundamental conventions of the ILO; and the International Bill of Human Rights). Umicore has performed an assessment of its relevant processes, procedures, policies, internal controls related to the Minimum Safeguards and evaluated the relevant outcome of the compliance management practices. In

conducting the assessment, we have built on the guidance from the Final Report on Minimum Safeguards from the EU Platform on Sustainable Finance. Through this assessment, we evaluated that the management processes and outcome of these processes are aligned with the Minimum Safeguard requirements.

Based on the three alignment assessment steps outlined above, Umicore has concluded that the identified Taxonomy-eligible economic activities are also Taxonomy-aligned.

Accounting policy

The IFRS imposes the reporting of turnover in the segment information ([note F7 of the Financial Statements](#)). Turnover is defined as the sum of all outgoing sales invoices and contains the metal sales. When metal prices rise, turnover increases but this rise is not the result of increased business activity, nor will it automatically lead to improved profitability. The IFRS turnover published by Umicore has been analyzed and the Group concluded that the definition is in line with the Turnover KPI requested for EU Taxonomy purposes. To avoid double counting, only external turnover has been considered for the EU Taxonomy exercise.

For the KPI related to capital expenditure (Capex), the EU Taxonomy required inclusion of all the additions to tangible and intangible assets during the financial year considered, before depreciation, amortizations, or impairments. It also covers the tangible and intangible assets resulting from business combinations and the leases that lead to the recognition of a right-of-use asset as per IFRS 16.

The capitalized expenditure definition at Umicore (see [Glossary](#)) is more restrictive than the EU Taxonomy definition as it concerns capitalized investments in tangible and intangible assets, excluding capitalized R&D costs. Capitalized R&D costs, new capitalized leases and the business combinations, if any during the year, therefore represent differences between the CAPEX KPI presented in the Umicore Financial Statements and the CAPEX KPI as defined by the EU Taxonomy. Those additions are, however, available in the Financial Statements under notes [F8](#), [F14](#) and [F16](#).

To avoid double counting, only external capital expenditure has been considered for the EU Taxonomy exercise.

For the KPI related to operating expenditure (OPEX), the EU Taxonomy required inclusion of a limited number of items compared with the number of items included in the total operating expenditure disclosed by Umicore in its Financial Statements ([note F9 of the Financial Statements](#)). The EU Taxonomy only includes direct non-capitalized costs related to R&D, building renovation measures, short-term leases, maintenance and repair and any other direct expenditure relating to day-to-day servicing of assets of property, plant and equipment by the undertaking or third party to whom activities are outsourced that are necessary to ensure the continued and effective functioning of such assets.

To avoid double counting, only external capital expenditure has been considered for the EU Taxonomy exercise.

For the KPI related to operating expenditure (OPEX), the EU Taxonomy required inclusion of a limited number of items compared with the number of items included in the total operating expenditure disclosed by Umicore in its Financial Statements ([note F9 of the Financial Statements](#)). The EU Taxonomy only includes direct non-capitalized costs related to R&D, building renovation measures, short-term leases, maintenance and repair and any other direct expenditure relating to day-to-day servicing of assets of property, plant, and equipment by the undertaking or third party to whom activities are outsourced that are necessary to ensure the continued and effective functioning of such assets.

To avoid double counting, only the costs initiated in the originating eligible activity have been considered.

The assessment of Umicore’s eligible activities excludes Umicore’s joint ventures and associated companies.

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Proportion of turnover from products or services associated with Taxonomy-aligned economic activities - disclosure covering year 2023

Code	Absolute turnover	Proportion of turnover	Substantial contribution criteria						DNSH criteria ('Does not significantly harm')						Proportion of Taxonomy aligned (A.1.) or eligible (A.2.) turnover, year N-1	Category (enabling activity or)	Category (transitional activity)	
			Climate change mitigation	Climate change adaptation	Water and marine resources	Pollution	Circular economy	Biodiversity and ecosystems	Climate change mitigation	Climate change adaptation	Water and marine resources	Pollution	Circular economy	Biodiversity and ecosystems				Minimum safeguards
	EUR	%	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Percent	E	T
Economic Activities (1)																		
A. TAXONOMY-ELIGIBLE ACTIVITIES																		
A.1. Environmentally sustainable activities (Taxonomy-aligned)																		
3.4. Manufacture of batteries	CCM 3.4	1,444,210,550	7.9%	Y	N/EL	N/EL	N/EL	N/EL	N/EL		Y	Y	Y	Y	Y	7.5%	E	
3.2. Manufacture of equipment for the production and use of hydrogen	CCM 3.2	34,287,256	0.2%	Y	N/EL	N/EL	N/EL	N/EL	N/EL		Y	Y	Y	Y	Y	0.2%	E	
Turnover of environmentally sustainable activities (Taxonomy-aligned) (A.1)		1,478,497,806	8.1%	8.1%	0%	0%	0%	0%	0%							7.7%		
Of which Enabling		1,478,497,806	8.1%	8.1%	0%	0%	0%	0%	0%							7.7%	E	
Of which Transitional		0	0%	0%												0%		T
A.2. Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																		
				EL, N/EL ⁽¹⁾	EL, N/EL ⁽²⁾	EL, N/EL ⁽³⁾	EL, N/EL ⁽⁴⁾	EL, N/EL ⁽⁵⁾	EL, N/EL ⁽⁶⁾									
3.4. Manufacture of batteries	CCM 3.4	0	0%	Y	N/EL	N/EL	N/EL	N/EL	N/EL							0%		
3.2. Manufacture of equipment for the production and use of hydrogen	CCM 3.2	0	0%	Y	N/EL	N/EL	N/EL	N/EL	N/EL							0%		
Turnover of taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)		0	0%	0%	0%	0%	0%	0%	0%							0%		
A. Turnover of Taxonomy eligible activities (A1-A2)		1,478,497,806	8.1%	8.1%	0%	0%	0%	0%	0%							7.7%		
B. TAXONOMY NON-ELIGIBLE ACTIVITIES																		
Turnover of Taxonomy-non-eligible activities (B)		16,787,392,169	91.9%															
TOTAL (A+B)		18,265,889,975	100%															

	Proportion of turnover/Total turnover	
	Taxonomy-aligned per objective	Taxonomy-eligible per objective
CCM	8.1%	8.1%
CCA	%	%
WTR	%	%
CE	%	%
PPC	%	%
BIO	%	%

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Proportion of CapEx from products or services associated with Taxonomy-aligned economic activities - disclosure covering year 2023

Code	Absolute CapEx	Proportion of CapEx	Substantial contribution criteria						DNSH criteria ("Does not significantly harm")						Proportion of Taxonomy aligned (A.1.) or eligible (A.2.) CapEx, year N-1	Category (enabling activity or)	Category (transitional activity)	
			Climate change mitigation	Climate change adaptation	Water and marine resources	Pollution	Circular economy	Biodiversity and ecosystems	Climate change mitigation	Climate change adaptation	Water and marine resources	Pollution	Circular economy	Biodiversity and ecosystems				Minimum safeguards
	EUR	%	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y, N, N/EL(b)(c)	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Percent	E	T
Economic Activities (1)																		
A. TAXONOMY-ELIGIBLE ACTIVITIES																		
A.1. Environmentally sustainable activities (Taxonomy-aligned)																		
3.4. Manufacture of batteries	CCM 3.4	607,294,481	66.3%	Y	N/EL	N/EL	N/EL	N/EL	N/EL		Y	Y	Y	Y	Y	55.6%	E	
3.2. Manufacture of equipment for the production and use of hydrogen	CCM 3.2	11,495,251	1.3%	Y	N/EL	N/EL	N/EL	N/EL	N/EL		Y	Y	Y	Y	Y	0.8%	E	
CapEx of environmentally sustainable activities (Taxonomy-aligned) (A.1)		618,789,732	67.5%	67.5%	0%	0%	0%	0%	0%							56.4%		
Of which Enabling		618,789,732	67.5%	67.5%	0%	0%	0%	0%	0%							56.4%	E	
Of which Transitional		0	0%	0%												0%		T
A.2. Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																		
				EL, N/EL ⁽¹⁾	EL, N/EL ⁽²⁾	EL, N/EL ⁽³⁾	EL, N/EL ⁽⁴⁾	EL, N/EL ⁽⁵⁾	EL, N/EL ⁽⁶⁾									
3.4. Manufacture of batteries	CCM 3.4	0	0%	Y	N/EL	N/EL	N/EL	N/EL	N/EL							0%		
3.2. Manufacture of equipment for the production and use of hydrogen	CCM 3.2	0	0%	Y	N/EL	N/EL	N/EL	N/EL	N/EL							0%		
CapEx of taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)		0	0%	0%	0%	0%	0%	0%	0%							0%		
A. CapEx of Taxonomy eligible activities (A1+A2)		618,789,732	67.5%	67.5%	0%	0%	0%	0%	0%							7.7%		
B. TAXONOMY NON-ELIGIBLE ACTIVITIES																		
CapEx of Taxonomy-non-eligible activities (B)		296,250,417	32.3%															
TOTAL (A+B)		916,310,939	100%															

	Proportion of CapEx/Total CapEx	
	Taxonomy-aligned per objective	Taxonomy-eligible per objective
CCM	67.5%	67.5%
CCA	%	%
WTR	%	%
CE	%	%
PPC	%	%
BIO	%	%

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Code	Absolute OpEx	Proportion of OpEx	Substantial contribution criteria							DNSH criteria ("Does not significantly harm")							Proportion of Taxonomy aligned (A.1.) or eligible (A.2.) OpEx, year N-1	Category (enabling activity or)	Category (transitional activity)
			Climate change mitigation	Climate change adaptation	Water and marine resources	Pollution	Circular economy	Biodiversity and ecosystems	Climate change mitigation	Climate change adaptation	Water and marine resources	Pollution	Circular economy	Biodiversity and ecosystems	Minimum safeguards				
	EUR	%	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Y, N, N/EL, (b)(c)	Percent	E	T	
Economic Activities (1)																			
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmentally sustainable activities (Taxonomy-aligned)																			
3.4. Manufacture of batteries	CCM 3.4	117,022,597	32.0%	Y	N/EL	N/EL	N/EL	N/EL	N/EL		Y	Y	Y	Y	Y	Y	27.6%	E	
3.2. Manufacture of equipment for the production and use of hydrogen	CCM 3.2	6,040,565	1.7%	Y	N/EL	N/EL	N/EL	N/EL	N/EL		Y	Y	Y	Y	Y	Y	1.2%	E	
OpEx of environmentally sustainable activities (Taxonomy-aligned) (A.1)		123,063,162	33.7%	33.7%	0%	0%	0%	0%	0%								28.8%		
Of which Enabling		123,063,162	33.2%	33.7%	0%	0%	0%	0%	0%								28.8%	E	
Of which Transitional		0	0%	0%													0%		T
A.2. Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																			
				EL, N/EL ^(b)	EL, N/EL ^(b)	EL, N/EL ^(b)	EL, N/EL ^(b)	EL, N/EL ^(b)	EL, N/EL ^(b)										
3.4. Manufacture of batteries	CCM 3.4	0	0%	Y	N/EL	N/EL	N/EL	N/EL	N/EL								0%		
3.2. Manufacture of equipment for the production and use of hydrogen	CCM 3.2	0	0%	Y	N/EL	N/EL	N/EL	N/EL	N/EL								0%		
OpEx of taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)		0	0%	0%	0%	0%	0%	0%	0%								0%		
A. OpEx of Taxonomy eligible activities (A1+A2)		123,063,162	33.7%	33.7%	0%	0%	0%	0%	0%								28.8%		
B. TAXONOMY NON-ELIGIBLE ACTIVITIES																			
OpEx of Taxonomy-non-eligible activities (B)		242,438,715	66.3%																
TOTAL (A+B)		365,501,877	100%																

	Proportion of OpEx/Total OpEx	
	Taxonomy-aligned per objective	Taxonomy-eligible per objective
CCM	33.7%	33.7%
CCA	%	%
WTR	%	%
CE	%	%
PPC	%	%
BIO	%	%

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Footnotes EU Taxonomy

(a)

The Code constitutes the abbreviation of the relevant objective to which the economic activity is eligible to make a substantial contribution, as well as the section number of the activity in the relevant Annex covering the objective, i.e.: • Climate Change Mitigation: CCM • Climate Change Adaptation: CCA • Water and Marine Resources: WTR • Circular Economy: CE • Pollution Prevention and Control: PPC • Biodiversity and ecosystems: BIO. For example, the Activity “Afforestation” would have the Code: CCM 1.1. Where activities are eligible to make a substantial contribution to more than one objective, the codes for all objectives should be indicated. For example, if the operator reports that the activity “Construction of new buildings” makes a substantial contribution to climate change mitigation and circular economy, the code would be: CCM 7.1. / CE 3.1. The same codes should be used in Sections A.1 and A.2 of this template.

(b)

- Y – Yes, Taxonomy-eligible and Taxonomy-aligned activity with the relevant environmental objective.
- N – No, Taxonomy-eligible but not Taxonomy-aligned activity with the relevant environmental objective.
- N/EL – Not eligible, Taxonomy-non-eligible activity for the relevant environmental objective.

(c)

Where an economic activity contributes substantially to multiple environmental objectives, non-financial undertakings shall indicate, in bold, the most relevant environmental objective for the purpose of computing the KPIs of financial undertakings while avoiding double counting. In their respective KPIs, where the use of proceeds from the financing is not known, financial undertakings shall compute the financing of economic activities contributing to multiple environmental objectives under the most relevant environmental objective that is reported in bold in this template by non-financial undertakings. An environmental objective may only be reported in bold once in one row to avoid double counting of economic activities in the KPIs of financial undertakings.

This shall not apply to the computation of Taxonomy-alignment of economic activities for financial products defined in point (12) of Article 2 of Regulation (EU) 2019/2088. Non-financial undertakings shall also report the extent of eligibility and alignment per environmental objective, that includes alignment with each of environmental objectives for activities contributing substantially to several objectives, by using the correct template.

(d)

The same activity may align with only one or more environmental objectives for which it is eligible.

(e)

The same activity may be eligible and not aligned with the relevant environmental objectives.

(f)

- EL – Taxonomy-eligible activity for the relevant objective
- N/EL – Taxonomy-non-eligible activity for the relevant objective.

(g)

Activities shall be reported in Section A.2 of this template only if they are not aligning to any environmental objective for which they are eligible. Activities that align to at least one environmental objective shall be reported in Section A.1 of this template.

(h)

For an activity to be reported in Section A.1 all DNSH criteria and minimum safeguards shall be met. For activities listed under A2, columns (5) to (17) may be filled in on a voluntary basis by non-financial undertakings. Non-financial undertakings may indicate the substantial contribution and DNSH criteria that they meet or do not meet in Section A.2 by using: (a) for substantial contribution – Y/N and N/EL codes instead of EL and N/EL; and (b) for DNSH – Y/N codes.

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INTERVIEW

Navigating the peaks and troughs for long-term growth

“Having a long-term financial perspective, locking in for longer tenors at attractive conditions helps us bridge those periods with headwinds.”

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Wannes Peferoen is Umicore’s Chief Finance Officer since October 2022. Wannes shares his experience as one of the first management trainees joining Umicore back in 2005, his tips for today’s young hopefuls, his team’s key achievements in 2023, priorities for this coming year and how he winds down after a busy day.

How long have you been working at Umicore and when did you join?

I started at Umicore back in 2005 as a management trainee in Group Control in Brussels. This followed with financial controlling positions in Cobalt & Speciality Materials (CSM) in Olen, Precious Metals Refining (PMR) in Hoboken and Electro-Optic Materials in Olen. Through these experiences I could get to know the Umicore Group, the different business units and activities, and also build a network, really connecting with the business. I then moved into general management in 2017 first with assignments abroad in France before returning as SVP for Electro-Optic Materials, and then onto my current position as CFO in October 2022.

You were among the first young graduates, tell us why the program is so important.

I was in the second wave of the newly created young graduate program or management traineeship as it was

called then. A similar concept but slightly different in that it welcomed people who had graduated or those who had had a first work experience elsewhere. In my case, I had already worked at PriceWaterhouseCoopers as an auditor and advisor when I came to Umicore in September 2005. The Young Graduate Program provides a great opportunity to gain experience in the world of work but also to take ownership of your own career. Typically, you have important assignments and the freedom to define and structure how you will deliver and achieve the outcomes of the project you have been set. You define your own success. It is also a yearly “rotational” program so employees gain experience and a flavour of the various aspects of the business in a way that they would not if they responded to a specific job opportunity. The fact that you rotate also means you are confronted with the challenges from different angles, functions and units. It’s an excellent way to learn about the business.



Young graduates with our Young Talent and Onboarding Manager

“Define your own future, create your own opportunities to learn and consider situations from different angles. This is your golden opportunity, seize it!”

Wannes Peferoen Chief Finance Officer



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What were the pivotal decisions in your career that shaped your path towards C-level? What advice do you have for today's young graduates?

My advice: take every challenge as an opportunity to learn and actively develop yourself and your technical and professional skills, particularly in leadership. Look for diversity in teams, embrace it and learn from it. Build a network both within and, equally important, outside the organization. Bring in outside perspectives and continuously challenge yourself and your current way of operating. And remember, there maybe times when you are ready to take on a new opportunity but it may not be immediately available. Use the time to continue developing yourself, challenge your leadership style, experiment with your team to see how you can achieve even more together. Take the constructive feedback and learn from it. Define your own future, create your own opportunities to learn and consider situations from different angles. This is your golden opportunity, seize it!

What is the most challenging aspect of your role as CFO?

Dependency on the effectiveness of the organization to be successful, particularly when thinking about performance and risk management. You need solid insights and understanding of the different business areas and quick access to the right data and market intelligence in order to be able to challenge teams. You need to know how detailed the teams are; how open they are in sharing what is really happening on the shop floor; what is really happening in the

market versus what the competitors are up to; how we are performing in terms of our products, price, quality, delivery times and so on. Simultaneously, you need to balance this with the appropriate trust towards the teams. I believe the key to being successful in this role is bringing outside perspectives in, and ensuring the Group makes business decisions that are well aligned with our 2030 RISE strategic and financial performance goals.

How has Umicore managed to navigate the headwinds (e.g. rising inflation & interest rates, energy crisis recovery, geopolitical tensions, more stringent regulation and fluctuations in the price of precious metals)?

On the one hand, we focus on the factors that we can control. We accelerated initiatives around operational excellence in a Group-wide program called Efficiency for Growth. Focus is on income generation and price setting, on procurement savings and creating greater efficiencies in our operations. The program is driving the mindset of continuous improvement. Umicore has the ambition to be a frontrunner in sustainability, think of our "Net-Zero" strategy. We are convinced that this approach generates a sustainable competitive advantage in the context of geopolitical tensions and climate change.

For the factors we cannot control, we aim to reduce the impact and increase the visibility on our future earnings. For precious metals, we adopted a strategy of increasing the hedging of future exposures. The metals management team successfully



Wannes at the groundbreaking ceremony in Ontario, Canada

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developed forward sales opportunities for all three Platinum Group Metals (PGMs) up to 2028. Similarly for energy, the procurement team was able to lock in a large share of the energy needs of the major European operations through sustainable long-term supply contracts at attractive conditions. When it comes to rising interest rates, it's again similar to energy and metal prices and therefore about securing the longer term. Having a long-term financial perspective, locking in for longer tenors with attractive conditions helps us to bridge those periods when we are facing headwinds. If you look at the overall weighted average of the interest cost, it remains attractive for the Group.

Which of these macro-economic factors have had the most impact?

Cost inflation and metal price are the most important macro-economic factors for us as they can impact EBITDA. The EBITDA generation is vital for the Group firstly, to generate the funding needed for growth investment; secondly, because it determines the debt capacity through the net debt leverage ratio. Whilst we have an ambition to grow, we want to manage risk, safeguard the company and remain investment grade. We are convinced that we have secured future EBITDA generation through metal and energy hedging,

Efficiency for Growth, the strong positioning in Catalysis and Recycling, and the long-term commercial agreements concluded in Battery Materials. Furthermore, we have secured and identified additional options to support the funding of the Group's growth, going from non-refundable government grants to working capital optimization.

This past year has been the first full year of the 2030 RISE Strategy. What progress has been made in implementing the strategy?

We have secured long-term value creative contracts supporting the expansion of Battery Materials in Europe and North America. Additionally, we have made substantial progress in securing business to improve the utilization rate of battery materials activities in Asia. We also carved out the Battery Materials Business Group to support the rapid growth and remain agile in case of future opportunities. On the one hand, we reduced the funding needed to execute our strategy. While on the other hand, we have secured funding (e.g. close to € 1 billion in non-refundable government grants), reduced working capital and renewed funding instruments (e.g. € 600 million from the Revolving Credit Facility (RFC) until 2030 and an eight-year loan granted by the European Investment Bank for € 350 million). In Catalysis we reinforced



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our market position across the different regions and were able to demonstrate significant cash flow generation. We demonstrated that the € 3 billion to be generated between 2022 and 2030 is well on track. In recycling, we continue with our strong performance despite the headwinds in PGMs.

What achievements are you most proud of over this last year?

2023 was about creating clarity and laying solid foundations to meet our strategic objectives going forwards. The clear funding roadmap with different options, which was stress tested under various scenarios and on the back of deteriorating macro-economic conditions is a key achievement of the past year. We also designed the Enterprise Performance Management platform for the whole Group, encompassing Finance, People & Organization (P&O) and environmental, social & corporate governance (ESG). Promoting and instilling an operational excellence mindset across all businesses and support functions has also been another notable achievement.

What three words sum up 2023 for you?

Agility because in the past year we have had to overcome some adverse macro-economic conditions, but we displayed agility in our response by investing in value creating growth and adopting supportive funding options. Transformation as we have been assessing the culture within Umicore and developing, growing and transforming some elements. Courage particularly for

management because it's times like these when you need the courage to believe and take decisions so the company can deliver and perform to the best of our ability. This last one is also about interpersonal interactions at every level, for example, having the courage to give and receive constructive feedback.

What are your priorities going forward for Umicore?

2024 will be about execution in all areas. It will be about: ramping up the contracted capacity on time and within budget; implementing the funding roadmap as designed, including the working capital improvements in the different businesses and the issuance of new funding instruments at the right conditions; carrying out initiatives defined under the Efficiency for Growth program and seeking ways to replenish the funnel of initiatives to continuously drive operational excellence; building the Group-wide Enterprise Performance Management system, encompassing Finance, P&O and ESG; and further investing in our governance model with financial risk management. Intense focus and investment on safety in terms of changing the mindset, creating a caring safety culture and enhancing operations will also continue this year.

Tell us a bit about yourself: when you are not busy being Umicore's CFO, what do you do to wind down and relax?

It's really important to disconnect once in a while and I do that by reading both non-

fiction business books, financial articles but also novels. I frequently read novels in French to maintain my language skills, but I am currently reading "Remains of the Day" from the Japanese writer Kazuo Ishiguro. I very much enjoy being out and about in nature either running, cycling or sailing and even better if I can do those activities together with family or friends. Last autumn, I sailed five days non-stop from Malaga to Las Palmas de Gran Canaria with my cousins, a great adventure.



Wannes at the groundbreaking ceremony in Ontario, Canada

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Umicore colleagues from
**Fuel Cell Catalysts in
Suzhou, China**

Niki
Finance Planning
& Analysis

Chenglin
Applied Technology

Xiaofang
Sales

Mingming
Quality, Environmental,
Health and Safety

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€ 857m

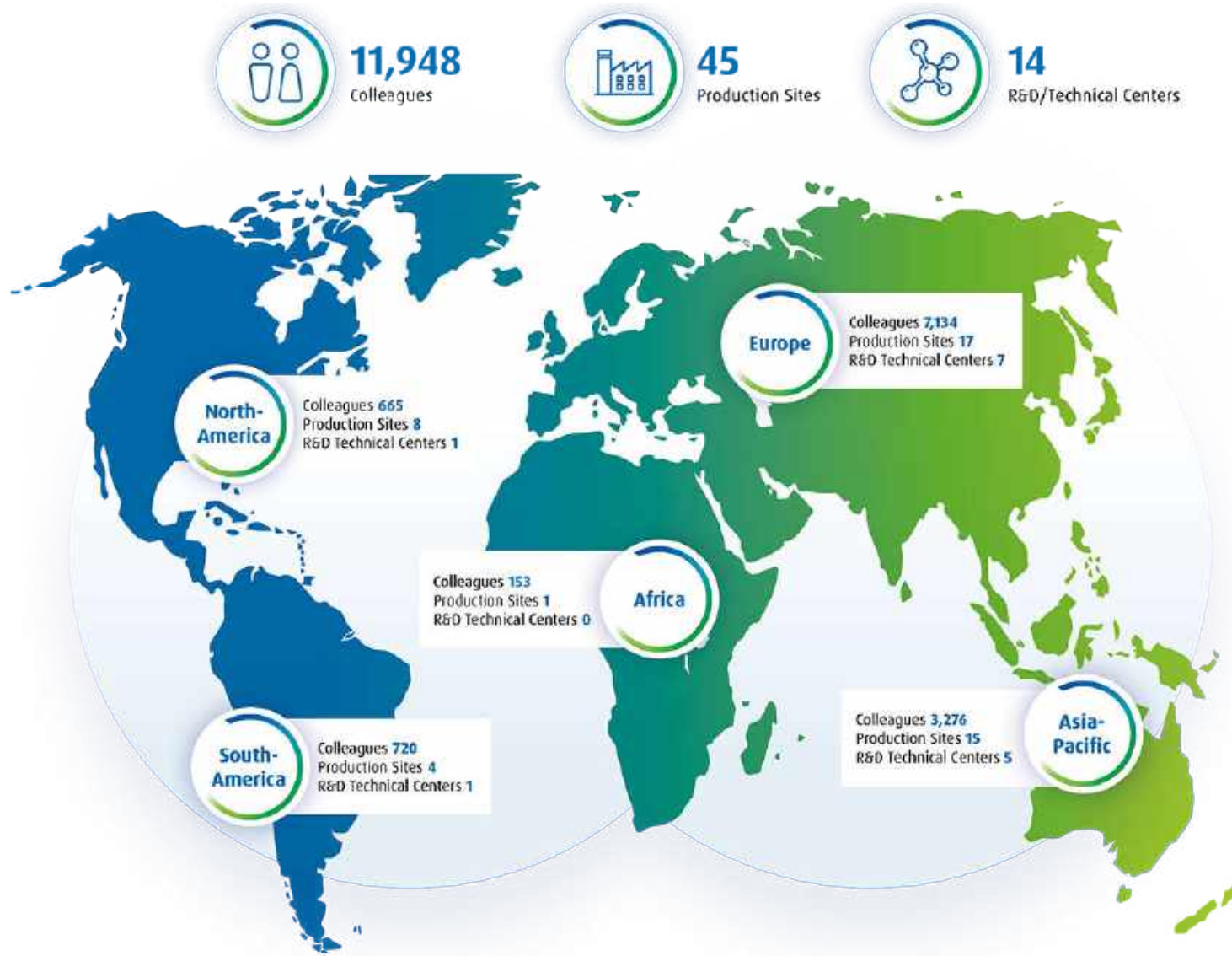
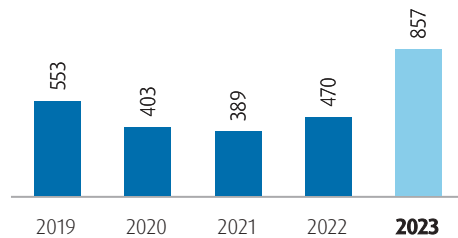
2023 CAPITAL EXPENDITURE

13.5%

RETURN ON CAPITAL EMPLOYED

CAPITAL EXPENDITURE

Millions of Euros



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Operations: optimizing excellence

Umicore is a circular materials technology Group, with more than 11,900 employees, creating sustainable products and services for a broad range of customers located in 29 countries.

Umicore’s operations are organized into three¹ business groups (Catalysis, Energy & Surface Technologies and Recycling) and 11 business units. See [Our complementary business groups](#).

“Umicore’s 2023 results demonstrate our ability to deliver strong cash flows and margins, despite challenging market conditions and a step up in investments as we prepare for growth. We made strong progress on cost savings in operations and are further accelerating this into 2024.”

Mathias Miedreich
CEO



While Umicore’s 11 business units serve a multitude of customers across different sectors and industries, the global automotive industry would be a key end market for Umicore. Umicore offers a unique value proposition to automotive customers who are impacted by the global clean mobility transformation. We are a reliable transformation partner that provides clean mobility solutions for all existing types of automotive platform drivetrains.

These include: emission control catalysts to clean the exhaust gases from gasoline and diesel internal combustion engines in light-duty and heavy-duty vehicles; rechargeable battery materials required to power plug-in hybrid and full-electric vehicles; and catalysts for fuel cell-powered vehicles.

By offering the full spectrum of automotive drivetrain technologies across the globe, Umicore is uniquely positioned to support its automotive customers in their complete journey from internal combustion engine towards electrification, ultimately, becoming a trustworthy partner for the whole mobility transformation.

To cater to our international customer base, Umicore has established local presence in Asia-Pacific, Europe, North and South America and South Africa. With headquarters in Brussels, Belgium, we work globally from 44 different production sites, 14 R&D sites and 34 other sites such as sales and marketing offices. Many of these sites accommodate a combination of business units, corporate departments or other activities. Our local presence reflects Umicore’s strong belief in customer proximity. As a reliable partner, we listen to our customers and focus on supporting them in their own ambition to become sustainable and circular companies. With our local presence, we offer our customers proximity to the best possible technologies, tailor-made products and services. Our upstream value chain integration in the local markets provides us with the opportunity to further reduce greenhouse gas emissions upstream, while optimizing excellence and continuity of operations.

As a global company, Umicore is supplied from an established and diverse supplier base in 83 countries. Our decentralized approach facilitates local activities, as business units and sites have operational flexibility and can respond quickly to the dynamics in local markets, both in the upstream supply chain and in the downstream needs expressed by customers. At the same time our customers, suppliers and partners can rely on strong support from the central headquarters. This allows us to build long-term relationships with our stakeholders.



Aerial view of Umicore Battery Materials site in Nysa, Poland

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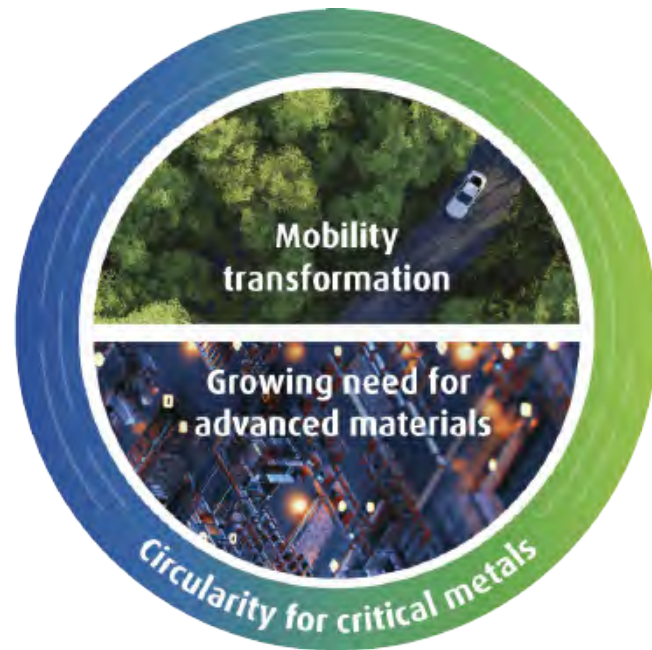
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¹ From 2024, Umicore’s business units will be housed in four, instead of previously three, business groups. See [Our complementary business groups](#) for more information.

Operations driven by megatrends and an ambition to RISE

Umicore’s 2030 RISE Strategy is set up to deliver fast, profitable growth with value creation to 2030 and beyond. This accelerated organic growth is driven by three powerful megatrends: the global transformation of mobility; the growing need for advanced materials; and the pursuit of a global circular economy.



Global mobility transformation: The mobility transformation is accelerating and the shift to carbon-free mobility is expected to grow exponentially by 2030. Through its complementary portfolio and presence in all drivetrain technologies, Umicore is uniquely positioned to capture this growth opportunity and guide our automotive customers through their transformation journey, from start to finish. This megatrend touches upon several of Umicore’s activities: cathode active materials used in electric vehicles in the Rechargeable Battery Materials business units, the recycling of lithium EV batteries and related scrap in Battery Recycling Solutions, the production platinum fuel cell catalysts for the transportation segment in the Fuel Cells & Stationary Catalysts Business Unit and the production of emission control catalysts for passenger and heavy-duty vehicles in Automotive Catalysts.

Growing need for advanced metal materials: Advanced materials are highly engineered materials that we produce to enable next generation technologies in smartphones, healthcare products, optic fiber cables, infrared cameras and so on. Our components are key enablers for faster, more scalable, more efficient, and more sustainable solutions that tackle the challenges of society today and tomorrow, also when it comes to the ability to recycle complex metal-based products. Umicore’s Cobalt & Specialty Materials, Electro-Optic Materials, Metal Deposition Solutions, Precious Metals Chemistry, Jewelry & Industrial Metals, Precious Metals Refining and Precious Metals Management Business Units are embracing this growing trend for advanced materials and complex recycling services, hereby enabling the next generation of technologies.

Circularity for critical metals: Against a background of a rapidly growing conviction that the future economy will be even more of a circular economy, also considering the increasing electrification of mobility, Umicore enables full circularity for critical metals through its recycling activities. Circularity for critical metals touches on all our 11 business units, whether driven by the mobility transformation or the growing need for advanced materials. That is also a strong driver of our value creation proposal.



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Alignment of organizational and reporting structure to RISE 2030 Strategy

In the framework of the 2030 RISE Strategy, Umicore announced in July 2023 a new organizational structure to support the significant business growth in Rechargeable Battery Materials. Under the new structure, Umicore’s business units will be housed in four, instead of the current three, business groups. The new structure is based on important synergies and common characteristics also brings increased focus on the different business activities.

The former **Rechargeable Battery Materials (RBM) Business Unit** will be reported as the **new Battery Materials Business Group**, led by Ralph Kiessling, currently Executive Vice President Energy & Surface Technologies.

This set-up provides the focus and structure needed to support the anticipated strong growth of the battery material business. It also provides additional transparency and insights into the business group’s performance.

The **Cobalt & Specialty Materials (CSM), Electro-Optic Materials (EOM) and Metal Deposition Solutions (MDS) Business Units**, now part of Energy & Surface Technologies, will be grouped in the **new Specialty Materials Business Group** under the leadership of Geert Olbrechts as responsible EVP.

In addition, Geert became Chief Technology Officer of the Group in August 2023. In his new capacity, he is also in charge of the Corporate Research & Development activities in close collaboration with the R&D teams of the business units. They will work hand in hand with the New Business Incubation and Open Innovation teams.

For more on our organizational structure see Leadership.



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Catalysis

Reducing harmful emissions




Umicore's **Catalysis** Business Group comprises the Automotive Catalysts, Fuel Cells & Stationary Catalysts and Precious Metals Chemistry Business Units. Their activities focus on the development and production of catalyst formulations and systems used to abate harmful emissions from combustion engines, for use in fuel cells, and chemical and life science applications. These catalysts mainly use Platinum Group Metal (PGM) chemistries, in which Umicore has over 50 years of experience.

The **Automotive Catalysts** Business Unit is one of the world's leading producers of catalysts used in automotive emission systems for light-duty and heavy-duty vehicles. Its PGM-based emission catalysts are used in gasoline and diesel internal combustion engines, including the engines of mild and full hybrid vehicles. The business unit develops and manufactures three-way catalysts (TWC) and particulate filters (CGPF) for gasoline engines as well as diesel oxidation catalysts (DOC), particulate filters (DPF), NOx (Nitrogen oxides) and SCR (selective catalytic reduction) systems for diesel engines. In particular, it has a very strong market position in the gasoline light-duty segment, reflecting industry-leading gasoline catalyst technology. In addition, the business unit produces catalysts for heavy-duty diesel (HDD) vehicles such as buses and trucks and for motorcycle or small-engine applications. Umicore Automotive Catalysts' worldwide operations deliver emission catalysts to global and local automobile manufacturers in Asia-Pacific, Europe and North and South America.

With the rapidly increasing penetration of full-electric vehicles in the light-duty segment, the Automotive Catalysts Business Unit anticipates the value of the market to plateau in the next few years. This is based on projected production growth rates for light-duty gasoline, diesel vehicles and heavy-duty diesel vehicles towards 2030, as well as upcoming emission legislation in Europe and China. Based on its strong technology portfolio, Umicore's Automotive Catalysts business is well positioned to capture this market value, strengthen its position and maximize business value through a continued focus on process efficiency and operational agility.

Through the **Fuel Cells & Stationary Catalysts** Business Unit, Umicore supports future growth in both Proton Exchange Membrane (PEM) fuel cells and stationary catalysis, targeting a broad range of industries (automotive industry; manufacturing; hydrogen production; and power and propulsion). We aim to support our customers in developing clean engines and reaching zero emission mobility and power supply. The business unit benefits from Umicore's established global presence in both business areas with headquarters in Shanghai, China.

Fuel cell drivetrain technology for heavy-duty vehicles, is gaining momentum as an environmentally friendly alternative to internal combustion engines. Demand from the hydrogen-based mobility segment is set to grow exponentially towards 2040. As a leading fuel cell catalyst provider, Umicore is ideally positioned to capture the growth in hydrogen-based mobility. Umicore's fuel cell activity has applied R&D centers in Europe and Asia as well as an industrial-scale PEM-catalyst production footprint in Germany and Korea. To cater for the rapidly growing demand of our customers, PEM-catalyst mass-production capabilities are being expanded with a greenfield plant in Suzhou, China. Umicore held the  [groundbreaking ceremony](#) on December 1st, plant anticipated to be operational in early 2026. It is expected that by that time it will be the world's largest PEM fuel cell catalyst production facility.

Umicore **Precious Metals Chemistry** develops and manufactures metal-based catalysts, active pharmaceutical ingredients (APIs) and chemical vapor deposition (CVD) precursors. Its expertise includes the conversion of metals into inorganic and organometallic chemicals, APIs and homogeneous catalysts as well as the handling and manufacturing of highly toxic or sensitive materials. Its key end markets are automotive, chemicals, electronics and pharmaceuticals.

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Energy & Surface Technologies

Powering the future

Umicore's **Energy & Surface Technologies (E&ST)** Business Group contains the Cobalt & Specialty Materials, Rechargeable Battery Materials, Metal Deposition Solutions and Electro-Optic Materials Business Units. This business group comprises Umicore's innovative battery materials that power rechargeable lithium-ion batteries and enable the world's transition to electromobility. The Cobalt & Specialty Materials Business Unit has a long-standing track record in the sourcing, production and distribution of cobalt and nickel products. The business group also supplies products for precious and non-precious metal-based electroplating and PVD coating in the Metal Deposition Solutions Business Unit and germanium-based material solutions for the space, optics and electronics sectors in the Electro-Optic Materials Business Unit.

Umicore **Rechargeable Battery Materials** is a leading supplier of active cathode active materials for lithium-ion batteries which is the main battery technology powering full electric and (plug-in) hybrid vehicles. The Rechargeable Battery Materials Business Unit has more than 25 years' experience in cathode active materials (first for portable electronic applications, then for electric vehicle (EV) applications). It has an impressive product and process technology leadership track record and demonstrated industrial capabilities in manufacturing cathode active materials and the related precursor materials at mass scale at the highest quality and environmental standards.

Based on its longstanding upstream know-how in cobalt and nickel refining and recycling, and as a front runner in the sustainable raw material sourcing, the Rechargeable Battery Materials Business Unit established a unique position in the battery value chain.

Umicore significantly expanded its cathode active materials production capacity since 2016 to cater for rapidly growing customer demand, particularly from the EV segment. End 2023, Umicore's total global battery materials production capacity amounted to 85 GWh, with its gigafactories in China and Korea representing 65 GWh.

In Europe, Umicore continued to make strong progress with the expansion of its production capacity, reaching 20 GWh end 2023, and remains well on track to achieve 40 GWh capacity by the end of 2024.

In 2023, Umicore announced the signing of a [ten-year agreement with AESC to supply high-nickel battery materials](#) for the production of EV batteries at AESC's US manufacturing facilities in North America. The contract and its firm commitments give Umicore secured access to an important part of the North American demand for EV battery materials and further diversity its exposure to major players in the EV value chain. Following the signing of this contract with AESC, Umicore announced the construction of a 35 GWh equivalent battery materials production plant in Ontario, Canada, to serve the North American market. Construction of this plant started end 2023 with expected commissioning by the end of 2025 and production ramp-up as from 2026. Given the significance of the plant for the North American EV supply chain, [Umicore received substantial financial support from the governments of Canada and Ontario](#).

IONAWAY, the joint venture backed by Umicore and Volkswagen Group-owned PowerCo, [announced the construction of its first cathode materials production plant in Nysa, Poland](#), adjacent to Umicore's existing plant. The project received strong support from the Polish Government under the Temporary Crisis and Transition Framework from the European Commission.

[Umicore's order book for battery materials currently stands at 190 GWh contracted cathode active materials \(CAM\) volumes for 2027 and 270 GWh for 2030](#). It is well diversified across multiple battery and car manufacturers in Asia, Europe and North America and covers entry, volume and premium platforms for a wide range of brands and car models.

The recently concluded long-term value-creative contractual agreements with customers in Europe and North America include significant protection mechanisms providing Umicore with visibility on future returns. Considering these guardrails, adjusted EBITDA¹ margins above 25% are anticipated from 2026 onwards.

¹ Based on revenue excluding metals (i.e. all revenue elements — value of the following purchased metals: Au, Ag, Pt, Pd, Rh, Co, Ni, Pb, Cu, Ge, Li and Mn).



Honorary guests at IONWAY first production site location event in Nysa, Poland

With this strong order book in place, Umicore will now shift its focus to the flawless execution of the capacity extensions announced to date in Europe and North America.

To maximize capacity utilization, expansions will be closely matched to the customer volume ramp-up trajectories, resulting in a total global installed cathode active materials production base by the end of 2026 of 195 GWh compared with 85 GWh end 2023¹.

The capacity in Europe and North America will be optimally utilized through secured contracts beyond 2030 with the production footprint in APAC providing regional flexibility and further upside potential on capacity utilization.

It is further complemented by the closed loop recycling of battery materials provided by [the Battery Recycling Solutions Business Unit](#) in the Recycling Business Group.

The Business Unit **Cobalt & Specialty Materials** is a worldwide leader in the recycling and refining of nickel and the transformation and marketing of cobalt and nickel specialty chemicals. Its broad expertise covers a multitude of applications in both chemical and powder metallurgy. The unit covers all steps of the value chain, from sourcing to distribution, with production units and sales offices on all continents.

Umicore's **Metal Deposition Solutions** Business Unit is one of the world's leading suppliers of products for precious metal-based coating of surfaces in the nano and micrometer range. The unit masters the two highest-quality coating processes: electroplating and PVD coating which offer customers tailor-made coating processes for their specific needs. Its coating solutions are used by manufacturers in the electronics, semi-conductor, automotive, optics and jewelry industries.

The **Electro-Optic Materials** Business Unit supplies germanium-based material solutions to customers around the world. Its main markets are thermal imaging and opto-electronic applications, for which it supplies germanium wafers, infrared lenses and optics, and germanium-based chemicals.

Umicore's unique locally integrated value chain proposition, both upstream and downstream, provides solid benefits in securing ethical and low-carbon footprint raw materials and is a strong competitive differentiator.

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¹ Including the IONWAY capacity in Europe.

Recycling

Giving new life to used metals



In its **Recycling** Business Group, Umicore gives new life to used metals. The Recycling business recovers a large number of precious and other metals from a wide range of waste streams and industrial residues. Its operations also extend to the production and recycling of jewelry materials. This business group also offers products for various applications including chemical, electric, electronic, automotive and special glass applications. It consists of four business units: Precious Metals Refining; Battery Recycling Solutions; Precious Metals Management; and Jewelry & Industrial Metals. At the center, its flagship Precious Metals Refining plant in Hoboken, Belgium is unique in its kind. The Recycling Business Group builds on a strong 25-year track record integrating circularity at the core of its existence, many years before circularity became a household word.

Umicore **Precious Metals Refining** operates as one of the world's largest precious metals recyclers. As the market leader in low-carbon recycling of complex waste streams containing precious and other non-ferrous metals, it serves a broad range of customers worldwide. As other business units (such as Automotive Catalyst, Rechargeable Battery Materials and Fuel Cells & Stationary Catalysts) use these metals, Precious Metals Refining truly closes the metals loop in our operations. As such, it is therefore at the heart of our closed-loop business model, providing a true competitive edge. It is a key enabler of the low-carbon economy as recycling reduces the carbon footprint of metals in the value chain by about 50%.

Recent innovations allowed Umicore to maximize input of highly complex PGM materials, such as spent automotive and industrial catalysts. Umicore's unique technology touches the full value chain, going from industrial by-products to end-of-life materials. Precious Metals Refining recovers 17 metals out of more than 200 types of complex waste streams which makes us intrinsically flexible and gives us the opportunity to focus on raw materials that bring us the most value.

Increasing scarcity of metals and complexity of the materials offered for recycling are key drivers for the business. Regulatory requirements and more stringent legislation, such as obligations regarding proportions of recycled materials in the product and environmental restrictions, present a real opportunity for Umicore as it can leverage on its leadership in complex and low-carbon recycling. All of this translates into an increasing structural demand for sustainable and complex recycling solutions regardless of the metal price evolution. In addition, the Battery Recycling Solutions Business Unit (see hereafter) benefits from the world-class expertise of the Precious Metals Refining Business Unit.

Recycling reduces carbon footprint of metals in the value chain by about 50%.

The **Battery Recycling Solutions** Business Unit is a key enabler of sustainable electrification in the automotive industry. It provides access to critical recycled metals and allows closed-loop, environmentally friendly, low-carbon battery manufacturing. The business unit is preparing for the exponential increase of battery scraps and end-of-life batteries to be recycled towards 2030, driven by regulatory frameworks and accelerating vehicle electrification. The business unit is evaluating the best location for its larger-scale European battery recycling plant, while continuing to focus on building the required ecosystem and on recycling scrap from European battery plants in their ramp-up at its industrial pilot plant in Hoboken (Belgium). This expansion will deploy Umicore's latest proprietary pyro-hydro recycling technology, which achieves industry leading recovery rates for cobalt, copper, nickel and lithium while having a minimal impact on the environment. With this expansion project, Umicore will strongly contribute to the European Union's objective to establish a sustainable and circular electric vehicles battery ecosystem in Europe.

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During 2023, new regulatory requirements such as the Inflation Reduction Act in the US and the European Critical Raw Materials Act in Europe were launched. Both provide even more momentum for Umicore's battery recycling activities. Metal scarcity, the circular economy component and the focus on limiting the carbon footprint will continue to drive the use of recycled metals in batteries and on a broader scale.

Umicore **Precious Metals Management** is a global leader in the supply and handling of all precious metals. The business unit ensures physical delivery to most countries worldwide, by using the output of Umicore's precious metals refineries as well as its close network with reliable industrial partners and banks. The business unit acts as a link between the recycling activities and producers in need of precious metals (internal as well as external). Umicore guarantees supply continuity through sustainable sourcing of raw materials.

The **Jewelry & Industrial Metals Business Unit** supplies precious metal-based products to jewelers and precious metals processors. It provides semi-finished products and alloys for industrial applications, as well as equipment for high-quality glass applications and optimized performance catalysts for ammonium oxidation processes. It also offers precious metals recycling services. The business unit, headquartered in Germany, has operations in Austria, Brazil, Canada, China, Germany, Thailand and the US.



From electronic waste to precious metal composition

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Associate & joint venture companies

Umicore has investments in various business activities over which it does not exercise full management control. Associate companies are those in which Umicore has significant influence over financial and operating policies, but no control. Typically, this is evidenced by ownership of between 20-50% of the voting rights, while joint ventures usually entail a 50:50 split in ownership and control. Joining forces is a way to speed up technological developments, gain access to specific markets or share investments.

When management control is not exercised by Umicore, we are able to guide and control the management and monitor business developments through representation on the board of directors. We cannot impose our own policies and procedures on any associate nor on any joint venture when we do not possess majority voting rights. However, our expectations that operations are run in accordance with the principles of the  [Umicore Way](#) are clearly communicated.

Umicore is rigorous in safeguarding any intellectual property that is shared with associate or joint venture partners. For a full list of associate and joint venture companies, see [note F17](#).



Employee working at Battery Recycling Solutions in Hoboken, Belgium

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IONWAY joint venture

Umicore and Volkswagen Group-backed battery company PowerCo created the 50:50% joint venture IONWAY BV with registered offices in Brussels, Belgium.

IONWAY will supply PowerCo's European battery cell factories with cathode active materials and related precursors covering a large part of PowerCo's European demand for key battery materials. The joint venture will also provide Umicore with secured access to an important part of the European demand for EV cathode active materials. Both parent companies aim to grow IONWAY's annual production capacity to 160 GWh by the end of the decade, corresponding to 2.2 million battery-electric vehicles. Thomas Jansseune, previously Head of Umicore's New Business Incubation, took the helm as Chief Executive Officer. Achim Holzer, previously Head of Value Engineering & Central Purchasing Functions in Volkswagen Group Technology, joined as Chief Financial Officer.

On October 16th, 2023 IONWAY announced the construction of its first cathode active materials production plant in Nysa, Poland, adjacent to Umicore's existing plant. By doing so, the joint venture confirmed its ambition to increase annual production capacity to 160 GWh by the end of the decade. Preparation of the site, engineering and permits are ongoing and construction will start once the permit process is completed. Production of the plant is expected to begin as soon as construction is completed in 2025. In the meantime, PowerCo's cathode active materials requirements for its Salzgitter battery gigafactory will be secured from the existing production capacity of Umicore in Nysa.

By accelerating the establishment of regional, sustainable, and transparent battery value chains, IONWAY will help the European Union achieve its Green Deal ambitions. The project received strong support from the Polish Government under the EC's Temporary Crisis and Transition Framework.

More information on IONWAY see

www.ionway.com



Rendering of the IONWAY plant in Nysa, Poland

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INTERVIEW

Gearing up for a fuel cell future



“The new greenfield site in China is a prime strategic location, perfectly positioning us to cater for demand and leading the way in the latest fuel cell technologies.”

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2023 was a milestone year for Umicore's ambition in fuel cell catalysts

As China becomes a hub for the growing international fuel cell vehicle market, Umicore is getting ready to meet demand with a new greenfield plant in Changshu. This new plant is expected to become the world's largest fuel cell catalyst production facility to date. **Joakim Thøgersen**, Senior Vice President Fuel Cells & Stationary Catalysts, shares the journey so far.

How was 2023 a milestone year for Umicore's ambition in fuel cell catalysts?

It was a very busy year and a very important one for us. We literally laid the foundations for the future of our fuel cell catalyst business with the ground-breaking ceremony for our new plant in Changshu on December, 1st. It was a proud moment. When fully operational, this will be the largest fuel cell catalyst plant in the world. Umicore is already a global leader in fuel cell catalysts for the mobility segment, so this new greenfield site, in a prime strategic location, perfectly positions us to cater for growing demand and lead the way in the latest fuel cell technologies.

Why did Umicore decide to build in China?

Over the past 30 years we've successfully grown to become a market leader in the field with our production and R&D footprint in Hanau, Germany and Songdo, Korea. Having recognized the need to increase capacity of fuel cell catalysts to meet global demand, the next step was deciding whether to expand in Europe, North America or China. Our decision was relatively easy in the end: we strongly believe the fuel cell market will take off in China first. After all, more than 90% of the fuel cell trucks sold over the last five years were in China, which makes this fertile ground for a burgeoning fuel cell market. It



Rendering of our future offices in Changshu, China



"We literally laid the foundations for the future by breaking ground for our fuel cell catalyst plant in China."

Joakim Thøgersen Senior Vice President
Fuel Cells & Stationary Catalysts

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helps that fuel cell technology features in the Chinese Government's Five-Year Plan. There will be bumps in the road – such as the current economic climate – but there is always some uncertainty in the energy transition.

What factors will influence the development of the fuel cell vehicle market?

A prerequisite for the market development is the development of hydrogen infrastructure and availability of hydrogen at refuelling stations. Future projections show that TCO (total cost of ownership) of fuel cell vehicles is expected to be lower than the TCO of diesel technology, with the cost of hydrogen being a key factor. Market penetration will also depend on the cost and adaptation of battery electric vehicles in various vehicle segments.

How will the plant complement Umicore's existing facilities in South Korea and Germany?

First of all, the Changshu plant will be a lot bigger than our existing fuel cell catalyst production sites. And secondly, we want to optimize utilization as much as possible. Production in Korea will focus on alloy catalysts in the future, which can offer better fuel efficiency. The new plant in China will begin with platinum catalysts, which are inherently more stable and therefore easier to manage from an operational perspective. It's not possible to mix these products on the same line, which means we need independent production lines. We can't say which technology will prevail, so we plan for the plant in

“Personally, I felt a huge sense of achievement and it was also very clear to see the pride in the eyes of our people.”

Joakim Thøgersen Senior Vice President
Fuel Cells & Stationary Catalysts



China to produce both product types in the longer term. While we work to get the Changshu plant up and running, we'll bridge our production capacity in Germany, where we will continue making fuel cell catalysts including electrolyser catalysts for hydrogen production.

What did the ground-breaking ceremony mean to you and the team?

Personally, I felt a huge sense of achievement and it was also very clear to see the pride in the eyes of our people.

However, we all know there's a lot more work to do to secure more customers and get our products ready. This was a rewarding culmination of my work so far in China. Before joining Umicore, I was a managing director of my former company there, and have around 10 years' experience working with or in the country. I could never have imagined that my career would lead me here, breaking ground for the world's biggest fuel cell catalyst plant.

It's very important in Chinese culture to mark these milestone events in the right way, so it felt like a very special day for me and the whole team. As well as high-ranking government officials, we also enjoyed the company of our customers and some of China's top professors in this field. As a former researcher, that made me very happy! I think all the dots came together that day and it was a perfect way to begin this exciting journey of the emerging growth in fuel cell technology.



Groundbreaking ceremony with honorary guests in Changshu, China

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Can you describe the process of setting up in China?

We began the journey in late 2020, when the world was still in the grips of the Covid pandemic, so it was a real challenge to start building a business in the country at this time. The first step was getting a strong local team in place, something I've always believed is key to doing successful business in China. To do that, I needed to be on-site, which meant a lot of travelling and quarantining. At one point, I had to spend 28 consecutive days isolating in one hotel room! It was all worth it though, as we were able to bring together a very strong team that ensured we could celebrate the ground-breaking by the end of 2023, and who will help us meet the tight timelines of the projected market demand in China.

Anything else that triggered the location choice?

After site-screening several chemical parks, we set up in Changshu, partly because of its proximity to Shanghai and Suzhou, where Umicore already has a presence. The local government provided also incentives to facilitate our project and we eventually became a Suzhou "key project". We were also eager to form good relationships with senior officials, and in fact, many of them, including the Party Secretary, an administrative Mayor and the local Mayor, attended the ground-breaking ceremony.

We knew it was important to engage with those on the operational side too, such as the Environmental Protection Bureau.

How will the plant operate sustainably?

We plan for our Scopes 1 and 2 emissions to be carbon neutral, depending on a ready availability of green electricity. We will also be looking to minimize our Scope 3 emissions from our supply chain, which is why we're asking our partners to optimize their CO₂ footprint as much as possible. When it comes to circularity, we expect to recycle the fuel cell membranes, and there's research ongoing to determine whether we can reuse different materials in the membranes.

What's the growth plan for the new plant?

The plant is expected to be operational in 2026. We'll start on a small scale, building up capacity gradually so that we can always operate in an optimized way. We're a market leader in this area with a strong technical portfolio and partnerships with research institutes, industrial partners as well as global car manufacturers, so we're well positioned to make this investment. Through cutting-edge fuel cell catalyst technology, this plant will play a key role in accelerating the transformation of hydrogen-based clean mobility.



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Umicore colleagues from
Corporate Research & Development
working on battery materials

Maria
Cathode Active
Materials synthesis

Patrick
Battery materials
functionalization

Lourdes
Solid-State Battery
materials synthesis

Simon
Solid-State Battery
testing

Innovation

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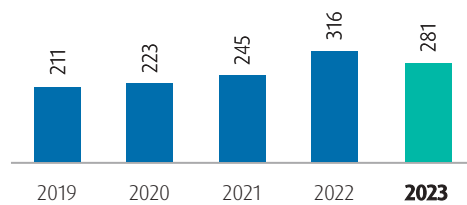
R&D SITES

€281m

2023 R&D SPEND

R&D EXPENDITURE

Millions of Euros



Umicore: an innovation & technology leader

Umicore is an innovation and technology leader, combining chemistry, material science and metallurgy to push the boundaries of clean mobility and recycling. From battery materials, automotive catalysts, fuel cell catalysts, thermal imaging lenses used in nightvision and security applications to electroplating and thin film products that go into high-performance surface products and decorative materials, our innovations are behind many of the cutting-edge products enabling progress in the modern sustainability-driven world. Next to creating leading materials solutions, we embed circularity entirely in our innovation approach, recycling all valuable elements to a maximum and in a sustainable way.



In June 2023, Umicore was nominated by Euronext to join the [Euronext Tech Leaders index](#). As a materials technology company, we strive for technology leadership, research and development (R&D) is how we make the difference and therefore at the heart of everything we do. Both are firmly embedded in the core of our business and our 2030 RISE Strategy – adding value across the organization and supporting our long-term growth.



We consistently invest in innovation to meet the growing demand for innovative and sustainable clean mobility materials and for state-of-the-art recycling services to close the loop of precious and other valuable metals. Our future success depends on us maintaining our technological advantage and value creation.

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Driving innovation from within

At Umicore, Technology Innovation comprises of Corporate R&D; business-unit-level R&D; New Business Incubation (NBI); all of which are supported by essential innovation functions such as open innovation, IP, and strategic insights and analysis. Currently, 1,400 R&D colleagues are working across the company on advanced technologies with colleagues based in Belgium, China, Finland, Germany and Korea.

The appointment of Geert Olbrechts as CTO in August 2023 and his place on the Management Board as Executive Vice-President further reinforces the importance that Umicore places on innovation and technology.

Since joining, Geert has spearheaded the Group’s long-term technology roadmap and the Group-wide synergies, driving Umicore’s innovation momentum in line with our objectives under the 2030 RISE Strategy.

“At Umicore, we transform non-ferrous metals into functional materials that our customers use to improve their products, which in turn means better batteries, automotive catalysts, mobile phones, solar panels and much more. Our technology leadership supports their technology leadership.”

Geert Olbrechts
CTO & EVP



The CTO organization is structured around Umicore’s Corporate Research & Development (CRD) activities, which work closely with the R&D teams in the business units as well as with NBI and Open Innovation teams to develop mid- to long-term technologies tailored to the specific customer needs and end-markets. To ensure efficiency and effectiveness in R&D, centrally defined R&D governance and standards are deployed across the Group. See [Management Board](#) and [The elevator pitch](#).

R&D is the cornerstone of our technological development

Our **Corporate R&D organization** is a cornerstone of our technological development, connecting the R&D departments in our business units and ensuring that all parts of the businesses harness operational synergies for innovation and tap into our deep R&D expertise. In this way, we ensure that innovation is woven into the heart of the business and that our R&D insights are inspired by the market and the needs of our customers.

This is particularly true for **clean mobility and recycling**, where global megatrends as well as political and market demands are accelerating the pace of innovation. Umicore has an advanced position in this rapidly developing area, setting new industry standards with advanced and sustainable product and process technologies.

For clean mobility, we are a **leader in automotive catalysts** for emission control and fuel cells, and are already a long-standing **leader in cathode active materials** to power the EVs of today and tomorrow. For recycling, we are a pioneer in the fast-growing sector of **EV battery recycling** and an undisputed **champion in precious metals recycling**.

As part of our commitment to reduce diffuse emissions by 25% of 2020 levels by 2025, Umicore is using sophisticated R&D modelling and innovative techniques to better identify the sources of metal to air emissions and enable teams to take action as we do for our recycling plant in Hoboken, Belgium.



Employees at the Battery Materials R&D center in Cheonan, Korea

Next-generation technology helps us reduce energy consumption throughout our business and hence **reach our decarbonization goals**. Technological advancements are also vital in the capture of nitrous oxide, already happening in Hoboken, and greenhouse gas emissions, particularly to reach our Let’s Go for Zero ambition of Net-Zero GHGs by 2035.

R&D expenditure in fully consolidated companies amounted to € 281 million, down 11.1% compared with € 316 million in 2022, mainly enabled by R&D savings in Automotive Catalysts and the reduced costs for mass production test runs in Battery Materials. In 2023, Umicore continued to increase R&D spend on new product and process technologies in Rechargeable Battery Materials and increased R&D efforts in Battery Recycling.

The R&D spend represented roughly 7.3% of Umicore’s 2023 revenues and capitalized development costs accounted for € 28 million of the total.

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New Business Incubation (NBI) & Catalysis 2.0

Umicore's New Business Incubator (NBI) strengthens and expands the Group's innovation capabilities. At an early stage, the NBI identifies winning technologies with the potential to become mature businesses over a horizon of 5-15 years. The NBI works in a startup-based environment where technology is deployed, pilot lines are built and commercial sales portfolios developed. Projects with the potential to reach industrial scale, combined with a strong business model, are transferred to an existing Umicore business unit or could become a new business unit in their own right.

In 2023, Umicore focused on new fields of catalysis that are opening up as part of the green transition such as hydrogen generation and storage, or carbon capture and utilization. To this end, we set up the **Catalysis 2.0 incubator** to test several projects in an NBI environment.

Umicore also marked a major milestone with the announcement in February 2023 and the significant progress made in the [industrialization of the high-lithium manganese \(HLM\) technology](#), that had previously been matured in the NBI environment. With this sustainable low-cost, high-energy density cathode active materials solution with lower nickel (Ni) content, Umicore has established an early lead in the market targeting commercial production for electric vehicles (EVs) in the second half of the decade. Years of pioneering work and [strong collaboration by Umicore's R&D and innovation teams](#) have led to this important breakthrough. Within the scope of the NBI's battery activities, Umicore also works on solid-state battery solutions.

Open innovation: Tapping into a global ecosystem

Umicore is known for the breadth and depth of its internal expertise and know-how, with leading international scientific and engineering talent dedicated to developing the next generation of sustainable products and process technologies. Thanks to our team's in-depth knowledge of metallurgy and materials science, a significant part of our technology is delivered using our own R&D findings.

With fast-moving societal megatrends, including the accelerating move to cleaner mobility and electromobility, as well as the need for a circular economy, we cannot find all the solutions by relying on our internal expertise alone. That is why Umicore's community of over 1,300 scientists forges partnerships and develops technologies through market intelligence and **open innovation** with leading industrial or academic partners and start-ups.



Signing ceremony for Umicore's R&D center in Shanghai, China

Further internationalization of corporate R&D by **linking with global ecosystems is vital** in driving up the speed while driving down the complexity and, ultimately, ensuring the success of strategic ambitions.

In 2023, Umicore extended its global R&D footprint with a signing ceremony in Waigaoqiao, Shanghai on October 24th for its **first corporate R&D center in China, its fourth globally**. Due to be opened in Q1 2025, this new research hub will link with Umicore's current businesses in China to support their innovation needs as well as enable us to expand collaboration with leading universities, companies and institutes in China.

Umicore also broadened its network of partners becoming **better integrated with universities and start-up companies** to keep abreast of the latest technological trends. As a result, our dedicated Open Innovation team participated in over 200 open innovation partnerships focused on long-term developments in the fields of materials for clean mobility and recycling solutions. Some such collaborations have proved highly successful such as the PEELER project which focuses on reducing the cost of solar panel components through the use of innovative materials. This joint endeavor of [Umicore, Saint-Augustin Canada Electric \(STACE\), and the Université de Sherbrooke - 3IT research team earned them the prestigious INNOVÉÉ award](#) from the Association for the Development of Research and Innovation of Quebec (ADRIQ) in November 2023. Another example of good collaboration can be found in the [joint project by Lynred and Umicore to co-develop thermal imaging technology](#) to protect pedestrians in night traffic situations which reached a significant breakthrough last year.

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"At the Core of Umicore's Battery Materials" event

A new series of “At the Core” events was created in 2023 to shine a spotlight on our innovation and technology among our stakeholders. Our [inaugural event on battery materials](#) in Poland last November demonstrated with compelling evidence that Umicore is a key enabler in the future of electromobility. With 32 live visitors and 130 more joining online, there was strong interest from analysts and investors.

“Our ecosystem of a global pool of expert talents, diverse competences, global R&D footprint and strong partnerships from academia to OEMs, are key success factors that contribute to our future-proof innovation.”

Geert Olbrechts
CTO & EVP



Understanding the market in which we operate and the new technological trends is vital for our ongoing success. Our R&D and applied technology teams are in daily contact with customers listening to how we can tune our products to better serve their needs. In Battery Materials we further enhanced our customer base over the past year to encompass not only battery makers but also car makers; original equipment manufacturers (OEMs).

Continuous knowledge sharing, collaboration and our learning culture enable us to maintain our competitive edge and retain our status as an innovation and technology leader. To make maximum use of our internal expertise and know-how, we brought the global Innovation and Technology (I&T) community together for a three-day in-person event. The 2023 edition of the **Umicore Science and Technology Days**, held in Brussels, Belgium in June, brought together over 300 in-person participants from around the globe including good participation of colleagues from Asia.

This three-day event provided a chance to network and share best practices, while fostering cross-business unit and cross-regional collaborations.

Umicore’s Management Board was also present and participated in exchanges with R&D colleagues at this year’s event underpinning the importance of Science and Technology to Umicore. Following the overwhelmingly positive feedback from this second event, the Science and Technology days will be held every two years with the next one due to take place in 2025.

Innovation Excellence Board

Our Innovation Excellence Board (IEB) provides oversight of all our R&D activities throughout the entire Group. Headed by the CTO and comprising research heads from all the various R&D departments, the IEB is an innovation council where all R&D governance elements are discussed before global implementation. Examples include project portfolio management tools, project management training, R&D footprint discussions and KPI review. The IEB also ensures adherence to global standards and definitions, and monitors the continued improvement and exchange of our R&D best practices including

digitalization. The IEB works with Umicore’s entire R&D community. Umicore’s new R&D center in China is one key outcome of the IEB in 2023.

Digitalization accelerating innovation

With the future scale of our organization, the speed at which the world around us is changing, we need to excel at everything we do. Operational excellence and **digitalization** are key enablers to achieve our strategic ambitions.



CEO Mathias Miedreich and President EMEA Microsoft Ralph Haupter in Davos, Switzerland

Whether it is to optimize our processes, track emissions, reduce energy consumption, use robots to conduct dangerous activities or even provide more widespread access to training, digitalization is a vital tool in our ongoing innovation. Digitalization at Umicore is driven by healthy collaboration among different departments and teams. In 2023, with the appointment of a new Vice President for Digitalization – Menno Van der Winden – Umicore set its sights on becoming a frontrunner in applying artificial intelligence (AI) as a tool to support our battery scientists. A large part of our process modelling, materials development and flow-sheet optimization are now conducted using machine learning and AI. By January 2024, [Umicore had signed an agreement with Microsoft to use AI](#) to win time, efficiency and scale in our innovations while safeguarding our

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IP in this R&D area. AI will also help us fully leverage all compelling internal and external data, to formulate new materials smarter, pre-empting customer needs in this fast-growing market.

Providing clean mobility & recycling innovation

The transportation sector is a major contributor to global carbon dioxide (GtCO₂) emissions, producing approximately 7.97 billion metric tonnes of CO₂ in 2022 up 4.7% on 2021 levels¹. Passenger cars are responsible for a large part of this pollution. As such, the transition to zero-carbon mobility, with a combination of electric, hybrid and fuel cell vehicles, will play a key role in achieving international climate targets.

Umicore has unique strengths in this fast-growing sector, where innovation is driven by the urgency of government climate targets, accelerating plans to phase out sales of fossil-fuel powered vehicles and the consequently accelerating penetration of battery and fuel cell electric vehicles.

As a *circular* materials technology company, we provide a full offering to support this innovative roadmap towards ever cleaner vehicles.

We are a **global leader in the supply of automotive catalysts** to clean the exhaust gases from internal combustion engines for light-duty and heavy-duty vehicles and for all fuel types.

We provide **cathode active materials for electric vehicles and the catalysts** that are used to power **fuel cell-driven vehicles**. Most importantly, Umicore also has the capabilities to recycle all these materials and drivetrain components when they reach the end of life, thereby sustainably closing the loop. The scarce resources used in clean mobility technologies create a large carbon footprint from primary sourcing. The ability to recycle and re-use battery materials is therefore crucial. Our smartly chosen combination of pyro- and hydro-metallurgical processing steps results in a lower overall carbon footprint. To compare the sustainability credentials of different battery recycling methods, Umicore conducted **lifecycle assessments (LCAs)** for the two principal production process flows

considered in industry – our proprietary combined pyro- and hydro-metallurgical process, a mechanical-pyrolysis-hydro approach. The LCAs were conducted according to relevant ISO-standards.

Results showed that the pyro- and hydro-metallurgy has the lowest CO₂ impact of the different battery recycling methods.

With Umicore’s Battery Recycling Solutions, we are not only capturing profitable growth, but enabling the long-term development of a circular and low-carbon battery value chain and creating sustainable value for people and planet.

Catalysis: supporting clean mobility technology

Umicore has a unique position in catalysis, supporting clean mobility across all drive-train technologies, with a leading position in gasoline and fuel cell applications. Our continuous innovation in catalyst particles and technologies helps our customers comply with increasingly stringent emission regulations and meet targets to improve air quality and reduce carbon footprints.

In 2023, we successfully launched our Cu-based, corrugated SCR (selective catalytic reduction) catalyst for heavy-duty diesel applications to major customers in China providing for performance and cost advantages. Within the Automotive Catalysts activity, we continue to invest in R&D to support our customers with products meeting current and future legislative requirements in Europe as well as in China, the US and the rest of the world.

Our Automotive Catalysts received a **Sustainability award from Nissan Group of the Americas** at their Annual Supplier Appreciation Event held September 27th, 2023, in Nashville, Tennessee.



Nissan of the Americas supplier appreciation event in Nashville, Tennessee

Fuel cell catalysts: shaping the future of mobility

With over 30 years of experience, our **fuel cell catalysts** R&D team is reshaping the future of mobility with a clear focus on decarbonization. As we partner with our customers on the journey of mobility transformation, we believe that fuel cell electric vehicles (FCEVs) will be increasingly important in our move to cleaner mobility, particularly for heavy-duty transportation. That’s when Umicore’s experience comes into its own.

Umicore’s **Proton Exchange Membrane (PEM) fuel cell catalysts** are designed to provide the automotive industry and green hydrogen production with high performance fuel cells. With 30 years’ experience of manufacturing fuel-cell catalysts, Umicore has proven know-how in catalyst development and industrial-scale production.

In 2023, we stepped up our R&D activities further enhancing performance, durability and cost of our **fuel cell materials** to enable a wider rollout in mobility applications. To complement the development of fuel cell catalysts, in July 2022 Umicore announced its investment in a large-scale fuel cell catalyst plant in Changshu, China to capture the fast-emerging growth in fuel cell technology.

¹ Global transport CO₂ emissions 1970-2022 | Statista: <https://www.statista.com/statistics/1291615/carbon-dioxide-emissions-transport-sector-worldwide/>

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By December 1st, 2023 Umicore already held the [ground-breaking ceremony](#) for the plant, which will enable the accelerated transformation to hydrogen-based clean mobility, serving demand through to 2030. The facility will also be carbon neutral, reducing Scope 3 carbon emissions in the value chain.

As part of its circular business model, Umicore recycles fuel cell catalysts re-using metals such as platinum, for fresh fuel cell catalyst production and further reducing their Scope 3 carbon footprint.



3D illustration of a fuel cell heavy duty truck

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Battery Materials: reaching key milestones in 2023

Driven by the global megatrend of mobility transformation to electrification, battery materials are central to Umicore's ambitious 2030 RISE Strategy. Over the past year, we have made significant progress on our strategic objectives for Battery Materials, reaching key milestones, securing long-term customer contracts and an order book of 190 GWh CAM volumes for 2027 and 270GWh for 2030.

Umicore is a leading producer of cathode active materials for lithium-ion batteries used in electric vehicles and is committed to developing materials that deliver higher energy density, faster charging times and a higher life cycle at a competitive cost, while always meeting the strictest safety standards. Our technology roadmap spans short-, mid- and long-term research horizons not only for lithium-ion battery materials including solid-state batteries but also sodium-ion and disordered rock salt battery materials.

“Umicore’s investment in Canada represents the final step in creating a truly global production presence with our local-for-local, sustainable EV battery material value chains. Our regionally integrated battery value chains, which are already in place in Europe and Asia, give our customers worldwide the security of supply of these critical and decarbonized battery materials in their fast transformation towards clean, electric mobility.”

Mathias Miedreich
CEO



High-nickel cathode chemistries are a strong focus of attention, as nickel helps deliver higher energy density. Umicore has successfully repositioned its offer to become a major player in high-nickel chemistry. This is a major factor behind our joint venture with PowerCo.

Umicore and PowerCo present IONWAY

In October 2023, Umicore and Volkswagen Group-backed battery company PowerCo unveiled [IONWAY](#) – the joint venture for large-scale industrial production of cathode active materials (CAM) and precursors (pCAM) in Europe. Days later the new JV announced its intention to [build its first CAM production plant in Nysa, Poland](#), adjacent to Umicore’s existing CAM plant.

Europe’s first gigafactory provides blue print for North American plant

One year on from the inauguration of [Europe’s first battery materials gigafactory in Nysa, Poland](#) and the site is leading the way in European battery materials production This new carbon-neutral facility producing CAM for electric vehicle marks an important



Construction of Umicore Battery Materials production plant in Ontario, Canada

step in achieving the European Union’s ambition of having its own battery ecosystem that is both sustainable and competitive on a global scale. Striking among the Nysa plant’s sustainability credentials is the fact that it is powered by 100% green electricity from a nearby wind farm.

The Nysa plant’s high sustainability standards and practices will be the blue print for future facilities, such as the 35 GWh equivalent [battery materials production plant in Ontario, Canada](#), construction for which was confirmed by Umicore in October 2023. Given the significance of the plant for the North American EV supply chain and a strengthened EV battery ecosystem, Umicore will receive financial support from the Governments of Canada and Ontario for this key project. With this move into North America, Umicore has established a truly global production presence with local-for-local battery value chains.

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Paving the way for new tech

Umicore made good progress on new technologies. **Solid-state batteries**, for example, are expected to substantially increase the energy density compared with commercially available lithium-ion batteries, thus alleviating the two largest concerns for passenger EV adoption: cost and range anxiety. The safety profile of solid-state batteries also exceeds that of traditional lithium-ion as a result of its truly all-solid cell architecture, avoiding the use of liquid organic electrolyte.

In June 2023, we opened one of the world’s largest and most advanced [solid-state battery material prototyping facilities](#) in Olen, Belgium. The 600 m² facility with state-of-the-art installations and equipment has one of the largest dry rooms at this level of moisture in Europe. Umicore also [invested a minority stake in Blue Current](#), a US-based start-up and leading manufacturer of silicon elastic composite solid-state batteries. Alongside several leading car manufacturers and cell makers, Umicore also holds a stake in **Solid Power**, a US developer of solid-state battery technology and has partnered with Idemitsu since 2022 to develop high-performance catholyte materials. Such investments demonstrate our commitment to furthering solid-state battery technology in partnership with key industry players.

Battery Recycling: a pioneering position

Umicore is a global leader in recycling complex waste streams containing precious and other valuable metals. Our closed-loop business model is a powerful strategic differentiator that has helped us build a pioneering position in the recycling of rechargeable batteries. Our battery recycling pilot plant in Hoboken, Belgium, has an annual input capacity of 7,000 tonnes of lithium-ion batteries and battery production scrap.

As demand for electrified vehicles grows exponentially across the world, our battery recycling expertise and long-standing competences in hydro- and pyrometallurgy recycling processes place Umicore in a unique position to meet the needs of automotive manufacturers and the wider EV supply chain. Our patented pyro-hydro flowsheet with highest metal recovery rates for Co, Ni, Cu as well as Li provides input flexibility and robustness. It is an effective, reliable, robust and scalable technology that is able to recover lithium in addition to cobalt, nickel and copper. The environmental impact of this process is better than any other alternative in the market as was published in the [Lifecycle assessments \(LCAs\) study](#).

“With our persistent technological advances we help to unlock higher energy density, lower costs and enhance sustainability performance for all market needs.”

Mathias Miedreich
CEO



Our proprietary recycling technology is a significant step-up in recycling performance. With the increased extraction efficiency of cobalt, nickel and copper, yields can reach over 95% for a wide variety of battery chemistries. This includes the capability to recover most of the lithium in EV batteries, solving a key constraint in existing recycling capacity. The recovered metals will be delivered in battery-grade quality at the end of Umicore’s recycling process, allowing them to be re-introduced in the production of new lithium-ion batteries. With minimal waste and impact on the environment, this **next-generation recycling technology will be vital for the surge in EV adoption**, putting Umicore in a strong position to forge commercial partnerships in the EV value chain.

Innovation and technology are so deeply rooted in our organization. Continued investment in R&D and "Next Gen" technology will be vital to achieving our bold, strategic ambitions on our journey to 2030.

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INTERVIEW

Continuing to push forward on our **technology** roadmap



“Central values for me are to create a caring, innovation culture built on trust and true collaboration. Because in the end, it’s our people that make the difference.”

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Umicore's new CTO sums up his first months in the role

Geert Olbrechts was appointed Umicore's Chief Technology Officer and Executive Vice President of the new Business Group Specialty Materials in August 2023. Here Geert talks to us about his new role, the achievements he's most proud of over the past year and the next steps for Umicore in its strategic journey ahead.

Tell us about yourself and how you came to be at Umicore.

I'm a Belgian by nationality and a chemist by education. I hold a PhD in chemistry and an executive MBA with a Masters in Innovation Management. I started at Umicore straight after my PhD, more than 23 years ago.

My first assignment was in the corporate research and development department or "CRD" in Olen, Belgium. That's also where I have my office today. So, you could say I've come circle. Of course, during those 23 years I have worked on different projects and in various business units. A few defining roles in my career have been my time in Precious Metals Refining in Hoboken, where I designed, co-engineered and became the operational

manager for a key project. Then the expatriation to Germany to work in the Automotive Catalysts Business Unit where I held various roles finishing with Senior Vice President of R&D and Supply before accepting my current position as CTO & EVP of Specialty Materials. Throughout the years I've worked in various functions from business unit to corporate and in different countries, gaining a good overview of the business.

Tell us about your role as the newly created Chief Technology Officer & EVP of Umicore's newly added fourth Business Group?

I started as CTO and EVP in August 2023. My motto for the first months was to "listen and learn". I've visited our CRD site in Olen, and our Umicore Battery Materials

sites in Olen and Korea. While in Asia, I also visited our new CRD Innovation Center in Shanghai, officially opening in 2025, and the customer R&D teams in Japan to hear the voice of our customers. Next to that, I was also on a learning journey, with deep-dives into the most important Umicore projects, their challenges and opportunities. What I find crucial in my role is to ensure that we have no gaps in our technology portfolio and this actually



Geert at the bell ceremony at the Euronext Tech Leaders index

"What I find crucial in my role is to ensure that we have no gaps in our technology portfolio."

Geert Olbrechts Chief Technology Officer & Executive Vice President of Specialty Materials

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means three key factors for me:

- **Striking the right balance in our innovation portfolio**, with short- mid- and long-term projects.
- **Staffing for success** and ensuring an innovation culture in which colleagues are recognized for their achievements, and in which there is a climate of trust and true collaboration.
- **Building a broad ecosystem** by representing Umicore at conferences, interacting with customers, with academia, with investors. This way, I stay informed of new technology trends and customer needs, which allows us to define the right innovation strategy including partnerships going forward. At the same time, I can keep the outside world informed about our technological advances thereby re-enforcing the Umicore technology brand.

Next to the CTO role, I'm also EVP of our new Business. Specialty Materials specializes in developing, manufacturing and distributing non-ferrous metal-based materials used in high-end applications. Three business units are clustered under this Business Group: **Electro-optical materials** that has a cluster of products centered around germanium, which is key for optical fibers, solar cells for space applications and infrared optics; **Metal deposition solutions** does electro-plating for jewelry, smartphones and coatings for

optics; and **Cobalt and specialty materials**, which is specialized in developing, manufacturing and distributing a wide range of nickel and cobalt containing products that go both in industrial applications such as catalysts and in consumer goods such as tires, ceramics, paints and drills. This clustering into a new Business Group provides them the attention and focus required to meet the 2030 RISE objectives. With this new Business Group we can really nurture the growth and maximize the value of these activities.

The main focus of my EVP role since I started was to learn about the businesses, to meet and exchange with colleagues, and to understand their challenges and how I could help them to be even more successful. To this end, I visited many sites last year just to understand our activities, interact with the management teams as well as the colleagues.

What's an average day for you?

Average day? Every day is a surprise. I typically start work at around 8:00 in the morning and I finish between 6:00 and 7:00 in the evening. I have a lot of meetings all day, but I still reserve time for colleagues, as those informal conversations are helpful to pick up on what is ongoing in the organization.



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“We also have a good track record of delivering on our promises. When Umicore says we will do something we do it. We don’t announce an empty shell.”



Geert Olbrechts Chief Technology Officer & Executive Vice President of Specialty Materials



Researcher at our solid-state battery prototyping center in Olen, Belgium

What kind of leader are you?

Ensuring a caring and innovation culture in which colleagues can really shine and be successful in their own right is very important to me. This is where I believe leaders can make the most difference. If we engage with our colleagues, create common goals, inspire and motivate them we can really excel. For me it’s part of Umicore’s DNA today and we need to ensure that we protect and further cultivate it. Yet it’s equally important to remove any roadblocks preventing progress and allow colleagues to work autonomously developing their own projects in the way they see fit. Central values for me are to create a caring, innovation culture built on trust and true collaboration. Because in the end, it’s our people that make the difference.

What makes Umicore an innovation & technology leader?

It’s got to be our focus on transforming non-ferrous metals into functional materials and the many years experience combining material science, metallurgy and chemistry, which are at the core of everything we do. We’re not a startup, nor a university with

a great idea and a few grams of products. We can make the grams, but we can also make the kilograms and the tonnes. So, it’s that scaling of elements that is unique to Umicore. Our connection to the wider ecosystem keeps us on top of the latest trends while good connections with our end-customer mean we are well positioned in the value chain as a unique partner. We also have a good track record of delivering on our promises. When Umicore says we will do something we do it. We don’t announce an empty shell.

What achievements are you most proud of this last year?

Hearing from our customers that we had great products and excellent colleagues is always a boost. Opening the Research Innovation Center in China is definitely a key milestone and one that I’m really proud of as it’s Umicore’s first real R&D innovation centre in China. We had Applied Technology Centres for different applications and business units in China, but not a real R&D center, until now. Overall, I’m proud of the progress we’ve made on the objectives of our 2030 RISE Strategy especially during these challenging times.

What three words would you use to sum up Umicore’s 2023?

Definitely, “roller coaster” as it’s been quite the ride for me personally this past year. Then I would say energizing. Throughout this transition phase it’s been “energizing” to see everything we have available and can do, and how strong our teams and our organization are in general. Challenging is another word I would use to describe 2023.

Challenging in the sense of combining the growth mindset with an efficiency mindset so that we can make the excellent progress we are making and need to continue making to meet our strategic objectives under our 2030 RISE Strategy.

What are the next steps for Umicore in its innovation strategy ahead?

Continuing to push forward on our big projects (e.g. battery recycling, battery anode, developing fuel cells, cathode materials for the next generation batteries such as solid-state and sodium-ion batteries).

What do you do in your spare time to relax and wind down from work?

I do sports in my spare time, particularly cycling. As a lot of Belgians, I like notching up a few kilometers on my race bike. I also like running though just to relax and stay fit, not to compete. And at the weekend when I have more time, I really enjoy cooking. My signature dish is a risotto with prawns and peas from Jamie Oliver’s “The Naked Chef” cookbook. It’s a real winner in our house and one that the whole family loves.

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Minimizing impact on climate and the environment

Part of our 2030 RISE Strategy is our ambition to become a sustainability champion. By pursuing our "Let's Go for Zero" goals, we aim to foster sustainable growth while simultaneously mitigating the environmental impact of our activities.

65%

SECONDARY MATERIALS IN INPUT MIX

-55%

DIFFUSE METAL EMISSIONS VS 2020 BASELINE

41%

RENEWABLE ELECTRICITY

Environmental stewardship

We are committed to minimizing the impact of our operations on natural capital and are consistently innovating to protect land, water, and air. This includes reducing emissions, improving water and resource efficiency, implementing good neighbor policies at all our facilities, and understanding the impact of our operations on biodiversity. In 2023, Umicore introduced the [Environmental Stewardship Policy](#) to combine existing ways of working across our sites with our environmental commitments at Group level. This policy outlines our commitment to relevant environmental laws, regulations and permits associated with our operations, and serves as a framework for our ambitions beyond compliance.

Our commitment to environmental stewardship extends to our products. We strive to deliver positive impact through our products and services: our catalysts reduce harmful emissions, our rechargeable battery materials shape the future of e-mobility and our recycling activities ensure the circularity of critical metals. We create solutions to help the transition to a low carbon society. We use Life Cycle Assessments (LCAs) to assess the impact of our products on climate, the ecosystem, human health and resource use. By utilizing a circular/closed-loop business model, we create materials for a better life while also addressing resource scarcity. For more on our sustainable products & services, see [Society](#).

Climate action

Let's Go for Zero sets our ambition to achieving Net Zero for Scopes 1 + 2 greenhouse gas emissions (GHGs) by 2035. We use 2019 as our baseline and have defined milestones of -20% by 2025 and -50% by 2030. To reach our first milestone, we aim to operate entirely on renewable electricity in Europe and 60% globally by 2025. Additionally, in 2023, Umicore joined RE100, committing to achieving 100% renewable electricity by 2040 across our global operations. See [Umicore joins RE100](#). To make a meaningful impact on climate change, we need to continue driving sustainability in our value chain.

The largest contributor to our carbon footprint is from purchased raw materials (Scope 3, Category 1). Umicore is therefore working with suppliers to reduce Scope 3 GHGs. In 2022, Umicore announced its ambitious target to reduce the carbon intensity of purchased materials by 42% by 2030. To achieve this goal, we will not increase the Scope 3 emissions of our raw materials, despite the exponential growth projected in our 2030 RISE Strategy. As we grow to reach our 2030 RISE ambitions, we prioritize supplier engagement to drive decarbonization in the value chain. We aim to engage with our raw material suppliers to cover at least 80% of our expected Scope 3 (Category 1) emissions by the year 2030. See [Environmental Statements](#).

The Science Based Targets initiative (SBTi) provides guidance and validation services for scientifically credible and ambitious decarbonization targets aligned with the latest climate science. SBTi has validated Umicore's 2030 science-based emissions reduction targets. SBTi has classified Umicore's Scopes 1 + 2 target ambition and has determined it to be in line with a 1.5°C trajectory. Umicore's Scope 3 target has been validated in line with the well below 2°C trajectory. Umicore supports the goals of the Paris Agreement and continues to act decisively on the path towards decarbonization. Additionally, Umicore supports the [Taskforce on Climate-related Financial Disclosures \(TCFD\)](#) and joined the [Belgian Alliance for Climate Action \(BACA\)](#) in 2021. In 2023, Umicore published a [Climate Transition Plan](#), inspired by the guidance of the Transition Plan Taskforce (TPT).

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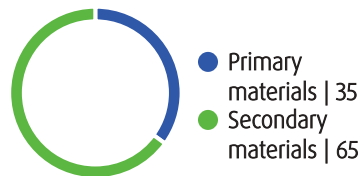
Maximizing resource efficiency

The ambition to address increasing global resource scarcity and achieve material efficiency is an important factor in our strategy. Umicore is a world leader in recycling and refining of precious, special, secondary and base metals-bearing materials. Our process entails maximizing the physical recycling of materials while minimizing the associated environmental burden. We recover and sell these metals and our closed-loop business model maximizes the re-use of materials.

In 2023, 65% of the materials were from secondary origin and 35% were of primary origin compared with the previous year's data. In 2023, post-consumer raw materials represented approximately 37% of total secondary raw materials for the Group.

INPUT MATERIALS MIX

%



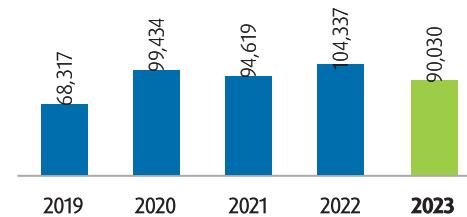
As demand for clean-mobility materials increases due to society's shift towards decarbonization, it may impact the availability of secondary materials for Umicore's input mix. This is because of the long lead times involved in bringing new materials to the market and making them available for recycling.

Waste management within our operations

Umicore's commitment to resource efficiency and turning waste into a resource is at the heart of our closed-loop business model.

TOTAL WASTE

tonnes



Our recycling business recovers many precious and other metals from a wide range of waste streams and industrial residues. The Umicore Precious Metals Refining operates as one of the world's largest precious metals recyclers, recovering 17 metals out of more than 200 types of complex waste streams. Across our operations, we maximize the use and reuse of the materials in our flows, including the physical recycling of materials with highly efficient extraction yields. See [2030 RISE Strategy](#) and [Operations](#).

Additionally, we actively monitor and strive to minimize the waste generated through our operations. In 2023, Group activities produced 90,030 tonnes of waste, a 14% decrease compared to the 2022 volumes. Hazardous waste accounted for 73,309 tonnes. It is relevant to note that as we specialize in recycling highly complex waste streams, our waste quantities and categories, whether hazardous or non-hazardous, are intrinsically linked to the input materials mix in our processes (see Resource Efficiency for more information). The recycling rates for both hazardous and non-hazardous waste saw minor fluctuations. In 2023, the recycling rate for hazardous waste stood at 8.8%, up from 6.7% in 2022, and the recycling rate for non-hazardous waste was 61.1% down from 69.5% in 2022.

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Umicore's water stewardship program as part of our Zero Harm ambition

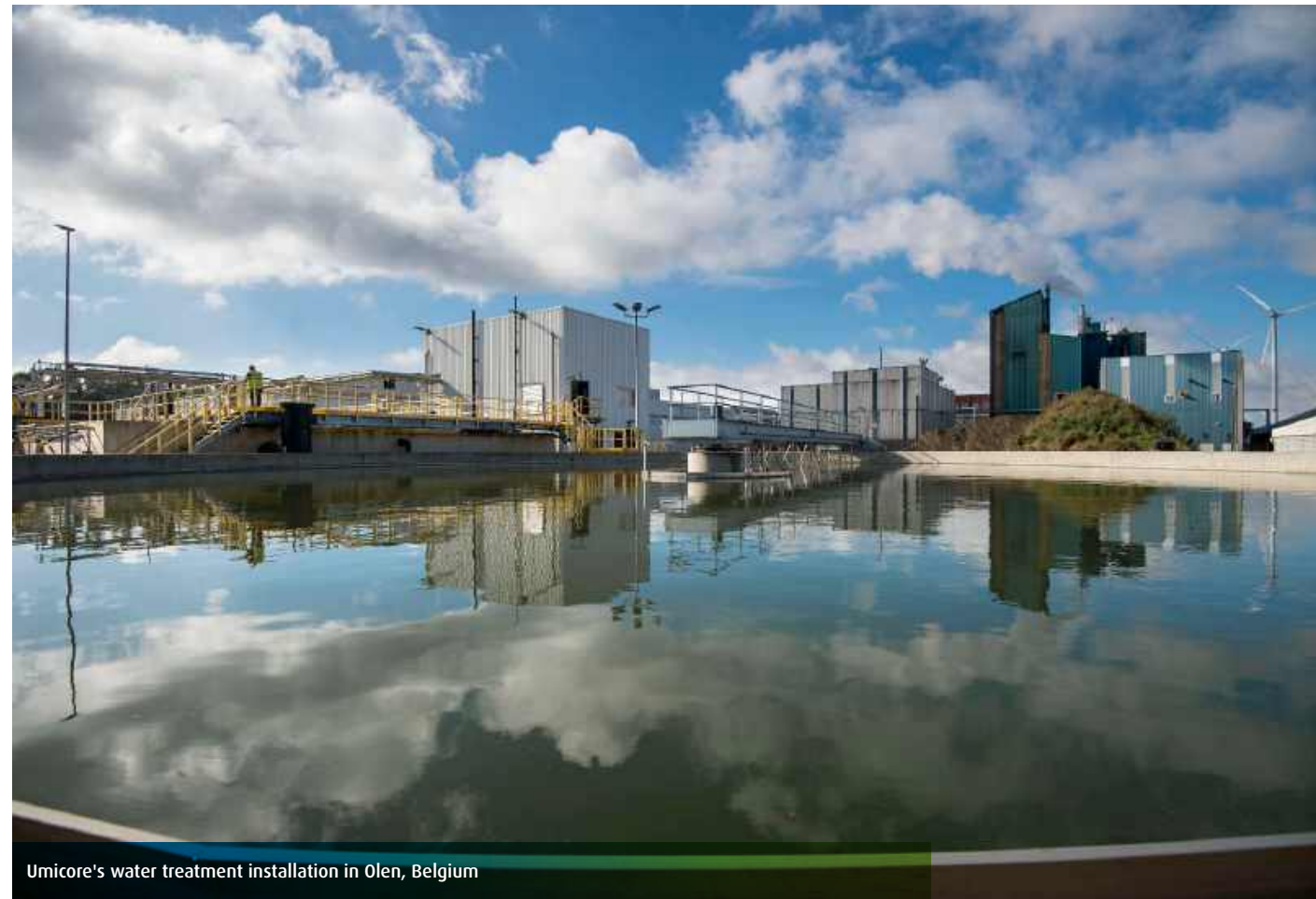
Water use at Umicore is key to our processes and operations. Umicore's water stewardship program aims to minimize the impact of our operations on water by implementing sustainable practices. We actively work with experts and local communities, raise awareness across our global operations about water sustainability, and address local water risks where they exist. By 2025, we aim to have a water action plan for all industrial activities facing water stress.

In 2023, Umicore's water stewardship program progressed significantly, with updates from both the Hoboken and Olen sites showcasing positive developments in managing water-related risks and improving overall water management practices. Additional tools in risk tracking and assessments were also implemented in our Enterprise Risk Management (ERM) systems in 2023. For more information, see [Managing Risk Effectively](#).

At the Hoboken site, the water risk assessment identified stormwater as a prominent element in the water risk profile. In response, measures were taken to increase buffer capacity before the water treatment plant to mitigate the risk of untreated water discharge during extreme weather.

Meanwhile, the Olen site made notable progress in optimizing water usage and enhancing data quality related to water discharge and consumption. By improving water volumes and data accuracy, Umicore not only strengthens its environmental performance but also lays a foundation for informed decision-making and sustainable resource management.

Umicore's total water withdrawal in 2023 amounted to 10,374 megaliters of which total freshwater withdrawal was 9,294 megaliters, which represents a slight decrease compared with 2022. Distribution of water withdrawal remained relatively stable across the business groups compared with 2022.



Umicore's water treatment installation in Olen, Belgium

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"In 2023, our Water Stewardship Program became embedded in our operations. We prioritized data precision even more than before and improved our facilities. Effective water stewardship is vital for the sustainable management of this valuable resource. At Umicore, we are committed to this cause."

X'imena Hernandez Guzman
ESG Project Manager

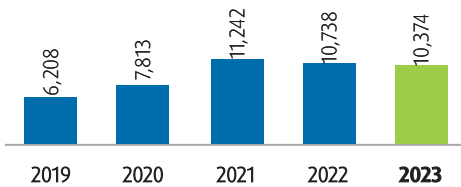


The total water discharge for the Group was 8,934 megaliters in 2023, of which 2,212 megaliters represent freshwater discharge. The consumption of water in 2023 was 1,440 megaliters, while freshwater consumption was 7,081 megaliters.

Our efforts in water management and disclosure quality have led to steadily improving CDP score for water security each year. For more on ESG ratings, see [Investing in Umicore](#).

TOTAL WATER WITHDRAWAL¹

megaliters



¹ Water withdrawal data has been restated for 2021 and 2022.

We conducted an assessment, using WRI Aqueduct, focused on the Group's locations related to water resources and identified four sites located in water stress areas: Shirwal, Olen, Hoboken and Bangkok. The Group level water withdrawal from water stressed areas remained stable at 5,206 megaliters compared with the 5,380 megaliters reported in 2022. Freshwater withdrawal from water stressed areas was reported at 5,116 megaliters, consistent with the 5,345 megaliter of freshwater withdrawal in these areas in 2022.



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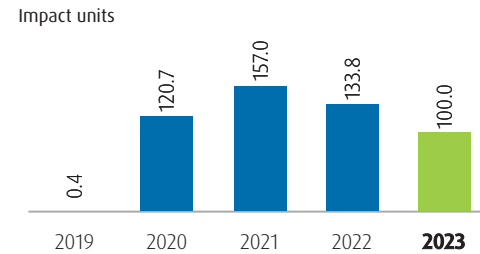
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Raising the bar for emission data quality

Umicore has been systematically tracking metal emissions to water and air from point sources since 2011. Ambitious reduction targets have been achieved since then, and we strive continuously to reduce the impact that our metal emissions have on the environment. We prioritize emissions that have a significant impact on the environment and are influenced by the metals present in Umicore’s material flow. We monitor and implement measures to reduce these emissions’ impact on the environment – to air, water and soil.

Each metal has different and specific potential toxicity levels concerning both the environment and human health. For this reason, we focus on mitigating the impact of our emissions by applying an impact factor. In 2023, we reevaluated the scientific basis behind this methodology and adjusted the impact factor of several metals. This adaptation has been applied to emissions values from 2019 onwards.

METAL EMISSIONS TO WATER

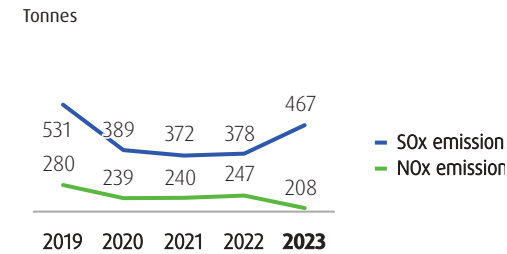


Metal emissions to water

Through our Water Stewardship Program, we have improved our methodology for calculating the impact factor of our metal emissions on water. This improvement enhances the data quality and demonstrates our commitment to maintaining higher reporting standards. By establishing a more precise and transparent approach to measuring our metal emissions, we enhance our accountability and improve decision-making and action plans. For more about our Water Stewardship Program, see [Water Stewardship](#). For more information about methodology to determine the impact of metals on water, see [Environmental Statements](#).

The 2023 metal impact has been set to 100 impact units. Compared with 2022, a 34-point decrease is reported. The decline can be attributed to lower metal loads emitted in several sites that have an important share of our metal emission to water impact. These reductions are partly linked to a beneficial effect of a different raw material composition and to a lesser extent to improved wastewater treatment efficiency. The corresponding load of metals to water for the Group decreased by 27% year-on year, from 774,306 kg in 2022 to 566,035 kg.

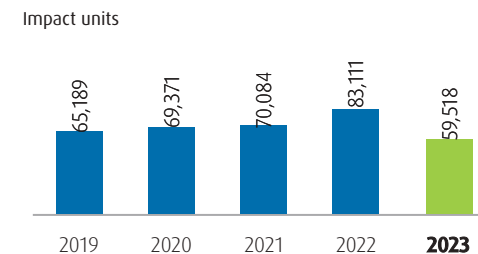
SOX & NOX EMISSIONS



Metal emissions to air

In 2023, we managed to reduce our guided metal load emitted to the air to 978 kg, which is about 19% less than the 1,214 kg recorded in 2022. We calculated the metal emissions to air using impact units, and the results showed a substantial 28% reduction from 83,111 impact units in 2022 to 59,518 impact units in 2023. The reduction in metal emissions can be attributed to the beneficial process conditions, and several of our most material sites saw a decrease in metal emissions year-on-year. Despite adding two new sites to our reporting scope, we have been able to reduce our impact consistently every year.

METAL EMISSIONS TO AIR



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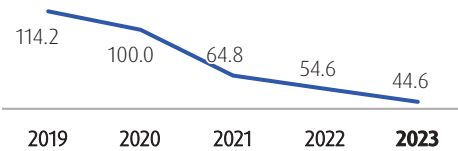
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Wind screens for the smelter stockpiles in Umicore Precious Metals Refining site in Hoboken, Belgium

DIFFUSE METAL EMISSIONS - HOBOKEN SITE¹

% impact of the 2020 baseline



¹ Relative impact of diffuse emissions (Pb,As and Cd), averaged over three measuring posts and over full year.

Diffuse emissions

As opposed to the “guided” emissions described above, from a point source such as a chimney, diffuse emissions originate from a non-point source, such as from dust when handling raw materials. Umicore’s target to achieve a 25% reduction of diffuse emissions by 2023 (from the 2020 baseline) was achieved in 2022, largely due to operational excellence and state-of-the-art facilities in Hoboken. In 2023, Hoboken further improved the management of diffuse emissions, bringing its impact down by 55% compared with the site’s 2020 baseline. See [Cutting-edge technology to reduce metal-to-air emissions is paying off.](#)

Other emissions

In 2023, the Group experienced a 21% increase in SO_x emissions, going from 378 tonnes in 2022 to 467 tonnes in 2023. Conversely, NO_x emissions decreased by 16%, from 247 tonnes in 2022 to 208 tonnes in 2023.



Illustration of an environmentally sound Umicore plant

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Energy

Umicore has a long history of prioritizing energy and process efficiency across its operations. In the context of our Let's Go for Zero ambitions, efficiency remains a priority to help us achieve our target of Net Zero Scopes 1+2 GHG emissions by 2035. Energy consumption continues to be monitored and reported on all sites, including for energy efficiency projects. The two largest sites in Belgium have been part of the energy efficiency covenant with the Flemish Government since 2004.

In 2023, Umicore launched the Group Energy Efficiency Program to identify effective ways to scale and speed up energy savings at the group level. Four pilot sites (Cheonan, Grenoble, Kokkola, and Jiangmen) participated in the program and identified a potential energy saving of 15-20%. In 2023, 77 projects were implemented across 24 sites leading to a significant reduction of around 12,000 tonnes of CO₂e. These projects cover a broad spectrum of improvements such as process optimization, Heating Ventilation & Air Conditioning (HVAC), lighting and insulation. In this year's Integrated Annual Report, we are sharing three energy efficiency project outcomes.

1. At our Rechargeable Battery Material site in Jiangmen, China, we recently implemented a measure to save steam consumption by reducing the temperature of the washing water. This led to a reduction of 22,578 GJ in steam consumption, which translates to a saving of 1,500 tonnes CO₂e.
2. Through the implementation of heat recovery on an air compressor, the Umicore Specialty Powders France (USPF) site in Grenoble has transformed what was once considered waste heat

into a valuable resource. The excess heat generated during the process is now efficiently captured and repurposed, for example for the site's building heating 22 MWh of recovered heat was used.

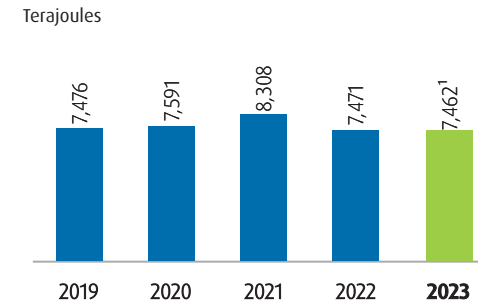
3. At our Umicore site in Olen, Belgium, we have undertaken significant energy-saving initiatives. By replacing traditional lamps with LED lighting, we annually save 550 MWh. Additionally, optimizing the use of compressed air allows us to save 549 MWh per year. Together, these initiatives contribute to a substantial total annual saving of 1,099 MWh.

Total energy consumption in 2023 was 7,462 TJ compared with 7,471 TJ in 2022. In 2023, direct energy consumption was 3,508 TJ, or 47% of the total energy consumption for the Group, and indirect energy consumption for industrial sites and office buildings was 3,954 TJ, or 53% of the total energy consumption for the Group. Umicore's energy intensity ratio amounted to 1.9 for 2023, up from 1.8 in 2022.

The total global electricity use was 943,481 MWh, of which 41% was from renewable sources — up from 35% in 2022. In Europe, where a significant share of electricity demand occurs in the Group, the share from renewable sources was 57%. The Group's target for renewable electricity is a 60% global share and a 100% share in Europe by 2025.

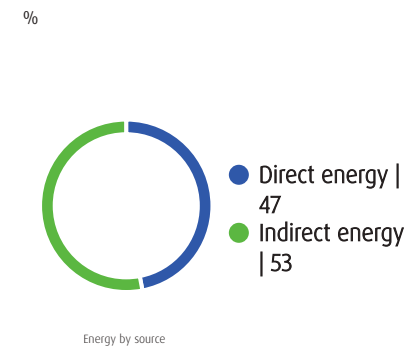
In 2023, Umicore continued introducing additional on-site renewable electricity installations across various locations. Four new photovoltaic (PV) installations were successfully implemented, located in Hanau (since mid-2023) and in Cheonan, Rayong, and Vienna. The new installations resulted in 1,410 MWh of renewable electricity.

ENERGY CONSUMPTION (ABSOLUTE)

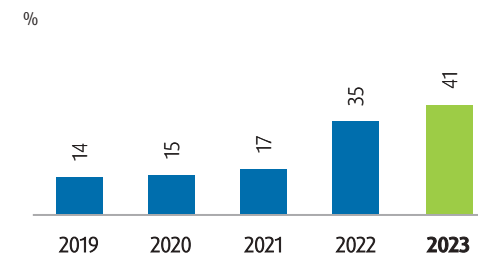


¹ Restatement made in 2023 for 2022 figures.

ENERGY BY SOURCE



RENEWABLE ENERGY IN PURCHASED ELECTRICITY



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Mitigating the direct drivers of biodiversity loss

In line with our Let's Go for Zero ambitions, Umicore recognizes the intrinsic value of nature and the benefits it provides to both human well-being and the health of our planet.

Aligned with ISO 14001 standards, our policies and initiatives are designed in a way that also safeguards biodiversity. Following the mitigation hierarchy concept, we aim to prevent negative impacts whenever possible and implement mitigation actions to minimize potential harm to biodiversity that cannot be avoided. Our efforts extend to key regions, where we strive to raise awareness and elevate the significance of biodiversity and ecosystem services within our operations.

Utilizing the LEAP¹ approach defined by the Task Force on Nature-related Financial Disclosures (TNFD), we conducted a comprehensive global analysis of biodiversity impact in 2022. This analysis identified sites with potential exposure based on factors such as the presence of protected areas and species vulnerability. Throughout 2023, we evaluated material risks and opportunities focusing on water-related topics associated with activities in these locations. Based on these findings, we have actively collaborated with sites to develop preventive or corrective measures to minimize our potential impacts on biodiversity while identifying opportunities for positive change. See [Environmental Statements](#). We also updated our enterprise risk management (ERM) systems to track Biodiversity & Ecosystem Services impact risks for all our sites. See [Managing Risks Effectively](#).

In alignment with new sustainability reporting standards and our commitment to transparency, we have broadened the scope of data collection on emissions to water while refining our impact calculations. These changes allow for a more comprehensive assessment of our operation's impact on biodiversity, especially in high-risk areas. See [Raising the Bar for Emission Data Quality](#).

At sites like Hoboken in Belgium, we have taken proactive measures to protect and restore habitats for endangered species like the Natterjack toads for example. Similarly, collaborative efforts in Kakkola and Olen underscore our dedication to forging partnerships that safeguard biodiversity while fostering sustainable growth. See [Growing our business with Zero Harm to biodiversity](#).

In the context of Umicore Hoboken's biodiversity efforts, the creation of a 5-hectare green zone around the site is commendable. This green zone, along with the existing buffer zone within the site boundaries, has the potential to support the foraging routes of various species (like bats for example) in the area. By providing a safe and biodiverse corridor for these species, we aim to safeguard the coexistence of our operations and the local ecosystem.



Water pool and groundwork to protect the Natterjack toad, in Hoboken, Belgium

Additionally, we have strengthened our commitment to responsible sourcing by implementing specific supplier requirements pertaining to environmental standards within our supply chain due diligence process. Beyond carbon emissions in the value chain, we are committed to addressing often overlooked dimensions such as deforestation and water emissions. While acknowledging challenges in quantifying certain impacts, we actively engage with suppliers to identify and address potential challenges. See [Responsible and sustainable sourcing in our supply chains](#).

¹ The LEAP approach is designed for use by organizations of all sizes and across all sectors and geographies. This approach aims to help organizations conduct the due diligence necessary to inform disclosure statements aligned with the TNFD recommendations, but it is also useful for other organizations looking to identify and assess their nature-related issues, regardless of their formal disclosure requirements. <https://tnfd.global/publication/additional-guidance-on-assessment-of-nature-related-issues-the-leap-approach/>

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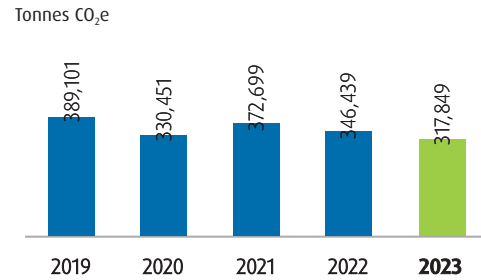
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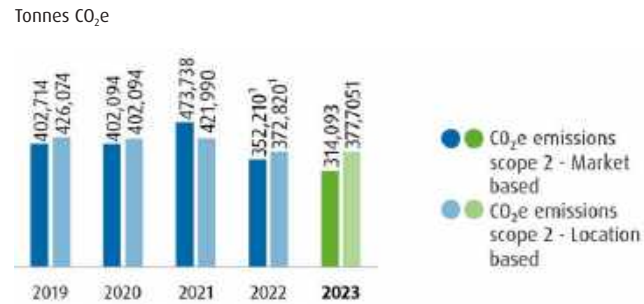
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Greenhouse Gas Emissions

SCOPE 1 EMISSIONS

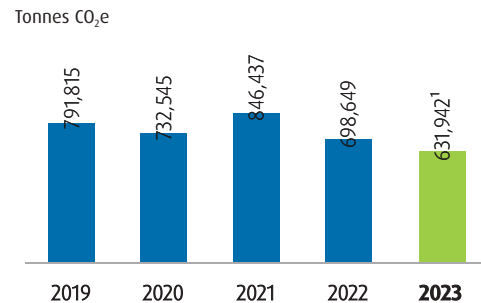


SCOPE 2 EMISSIONS - MARKET BASED & LOCATION BASED



¹ Restatement made in 2023 for 2022 figures.

SCOPE 1+2 GHG EMISSIONS - MARKET BASED



¹ Restatement made in 2023 for 2022 figures.

Road to Net-Zero Scopes 1 + 2 GHG emissions

Scope 1 emissions are direct GHG emissions from owned or controlled processes and Scope 2 emissions are indirect GHG emissions from the generation of purchased energy. Total market-based emissions (Scopes 1+2) in 2023 decreased 10% year-on-year to 631,942 tonnes CO₂e, from 698,649 tonnes CO₂e in 2022, with reductions observed in all business groups and year-on-year reductions both on Scope 1 (8%) and Scope 2 (11%).

The decrease in Scope 1 emissions is largely attributed to reductions at the Hoboken site. The nitric acid plant was fully operational in Hoboken throughout 2023. This installation captures nitrous oxide, a potent greenhouse gas, converting it into nitric acid. This led to a 99.9% decrease in nitrous oxide emissions versus 2021. See [Breakthrough innovations: where the magic happens.](#)

All business groups have observed market-based Scope 2 reductions in 2023, due to the implementation of additional renewable electricity contracts. At Umicore, we follow a strict hierarchy for electricity grid Emissions Factors (EFs) based on the Greenhouse Gas Protocol. We prioritize using supplier specific EFs (contracts, certificates) whenever available. If not, we rely on the latest residual mix EFs (national, subnational or regional) and national production EFs, in decreasing order of preference.

Total location-based emissions were 695,554 tonnes CO₂e. As compared with 2022, the market-based Scopes 1+2 total is lower than the location-based total, [attributed to more sites with renewable energy attribute certificates and on-site renewable electricity installations.](#) Umicore’s GHG intensity ratio amounted to 163 for 2023, down from 168 in 2022 and 213 in 2021.

Umicore has set a target for Net Zero Greenhouse Gas (GHG) emissions in Scopes 1 and 2 by 2035, with intermediate milestones of a 20% reduction by 2025 and a 50% reduction by 2030. These milestones are set against our 2019 GHG emissions baseline: 791,915 tonnes CO₂e total Scopes 1 and 2 emissions. As compared with the baseline, total market-based emissions in 2023 decreased by 20%.



The roadmap to decarbonizing our operations by 2035 stipulates three types of actions: avoid emissions; replace sources that cause emissions; and finally capture emissions that we cannot design out. While we investigate innovation potential for long-term decarbonization, increasing energy efficiency and the share of electricity from renewable sources are the priority to reach our short and medium-term goals. For more, read our [Climate Transition Plan.](#)



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In 2023, Umicore took significant steps towards securing renewable electricity to reach our Net-Zero ambition. By signing long-term power purchase agreements (PPAs) with ENGIE and Storm, we secure renewable electricity from offshore and onshore wind turbines, ensuring most of our electricity demand in Belgium will be met with renewable energy sources. See [We signed renewable electricity PPAs with ENGIE](#).

Additionally, in 2023 Umicore and Ignitis Renewables entered a long-term PPA to supply renewable electricity to Umicore’s EV battery materials plant in Poland. See [Umicore and Ignitis Renewables enter long-term PPA](#). Another example of replacing an energy source with a greener alternative is the use of biogas instead of natural gas, like our site in Canada, Markham. This switch to biogas allowed this site to cut its carbon emissions coming from fossil fuels by 90%. See [Switch to biogas for the Canadian Umicore site](#).

Managing our Scope 3 emissions

Umicore created a full Scope 3 inventory for 2019 to serve as a baseline for the definition of a Science Based Target initiative (SBTi)-compliant Scope 3 target. This baseline year was chosen to align with that used for the Scopes 1 and 2 target.

Scope 3 emissions for 2019 amount to 8.2 million tonnes of carbon dioxide equivalent (CO₂e), around 10 times the combined amount of Scopes 1 and 2 emissions for the same year. The largest amount of these emissions, 7.3 million tonnes, comes from upstream activities, of which the category “purchased goods and services” represents more than 90%.

Considering the absolute value of our Scope 3 emissions, our future growth and that the materials we buy have the largest impact on our Scope 3 footprint, we have defined a carbon intensity target for our purchased goods and services. The target aims to reduce the carbon intensity of purchased materials by 42% by 2030, compared with the 2019 baseline.

Our roadmap to manage the carbon intensity of the materials we purchase includes three key levers: engaging, recycling and optimizing. The first lever is about engaging with suppliers to build strategic partnerships and collect data to understand their emission profiles; the second lever is to promote our internal closed-loop model, which means we aim to reuse recycled metals, and increase the proportion of secondary materials in our input mix; the third lever is to source from decarbonizing and low-carbon suppliers, move further into upstream refining, and continue to maximize process efficiency.

Greenhouse gas emissions linked to purchased goods and services in 2023 amounted to 6.3 million tonnes.

To address the first lever of reducing the carbon intensity of the materials we purchase (engaging with suppliers to build strategic partnerships and collect data to understand their emission profiles), Umicore has defined a new key leading indicator to reach our Scope 3 target: We will engage¹ with our raw material suppliers to cover at least 80% of our expected Scope 3 (Category 1) emissions by 2030. To achieve this target, Umicore will engage with a minimum of five new suppliers every year. On an annual basis, we will cover a total of 10% of the emissions; this includes engaging with as many suppliers as necessary to cover a minimum of 10% of the emissions each year.

"Ensuring our materials contribute to a lower carbon footprint is paramount. The absence of comprehensive data in assessing value chain emissions poses a significant challenge. That's why engaging with our suppliers is at the core of reducing our Scope 3 intensity."

Benedicte Robertz, ESG Program Lead
Scope 3 Decarbonization & LCA



By engaging with our suppliers, we collect important data to gain transparency and decrease emissions across our supply chain, helping us achieve our Scope 3 target and supporting our suppliers in reducing their decarbonization objectives. See [Responsible and sustainable sourcing in our supply chains](#).

Whereas the Scope 3, Category 1 is the single largest category of emissions, we also calculated the Scope 3 emissions related to the other Scope 3 categories. The total Scope 3 emissions amount to 7.5 million tonnes CO₂e for the Group in 2023, with 93% of these emissions occurring upstream. Although Umicore’s Scope 3 target focuses on category 3.1: “Purchased goods and services”, we will also work towards reducing emissions in the other impact categories, with a focus on upstream such as transport-related emissions. See [Indirect procurement & transport](#).

For avoided emissions, also referred to as “Scope 4”, see [Sustainable products & services](#) and the [Environmental statements](#).

¹ An engaged supplier has: signed, recognized, or is adherent to the UGSSP - provided a product-specific emission factor - has provided information on how this will evolve by 2030 based on its decarbonization plans. If this is not available, the suppliers should submit so within two years of the start of the engagement - provided the carbon calculation method.

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Regulatory compliance & management system

In 2023, some 51,000 environmental measurements were carried out at all Umicore's industrial sites, compared with some 45,000 the year before. The ratio for the number of measurements that did not meet the regulatory or permit requirements is very low at 0.18% for the Group, compared with 0.25% in 2022. It should be noted that during the analysis of the 2023 efforts were made to improve the data regarding regulatory compliance. However, numbers presented here are indicative only. In 2024, further work will focus on strengthening the reliability of these indicators.

Of the 54 consolidated industrial sites, 53 have put in place an environmental management system certified against ISO 14001 with the remaining site planning to do in 2024.

In total, 52 environmental complaints were received in 2023, which is 21% lower than in 2022. The majority of these complaints were related to noise and only two are still ongoing.

Managing impact from historical activities

Umicore continues to invest in restoring legacy contamination areas for a more sustainable future.

Umicore's history dates back more than 200 years. What started with several mining and smelting companies gradually evolved into the materials technology and recycling company that we know today. In the mid-1990s, Umicore's predecessor – Union Minière – began divesting all mining rights remaining from its historical activities and repositioning as a specialty materials company.

Mine closures and return of concessions to state authorities were consistently carried out in collaboration with the competent authorities and local stakeholders. Remediation projects for smelting and refining installations are developed in close consultation to ensure any risks are reduced to levels acceptable to the authorities and compliant with regulations.

Umicore's proactive program for assessing and, where necessary, remediating soil and groundwater contamination is defined in [The Umicore Way](#).

The following paragraphs illustrate the main ongoing programs and the progress made during 2023.

Belgium – remedial efforts continue at Umicore's oldest site

Our oldest predecessor company, Vieille Montagne, was granted a mining concession by Emperor Napoleon Bonaparte in 1805, with five more concessions added over time, all located in eastern Wallonia. Mining activities ceased in the 1950s, and extensive rehabilitation work was carried out in close consultation with the competent authorities. Four concessions were officially handed back to the Walloon Government in 2019, with the remainder ongoing.

Historical non-ferrous metals production in Hoboken, Olen, Balen and Overpelt impacted soil and groundwater on the industrial sites and on neighboring land. In 1997, Umicore's predecessor Union Minière concluded a voluntary covenant with the Flemish Region to address the historical contamination. An addendum was signed in 2004 together with the regional waste authorities (OVAM) and the Flemish Regional Minister of the Environment. With this addendum, **Umicore committed to spend € 62 million over 15 years for remediation at four sites**. The two sites of Balen and Overpelt, which Umicore divested in 2007 and which now belong to Nyrstar, were included. OVAM and Umicore also joined forces to remediate historic pollution in the 9km-perimeter surrounding the industrial sites over 10 years, each contributing € 15 million to a remediation fund. In 2014, OVAM and Umicore agreed to extend their agreement by an additional five years. The covenant ended in 2019, but **Umicore will continue remedial efforts for as long as is necessary**.

Hoboken

The plant in Hoboken was founded as a lead and silver refining operation in 1887. Today, the site is one of the largest and most sophisticated refineries and recyclers of precious and other non-ferrous metals in the world. Over 135 years, the industrial activities and the neighborhood have grown closer together. As part of the 2004 covenant with OVAM, Umicore replaced heavily contaminated topsoil and remediated the historical contamination in the adjacent residential area.

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At the operational site, extensive soil and groundwater remediation is ongoing to address existing risks to the environment.

During 2023 approximately 13,000 tonnes of soil were remediated. The next stage of groundwater remediation consists of further isolating the groundwater at the site from the environment with a new drainage system. Prior to the system's start-up, Umicore, in agreement with OVAM, undertook additional monitoring to test and prevent any possible run-off to the environment.

Meanwhile, groundwater remediation efforts are functioning successfully. **In 2023 about 7,000 cubic metre (m³) of groundwater was purified** in the on-site wastewater treatment plant and most has been re-used at the site.

Olen

In Olen, contamination in and around the site results from the historical production of mainly copper and cobalt. An on-site groundwater remediation program, which started in 2007 to remove contaminated groundwater and prevent plume from spreading, is ongoing. In 2023, the soil remediation proceeded as planned in view of infrastructure works at the site, such as the construction of a wind turbine to generate renewable electricity. **Approximately 7,300 tonnes of additional contaminated soil and buried waste were excavated.**



Aerial image of Umicore site in Olen, Belgium

Between 1922 and 1980, radium and uranium were produced in Olen, including radium that Marie Curie used in her experiments. Union Minière's historical activities led to soil contamination from low-level radioactive residues. The radium production plant was demolished in the 1970s and its waste was confined to a temporary, long-term aboveground storage facility. This facility was set up in agreement with the Federal Agency for Nuclear Control (FANC/AFCN), NIRAS/ONDRAF (National Agency for Radioactive Waste and Enriched Fissile Materials) and OVAM and built according to contemporary standards. FANC/AFCN and Umicore regularly monitor, measure and control the low-level radioactive residues. **The results consistently confirm that there is no risk to humans nor the environment.**

To address the site's radioactive legacy, Umicore and the federal and regional agencies are working on the remediation of the historical radium-containing soils. A key step towards this goal was made in 2020, when FANC and NIRAS, in close collaboration with Umicore, issued guiding principles for the permanent remediation and storage of this legacy radioactive material in a "Vision Note". Joint working groups are developing a detailed roadmap to achieve complete remediation. The roadmap and implementation of all the necessary steps are expected to take several years.

The prerequisite to implement the roadmap is to have a legal framework in place that organizes the remediation of contaminated soils. In 2022, Belgium's Federal Parliament approved the law on the remediation of soil contaminated by radioactive substances, which is now awaiting an implementing royal decree. Once the legal framework is completed, it will be a milestone in allowing for the remediation of the radioactive legacy in Olen. Meanwhile, NIRAS is leading a Strategic Environmental Assessment that will provide the basis for the legal framework for a new waste category, namely radio-active waste that contains radium. This legal framework is meant to support the long-term management of this particular waste category in a shallow repository, proportionate to the risks of the low-radiation material compared with high-radiation waste from nuclear power plants.

Brazil: state-of-the-art remediation techniques now fully operational

Following Umicore's acquisition of industrial units in Americana (SP), Guarulhos (SP) and Manaus (AM) in Brazil in 2003, an environmental assessment in 2007 detected historical pollution of the groundwater at the Guarulhos site. To prevent further spread of this legacy contamination, Umicore installed a hydraulic barrier in 2011. Targeted extraction systems were placed at the site to speed up the remediation.

Umicore and local authorities worked together to relocate residents living in the area adjacent to the plant. They also converted the vacated space into a park in 2016, minimizing the population's potential exposure. In 2020, Umicore moved its industrial activities to Americana and the industrial buildings in Guarulhos were closed and partially demolished.

Groundwater remediation projects are complex and require a very specific step-by-step approach, which typically lasts 10 or more years. To speed up the process, **state-of-the-art remediation techniques** (e.g. thermal remediation) were commissioned. Following successful trials in 2021 and 2022, the techniques **became fully operational in 2023**. Studies to further improve and shorten the remediation lead times are ongoing. As always, such studies are carried out in close cooperation with the relevant local and regulatory authorities.

France: addressing the impact of historical zinc refining

Umicore's predecessor companies operated mines in the south of France from the mid-1800s. The last mining activities terminated in the early 1970s and extensive rehabilitation work was carried out during the 1990s. All former mining concessions were officially handed back to the French Government.

Zinc mining in Saint-Félix-de-Pallières began in the 19th century and stopped in 1971. The concession was terminated in full compliance with legislation and waived in 2004 by the French authorities. Umicore still owns a landfill that contains flotation residues. To guarantee the landfill's long-term safety and stability, Umicore

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carried out and completed extensive refurbishment work in 2021 and 2022. In agreement with and supervised by the relevant authorities, Umicore remodeled the land surface and planted vegetation, installed engineered stability layers, and improved the drainage system.

In 2019, the French State issued four injunctions for Umicore to carry out further remediation actions at different locations on these former mining concessions. Umicore contested the legal basis of the injunctions in the Court of Appeal. Following an annulment of the injunctions in 2020 and their subsequent reinstatement in appeal, the case is now pending before the French Supreme Court (Conseil d'État). A decision is expected in 2024. Regardless of the result of the legal case, **Umicore is determined to address the key matters raised by the injunctions.**

In Viviez, pollution in and around the site results from historical zinc refining activities that started in 1855 and stopped towards the end of the last century. Umicore invested € 40 million in a large-scale remediation program from 2011 to the end of 2016. After this period, post-remedial obligations were transferred to a third party. Together with other partners, Umicore joined a voluntary program in 2017 to address soil contamination in private gardens around the Viviez site. Data was collected between 2017 and 2018 and subsequently, a dedicated expert panel established by the authorities defined remediation measures. During the past two years, Umicore, in consultation with relevant stakeholders, has prepared extensively for the execution of the works. Based on a detailed roadmap and planning schedule, this voluntary project started during the first half of 2023 and is estimated to finish during the course of 2024.



United States - improving long-term groundwater management

In 1980, Umicore's predecessor company acquired an abandoned silver and gold mine at Platoro in a nature recreation area in the Rocky Mountains in Colorado. Subsequent exploration was unsuccessful and further exploitation of the mine was stopped.

Water drainage from the mine at this high-altitude site is strongly dependent on natural weather conditions. The winter snowfall melts in spring releasing water into the mine openings carrying with it natural rock metals. In 2018, a new state-of-the-art water treatment facility replaced the previous one installed in the 1990s. **The new modern facility has helped to further reduce metal concentration** in the discharge and the volume of solid waste.

In 2019, environmental authorities proposed a new effluent permit for 2024. Umicore contested this proposal questioning the technical feasibility of achieving the very stringent discharge limits for arsenic. At the same time, Umicore started tests to implement additional steps in the wastewater treatment plant. The environmental authorities accepted Umicore's arguments and recommended applying for a less stringent permit.

In 2024, a polishing step will be added to the wastewater treatment plant in order to remove metals at the agreed concentration. Umicore and the relevant authorities will oversee this project on a long-term basis.

In Maxton, North Carolina, soil and groundwater contamination was detected in 2009, after closure and demolition of the cobalt-producing facility that Umicore and its predecessors operated between 1980 and 2006. Umicore entered a voluntary program with the authorities and has put in place comprehensive groundwater remediation to address the issue fully by 2033. The land owned by Umicore was divested in 2021. The current groundwater remediation plan is under review to identify potential efficiency gains. Based on up-to-date monitoring, the objective is to further improve the long-term management of the groundwater resource.

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	unit	notes	2019	2020	2021	2022	2023
CO ₂ e emissions (scope1)	tonnes	E8	389,101	330,451	372,699	346,439	317,849
CO ₂ e emissions (scope2) - Market based ¹	tonnes	E8	402,714	402,094	473,738	352,210	314,093
CO ₂ e emissions (scope2) - Location based ¹	tonnes	E8	426,074	421,089	421,990	372,820	377,705
Biogenic CO ₂ emissions (scope 1+2 market based)	tonnes	E8					56,639
Energy consumption ¹	terajoules	E7	7,476	7,591	8,308	7,471	7,462
Renewable electricity	%	E7	14	15	17	35	41%
Metal emissions to water (load)	kg	E5	2,052	696,523	908,186	774,306	566,035
Metal emissions to water ²	impact units	E5	0.4	120.7	157.0	133.8	100.0
Metal emissions to air (load)	kg	E5	864	984	994	1214	978
Metal emissions to air	impact units	E5	65,189	69,371	70,084	83,111	59,518
Diffuse metal emissions	%	E5	114.2	100.0	64.8	54.6	44.6
SO _x emissions	tonnes	E5	531	389	372	378	467
NO _x emissions	tonnes	E5	280	239	240	247	208
Water withdrawal ³	thousand m ³	E4	6,208	7,813	11,242	10,738	10,374
Fresh water withdrawal ³	thousand m ³	E4			9,977	9,627	9,294
Total waste produced	tonnes	E3	68,317	99,434	94,619	104,337	90,030
Hazardous waste ⁴	tonnes	E3	47,589	78,055	73,551	85,974	73,309
of which recycled ⁴	%	E3	7.9	5.0	8.0	6.7	8.8
Non hazardous waste ⁴	tonnes	E3	20,728	21,379	21,065	18,363	16,720
of which recycled ⁴	%	E3	59.4	64.7	71.4	69.5	61.1
Environmental complaints	N°	E9	33	80	104	66	52
Sites ISO 14001 certified	%	E9	95	96	94	96	98

¹ Restatements made in 2023 for 2022 figures.

² Impact factors have been updated for all years compared with previous years. See more information in Environmental Statements section E5 and Performance section Emissions.

³ Recalculation due to change of scope. Previous years have been adapted in view of consistency. The definition of water withdrawal has changed in 2021. See the respective topics in this section (the Environmental Statements section) for further information.

⁴ Definitions of KPI's have changed over time. A direct comparison over all years is therefore not fully applicable. See the respective topics in this section (the Environmental Statements section) for further information.

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INTERVIEW

The greenest energy is the energy you don't use

"The concept of sustainability is deeply embedded in our company. Our colleagues around the world are ready and willing to do their part in reaching our goals."

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How Umicore is tackling Scopes 1 & 2 emissions

As part of striving to be a sustainability champion under our 2030 RISE Strategy, our Let’s Go for Zero ambitions aim to achieve Net Zero Scopes 1 and 2 emissions by 2035. To learn more about how we plan to get there, we meet two colleagues – **Farah Ad’Oul** and **Nele S’heeren** – who are heavily involved in our current and future decarbonization efforts.

Umicore’s work to reduce our Scopes 1 & 2 greenhouse gas (GHG) emissions can be divided into three different levers. The first is to avoid emissions, focusing especially on energy and heat efficiency, process innovation and carbon-neutral growth. The second involves replacing emissions, such as through bio-based fuels, using renewable electricity from onsite installations and with green Power Purchase Agreements (PPAs). And finally, we aim to capture the remaining emissions. Farah Ad’Oul, Program Lead Decarbonisation for Scope 1, and Nele S’heeren, Project Manager Energy, tell us more about Umicore’s efforts across these Scopes and levers.

Farah, what does “energy efficiency” mean in the context of Umicore’s decarbonization strategy?

“Simply put, our activities are greener the less energy they use. That’s why avoiding emissions is a top priority, making energy efficiency a key pillar for our decarbonization efforts. In 2023, we launched our Energy Efficiency Program, aimed at reducing our overall energy consumption. Through a series of pilots in France, China, South Korea and Finland, we have conducted energy audits of our sites to determine the most appropriate and effective energy-saving measures.

“When it comes to replacing emissions, the focus is mainly on renewable electricity,



Umicore Battery Materials site in Kokkola, Finland

“In the shorter-term, upping our energy efficiency and share of renewable electricity will lay a strong foundation for us to hit our Let’s Go for Zero targets.”

Farah Ad’Oul Program Lead Decarbonisation for Scope 1



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Windpark in Wachtebeke, Belgium



“Decarbonizing energy is a work in progress and a mission that is here to stay.”

Nele S'heeren Project Manager Energy

which is also pertinent to our Scope 1 emissions, where the steps we take to decarbonize are often linked to electrifying our processes. In the shorter-term, upping our energy efficiency and share of renewable electricity will lay a strong foundation for us to hit our Let's Go for Zero targets.”

Can you give a concrete example of an Energy Efficiency project at Umicore?

Farah: “Of course, one concrete example is our optimized heater operation in Kokkola, during ramp-up and cooling down phases. By fine-tuning this process, we’ve managed to achieve electricity savings equivalent to a reduction of 228 metric tons of CO₂ emissions. This is an example of how we can avoid emissions.”

So Scopes 1 and Scope 2 are tackled together, Nele?

“Yes. Scope 1 reductions typically involve large-scale changes in process or technology that requires a long-term mindset, and there’s more to investigate and consider compared to switching to renewable electricity, which we are actively doing. An electron produced by a windmill or solar panel is the same as any other, so our infrastructure can operate as before, making this a relatively easy win in that regard.

“There are a few avenues available to source renewable electricity. One is through Power Purchase Agreements (PPAs), which are typically long-term contracts with owners of renewable electricity assets. For example, we have onshore and offshore wind PPAs in Belgium, Finland and Poland.

In addition to these, there are also the measures we can take ourselves, such as installing solar photovoltaic (PV) panels.”

“Decarbonizing energy is a work in progress and a mission that is here to stay. Once we achieve zero Scope 2 emissions, for example, we will have to maintain this level. And since PPAs are fixed-term contracts, that means constantly reviewing and updating the agreements we have in place.”

Farah, what was the result of the pilot series you mentioned?

“Overall, the program illustrated the importance of energy efficiency very well: all four pilots found an energy saving potential of 15% to 20%, contributing to our decarbonization efforts while saving costs. Feasibility studies are underway to assess this potential and implement the necessary changes.”

Does “-decarbonizing” look different depending on the country/region?

Nele: “We see differences in the tracking instruments for Scope 2 reductions. In Europe and the US for example, there are clearly defined energy attribute certificates that help to prove that one megawatt hour of electricity comes from a certain source. These certificates vary in name depending on the region, but we prioritize high credibility and quality certificates that meet certain criteria and are issued near our operations. In other areas, the infrastructure and legal frameworks around renewables are still maturing, and changing quickly, making it trickier to have that same level of stability.”

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“We also need to think about where it’s best to implement sustainability projects. It’s a perpetual balancing act in which several aspects such as impact, cost, opportunities and stability are considered.”

Farah, is there a similar logistical complexity to your Scope 1 emissions reduction work?

“When it comes to Scope 1, there’s also a question of suitability, which is to say, finding the right solution, at the right place, at the right time, with an interesting carbon profile (for the right cost of course!). Our plant in Markham, Canada, for example, is located near a biogas and renewable energy provider, the conditions aligned to make the switch to biogas – something we achieved in 2023. Whereas in a country like Belgium, there aren’t any biogas certificates available. Even if we turned to neighbouring countries for supply, uncertainty remains about the ‘how much we can obtain’ and ‘how much our sites will need.’”

Looking to the future, spatial constraints also emerge as a critical consideration. The challenge of implementing large-scale decarbonization technologies, such as large batteries or even carbon capture units when they become mature technologies, within sites that may lack the requisite space today is something I’m already thinking about.”

Farah, energy efficiency seems straightforward, are there any challenges?

“Energy efficiency entails more than just implementing immediate solutions like transitioning to LED lighting or adjusting building temperatures. Coordinating efforts across a spectrum of facilities, each with its distinct operational requirements, demands a customized approach to yield optimal results. In certain business units, the challenge is compounded by standardized equipment settings that aren’t easily adjustable for improved efficiencies. To overcome this hurdle, we must explore alternative strategies, such as optimizing workflow processes, deploying advanced monitoring systems, or investing in innovative technologies.”

Given all this complexity, how do you make it happen?

Nele: “We don’t do it alone! The concept of sustainability is deeply embedded in our company. Our colleagues around the world are ready and willing to do their part in reaching our goals and there are initiatives to further promote Environmental, Social and Corporate Governance (ESG) topics. As part of our ESG Academy, I gave two talks last year on renewable electricity, specifically on our recent PPAs, so that more colleagues understand the progress we’re making, how it fits into our strategy and how we can work together.”



Umicore Battery Recycling Solutions Smelter with photovoltaic roofing in Hoboken, Belgium

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Farah: “Reducing emissions across all Scopes is a collective endeavor, so information sharing is key. We’ve partnered with colleagues at various sites to carry out our pilots and together, have gained valuable insights, which we are now using to improve our operations Group-wide. Nele and I are members of the Group ESG team, and we support Umicore’s business units in achieving our environmental objectives. Our sites share their achievements through internal channels, enabling everyone to benefit from them. Many locations even have suggestion boxes where staff can submit their own energy-saving ideas. Centrally, the Umicore Sustainability Platform that was launched on our intranet is an excellent resource for colleagues to access tools, training and resources on sustainability and exchange their own ideas.”

What motivates you, personally, in your work at Umicore?

Nele: “Having studied business engineering, with a thesis on investment schemes for renewable electricity, I really appreciate getting to combine the commercial, technical and sustainable aspects in my work. And of course, it’s a huge help when the people you work with are kind, ambitious, and willing to think outside of the box to make an impact.”

Farah: “I’m passionate about sustainability and sustainable development in general – and I think the same goes for everyone in the team. Otherwise, why would we be doing this job? I’m happy knowing the work we’re doing is benefitting society, and it makes me proud to be at Umicore. I can wake up and think ‘yes! I’m going to work’ – what’s better than that?!”



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Employees



11,948

Group employees

24.35%

Women in our workforce

95%

Retention rate

People & Organization

Our success is driven by the skills, passion and diversity of our people

The 2030 RISE Strategy, launched in June 2022, sets out an ambitious next step for Umicore as the *circular* materials technology company. **Our people with their skills, experience and energy** are vital to our ongoing success and achievement of these new strategic goals. People are our greatest asset and what makes Umicore one of the most exciting, innovative and attractive companies in which to work. As a result, we continuously challenge ourselves to keep providing excellent employee conditions optimizing our employment practices, while nurturing and developing people and their talent throughout the organization.

For Umicore, this past year has been a year of transformation in readiness to meet our ambitious growth objectives under the 2030 RISE Strategy. For human resources in particular, these changes have been significant. In June 2023, Umicore management took the deliberate decision to evolve HR into the current **People and Organization function**, creating the new role of **Executive Vice President (EVP)**. Ana Fonseca Nordang joined us on September 1st, 2023. A seasoned executive, with broad HR experience, Ana has already begun to guide and support our global People & Organization team as they navigate this period of transformation. See [Feature Article](#).

As EVP, Ana also joined the Management Board placing the people agenda firmly at the heart of everything we do, while sending an important signal that the people and organization strategy is fully embraced by senior management. See [Leadership](#).

“At Umicore, we recognize that our people are our greatest asset, which is reflected in 18 consecutive years as Top Employer in Belgium.”

Ana Fonseca Nordang
EVP People & Organization



Such changes will hold us in good stead to deal with the continued opportunities ahead linked to tight labor markets, diversity, equity and inclusion, talent mobility and employee wellbeing, in order to meet the specific needs of the business groups and units.

Four pillars for change

Amid the evolution of P&O strengthening the very foundations of the Umicore Group we have continued to build on **four distinct pillars** this year. Defined in the Let’s Go for Zero ambitions, each of these four pillars uphold our [Umicore values](#) and help us to create the truly caring, purpose-led, performance-driven, people-oriented company to which we aspire.

The first of the four pillars and a key priority in this past year is **workplace planning** to ensure that we have a clear connection between our business needs and our workforce capacity and capabilities. We can now better anticipate future requirements, bringing the right talent into Umicore, while ensuring their skills and expertise are deployed where they are most needed. Our centers of excellence on talent, and compensation and benefits have also played key roles in streamlining the recruitment approach helping us gear up to meet our future requirements under the 2030 RISE Strategy.



Employees working at Umicore Battery Materials in Kokkola, Finland

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Work that began in 2022 to ensure greater efficiency has continued. In 2023, we assessed the way we work before upgrading our tools, strengthening our processes and standardizing our ways of working across the Group. As a result, of our improvement work, we were able to optimize our recruitment practices—reducing time and cost to bring key capabilities into Umicore. These changes were carried out while simultaneously increasing the workforce significantly. See [Our Workforce: the way we lead](#).

Diversity and inclusion are an integral part of our recruitment strategy and engrained in all of our activities. An inclusive work culture is essential for every employee to feel that they belong and are motivated and engaged to perform. Umicore's D&I Strategy remains a priority and the second of the Let's Go for Zero pillars. Considerable time and resources were invested during 2023. See [Diversity & inclusion: the way we think](#).

Upholding employee engagement and growth remains a top priority for the company. At Umicore, **we actively promote a culture of continuous learning and growth** for everyone. As with every year, we invested significantly in training programs in 2023 to support our employees' personal development. See [Talent management](#).

The fourth pillar is Zero Harm and our commitment to **protect the wellbeing and safety of our people** at work. Umicore promotes and safeguards physical, mental, social and occupational health in the workplace, because we believe that wellbeing is fundamental for a thriving workforce. Reducing stress and understanding local work cultures are key elements of our [Wellbeing@work programs](#). When it comes to workplace safety, we seek to ensure the highest level of safety in all our facilities and aim for zero work-related injuries. We are committed to further develop our safety standards and safety culture across all sites. Care is the basis to lead Umicore to zero work-related injuries and the Zero Harm target set in our Let's Go for Zero ambitions. See [Occupational Safety](#).



Employees at Umicore's site in Hanau, Germany

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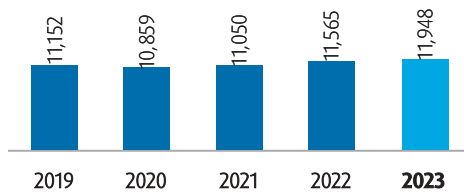
Our workforce: the way we lead

11,948

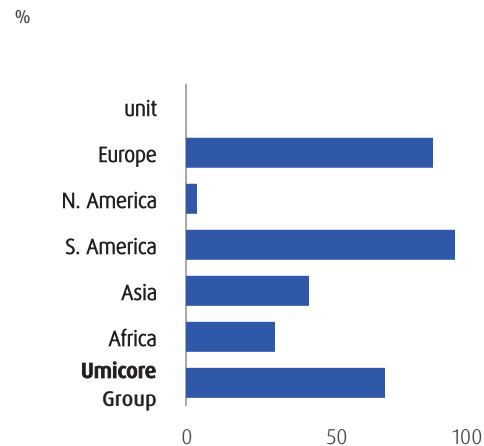
Fully consolidated companies

WORKFORCE

Number of employees



EMPLOYEES REPRESENTED BY A UNION OR COLLECTIVE LABOR AGREEMENT (CLA)



In 2023, the **total workforce** for fully consolidated companies rose to 11,948 at the end of 2023 up from 11,565 in the same period of 2022. This increase of 383 employees can be attributed to growth in Europe, with the most significant in Poland, Belgium, Finland, and Germany, respectively. The Nysa gigafactory in Poland, in particular, experienced a notable growth in workforce in 2023. In Belgium, the headcount increase was primarily to support our 2030 RISE Strategy. Most Umicore employees work on a full-time basis, as illustrated by the full-time equivalent (FTE) of 11,754 (consolidated), which is very close to the reported headcount of 11,948 employees. Among associated companies there was a decrease of 555 employees in 2023 bringing the number to 2,109 employees. This change can be attributed to Umicore’s sale, in August 2023, of its non-strategic 40% stake in IEQSA, a Peruvian company active in the transformation and production of zinc-based products.

Umicore has had systematic Group-wide internal reporting on [Code of Conduct](#) matters since 2011, recording any breaches of [The Umicore Way](#) or our Code of Conduct Policy. In 2023, a total of 65 cases were reported, involving a total of 68 employees. Most of these cases were about personal misconduct. The type of action taken varies from a warning letter to dismissal. Despite all measures in place and a culture of transparency, reporting is only as complete as the information provided by the people involved.

Digitalization: our new people-centric approach

During this past year, Umicore has invested significantly in IT and technology with upgrades to existing platforms alongside a more employee-centric approach to digitalization. Much groundwork has gone into developing a range of new products to ensure interactions with People & Organization are more efficient, more user friendly and more detailed for the employee. To this end, a new People & Organization Portal will be launched in 2024.



Employees working at Umicore Battery Materials site in Nysa, Poland

Supporting collective bargaining & engaging in constructive dialogue

We support our employees’ right to collective bargaining by engaging in constructive dialogue with them. While such practice is commonplace in Europe, in other locations collective bargaining mechanisms and trade unions may be less common or face local legal restrictions. In 2023, the highest representation was in South America and Europe and the lowest in North America. With a slight increase from 65.79% in 2022, to 66.09% of Umicore employees belonging to a **trade union** organization and/or the level of their wages were negotiated through a **collective bargaining agreement in 2023**.

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Umicore signed the **Sustainable Development Agreement** with the international union IndustriALL in 2019. The agreement covers the global implementation of several policies including human rights, equal opportunities, labor conditions, ethical conduct, environmental protection and the participation of trade unions in the pursuit of these objectives. All Umicore sites are screened internally each year. In 2023, this screening showed that none of Umicore's sites demonstrated a particular risk of infringement of any of the principles of the agreement. See the [full text of the agreement here](#).

Equal pay for work of equal value

Umicore is committed to upholding the right to adequate remuneration for all employees. We empower all Umicore employees to contribute to the company's success. Performance is appraised regularly and rewarded accordingly. Fair and equitable remuneration is a fundamental element of Umicore's remuneration policies and processes. Remuneration and all other benefits are based on the principle of fairness and are defined based on **whichever is highest** among the following criteria:

- national legal standards, or
- standards of the national branches, or
- collective labor agreements

As part of our Let's Go for Zero ambitions embedded within the 2030 RISE Strategy, Umicore engaged Deloitte for a second consecutive year in 2023 to assess its gender pay equality, using a regression analysis to gain insights into the different wage drivers and to calculate an adjusted pay gap. The adjusted pay gap is the wage difference after factoring out non-gender effects (such as age, tenure, education, etc.). The assessment approach was first carried out for managers employed in Belgium in 2022. In 2023, this adjusted pay gap analysis was carried out in Germany among managers, and in China and South Korea for managers and office staff. All three of these countries show an average adjusted pay gap below the 5% EU threshold. Within China, however, some points of attention remain and are being closely monitored. Umicore will continue to follow up and take action when necessary, as well as roll out the analysis progressively throughout the Group. See more on [Diversity & Inclusion](#).



Employees at Umicore's Battery Materials R&D Center in Cheonan, Korea

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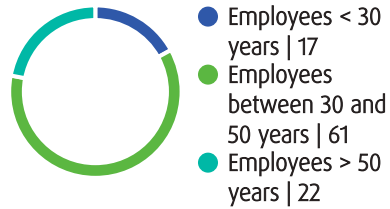
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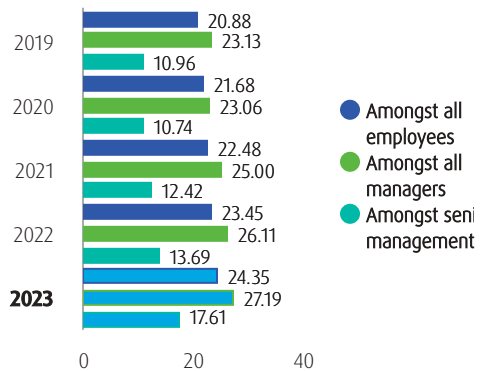
WORKFORCE AGE SPLIT

% of employees



WOMEN AT UMICORE

% of employee category



Diversity & inclusion: the way we think

Umicore believes in **equal opportunities, fairness and diversity as prerequisite to an inclusive work environment**. We welcome all individuals regardless of age, cultural background, disability, ethnicity, gender, marital status, political opinion, religion, or sexual orientation. We value a mix of ambitions, approaches, educational backgrounds, experiences, interests, personalities, skills and views.

At Umicore everyone is **valued equally, treated equally and paid equally for equal efforts**. This goal of **Zero Inequality** is central to our Let's Go for Zero ambitions and is embedded within the 2030 RISE Strategy. Umicore has committed to increase diversity, be it gender, nationality, age or experiences while ensuring **Zero Inequality**.

Embracing cultural differences

Diversity of thought will keep us ahead of the competition. We want our workforce to reflect the societies in which we operate and the end consumers we serve, building a diverse, inspiring and collaborative workplace in which everyone can thrive. Diverse teams bring diverse perspectives, improving innovation and, ultimately, **performance** at Umicore. As our global footprint continues to grow, we seek to increase the diversity of experiences and cultures across the entire Group, with a key focus on senior management. A better balance in this regard will enable us to make business decisions that are strongly aligned with the markets we serve.

Since 2021, we have been tracking the diversity of our senior managers through the **"Diversity of Thought index"**. We have significantly increased our diversity in senior management positions in terms of gender, nationality and experience compared with 2022. On gender, for example, women in senior management increased to 17.61% in 2023 compared with 13.69% in 2022.

In terms of international diversity: in 2023 our workforce comprised 85 nationalities. The share of non-European representation in senior management positions decreased slightly to 19.32% in 2023 from 20.83% in 2022.



Employee working at Umicore's Jewelry and Industrial Metals in Americana, Brazil

Tackling unconscious bias

We all have unconscious biases, in other words stereotypes that are unintentional and deeply engrained within our subconscious. By becoming aware of these biases, we become more inclusive increasing equity and diversity throughout Umicore. In the context of our Let's Go for Zero ambitions and in the spirit of leading by example, unconscious bias training became mandatory for all managers in 2022. So far almost 80% of all managers completed the training. While the opportunity remains to raise awareness on unconscious bias among all managers, this number represents a significant increase compared with last year.

In 2023, we focused on further integrating diversity into all elements of our recruitment activities. We strengthened all our recruiters' skillsets with tools, and training on **unconscious bias** and **behavioral-based interviewing**. We have also started to roll out training on behavioral-based interviewing for hiring managers with a focus on unconscious bias. We continue to ensure our employer branding campaigns, job postings and candidate outreach are inclusive by using non-biased language.

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Reaching gender parity

Rebalancing gender at work means attracting more talented gender diverse people, identifying those with future proof skills and mindsets and providing them increased experience and exposure across the group. Reaching gender parity remains high on our agenda. That's why we have set ourselves the Let's Go for Zero target of **gender parity as soon as possible**, with an intermediate goal of 35% of women in management by 2030. Although Umicore is not yet where it wants to be in meeting this goal, positive progress came in 2023. In 2023, 24.35% of Umicore employees were women, which is an increase from 23.45% in 2022. Women in management roles have increased from 26.11% in 2022 to 27.19% in 2023.

To achieve our gender diversity goals, we have focused even more this year on attracting and recruiting more diverse and qualified talent with more targeted, non-bias campaigns. We have also enhanced our internal awareness, followed up on retention and internal mobility.

Various initiatives have been set up at Group and regional levels to inspire, support and develop women in their careers. To encourage more women to break the stereotypes and build fulfilling careers in science and technology, female colleagues such as Valerie shared their stories of working in tech in [Meet the women behind the science](#). In China and APAC countries, female leaders can network with their peers in a tailor-made one-week **Women in Business Leadership Program**. The fourth edition, held in Shanghai in September, attracted 21 female managers participating in workshops and team building activities. In 2023, 32% of managers recruited were women, a slight increase from 31% in 2022 but lower than our 35% target.

Positive moves also took place at the company's highest level with the appointments of the new Executive Vice President (EVP) of the Recycling Business Group (Veerle Slenders) and the EVP of People & Organization (Ana Fonseca Nordang) to the Management Board. **Umicore now has three women among our most senior leaders** sending a positive signal to our female staff that there are opportunities at the very top of the organization. See [Leadership Section/Management Board](#).



Among the 2023 cohort from the young graduates' program, Umicore also exceeded its 35% target reaching 52% gender diversity in Belgium — host country of most graduates. See [Young Graduate Program](#). Talking of young professionals, [Anne-Sophie our project manager in Loyalist](#), Canada earned the Kingston Young Professionals **40 Under 40 Award** for her commitment, vision and leadership.

Diversity in age, abilities & orientations, Diversity and Inclusion (D&I) is much broader than discussions and actions around gender. Our initiatives also reach out to all ages, orientations and abilities. We work hard at Umicore to really ensure that all our colleagues are welcome and included within the #UmicoreFamily.

To raise awareness and show **support to the LGBTQIA+ community**, the Queer at Umicore network was launched on the International Day against Homophobia, Biphobia and Transphobia in 2022. The community provides a safe space where colleagues can share experiences and support one another. As the community grows, emphasis this year has focused on the [importance of allyship](#). Anyone can be an ally, by actively supporting colleagues in the LGBTQIA+ community, taking time to understand and learn, and using their voice to promote inclusion and equality.

Understanding **generational diversity** is essential for constructive collaboration. That's why the buddy program was set up at Hoboken, Belgium, pairing colleagues from different backgrounds, generations and cultures to support each other at work. This year it was relaunched offering buddies a day of training each month.

Colleagues from the Information Systems team joined a partnership in 2022 with Autimatic, an external partner that offers **job opportunities to people with autism**. Following its success, we continued the collaboration in 2023 with two highly motivated employees now working with us on a part-time basis.

[Umicore Americana in Brazil provides support for colleagues with hearing impairments](#). A professional agency translates all forms of communication into sign language enabling Edson, an employee for 13 years, to work as a production operator.

As a global company, Umicore is diverse by nature. Diverse talents in an inclusive working environment have been important guarantors of success for Umicore for many years. That's why in Germany, Umicore AG & Co. KG signed the Diversity Charter on International Women's Day in March 2023, sending a further signal for diversity and tolerance in the workplace.

As Umicore continues our growth trajectory under the 2030 RISE Strategy, we will create more opportunities for diversity and push forward our efforts towards greater inclusion, equity and belonging.

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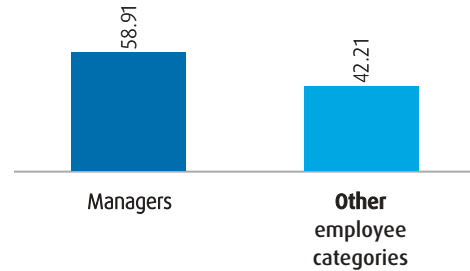
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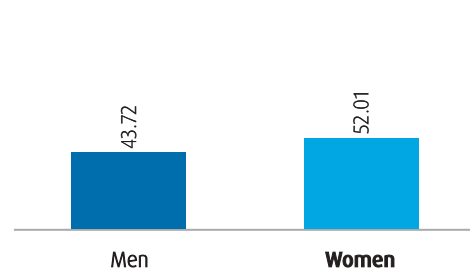
TRAINING TIME, BY EMPLOYEE CATEGORY

Average hours of training per employee



TRAINING TIME, GENDER SPLIT

Average hours of training per employee



Talent management: the agile way

To anticipate and seize opportunities in the market, and to respond quickly to customer needs, Umicore has adopted **an agile way of working** – a key pillar in our former HR strategy and ever more relevant to meet the challenges of Umicore’s 2030 RISE strategy. Agility is our ability to anticipate, adapt and respond quickly to change. It is precisely this agile way of working that has helped us successfully navigate the headwinds of 2023. Agility means we engage in building a collaborative workplace where employees take initiative, leadership, challenge the status quo and propose new solutions across business groups, business units, functions and regions. All employees are encouraged to be accountable and to lead from wherever they stand, bringing our purpose-led, performance-driven, people-oriented mindset to life through our values.

Our values are integrated into our People & Organization processes – into our way of recruiting, our assessment tools, training courses, talent reviews, succession planning and our project management. In 2023, they inspired various initiatives within teams across the Group such as training courses in the various regions or as part of the onboarding.

Encouraging employee mobility and stimulating learning

In line with the Umicore Way, we support an environment that values career mobility. **Employee mobility** is a way to bolster an agile way of working: working in more than one country, business group, business unit or function stimulates employees to adapt and to respond quickly to change. With the expansion of our activities around the globe, additional possibilities became available in 2023 for our employees wishing to make a move to our other businesses, functions and locations.

We believe the only sustainable competitive advantage is an organization’s ability to learn faster than the competition. That’s why we engage in creating a culture of continuous **learning** in which employees take ownership of their personal and professional **growth**. Our prime focus is developing future-oriented skills and behaviors in our workforce ensuring that our employees have the right skills to contribute to our success and face the changes in the industry. Various transition assistance programs also exist throughout the Group to ensure the ongoing employability of our people. From mentoring new graduates to preparing high potential colleagues for leadership positions through experience and exposure, to the support for retirees and the various internal and external training courses for our employees to upgrade or acquire new skills.

Umicore promotes career development using an internal online vacancies tool and we operate a Group-wide learning management platform called **“My Campus”**. Continuous coaching and feedback from the line manager throughout the annual performance cycle is an integral part of enabling employees to own their career and development. To make our training offer accessible anytime, any place for every employee **MyCampus was piloted as a mobile application** in our Hanau site. Our operational staff often do not have daily access to a computer. With this application they can now view e-learning courses and register for other learning offers via My Campus from their tablets and/or smart phones.

Blended learning & other formats

Digitalization of our training courses continued to build on the 2022 roll out of courses under the Umicore Technical & Digital Academy (UTDA). The UTDA catalyzes cross business units and cross-regional “blended technical learning” and contributes to the success of Umicore as an innovative learning organization.

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Umicore initiated its **first Working Out Loud (WOL)** program, a method designed to foster collaboration, innovation, and personal growth. The program involves self-organized peer-learning groups that meet virtually over a 12-week period to support each other and advance their personal learning goals. In total, five WOL circles have been established, spanning eight Umicore sites across six countries on three continents. Given the immense success the experience will be repeated in 2024.

Average training time per employee

Umicore continued to provide additional training courses in 2023, including offerings for newcomers, classroom and catch-up training and new management training courses.

Average training time per employee in 2023 reached 46 hours, slightly lower than the 47 hours in 2022. In 2023, managers' training hours (59 hours) were higher than for other employees (42 hours) and women's training hours (52 hours) were higher than for men (44 hours).

In 2023, 96% of all employees from fully consolidated companies had an appraisal interview to discuss their development at least once during the year.



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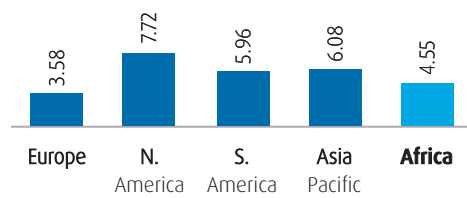
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95%

Retention rate

VOLUNTARY LEAVERS RATE BY REGION



Employee engagement in an uncertain world

Our predominant goal is to engage our 11,948 colleagues around the globe, regardless of their location, business group, unit or assignment. We strive to create an environment where our colleagues feel cared for, considered, respected and safe. For more information, see [Wellbeing: helping our people thrive](#).

Our **Employee Assistance Program (EAP)**, established in 2022 as a confidential helpline facilitated by external professionals, continues to support employees wishing to discuss any issues (e.g. stress, burnout etc).

At Umicore, we focus on active motivation and support for our employees in their skill development, never forgetting that gratitude matters too. With this in mind, Umicore Nowa Ruda, Poland enjoyed various activities as part of its second [Employee Appreciation Month](#).

Collaboration and care remain key strengths

Collaboration and caring for each other are key to avoiding work-related injuries and reaching **Zero Harm**, one of the pillars of our Let's go for Zero ambitions. For more information on our Coaching for Safety, see [Occupational safety](#).



Employee Appreciation Month at the Automotive Catalyst site in Nowa Ruda, Poland

"The pillars of our daily work are respect, teamwork, openness, commitment and innovation. These are universal values that we also translate into activities outside the company. Umicore is a company sensitive to the needs of its employees and local communities."

Wiwiana Ziółkowska
Nysa Site HR Lead at Umicore Poland



Umicore as an employer of choice

In 2023, Umicore received the [Top Employer Certification](#) in Belgium for the 18th consecutive year. Umicore Poland, was also recognized for the second year running as a Good Employer 2023 and awarded with the [Highest Quality International Programme](#). We want Umicore to be an employer of choice in all the regions where we operate and strive to make this happen.

In 2023, our overall retention rate bounced back and surpassed the 2021 level, to 95%, up 2% from 2022. In 2023, the voluntary leavers rate decreased to 4.68% from 6.53% in 2022. Regional differences in retention rates continue, with North America reporting the highest voluntary leaver rate at 7.72%.

We are proud of our position as a pioneer and world leader in materials technology and sustainability, and in a disruptive industry, we need to continue innovating, challenging the status quo and growing, both as a company and as an employer.

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Wellbeing: Helping our people thrive

At Umicore, we aim to create an environment where everyone feels welcome, connected and appreciated for their contribution. A place where our people can grow, thrive, interact and take care of each other.

Ensuring everyone's Wellbeing@Work

For many years, Umicore has strived to offer a great place to work and we are committed to wellbeing as part of our values in [The Umicore Way](#). As the intensity of jobs has increased over the years, our Zero Harm pillar of the Let's Go for Zero ambitions continues to focus on the **Wellbeing@Work program** with care as a cornerstone.

Wellbeing at Umicore is not just a priority that may change but a "condition", a value that is here to stay. Wellbeing is not only essential for the overall health of our employees, their personal performance and development; it is also crucial to the professional performance and success of the whole Umicore Group. Productivity, health and safety, and the retention of our most talented people depend on a good wellbeing strategy and enables us to continue to attract young talent and create a greater sense of belonging.

During this year's transformation and the challenges facing individuals, teams and business units, protecting the wellbeing of our people has taken on an even greater significance. That's why Umicore continued the momentum of its **Wellbeing@Work program** in 2023. Established in 2022, the program centers on four areas: **mental, physical, social** wellbeing and **occupational health** in the workplace, which are adapted to individual needs and regional circumstances.

Raising awareness, maintaining and improving mental wellbeing

At Umicore, we continue to improve our knowledge and raise awareness among our leaders and employees on the importance of safeguarding **mental wellbeing**. To this end, the **Umicore Mental Wellbeing Model** was developed in 2022. This scientific and evidence-based model indicates which organizational aspects (e.g. autonomy in the job, feeling appreciated, your authority versus your competence, digital hygiene, work-life balance etc.) have an impact on mental wellbeing. The primary aim was to raise awareness among our leaders so that they can create the optimal circumstances to maintain or improve the mental wellbeing of their staff; identify early stress signals; and know which steps to take to prevent burnout. **A training course was then developed** and by January 2023 Umicore's entire Management Board, starting with the CEO, had participated in the three-hour workshop, showing just how important a topic it is for our leadership. The workshop was further rolled out to the business unit management teams and corporate departments during 2023. In 2024, additional steps are being taken to further deploy this program into the business units and corporate services.

Umicore launched an **e-learning course** on the topic in May 2023, available in several languages. The e-learning has the same content as the workshop but condensed into a 30-minute online tutorial. While available for all Umicore employees, we are currently focusing on managerial group participation. In 2023, in addition to a Lunch & Learn session, 11 in-person and four online workshops were organized for the business unit and corporate leadership teams. Almost half of the managerial group has already completed the e-learning. See [Bringing mental wellbeing to the forefront](#).

An excellent example of the positive impact of the Mental Wellbeing Model can be seen in the **Rechargeable Battery Materials Business Unit**. Our P&O Business Partner for RBM, Ellen Driesen, developed the model even further tailoring it specifically for the business unit in readiness for their tremendous growth trajectory. Together with the management team, headed by Ralph Kiessling, they developed videos, organized training, carried out surveys and discussed mental wellbeing among their extended leadership team. See Ellen's take on mental wellbeing.

"Wellbeing is a condition for success, both as a business and as an organization."

Bert Swennen
Group Director Health & Wellbeing and Group



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“Psychological safety is about having a culture where people feel safe and empowered to speak up... so we can all become more efficient and effective.”

Ellen Driesen
Head of People & Organisation for Battery Materials



Local mental wellbeing initiatives

We work closely together with the various sites and regions to ensure that the local wellbeing initiatives and actions are consistent with the group-wide approach. In 2023, we continued to build on the **network** to exchange best practices, coordinate projects and seek input into the Group projects on wellbeing.

Jun Dong Lu, Senior Vice President of Battery Materials, Asia shares how he supported his colleagues while going through a period of immense change. To navigate transition while safeguarding the mental wellbeing of colleagues, he urges us all to give constructive or positive feedback, celebrate progress with the team, and praise a job well done.

In Denmark, employees participated in a **Mental Wellbeing Day** in October 2023. Participants gathered to listen to Henrik Wenøe, Author of "The Positive Activist" and CEO of Acuity World who shared his tips and tricks for better mental wellbeing. A chef explained how nutrients in our diet affect our mental health before inviting participants to sample super foods of the future. Participants were then presented with a menu full of nurturing ingredients for both body and mind.

Maintaining one's physical wellbeing

Whilst individuals should take responsibility for their **physical wellbeing** through their own efforts and decisions, Umicore offers support and options for all our employees to improve their physical health, not because we must but because we genuinely care.

In 2023, the **voluntary preventive health checks were offered to 94% of** Umicore's workforce. These are physical and medical check-ups and individual health counseling with, if needed, follow up and treatment carried out by the person's own medical practitioner. Checks are completely confidential and fully compliant with privacy regulation (e.g. GDPR). Our target is to be able to offer the checks to 100% of the workforce but whether people participate is entirely up to them.



Employees at Umicore's Battery Materials site in Nysa, Poland

Local health campaigns and plans have also been developed on important health topics such as nutrition, weight, smoking prevention, cardiovascular risks, physical exercise, and substance abuse. This work is supported by campaigns organized by the site management on general health topics in many of Umicore's sites: 80% of Umicore's employees worked at a site where a general health campaign was organized.

Regional initiatives

The annual **"Pink October"** campaign in Brazil, raises awareness about preventative screening for breast cancer, while **"Blue November"** highlights prostate cancer causes and prevention. During the months of both campaigns, employees received free screening. In addition, during the summertime, all employees were offered a skin cancer screening.

Nutrition Talks take place in China, while in Poland the **Bike to Work Day** every May promotes healthy and ecological habits. Staying with Poland, in 2023 Umicore supported the **10th anniversary of the Nysa Run** in which 13 Umicore employees ran.

EHS domain expert at Precious Metals Refining in Belgium, Tom De Greef, **cycled up the Dolomites** with **Climbing for Life** in 2023. He was also appointed an ambassador for the sporting event that not only supports organizations helping diabetes and lung disease patients but promotes research. An achievement for anyone but all the more incredible since Tom has cystic fibrosis and underwent a double lung transplant 10 years ago. [Read more about his achievements here.](#)

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Creating a sense of belonging

In terms of **social wellbeing**, collectively feeling part of a community boosts our energy. Strengthening this **sense of belonging** among colleagues, teams and with supervisors and neighbors is therefore vital for our wellbeing.

At Umicore, we firmly believe that by working on physical and mental wellbeing our people can form healthy teams that work well together, creating that sense of belonging. Our people feel proud to be part of the #UmicoreFamily and we want to maintain this engagement through ongoing dialogue with our employees.

To create a healthy work-life balance, **the hybrid way of working**, launched in 2022, allows employees to work from home for two days a week with three days in the office or on site. Creating a sense of belonging therefore becomes even more important across the Group. Communicating through our **Connect platform** and sharing stories about events and people is therefore vital to maintaining social connection and wellbeing.

Sharing a sense of support and help for the communities around us creates an even stronger link. Colleagues in **Hanau, Germany**, for example, came together for World Clean Up Day to collect and clean up the garbage from their local park. Umicore's **Olen site in Belgium** welcomed local residents and employees in autumn 2023 to discover the new wind turbine and take part in hands-on activities experiencing the future of sustainable energy.

Occupational wellbeing remains a top priority

Occupational wellbeing has always been a priority at Umicore. Our efforts to offer safe, healthy workplaces and eliminate occupation-related health risks continue to the maximum.

Umicore is an industry leader by setting voluntary, science-based targets for potentially hazardous exposure to metals that are more stringent than legal requirements, where these exist. All employees who may be exposed to metals and other hazardous chemicals in the workplace are included in an occupational health surveillance program. For more information, see [Occupational Health](#).



Operator working at Umicore's Battery Materials in Kokkola, Finland

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82.2%

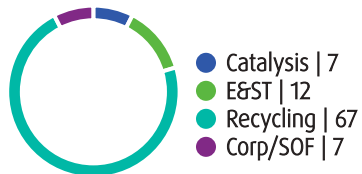
REPORTING SITES WITHOUT LTA

93

LOST TIME ACCIDENTS

LOST TIME ACCIDENTS, BY BUSINESS GROUP

Number of LTAs



Lost Time Accidents (LTA) - by Business group

Occupational safety: not just a priority but a value guiding everything we do

Over this past year we have learnt more about how to better manage safety in our workplaces. The tragic event in March 2023 reminded us of the importance of protecting ourselves and each other from harm, and of the consequences of failing to do so. We cannot look back on this year without acknowledging the huge wake-up call following the loss of our contractor colleague in Hoboken.

“One thing for me is critical and that's the prevention of serious incidents and fatalities. This is the most important zero of all the zeros we talk about.”

Luiz Montenegro, Group Director for Safety & EHS Operational Excellence



Umicore remains determined to level up to our responsibility for the safety of our employees and our neighbors in the communities in which we operate. We are steadfastly committed to ensuring the highest level of safety in all our facilities. This commitment is embedded in the 2030 RISE Strategy and further strengthened in the Let's Go for Zero ambition of Zero Harm.

A year of introspection, reflection and change

This year has been a year of introspection, reflection and comprehensive assessment. We carried out an **in-depth review of safety** at the Hoboken site to understand the critical aspects that require improvement in our work to prevent similar disasters from happening in the future.

Following the review several changes were made in order to significantly improve the efficiency and expertise of the safety department at Hoboken. Group Director for Safety & EHS, Luiz Montenegro, dedicated 80% of his time to Hoboken overseeing changes to improve safety performance. We carried out a complete review of the **safe work permit process**, and are currently working on a new Group standard to be published in 2024.

We focused on enhancing leadership and shop floor engagement with safety, as well as improving and consolidating the process for safety talks in all shifts in operational areas.

Towards a caring safety culture – 2023-25

Our Safety Strategy, unveiled in autumn 2022 with its emphasis on building a caring safety, culture continues to be our roadmap. The **three safety priorities**: zero fatalities and serious incidents; caring safety culture; and preparing for growth continue to guide us and remain vital to accelerating improvements in safety across the whole Umicore Group.

These priorities are fully aligned with the 2030 RISE Strategy and more specifically our commitment towards Zero Harm under our Let's Go for Zero ambitions.

Zero fatalities and serious incidents

To prevent fatalities and serious incidents we must continue to comply fully with **life-saving programs** such as the management of high-hazard tasks (e.g. work at height, confined space, hot work, critical lifting) ensuring they are properly and consistently managed across all sites to prevent the occurrence of serious incidents and fatalities.

Improvements to Umicore's **process safety management** were fully updated and implemented during 2023. We commit to further improving the **process safety standards and management** that are core to preventing catastrophic process events.

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Significant progress was made in 2023 with the introduction of several group standards that serve to raise the bar bringing the best industry practices throughout the Group. Standards for **lockout-tagout (LOTO) compliance; breaking into lines and equipment; hot work;** and management of change were all published and are being implemented. We will continue this vital work on standards in 2024 raising the bar for the whole Group for managing high-hazard activities.

Process hazard assessment (PHA) and process risk analysis (PRA) continued to be carried out in 2023, with all but one of 147 high-priority processes completed. The implementation of risk reduction measures (RRM) already brought 84% of all process **installations** to a low risk level compared with 76% in 2022. We will continue to implement additional risk reduction measures in 2024.

The same priority has been given to new process installations with PRAs, which are now carried out during the design stage so that risk reduction measures are already included in the design.

Umicore also continued to pursue its internal **HAZOP Leader Training program** to expand knowledge and understanding about process risks throughout the organization. By the end of the year, 47 employees from 11 different sites were trained and qualified by successfully following a classroom training course with qualification test. This brings the actual total number of qualified PRA leaders to 192. The in-depth **safety audit process**, started in 2022, is now in full deployment with 11 Process Safety Auditors and three sites audited in 2023.

We are planning to begin the roll out of a thorough and effective **contractor management system** throughout the entire organization in 2024. Such a system enables us to better manage contractors and their activities, from selection through execution and evaluation of their work, assessing their adherence to safety standards.



Employees after the "Coaching for Safety" workshop at Umicore's site in Florange, France

Caring safety culture

Umicore's commitment to safety is unwavering. Tackling cultural change in terms of safety is the only right path to creating a safe work environment. Over the past year we have continued to develop a true **caring safety culture** making safety top of mind for all our people. Through **visible and felt leadership** on the shop floor, engaging in better and more frequent safety conversations and growing a coaching mindset we have been able to reduce the level of risk tolerance.

This mindset change and approach could only happen with the complete backing of our senior leadership. Those at the top take a more active role in ensuring we are pursuing the right focus on safety, have the right available resources and that we continue to set ambitious goals to improve the organization's safety performance now and for the coming years. Since last year, all serious incidents are now always reviewed by the Management Board.

The whole organization is now looking into the same critical aspects, pursuing improvements together and in the same direction. With continued improvements **we are developing one voice for safety.**

Observation and feedback programs, consistent throughout the organization, are vital to drive broad engagement in safety observations, as well as feedback for leaders and peers at the operational level. Over 93,934 observations and 15,150 safety walks were recorded globally in 2023, which demonstrates the high level of commitment of our leadership and staff in identifying and addressing hazardous situations. To accelerate the improvement in our performance, we will increase our focus on safety walks and behavior observation in 2024. We continue to **proactively communicate** about our safety vision, strategy, focus areas, new standards and programs. In this way, everyone understands why we're making these changes and how crucial they are to creating a true caring safety culture.

Our **Coaching for Safety** program has been influential in changing the organization's mindset on safety. Umicore invested significantly in further rolling out the program throughout the past year. It is also one of the programs where we have made the biggest advances. Started in late 2022 as mandatory leadership program for all sites, it aims to:

- Develop a **caring safety and wellbeing culture** throughout the whole organization.
- Develop, **embed and sustain coaching mindsets** and behaviors among our leaders.
- **Enable leaders to lead cultural change** and support teams in reaching a high performing level of "interdependence".
- Support the global adoption of a **common Umicore language around safety/wellbeing.**
- **Strengthen local safety leadership programs and initiatives.**

By the end of 2023, over 1,100 managers had been trained including the Management Board. Further roll out of the Coaching for Safety program will continue with the plan to have all leaders trained within two years. See [📄 "It's not safety first, it's safety always"](#).

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Following the huge success of the first Catalysis Safety Day in March 2022, the Catalysis Business Group continued to organize **quarterly Catalysis Safety Days** throughout all sites in 2023. All site safety representatives gather together to participate in interactive discussions on safety topics, share thoughts and best practices, and learn from incidents as well as exchange and review the three-year site safety plans. Umicore's **Safety Pause UAI team in India**, for example, brought together over 150 employees, contractors and site security personnel for their first catalysis safety day. Spread over two days in August 2023, participants discussed a range of safety topics and proposed solutions to further enhance safety. These catalysis safety days are a further example of how we are creating a caring safety culture and stimulating our colleagues to look after each other and the contractors working with them.

Preparing for growth

The 2030 RISE Strategy envisages significant scaling up over the next decade. In our growth plans **we embed safety structurally** from project conception to full operation, providing robust processes and a safe work environment for all. This **safety-by-design concept** is at the heart of our safety strategy and actively applied to all new sites. It is no coincidence that we have a successful track record of construction without serious incidents, including large facilities such as our gigafactory in Nysa, Poland. We are also committed to making the necessary changes to existing installations.

Safety culture and behavior begin even before newcomers start working. That's why all new employees receive an effective **safety induction training** followed by on-the-job training.

As in every year Corporate EHS organizes **regional safety workshops** in each region where we operate (e.g. Asia-Pacific (APAC), Europe, North- and South America). This year, the **Asia-Pacific conference was held at Guangzhou, China** with 32 plant and EHS managers and safety representatives attending. Participants came from 20 APAC sites including China, India, Japan, Korea, Thailand and The Philippines. While much of the agenda is standard for every region, sufficient time was dedicated to APAC regional topics and specialist subjects. At this workshop participants attended a **unique and interactive safety "experiencing" session** partially

based on virtual reality (VR) technology. During a 1.5-hour session, attendees could try out various (virtual) real-life scenarios such as forklift driving, extinguishing or escaping from fire, working at heights.

The South American EHS workshop 2023, which welcomed 46 participants including plant managers, business unit directors, EHS managers and EHS representatives from Americana, Pilar, Guarulhos, Manaus and Joinville focused on **emergency preparedness plans**. Participants were invited to join a simulated fire and rescue exercise. At the end of the exercise, emergency team leaders collected feedback and listed several improvement actions.

The North America Regional EHS workshop, held at AC Burlington, US and welcoming 15 participants from ten US & Canadian locations, covered a session on **Root Cause Analysis (RCA)**. This subject was also the focus of the fourth and final joint European and South-African EHS workshop held in Olen, Belgium in October at which 65 people attended. At both workshops an experienced RCA expert from ARMS Reliability presented a deep-dive explanation of RCA with practical, interactive sessions based on real cases from our sites in Europe. A global initiative on **RCA training** will be rolled out throughout the organization in 2024.

The three key priorities of zero fatalities and serious incidents; caring safety culture; and preparing for growth are backed up by sound data and performance management, a tried and tested compliance assurance program, and the learning culture that already exists within our organization. Over this past year, we have continued to build on, implement and improve this strategic approach, set in 2022, and will continue to do so for the foreseeable future.

Measuring safety performance

In 2022, Umicore moved from reporting only on lost time accident rates (LTARs) to a new metric to measure safety performance – **The Total Recordable Injury Rate (TRIR)**. This new metric encompasses not only lost-time accidents, but also cases resulting in adapted work and simple medical treatments (e.g. requiring no restricted work or days lost) of both staff and contractors working on our premises. TRIR is in line with best industry practice and provides greater visibility

and understanding of our safety performance. As a result, Umicore's 2022 safety performance was estimated against this new criterion to establish a TRIR baseline rate of 9.9 and set the 10% reduction for 2022, compared with 2021. We finished 2023 with a Group TRIR of 7.5 which is better than the 8.5 target set for 2023 and the 9.0 in 2022.



Employees working at Umicore's Automotive Catalysts site in Americana, Brazil

Encouraging results for safety performance

Overall performance on safety was better than the expected level of improvement for 2023, particularly in terms of injury rates and process safety. The fatal contractor accident at Hoboken, however, has cast a shadow over these improvements.

Lost time accidents (LTAs) showed some slight improvement in 2023 with 93 LTAs compared with 96 in 2022, resulting in 3,318 lost calendar days. Some 82.2% of the reporting sites recorded no LTAs. Of the total number of staff LTAs, 86 occurred in Europe and of these, 61 occurred on Belgian sites. In 2023, 29 contractor LTAs were recorded compared with 21 in 2022.

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Challenges persist in some areas

When it comes to safety, not only Hoboken remains a challenge. The Jewelry Industrial Materials (JIM) Business Unit has significant operations and lower safety performance compared with other business units. Group Safety has started providing direct support to this business unit, and this will be intensified in 2024.

Our safety strategy is still in the early stages of implementation and yet it is already proving to have a positive impact on our performance. We are therefore confident that continuing to pursue this strategic agenda throughout 2024-25 is the right course to reach higher levels of safety, further reducing injury rates and moving us closer to our ambition of Zero Harm.

The safety of our people is, and will always be, a core value at Umicore. Much progress was made in 2023 in establishing consistency in our safety management, standardizing practices across the Group, hiring the right people, training those we already have and generally creating our caring safety culture. We can see improvement not only in the results, but also in the way we focus on key areas and begin to talk with one voice on safety. Going forwards we need to keep up this momentum, learn, enhance and accelerate the roll out of our safety practices across the whole Umicore Group, preparing us for the journey towards 2030.



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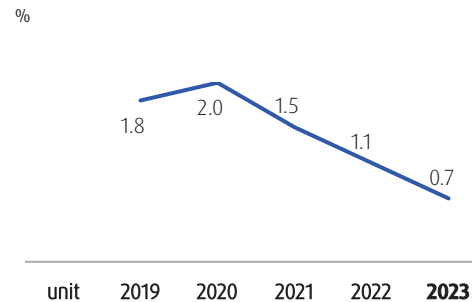
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Occupational health: exposure levels on the way down

The occupational health of our employees is a top priority for Umicore. The organization has continued to take steps to eliminate occupational-related health effects and promote wellbeing in the workplace. The main occupational health risks are related to exposure to hazardous chemical substances (e.g. metals) and physical hazards (e.g. industrial noise).

EXPOSURE RATIO, ALL BIOMARKERS AGGREGATED¹



¹ Ratio between the number of monitoring results exceeding the Umicore target value, defined for relevant hazardous substances, and the total number of monitoring results.

“It is my true conviction that taking care of our employees’ health is a condition to meet Umicore’s ambitious business targets.”

Bert Swennen
Group Director Health & Wellbeing and Group Member



Umicore leads the industry by setting voluntary, science-based targets for potentially hazardous exposure that are more stringent than legal requirements, where they exist. As part of our 2030 RISE Strategy, the Let’s Go for Zero ambition for occupational exposure is to reduce to zero the number of individual biomarker readings that indicate an excess exposure against Umicore’s target values for an employee. While these excess readings do not necessarily indicate an immediate risk for the person concerned, they are important indicators of recent or lifetime occupational exposure. Such data, along with workplace exposure data, are used as the basis for engineering control measures to further decrease workplace exposures at specific sites.

All employees with potential workplace exposure to any of the target metals (arsenic, cadmium, cobalt, indium, nickel, lead and platinum salts) or other metals are also provided with the appropriate personal protective equipment, undergo training and are monitored regularly under an occupational health surveillance program. These measures are in line with regulatory requirements and Umicore’s own occupational health standards.

We aim to remain within the biomarkers of exposure for the following metals and target values:

- **Arsenic:** 30 micrograms per gram of creatinine in urine
- **Cadmium:** 2 micrograms per gram of creatinine in urine
- **Cobalt:** 15 micrograms per gram of creatinine
- **Indium:** 1 microgram per liter of plasma
- **Lead:** 25 micrograms per 100 milliliters of blood
- **Nickel:** 30 micrograms per gram of creatinine in urine
- **Platinum salts:** no new cases of platinum salt sensitization

Continued improved performance in 2023

Results for 2023 are particularly encouraging with good overall progress in exposure rates.

In 2023, a total of 7,844 biological samples were collected from employees with occupational exposure to at least one of the metals mentioned above (platinum salts excluded); of these, 57 readings showed a result in excess of the internal target value, bringing the total excess rate to 0.7%, down from 1.1% in 2022.



Employee working at Umicore’s Corporate R&D in Olen, Belgium

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ARSENIC

Occupational exposure to arsenic is possible in the Business Groups Energy & Surface Technologies and Recycling. The excess rate decreased from 0.8% in 2022 down to 0.3% in 2023.

CADMIUM

Occupational exposure to cadmium represents a potential health risk in the Business Groups Energy & Surface Technologies and Recycling. Cadmium in urine is an excellent biomarker for lifetime exposure. In 2023, only two employees recorded cadmium in urine in excess of the target value. This resulted in an excess rate of 0.2% compared with 0.4% in 2022.

COBALT

Additional positive changes in 2023 can be seen in cobalt where the past higher exposure rates continue to decrease. A total of 2,136 employees are occupationally exposed to cobalt, mainly in the Business Group Energy & Surface Technologies and Battery Materials.

The number of employees exceeding the target value was further reduced from 26 in 2022 to 15 in 2023, resulting in an excess rate of 0.7%, down from 1.3% in 2022. In the Business Unit Rechargeable Battery Materials, we noted an excess rate of 0.1% in 2023, down from 0.2% in 2022. The excess readings in the Business Unit Cobalt & Specialty Materials were at 4.1%, compared with 8.4 % in 2022.

For sites with cobalt exposure such as Olen, Belgium, Fort Saskatchewan, Canada and Grenoble, France specific monitoring is carried out with set targets. For the site in Canada, we had a 15.8% excess rate in 2023 down from 50% in 2022 and therefore already exceeding the 2024 target of 25%. The next target for 2026 is 10%. The site in Grenoble also reduced its excess rate to 3.3% down from 7.3% in 2022. The target for this site is 3% (or lower) by 2026.

These improvements can be attributed to strict prevention measures, greater emphasis on engineering design and installations, good housekeeping, excellent personal protective equipment and deep-divide workplace reviews. For the second year in a row, the site in Cheonan (Rechargeable Battery Materials, Korea) achieved 0% (zero per cent) excess exposure rate. Sites in Jiangmen

(Rechargeable Battery Materials, China), Olen (Rechargeable Battery Materials, Belgium) and Kokkola (Rechargeable Battery Materials, Finland) also further improved their comprehensive “zero dust” management plan.

This **zero-dust program** focuses on equipment improvements and workers’ behavior. Concrete actions include technical improvements; awareness programs; regular industrial hygiene campaigns; excellent housekeeping; improved maintenance of critical equipment; and compliance with the personal protective equipment procedures. Experiences and best practices from one site are shared with the other sites. The site in Nysa, (Rechargeable Battery Materials, Poland) also achieved 0% (zero per cent) excess exposure rate.

For workers exposed to cobalt, both Business Units Cobalt & Specialty Materials and Rechargeable Battery Materials have implemented Umicore’s **occupational health guidance for cobalt**, including biological monitoring and medical surveillance.

INDIUM

The Business Group Energy & Surface Technologies has exposure to indium. Indium in plasma is an excellent biomarker for lifetime exposure. Sites in Balzers, Hoboken and Hsinchu Hsien each reported one excess reading.

LEAD

Occupational lead exposure represents a potential health risk, mainly in the Business Group Recycling. In 2023, Umicore’s internal target value for lead is 25 micrograms (μg)/100 milliliters (ml) in blood. In total, 1.5% of the 1,171 occupationally exposed employees exceeded the target value of 25 $\mu\text{g}/100$ ml compared with the 1.6% excess rate in 2022. The Hoboken site (Recycling, Belgium) continues to invest in improved housekeeping, enhanced personal protective equipment, technical improvements and awareness training.



Employee working at Umicore’s Precious Metals Refining site in Hoboken, Belgium

NICKEL

The Business Groups Energy & Surface Technologies and Recycling have occupational exposure to nickel. In 2023, a total of 2,625 employees were exposed to nickel. Of these, 17 of the exposed workers exceeded the target level resulting in an excess level of 0.6% compared with 1.0% in 2022. The Business Unit Rechargeable Battery Materials maintained its excellent performance with an excess rate of 0.2% compared with 0.6% in 2022. A targeted program focusing on **technical improvements, raising awareness and training programs** as well as **improved personal protective equipment compliance** contributed to this result. The site in Subic (Philippines, Energy & Surface Technologies) reported a decreased excess rate of 10% down from 13.8% in 2022. The site has implemented several engineering projects among others in the packaging line along with improved housekeeping and an intensified personal protective equipment procedure. The set targets for the site are a maximum excess rate of 5% in 2024 and 3% in 2026.

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PLATINUM SALTS

At all our sites, we are very cautious and vigilant to the exposure of platinum salts but particularly at workplaces in the Business Groups Catalysis and Recycling where the risk of exposure is higher. In 2023, seven cases of platinum salt sensitization were reported of which one was at the site in Pforzheim (Business Group Recycling, Germany) and six at the site in Hoboken (Business Group Recycling, Belgium). In 2022, no platinum salt cases were reported. An ad-hoc task force has thoroughly analyzed this increase and has defined a detailed action plan. Additional task-based workplace sampling is being carried out to identify those activities that lead to excess workplace exposure. Main action items include technical improvements, better housekeeping, enhanced personal protective equipment and continued awareness training.

Deep-dive workplace exposure reviews

Last year, our Group Director for Health & Wellbeing, Bert Swennen, conducted **two “deep dive” workplace exposure reviews**. Sites in Fort Saskatchewan, Canada and Subic Bay in the Philippines were assessed for their progress towards 2024 and 2026 targets. At both sites, detailed interviews with management and operators were conducted to understand the policies, procedures, programs and instructions being used. Workplace visits then verified actual performance. The result of those reviews indicated that with the planned technical improvements, their enhanced personal protective equipment, good housekeeping, policies and compliance both sites are on track to meet 2024 and 2026 targets.

Korea RBM site: exemplary in reducing exposure

Our Rechargeable Battery Materials plant in Cheonan, Korea deserves special mention for its **exemplary record of following the Zero Harm approach**. The site, which handles volumes of cobalt powder and nickel, has zero excess exposure. Their success can be attributed to their excellent engineering installations and strict housekeeping standards. Our **strict program of continual improvement** mean that lessons learned from this site are already being implemented into our newer sites such as Nysa in Poland and the one currently being built in Loyalist in Ontario, Canada.

Other occupational related diseases

The number of occupational diseases is the number of employees with a newly diagnosed occupational disease or occupationally linked symptoms during the reporting year.

In 2023, two employees developed a musculoskeletal disorder due to their occupation. An occupational health physician is following up on both people concerned. Four people developed contact dermatitis and two people developed a respiratory sensitization to rhodium and palladium in the precious metal refinery at the site in Hoboken (Recycling, Belgium). Technical measures are being taken along with an enhanced personal protective equipment and a **strict housekeeping program**. One case of industrial noise-related hearing loss was reported at the site in Auburn Hills (Catalysis, US). Following local regulations, Umicore sites had to declare nine cases with an occupational disease to the authorities.

Over the past years, Umicore has been confronted with several burn-out cases that led to long-term sickness with impact on both the individual and the organization. Following Umicore’s **Zero Harm in our Let’s Go for Zero ambitions**, many regional and site initiatives are taken to address this issue. At Group level, training focused on organizational aspects that could maintain and improve the mental wellbeing of teams and individuals has been developed and is being deployed throughout the organization. An e-learning on mental wellbeing was rolled out in 2023. See [Wellbeing: helping our people thrive](#).

We will continue to build on this solid progress with a clear commitment to improve our installations and programs at all our sites and further reduce exposure to critical metals.



Employee working at Umicore's Battery Materials site in Cheonan, Korea

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Social key figures

	unit	2019	2020	2021	2022	2023
Workforce (fully consolidated companies)	N°	11,152	10,859	11,050	11,565	11,948
Temporary contracts	% of workforce	3.31	3.19	3.51	3.02	3.55
Women amongst all employees	% of workforce	20.88	21.68	22.48	23.45	24.35
Women amongst all managers	% of workforce	23.13	23.06	25	26.11	27.19
Women amongst senior management	% of workforce	10.96	10.74	12.42	13.69	17.61
Non-European representation in senior management functions	%	18.49	20.13	21.57	20.83	19.32
Average training hours per employee	hours/employee	48.73	36.33	41.59	46.60	45.72
Employees having a yearly appraisal	% of workforce	94.00	93.42	94.14	96.01	96.02
Voluntary leavers - ratio	% of workforce	5.99	4.20	5.82	6.53	4.68
Employees represented by union or Collective Labour Agreement (CLA)	% of workforce	65.60	66.38	66.94	65.79	66.09
Exposure ratio 'all biomarkers aggregated' ¹	%	1.8	2.0	1.5	1.1	0.7
Number of occupational linked diseases	N°	18	6	10	8	16
People with platinum sensitisation	N°	1	1	0	0	7
Number of officially declared occupational diseases to authorities according to local regulation	N°					9
Fatal accidents	N°	0	1	0	0	0
Fatal accidents for sub-contractors	N°	0	0	0	0	1
Lost Time Accidents (LTA)	N°	90	49	73	96	93
Lost Time Accidents (LTA) for sub-contractors	N°	25	17	20	21	29
LTA frequency rate	LTA/million hours worked	4.6	2.5	3.7	4.87	4.5
LTA severity rate	lost days/thousand hours worked	0.2	0.47	0.1	0.16	0.16

¹ Ratio between the number of monitoring results exceeding the Umicore target value, defined for relevant hazardous substances, and the total number of monitoring results.

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INTERVIEW

Unleashing the talents and potential of our people



“I think a huge part of why we remain an employer of choice is that people want to work for a purpose driven company that is contributing to making a better world.”

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Umicore's new EVP of People & Organization on her first 100 days

Ana Fonseca Nordang was appointed Umicore's new Executive Vice President of People and Organization in September 2023. She is also the third female Management Board member. We talk to her about her first 100 days in the role; why gender diversity is a key focus; the importance of Umicore's young graduate programme; and her plans for the future.

You joined Umicore on 1 September 2024, tell us who is Ana Fonseca Nordang?

I was born and raised in Lisbon, Portugal but I've lived in several countries including a stint in the UK for my studies, and the US where I kick-started my career in Washington DC working in business HR consulting and where I received my MBA.

I then spent some time living, working and raising a family in Norway together with my Norwegian husband before heading back to the US for a few years. I worked for over 10 years for an international energy company in a variety of business and HR roles, including as Chief Human Resources Officer.

And now here we are in Belgium. Outside of work I love spending time with my family while also keeping fit and healthy with Pilates with a little bit of weight training thrown in.

What has defined your first 100 days?

I've been learning about our business and, of course, getting to know our people. In the first months I spent a lot of time with my team as well as meeting my colleagues and leaders from across the whole Umicore Group. To really experience this global company and truly understand the culture I have made it a priority to travel to our different locations. As you would expect, I'm based in Brussels at HQ but have travelled to Hoboken a couple of times,



Ana with Umicore Young Graduates at their onboarding day in Brussels, Belgium

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and have visited our operations in China, Finland, Germany, Poland and the US.

So that's really what my first 100 days have been about – meeting our people and learning the business.

What do you think makes Umicore an employer of choice, a title it has held for 18 consecutive years? That's quite an achievement.

I'm not the best person to answer that having just joined. Umicore however, is certainly an employer of choice for me!

I think a huge part of why we remain an employer of choice is that people want to work for a purpose-driven company that is contributing to making a better world. From the conversations I've had over the past few months, our people are proud to work for Umicore, they believe in our 2030 RISE Strategy and are passionate about contributing their knowledge and expertise to our ambition.

We walk the talk. We have a strategy that clearly states that we are working towards a cleaner world and we translate that not only into the business we do, but how we do business.

It's the greener car policy; the rainwater recovery from our offices; new windmills on different sites and power purchase

agreements (PPAs) for renewable energy; and our contribution to forest development. So, we walk the talk in a lot of what we do.

Umicore also provides employees with the possibility to create a healthy work-life balance and our people feel supported and cared for, even though the workload is sometimes very high. It is all these aspects combined that I believe makes Umicore an employer of choice.

Your role – EVP of People and Organization – was newly created, tell us more about the role and the impact for Umicore.

This year has been a year of transformation for Umicore. One of the key changes that has taken place was the reorganization of human resources into the People and Organization function. It is a huge change for the function, for the company and for our many leaders. As EVP I have also joined the Management Board, this sends an important signal that our executive recognizes how people and talent are key to delivering on our strategy. This reorganization is a deliberate move by our MB to place greater importance on our people and the vital role they play in achieving our ambitious goals under the 2030 RISE Strategy.

For me personally, the role of EVP of People and Organization has got to be one of the



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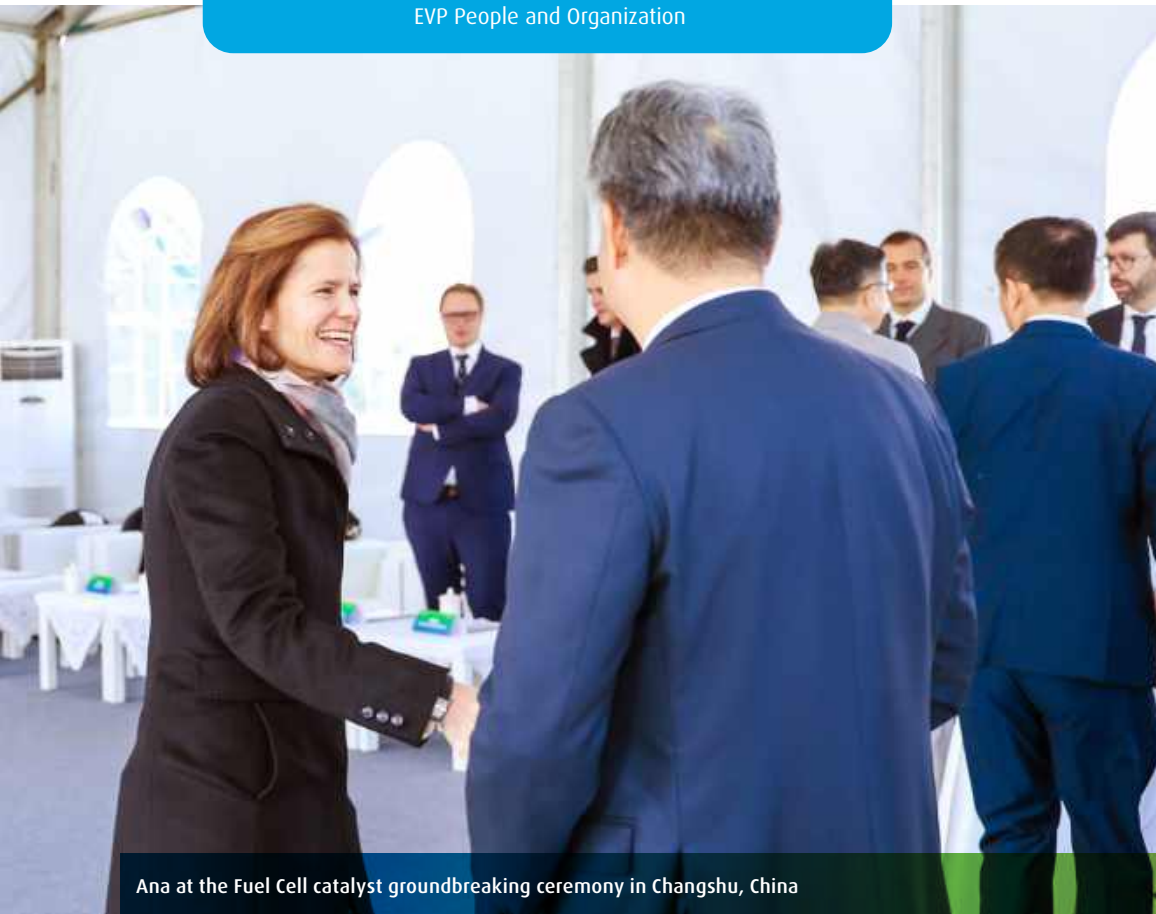
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“As EVP I have also joined the Management Board, this sends an important signal that our executive recognizes how people and talent are key to delivering on our strategy.”

Ana Fonseca Nordang
 EVP People and Organization



Ana at the Fuel Cell catalyst groundbreaking ceremony in Changshu, China

best roles at Umicore to help unleash the talent and potential of our people. And, together with my team, I’m ready and looking forward to the challenge.

What are your priorities going forwards?

On joining, my focus has been about reading, reviewing and understanding our 2030 RISE Strategy and what it requires from our leadership, our people and from an organizational perspective to ensure we can deliver on our objectives. So this is the first of my three key main priorities.

The second priority is to continue the work towards a diverse and inclusive culture where people feel safe and are well. And lastly, to continue the transformation of our people and organization function.

Tell us more about Umicore’s diverse and inclusive culture.

Diversity is an integral part of our recruitment strategy. Umicore has successfully integrated diversity into all elements of the recruitment activities with key targets for gender but we also need to look beyond gender at ethnicity, nationality, and experiences and preferences.

On gender diversity, our female representation is better on the whole compared with other companies in the

automotive, mechanical engineering, mining and metals sectors. Umicore has also gone from one woman on the Management Board to three women in this past year. Having senior female leaders signals to other women that there is a career path and opportunities for them at the very top of the organization. Worth noting also is that in the 2023 cohort of young graduates, we reached 51% gender diversity. These are definitely positive developments on which we can continue to build.

What stands out for you as a key success story with regards people and organization?

Umicore’s young graduate program is a real success story for the organization and has clear links with being an employer of choice. I joined Umicore on the same day as our 28 graduates and had the privilege to meet them all and sit in on their first day of presentations. It is great to see so many talented young people wanting to work for Umicore. And what’s interesting is that particularly young women from technical and business fields are joining our ranks so this year we have a complete gender balance in our graduates. In 2023, the young graduate program was also expanded beyond Belgium and China into Germany. Going forward, further expansion is being considered.

Umicore colleagues from
our **Headquarters** in
Brussels, Belgium

Benedicte
ESG Acceleration, Scope 3
Decarbonization & LCA

Ruth
Government Affairs

Quentin
Internal Communications

Lisa
ESG Acceleration,
Responsible Sourcing

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Advocating for a more sustainable future

Our mission of "*Materials for a better life*" drives us to develop material solutions for society's most pressing issues while we strive to maximize our positive impact.

The [Umicore Way](#) is the cornerstone of everything we do at Umicore and outlines our commitments to society, while our mission of *Materials for a better life* drives us to develop responsible and sustainable material solutions. In addition to the materials we produce, Umicore also incorporates various business practices to ensure that we have a positive impact on society.

The Government Affairs team members are experts in their policy domains from energy, batteries, advanced materials, recycling materials to funding. They support the company wherever they can be it for securing financial compensation, for the Capex, for advocacy, or interacting with the Commission and/or national policy makers.



Supporting policy developments

In the countries and regions in which Umicore is operationally active, we support policy developments that bolster clean mobility and the global energy transition to reduce climate impact. In addition, we contribute to better understanding and faster implementation of **circular economy models** in the applications related to Umicore activities.

In this respect Umicore collaborates with various Committees of Eurometaux and with the European Commission to **define minimum compulsory due diligence** requirements for the entire value chain. In 2023, Umicore contributed to the development of new European legislation including: the **Regulation on Waste Shipment**, which will stimulate the circular economy and allow more efficient processing of hazardous waste; the **Batteries Regulation**, which entered into force in July 2023 to ensure more sustainable, circular and safe batteries; and proposals for a **Critical Raw Materials Act** presented in parallel with the **Net Zero Industry Act**, both of which were published in March 2023 and are now in the political process. See [Press Release](#).

We will continue to monitor and contribute to EU policy making to ensure coherence and alignment with the European Green Deal aspirations. In addition to EU legislation, Umicore also advocates for similar regulations in the other countries in which we operate.

Building networks

To boost our efforts, Umicore participates in many **partnerships** and knowledge-sharing platforms. We regularly enter into scientific partnerships with public institutions such as universities, with the primary aim of furthering research projects or providing expert advice on technology directions. Umicore is also part of different research associations and consortia.

Memberships

Umicore is also a member of various industry associations often sitting on the Executive and Board level. Such memberships enable us to provide input into strategic initiatives and the regulatory agenda based on innovation and technology advocacy, and market and business insights.

Our CEO is currently a member of three **World Economic Forum (WEF) CEO Communities** including: Chemical and Advanced Materials Industry Governors Community comprised of chairs and chief executives from leading partner companies who meet during the WEF in Davos.

He is also part of the CEO Action Group for the European Green Deal – a high-level platform for business leaders to support positive action for the climate, as well as a member of the Alliance of CEO Climate Leaders a global community of CEOs who advocate bold and proactive action to ensure a smooth transition to a low-carbon and climate-resilient economy. In addition, in 2023, he joined the ERT (European Roundtable of Industrialists).

In Europe, Umicore has also actively participated and supported the creation of the **European Battery Alliance** (since 2017) and the **Battery European Partnership Association (BEPA)**. The latter is the public-private entity that supports the European Commission in defining the technology roadmaps as well as the research and innovation priorities to be funded in the 2021-27 timeframe (under the Horizon Europe program). The Commission welcomed the provisional political agreement to make all batteries placed on the EU market more sustainable, circular and safe.

Umicore offers battery materials and highly efficient recycling services compliant with the sustainability requirements on carbon footprint, recycled content, and performance and durability, which will be introduced gradually from 2024 onwards.

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For an overview of the key association memberships see the Key Memberships list below.

Key memberships

Agoria (Belgian multi-sector federation for the technology industry); American European Community Association (AECA); Belgian Alliance for Climate Action (BACA); Belgian industrial Research and Development (BiR&D); Belgium-Japan Association & Chamber of Commerce (BJA); Drive+ (platform for automotive suppliers and associations to discuss Drive Sustainability Partnership); Eurometaux (European Non-Ferrous Metals Association); European Industrial Research Management Association (EIRMA); European Round Table of Industrialists (ERT); ETION Forum for engaged entrepreneurship based in Flanders; Federation of Belgian Industrial Energy Consumers (FEBELIEC); Flemish Network of Enterprises (Voka); Flanders-China Chamber of Commerce (FCCC); Global Legislators for a Balanced Environment (GLOBE EU); Responsible Minerals Initiative (RMI); The Shift (a Belgian sustainability community); Verbond van Belgische Ondernemingen (VBO); World Economic Forum (WEF); UN Global Compact.

Battery

Battery Europe Partnership Association (BEPA); European Battery Alliance (EBA); Cobalt Institute; Cobalt REACH consortium; Deutsche Gesellschaft für Galvano- und Oberflächentechnik (DGO); Energy Materials Industrial Research Initiative (EMIRI); Essencia; The European Association for Advanced Rechargeable Batteries (Recharge), Global Battery Alliance (GBA); Hybrid and Fuel Cell Electric Vehicles (EVB - EV Belgium, ex-AVERE); Nickel Institute; Nickel REACH consortium.

Catalysts


Associação dos Fabricantes de Equipamentos para Controle de Emissões Veiculares da América do Sul (AFEEVAS); Association for Emissions Control by Catalyst (AECC); Catalyst Manufacturers Association, Japan (CMAJ); Committee of Vehicle Emission Control in China (CVEC); Emission Controls Manufacturers Association, India (ECMA); Hydrogen Council; Hydrogen Europe; Manufacturers of Emission Controls Association (MECA); Verband der Automobilindustrie (VDA); Verband der Chemischen Industrie e.V. (VCI); Accessa (Association for the Catalytic Control of Emissions from Stationary Sources to Air).

Recycling

European Battery Recycling Association (EBRA); European Electronics Recyclers Association (EERA); European Precious Metals Federation (EPMF); Fachvereinigung Edelmetalle (German Precious Metals Association); International Platinum Group Metals Association (IPA); International Precious Metals Institute; Minor Metals Trade Association; Responsible Jewellery Council (RJC); The European Association of Advanced Rechargeable Batteries (RECHARGE); London Bullion Market Association (LBMA); London Platinum and Palladium Market (LPPM); International Lithium Association (ILA).

Advocating for best practices in supply chains

Umicore actively advocates for best practices in the value chain. Our **Zero Harm ambition** is linked to our continued commitment to sustainably and ethically sourced raw materials. Beyond our long-standing approach to protecting human rights in our **supply chain**, most notably for **ethical cobalt sourcing**, and in light of the accelerating transition to electromobility, it is crucial to secure raw materials supply that is reliable and environmentally and socially responsible. Umicore will further build on its long track record of due diligence in the sourcing of critical raw materials. In 2023, the team responsible for sourcing was further strengthened with three FTE employees taking care of cobalt, nickel and lithium. For more, see Sustainable. See [Responsible and sustainable sourcing](#).

Umicore was one of the first members of  [The Global Battery Alliance \(GBA\)](#), a public-private collaboration platform founded in 2017 at the World Economic Forum to help establish a sustainable battery value chain, bringing together leading international organizations, NGOs, industry actors, academics and multiple governments to align collectively in a pre-competitive approach, to drive systemic change along the entire value chain. In January 2023, Umicore was part of the team presenting the first Battery Passport during the WEF's annual meeting in Davos.

Interacting with communities

Contact with the communities where Umicore operates is the most direct way that we interact with society. **Open and transparent dialogue** with such communities is an integral part of our stakeholder engagement. Through employment, Umicore also actively contributes to the generation of wealth in all areas where we operate. Although wealth generation is an obvious benefit, the way in which this wealth is generated is also of great importance. Civil society groups periodically declare a stake in our operations and the way we do business. Umicore welcomes such interest and attempts to engage openly and constructively. We always strive to be a top employer wherever we operate. For more information about Umicore as an employer see [Employees](#).

Contributing on a voluntary basis

Umicore makes voluntary contributions at site and Group level to a range of charitable causes. We manage Group-level engagement efforts through a **Group Donations Committee** that has the mandate to engage with civil society groups and determine the extent of partnerships. As a matter of policy, Umicore does not make donations to political parties or organizations. For more, see [Giving back to society](#).

"We are the ambassadors of Umicore and mobilize external stakeholders in support of the 2030 RISE Strategy."

Wouter Ghyoot
VP Government Affairs



Umicore paid € 238 million in total taxes on our 2023 operations and with our employees contributed € 132 million in social security payments.

Connecting advocacy to our 2030 RISE Strategy

Umicore's government affairs team are the ambassadors of our business ensuring that we uphold our mission, adhere to our commitments and maximize our positive impact on society. The work of this team is fundamental in creating the optimal external conditions to implement the 2030 RISE Strategy by providing the license to operate; funding to back up the plans for growth; and by anticipating the risks and opportunities.

Whether it is by supporting policy developments, building networks, advocating for best practices in supply chains, or raising awareness on the issues and trends that affect Umicore, our business is guided by the expertise of our government affairs team.

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With the upcoming elections for the European Parliament in June 2024, government affairs created, in 2023, an Elections Memorandum containing concrete recommendations for each of the four pillars of the 2030 RISE strategy. The aim is to help steer European society and industry towards the world's first climate-neutral continent while maintaining and attracting industrial production investments in clean value chains.

Moving to a low-carbon society

Accelerating the transition to a low-carbon society requires driving down the cost of clean mobility technologies and clean energy. Electrification of transport and heating processes in industry using electricity generated from renewable sources is crucial to meet the goals of the Paris Agreement. Advanced materials represent a sizeable part of the cost of these clean technologies and are key enablers for a low-carbon society. The advanced materials path from lab to market is long, risky and capital-intensive, so industry welcomes risk-sharing initiatives supporting European industrial leadership. Founded in 2012 by Umicore and other industrial and research organizations, **EMIRI (the Energy Materials Industrial Research Initiative)** works to raise awareness about the role of advanced materials in everyday life and in the European economy, and advocates for stronger EU-level support for innovation. EMIRI is the driving force behind the **EU's Advanced Materials Initiative 2030 (AMI2030)** for which a proposal was prepared that should lead to a decision by the EU and Member States to launch a publicly funded partnership on advanced materials for the digital and green transition.

Our technologies in clean mobility and resource efficiency are an enabler to mitigate climate change. A more ambitious agenda in terms of **climate change** is therefore creating market opportunities for Umicore – which is in line with our corporate purpose of integrated value creation.

To support ambitious regulations, we demonstrate our technologies and **advocate for ambitious targets, because Umicore technology can reach those ambitions**. Umicore provides technical insights to support achieving these goals – e.g., by providing science-based targets to authorities. Umicore co-writes longer-term technology roadmaps with regulators, academics and other members of industry.

In resource efficiency, our technologies offer the same functionalities while reducing use of metals. We extract fewer natural resources and re-use metals to create our advanced materials. We emphasize the links between a circular economy and responsible sourcing, resource efficiency and high-quality recycling.

Umicore is mindful of the sensitivity of taking positions on matters of public interest and has developed guidelines to do so responsibly through the industry groups to which we are affiliated. Well-developed science and facts form the basis of the opinions and position we take.

We share our knowledge and collaborate with many partners to advance the global transition towards a green and circular economy.



Enabling ultra-clean transportation

With most developed countries and regions outlining their hydrogen strategies to support their journey towards climate neutrality, Umicore is active in various hydrogen-related advocacy platforms such as **Hydrogen Europe**, the **Hydrogen Council**, the **European Clean Hydrogen Alliance**, the **European Raw Materials Alliance**, the **Electrolyser Partnership**, the **Energy Materials Industrial Research Initiative (EMIRI)** and **Waterstofnet**. In these platforms, Umicore highlights the key role that advanced materials, such as electrocatalysts, can play in enabling the production of hydrogen by electrolysis and its conversion back into energy using **fuel cells**. We also highlight the promises of LOHC (liquid organic hydrogen carrier) technology for the transport of hydrogen and our ability to recycle these various hydrogen technologies to recover the precious metals and re-use them in new electrocatalysts.

As a producer of key components of catalytic **emission control** systems, Umicore is a member of various industry associations worldwide through which, in close collaboration with automotive engineering companies, we aim to contribute significantly to the portfolio of **ultra-clean transportation** options of the future, using the most advanced emission control technologies.

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Engaging for impact

Umicore strives to reach the highest possible impact for society with our products & services portfolio and with the way we do business.

Our technologies in clean mobility and resource efficiency are an enabler to mitigate climate change. Therefore, a more ambitious agenda in terms of **climate change** is creating market opportunities for Umicore – which is in line with our corporate purpose of integrated value creation. To support ambitious regulations, we demonstrate our technologies and advocate for ambitious targets, because Umicore technology can reach those ambitions. Umicore provides technical insights to support achieving these goals – e.g., by providing science-based targets to authorities. Umicore co-writes longer-term technology roadmaps with regulators, academics and other members of industry.

In **resource efficiency**, our technologies offer the same functionalities while reducing use of metals. We extract fewer natural resources and re-use metals to create our advanced materials. We emphasize the links between a circular economy and responsible sourcing, resource efficiency and high-quality recycling. Umicore is mindful of the sensitivity of taking positions on matters of public interest and has developed guidelines to do so responsibly through the industry groups to which we are affiliated. Well-developed science and facts form the basis of the opinions and position we take.



Germanium containing materials from customer to be recycled at Electro-Optic Materials site in Olen, Belgium

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Responsible and sustainable sourcing in our supply chains

Working in partnership with our suppliers and customers throughout the value chain is essential to our sustainability performance.

As a global materials technology and recycling group, we purchase and recycle minerals and metals for use in a wide range of products and technologies. For our operations to function, we need raw materials, transportation, energy and other goods and services. Sustainable procurement is an essential part of our ambition to be a sustainability champion under our 2030 RISE Strategy. It is also a key driver in our Let's Go for Zero ambitions to cause Zero Harm in our supply chain.

€16.2b

Paid to suppliers worldwide

Our approach is shaped by our new [Umicore Global Sustainable Sourcing Policy \(UGSSP\)](#) which follows the principles of ISO20400 for sustainable procurement. The UGSSP aims to mitigate supply chain risks, both for direct and indirect procurement. The policy defines our expectations towards suppliers and is fully aligned with the [Umicore Way](#), the [Umicore Code of Conduct](#) and the [Global Framework Agreement](#) on Sustainable Development between Umicore and the [IndustriALL Global Union](#).

The former Umicore Sustainable Procurement Charter evolved into the **Umicore Global Sustainable Sourcing Policy (UGSSP)**. Introduced in 2022, the UGSSP represents an expansion of Umicore's commitment to sustainability, encompassing a broader spectrum of Environmental, Social, and Governance (ESG) criteria. Throughout 2023, comprehensive training sessions were conducted across all business units to equip our teams with the necessary knowledge and skills to carry out risk assessments in their supply chains and to best manage and mitigate risks. As a result, our Business Units have taken a proactive approach, initiating risk assessments and engaging suppliers who are asked to adhere to the UGSSP or conducting equivalency tests to assess whether our supplier's policies align with our UGSSP.

We require our suppliers to uphold business integrity and actively promote sustainable procurement practices throughout their supply chain. They must comply with all local laws, prioritize the health and safety of their employees, minimize their impact on the environment and climate, and adhere to international human rights laws. This includes the elimination of child and forced labor, as well as discrimination in all forms. While many suppliers are still adherent to the Sustainable Procurement Charter, more than 500 of our direct and indirect suppliers are already adhering to the new UGSSP or have own policies that have been verified to be equivalent to the requirements of the UGSSP.

One of the key elements of the UGSSP is reducing the environmental impact of the supply chain, including Scope 3 emissions, which refer to the indirect greenhouse gas emissions that occur in the value chain. Within scope 3, most of the emissions come from upstream activities, specifically in the category “purchased goods and services”. That is why Umicore has set an ambitious target to reduce the carbon intensity of purchased materials by 42% by 2030.

Due diligence & responsible sourcing of raw materials

The expectations set for all suppliers in the UGSSP are complemented by additional dedicated responsible sourcing frameworks for some critical raw materials, like those for battery materials. Building on Umicore's longstanding experience with the Sustainable Procurement Framework for Cobalt, Umicore introduced additional Frameworks for Nickel and Lithium in April 2023. While the fundamental ESG requirements are covered by all frameworks, a special focus is placed on material-specific risks e.g., biodiversity risks for nickel supply chains. Furthermore, Umicore continues to implement a dedicated policy on responsible global supply chain of minerals from conflict affected and high-risk areas.

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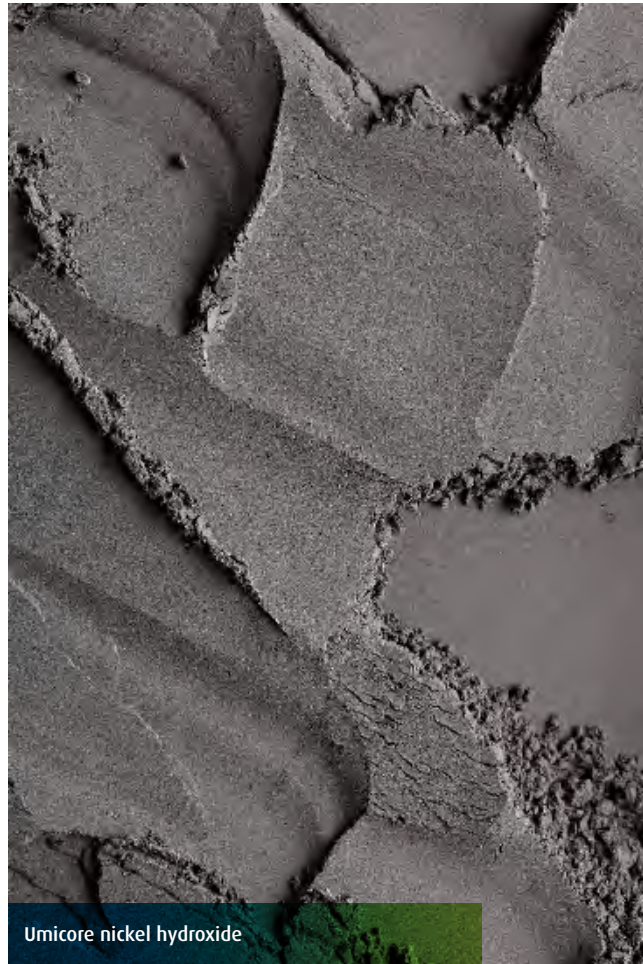
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Umicore nickel hydroxide

Sustainability of the battery materials

Sustainability of the battery supply chain includes the conditions under which raw materials are extracted and processed, which is why Umicore is committed to responsible sourcing of our battery materials. While Umicore has had a dedicated policy for cobalt in place for the last decade, Umicore also implements due diligence in the supply of other raw materials for batteries, e.g., nickel

and lithium. The approach is directly inspired by our experience with cobalt. For us, sustainable procurement of cobalt means considering the economic, environmental and social performance of our suppliers in the purchase of materials, as well as the social and environmental impact of the supply chain. To source cobalt, in 2012 we implemented a pioneering [Sustainable Procurement Framework for Cobalt](#) and in 2016 we were the first to obtain external validation for our ethical procurement and due diligence approach in this area through an annual third-party audit ([Due Diligence Compliance Report Archive](#)).

Since we also introduced Frameworks for [nickel](#) and [lithium](#) this year, the annual cobalt compliance audit will also include a first mock audit for nickel and lithium due diligence, with a full audit being planned for 2024. These frameworks position Umicore to comply with upcoming regulatory requirements in the battery space as well as to respond to the heightened awareness and expectations from our customers and society at large regarding the sustainability of our operations. See [Umicore Launches Responsible Sourcing Frameworks for Ni and Li](#).

The Frameworks are aligned with the OECD Due Diligence Guidance for Responsible Business Conduct and the principles of the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. Furthermore, they extend beyond the risks described in the OECD Annex II to cover aspects including environmental policies on water, waste, CO₂, community engagement, as well as health and safety.

As outlined, Umicore is aware of the sustainability risks that are linked to the sourcing of cobalt, particularly in the Democratic Republic of Congo both for large-scale industrial mining as for artisanal and small-scale mining. Often, artisanal and small-scale mining (ASM) activities are linked to issues such as human rights abuses, child labor, poor occupational health and safety conditions. In 2004, Umicore decided to exclude cobalt obtained from ASM from our supply chain due to these high risks. Umicore does not purchase cobalt from primary sources that have been mined through ASM. However, [we support several initiatives that seek to improve conditions of ASM](#) to attain sufficiently high

sustainability standards, as well as schooling for children and alternative livelihoods, because we recognize the realities of social conditions in the DRC. Additionally, Umicore was a member of the [Global Battery Alliance \(GBA\) Human Rights and Child Labour Working Group](#). Umicore actively contributed to the establishment and revisions of the GBA Human Rights and Child Labour Indices. These indices are the first frameworks in the world that aim to measure and score the efforts of any company or product associated with the battery value chain towards eliminating child labor and respecting human rights. The objective is to use these indices as a quality seal for the battery value chain in a battery passport.

While for some ESG aspects the risks are similar for nickel and lithium, they still come with an overall different risk profile, depending on the context of extraction and processing. For lithium for example, we place special focus on water consumption as well as community relations and worker's rights. For nickel, environmental impacts potentially affecting biodiversity, tailings management, as well as human and worker's rights are in the focus. Such important risks are given special attention during our due diligence processes.

We carry out a detailed risk assessment of our suppliers, which includes background screening, questionnaires, onsite visits, and if required, enhanced engagement and developing risk mitigation programs with the suppliers to ensure the responsible sourcing and traceability of materials in our supply chain. A dedicated battery materials sourcing committee, referred to as the Approval Committee, is responsible for the principles and guidelines in the framework and has overall control and decision-making power. The Approval Committee includes a minimum of two members of the Umicore management board, the senior management of Group ESG and Business Units.

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Umicore tin bar

Conflict minerals: tin, tantalum, tungsten, gold

In some regions of the world, exploitation of natural resources is used to fund conflict or can be associated with violations of human rights. To prevent materials that are tainted in this way from entering our supply chain, Umicore has adopted a responsible global supply chain of materials from conflict-affected and high-risk areas policy, which is based on the OECD guidelines. In the area of precious metals, this policy is complemented with specific responsible sourcing certification programs (see Responsible Operations below).

Business units purchasing **conflict minerals** – tin, tantalum, tungsten and gold (also known as 3TG) – to manufacture their products, use the Conflict Mineral Reporting Template from the Responsible Minerals Initiative for their due diligence on the purchased raw materials. All Umicore activities are compliant with the EU Conflict Minerals Regulation (in force since January 1st, 2021).

Strategic initiatives to reduce carbon intensity in purchased materials

Umicore's commitment to sustainability involves a focused strategy to mitigate Scope 3 emissions, which exceeded the combined Scopes 1 and 2 emissions by a factor of ten in 2019. The company aims for a 42% reduction in the carbon intensity of purchased materials by 2030, with a specific focus on battery materials and precious metals. Read more about our performance in the [Greenhouse Gas Emissions Section](#).

Central to this strategy is engaging with our suppliers, recognizing their pivotal role in the emission landscape. Umicore actively works to understand supplier greenhouse gas emission strategies and potential reduction opportunities, aiming to cover at least 80% of expected Scope 3 (category 1) emissions by 2030 through supplier engagement. This involves engaging with a minimum of five new suppliers annually and covering a total of 10% of the emissions. Within the given context, an engaged supplier is one who has signed, recognized or adhered to the UGSSP. Additionally, the supplier must have provided a product-specific emission factor and information on how this will evolve by 2030 based on their decarbonization plans. If this information is not currently available, the suppliers are required

to submit it within two years of the start of engagement, along with the carbon calculation method.

The importance of supplier engagement is underscored by the fact that over 80% of Umicore's GHG emissions originate from purchased goods and services. Recognizing the influence of raw material suppliers, Umicore strategically prioritizes engagement with them, not just to meet targets but as a driver for efficiency, transparency and resilience across the entire value chain, and to steer our suppliers towards decarbonizing their own operations and improving their climate disclosure. See [Umicore signs long-term agreement with Terrafame](#).

Facilitating this engagement is the **Supplier GHG Charter**, enabling open communication between Umicore and its suppliers. The Supplier GHG charter serves as a communication tool to discuss and trace suppliers' decarbonization goals, challenges, and actions, as well as sharing their product carbon footprints and carbon accounting methodology. One of its objectives is to cultivate collaboration and facilitate the evaluation of suppliers' sustainability maturity levels.

The chart below presents the suppliers that are prioritized for battery materials and precious metals. These suppliers were identified from our initial engagement campaign in 2023, and we engaged with 50 out of 87 identified suppliers. Our goal for 2024 is to reveal the percentage of our Scope 3 emissions (by the year 2030) that these engagements cover. For more details about this target and our overall strategy, see [the Climate Transition Plan](#).

From this initial wave of engagement, we have observed that 24 of our identified suppliers have already set targets for reducing at least Scopes 1 and 2 GHG emissions. Additionally, we have begun engaging with suppliers who have published Scopes 1 & 2 data, which label "level 4" (c.f. Supplier maturity chart) to obtain supply-specific environmental footprints (EFs). Obtaining this data is a key step in informing future supply strategies and enhancing our sustainability efforts. This marks a promising step in aligning our supply chain with our sustainability objectives.

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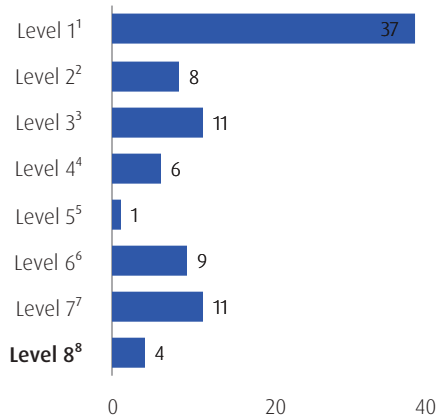
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SUPPLIER MATURITY - COMPANY LEVEL



- 1 Engagement with the supplier not started.
- 2 No answer received from the supplier.
- 3 The supplier is aware of the importance of tackling climate change.
- 4 The supplier publishes scope 1 and 2 data.
- 5 The supplier publishes scope 1, 2 and 3 data.
- 6 The supplier has defined GHG reduction targets for scope 1 and 2.
- 7 The supplier has defined GHG reduction targets for scope 1, 2 and 3.
- 8 The supplier has SBTi validated targets.

In addition to fostering engagement via our supplier charter, Umicore may develop collaboration agreements with suppliers through Memoranda of Understanding (MoU) to jointly seek and seize opportunities to decarbonize the value chain.

Certifying our own operations for responsible sourcing

In addition to our policies on responsible sourcing and the related due diligence, Umicore also pursues responsible sourcing certification wherever appropriate, to highlight our best practices and to provide the necessary documentation to the increasing number of customers seeking assurance on our products. Umicore units exchange internally to streamline and optimize the efforts required for this increasing customer demand through sharing of best practices.

Annually, Umicore sites undergo audit and certification for the [London Bullion Market Association \(LBMA\)](#), the [London Platinum and Palladium Market \(LPPM\)](#), the [Responsible Jewelry Council \(RJC\)](#) and the [Responsible Minerals Initiative \(RMI\)](#).

Aligning with industry guidelines, we adjust our internal responsible sourcing processes and due diligence procedures to adhere to the latest standards. This includes compliance with version 9 of the LBMA Responsible Gold Guidance, version 4 of the LPPM Responsible Platinum and Palladium Sourcing Guidance, and track A of the London Metal Exchange (LME).

Responsible sourcing certifications for 2022 (audit process for 2023 ongoing in 2024).

Responsible sourcing certifications

	LBMA Gold	LBMA Silver	LPPM Platinum & Palladium	LME Lead	RJC Code of Practices	RJC Chain of Custody	RMI conformant Cobalt smelters	RMI conformant Gold smelters and refiners
Bangkok		x			x	x		
Hoboken	x	x	x	x				x
Kokkola							x	
Markham					x			
Olen							x	
Pforzheim	x	x			x	x		x
Vienna					x	x		x

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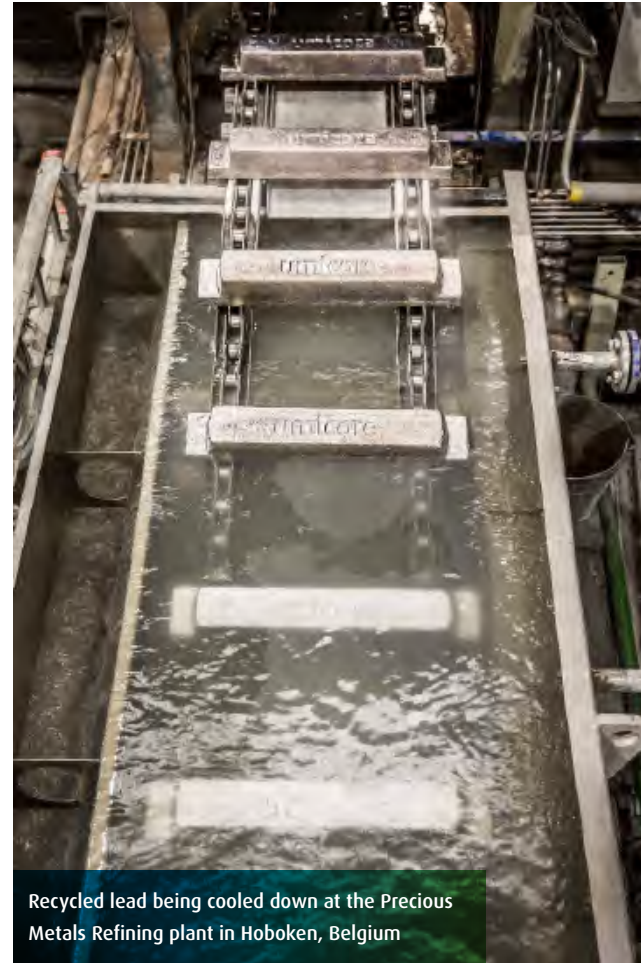
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Gold & silver

For gold and silver, Umicore adheres to the accreditation processes established by LBMA for Good Delivery listed refiners. The Responsible Jewelry Council's (RJC) Chain of Custody (CoC) Standard is applicable to gold and platinum group metals (platinum, palladium and rhodium). Both the RJC Chain of Custody and LBMA Good Delivery accreditations qualify the accredited sites for listing in the Responsible Minerals Initiative (RMI) conformant smelters and refiners.

In 2023, Umicore continued to ensure that operations with gold production are certified as conflict-free. Umicore operations in Hoboken and Pforzheim are certified as conflict-free smelters for gold by the LBMA for the year 2022 and will be audited for 2023 in 2024. The LBMA also provides certification for responsible silver and the sites of Hoboken and Pforzheim are accredited refiners by the LBMA for 2022 and will be audited for 2023 in 2024. The site of Bangkok is an accredited refiner of Silver by the LBMA for 2023 and 2024 and will be audited again at the end of 2024. The Jewelry & Industrial Metals operations in Pforzheim, Vienna and Bangkok are certified as part of the RJC Chain of Custody program for recycled gold and silver. Through mutual recognition of other relevant industry initiatives, the sites in Hoboken, Pforzheim and Vienna are on the RMI Conformant Gold Refiners list. The recognition by RMI was not pursued for Bangkok as this is currently not requested by customers, however Bangkok is still living up to these standards as the RJC certification demonstrates. Whenever our customers are requesting such guarantees, we provide them with the necessary documentation to attest the conflict-free status of our products.



Recycled lead being cooled down at the Precious Metals Refining plant in Hoboken, Belgium

Platinum, palladium & rhodium

In 2023, our Hoboken site received a Platinum and Palladium Sponge Accreditation Certificate for the year 2022. Concurrently, our Jewelry & Industrial Metals operations in Pforzheim, Vienna, and Bangkok obtained certification under the RJC Chain of Custody program for recycled platinum, palladium, and/or rhodium.

Lead

In 2023, our PMR plant in Hoboken has obtained our first certification of the LME Responsible Sourcing Policy for lead (first brand to standard, Track A) for the year 2022 and will be audited for 2023 later in 2024.

Cobalt

In May 2019, Umicore Olen was approved as one of the first Responsible Minerals Initiative-conformant cobalt refineries worldwide, followed by the approval of Umicore's cobalt operations in Kokkola (Finland). Both sites were successfully re-audited at the end of 2022 and remain on the list of RMI conformant refiners. 2023 activities will be assessed in 2024. Furthermore, additional Umicore sites are expected to be audited by RMI in 2024.

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“With more expert staff, centralized roles and standardized processes, P&T is becoming a truly global operation that benefits the whole Group and supports our Let’s Go for Zero ambitions under the 2030 RISE Strategy.”

Sybolt Brouwer

SVP Procurement, Transport & Trade Compliance



Indirect procurement & transport: leveraging the team for sustainable growth

Umicore’s worldwide purchasing and transportation teams (P&T) procure industrial services, investments, energy and other goods and services referred to as **indirect procurement**. The P&T team expanded in 2023 leveraging our expertise with additional specialists to support the Group’s growth under the 2030 RISE Strategy. Centralized functions were created and processes are being digitalized and standardized for improved synergy and efficiency across the Group.

In 2023, the indirect procurement spend increased compared with the previous year, mainly due to higher investments in countries such as Canada, Finland and Poland to reach the growth ambition of the 2030 RISE Strategy. The main indirect procurement spend is to be found in Belgium, Germany, Poland, Finland, China & Korea.

The indirect procurement risk assessment process, which was revamped in 2022 bringing it in line with the Umicore Global Sustainable Policy (UGSSP), was further rolled out in 2023. As roll-out is still ongoing, it is still too early to report figures now. Our critical suppliers, those with the most impact, are requested to adhere to the UGSSP. After adherence to the UGSSP, we check compliance to the policy by requesting a Corporate Social Responsibility (CSR) assessment and we follow up on the scores. New suppliers are identified via a risk assessment, including questions in the area of sustainability. With this new process, we bring additional focus on our suppliers and commitment to sustainable practices, which is vital not only for Umicore but also for our society.

The entire risk assessment process and reporting is currently being digitalized in this new system and will be rolled out further in the coming months. By the end of 2025, all identified suppliers in indirect procurement will be requested to adhere to the UGSSP, to perform a CSR assessment and, if needed, to start an improvement plan to increase the CSR scoring.

By the end of December 2023, the number of suppliers who “adhered” to our policy or have a similar policy accepted by Umicore amounted to 63% of the identified suppliers.

Greening supply chain transportation

Umicore started developing the foundations of a **Sustainable Logistics Roadmap** in 2022 in order to reduce the transport-related emissions within Scope 3. This process is currently still ongoing.

The roadmap focuses, among others, on calculation methodologies with the aim of aligning with globally recognized methodologies, more sustainable transportation solutions and strategic partnerships with Logistic Service Providers.

Although not specifically linked to our Scope 3 objective and 2030 targets, green logistics is high on our agenda. We are continuously exploring additional solutions for green logistics and increasing our knowledge by following relevant training.



Employees at Umicore's headquarters in Brussels, Belgium

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Sustainable Products & Services

Umicore strives to maximize the positive impact on society, through our operations, in our supply chain and with our products and services.

Umicore materials can be found in a variety of applications that deliver solutions for cleaner air and increased e-mobility while our unique closed-loop services turn waste metals into resources. We provide advanced products that are built on our customers' specific performance, environmental and sustainable sourcing needs. Beyond this customer-oriented approach, we provide close collaboration across all regions to deliver a sustainable and secure supply of high-quality products and services. Our high level of investment in R&D ensures advanced and efficient production and process technologies that enable our customers to meet the most stringent sustainability demands and ambitions.

Umicore's diverse workforce brings global perspectives to our innovation and works in proximity to our international customer markets. Our ambition to achieve Net Zero greenhouse gas (GHG) emissions by 2035 will enable Umicore to offer products with a reduced carbon footprint to our customers.



For more Umicore products and services, visit:

[umicore.com/products](https://www.umicore.com/products)

12,700

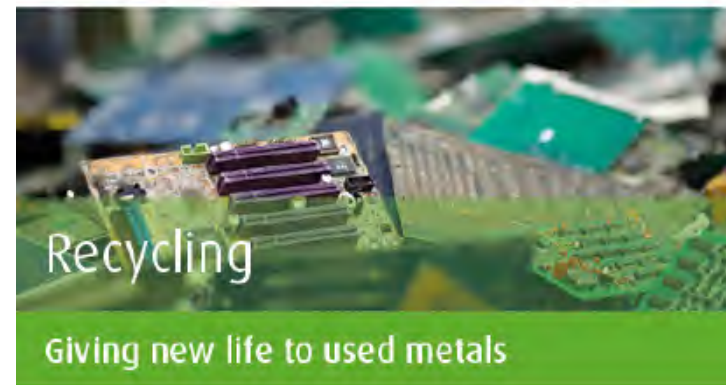
customers

109

countries

73%

Of revenues from clean mobility & recycling



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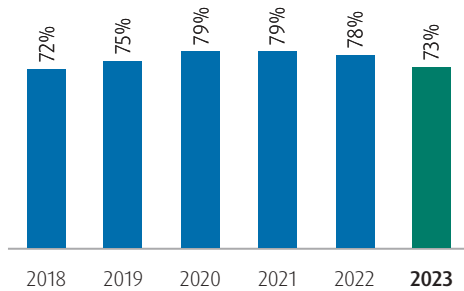
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Revenues from clean mobility & recycling

Umicore’s primary focus in terms of sustainable products and services is to leverage activities that provide solutions for clean mobility and resource scarcity. For many years, Umicore has been emphasizing this focus by disclosing the portion of revenues we gain from clean mobility materials and recycling.

REVENUES FROM CLEAN MOBILITY & RECYCLING



In 2023, 73% of Group revenues (excluding metals) were generated from activities that deliver products or services that are directly linked to clean mobility or recycling. We include the production of automotive catalysts, fuel cell catalysts and battery materials for electrified vehicles, which all contribute to cleaner mobility. For recycling, we consider our refining activities, thereby taking into account the portion of secondary materials processed. We are at a slightly lower level than in 2022, and have increased from 65% in 2016, when we began tracking revenues in this way.

Many of the materials and services making up the remaining 27% of revenues provide answers to specific societal needs such as improved connectivity (materials for high quality glass and displays) or reduced energy consumption (materials for use in energy-efficient lighting such as LEDs).

For EU Taxonomy eligible and aligned activities, see [EU Taxonomy](#).

Measuring impact to improve the footprint of our products and services

To be aligned with our 2030 RISE Strategy and striving to become a Sustainability Champion, it is essential to develop a full understanding of the impact that our products have on the world. These insights can then be leveraged to improve the footprint of our products and services. Umicore’s product life cycle assessments (LCAs) identify the environmental impact of products and services and set a baseline against which improvements can be measured. An LCA is a standardized, science-based tool used to define the degree of environmental impact of a given system or product.¹ LCAs take into account all phases of the product’s life cycle, including direct and indirect emissions, examine inputs and outputs for each phase, and convert them into an environmental impact measurement.

Building on the opportunities identified in such assessments, we leverage our unique combination of materials chemistry, energy mix and materials mix (raw and recycled) to improve our overall environmental impact and to contribute to lower-carbon mobility. Umicore will continue to develop selective products and services that have specific sustainability benefits and answer the growing sustainability needs of our customers. We are already working closely with customers and are engaging with suppliers to reduce the upstream footprint of our products. For more about supplier engagement, see [Responsible and sustainable sourcing in our supply chains](#).

Among the impact categories calculated in an LCA, the impact of GHGs to climate change, expressed in carbon dioxide equivalent (CO₂e), is prioritized because of the urgent need to tackle global warming. Until Umicore reaches the Net Zero GHG emissions target, our industrial operations will continue to emit. Our products and recycling services do have, however, a positive impact in terms of GHG emissions in the value chain. First and foremost, as a key element of our closed-loop business model, the recovery of metals from secondary sources provides raw materials with a lower carbon footprint to society; and secondly, rechargeable battery materials accelerate the transition to low-carbon mobility.

As a member of the [Global Battery Alliance \(GBA\)](#) GHG Working Group, Umicore actively contributes to multiple initiatives, including the update of [GBA GHG Rulebook 2.0](#). The updated rulebook sets out a comprehensive framework to calculate the battery carbon footprint from cradle to grave.



Circularity of complex waste materials to recover critical metals

In terms of avoided emissions (sometimes referred to as "Scope 4 emissions"), the following Umicore activities are considered: cathode active materials for electric mobility, catalyst materials for fuel cell vehicles and recycling key raw materials. The relevant avoided emissions for these activities are the GHG emissions. We also analyzed the avoided NO_x emissions linked to automotive catalysts. Based on those activities, we have estimated the total avoided GHG and NO_x emissions for 2023. In our calculations, a portion of our estimation was not allocated specifically to Umicore, to reflect the estimated shared contribution of the complete value chain. For more details about the assumptions considered for our calculations, see [GHG emissions in the Environmental Statements](#).

¹ For more information visit the ISO website www.iso.org/standard/38498.html#:~:text=ISO%2014044%3A2006%20specifies%20requirements,and%20critical%20review%20of%20the

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For electric mobility, we compared rechargeable batteries for electric vehicles with a medium passenger car with an internal combustion engine running on diesel or gasoline, considering the European split between diesel and gasoline in 2021. In 2023, approximately 7.2 million tonnes of GHG were avoided, taking into account the production of the cathode active materials, their processing into batteries, the use of batteries in full electric vehicles and end-of-life recycling.

A similar calculation comparing fuel cell vehicles with internal combustion engines, yields for 2023 approximately 60,000 tonnes GHG avoided emissions.

For our recycling activity, we compared Umicore's secondary production with the primary production of an equivalent tonnage of each metal considered. The avoided emissions are close to 1.4 million tonnes of GHGs for 2023.

For automotive catalysts, the calculation is based on comparing gasoline and diesel personal cars as well as heavy-duty diesel vehicles equipped with Euro 6d catalysts with similar vehicles equipped with Euro 5 catalysts. The avoided NOx emissions for the lifetime of cars equipped with Umicore catalysts in 2023 amount to approximately 2.4 million tonnes.

Given the uncertainties involved in the assumptions, the figures should only be considered as estimates of the potential benefit for society. We aim to refine such calculations in the future, in particular by engaging with our suppliers and by working closely with our customers.

Product stewardship to develop safe, sustainable and innovative solutions

Umicore's business model is dedicated to delivering sustainable products and services, and we are committed to leveraging our expertise and resources to developing safe, sustainable, and innovative solutions that enhance the quality of life for people and the planet. That is why our product development is focused on meeting those societal needs.

We evaluate the environmental, health and safety performance of our products through their life cycle to identify and implement improvements – from the supply chain, to up and downstream production, to recycling or end-of-life – even looking to the future, with substitution planning, and aiming to reduce the use and production of substances of very high concern. Our commitment to maximizing our positive impact through our products and services includes protecting human health. Transparent communication with our stakeholders on the properties, hazards, safe use and disposal of our products, combined with a deep knowledge of the products and their uses are essential elements of Umicore's approach to product stewardship. See [Management Approach](#).

Worldwide, Umicore ensures regulatory compliance for the products it puts on the market. Beyond compliance, Umicore has a systematic approach to the hazard assessment of its portfolio, also including low volume chemicals, using a hierarchy of sources, from in-house data to publicly available information. The outcomes of the hazard assessments are stored in Safety Data Sheets (SDS) and shared directly with Umicore customers and partners.

Being the preferred sustainable supplier

To be a preferred sustainable supplier, we work directly with our customers to meet their sustainability/ESG requirements. This involves collaborating with our customers to develop, produce and recycle metal-related materials for material-based solutions tailored to their needs. Ongoing interaction with customers is managed by the business units. In addition to this close contact, all business units have a customer feedback process to gauge customer satisfaction periodically. This effort does not go unseen: in 2023, Umicore was honored to receive the Sustainability Environment Award from Nissan Group of the Americas at their 2023 Annual Supplier Appreciation event. See [Nissan Group of the Americas Rewards Umicore for Sustainability Excellence](#).

We are committed to transparency and as a result, Umicore discloses to a number of third-party sustainable supplier assessments, including EcoVadis and the CDP. In our most recent assessment, Umicore achieved significant improvement in our CDP scores. For more on disclosure for external ratings and frameworks. See [Investing in Umicore](#).

Additionally, in 2023, Umicore achieved the gold EcoVadis medal, positioning us in the top 2% of the 100,000 rated companies globally. Umicore welcomes approaches that seek to raise the bar in terms of industry best practice, including EcoVadis' raising of the thresholds for its ratings, and we will continue to build on our performance in line with the Umicore 2030 RISE ambition to become a Sustainability Champion. See [EcoVadis 2023: Umicore receives gold supplier rating](#).



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Giving Back to People & Planet

As any responsible organization, Umicore seeks to create a positive impact for all communities in which we operate. We support a number of community wellbeing and environmental protection projects. Support provided is either financial or in-kind contributions, or by allocating time and talent

“Umicore has a deep commitment to supporting projects that deliver a direct and sustainable impact to people and their communities.”

Quentin Poncelet
Internal Communications Manager



Creating positive impact in communities

As any responsible organization, Umicore seeks to create a positive impact for all communities in which we operate. We support a number of community wellbeing and environmental protection projects. Support provided is either financial or in-kind contributions, or by allocating time and talent. [Watch the video.](#)

All donations contribute to Umicore’s 2030 RISE Strategy and more specifically the pillar “S”. The “Sustainability Champion” pillar is built on our Let’s Go for Zero ambitions of achieving Net-Zero greenhouse gas (GHG) emissions by 2035, ensuring Zero Inequality and Zero Harm.

Donations made at business unit and site level tend to focus on projects that promote a strong sense of community around sites.

Priority is often given to educational initiatives. By making our sites responsible for local initiatives, Umicore creates real impact where it matters most. This approach also creates a sense of ownership and engagement among colleagues across the Umicore Group. Every colleague can contribute and make a difference.

In 2023, our Shirwal site in India helped build a sanitation block at a nearby school to improve student hygiene. Colleagues in Hoboken, Belgium supported *Het opMaatorkest*, a local NGO that provides musical education and instruments to children from disadvantaged backgrounds. Umicore sites around the globe are giving back to communities in which we operate and helping those in most need.

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Students at the new sanitation block, built by Umicore Automotive Catalysts India

At corporate level, emphasis is on projects with an international scope. Priority is given to initiatives that have a direct sustainable impact on people or planet.

Supporting global disaster relief efforts

Umicore is committed to helping communities around the world affected by natural disasters or war. Over the past year, donations have been made to several international organizations that provide humanitarian aid in regions such as Libya, Morocco, Syria, Turkey and Ukraine. Organizations such as the Red Cross or Doctors Without Borders deliver essential services, medical care, shelter, food, water and sanitation to the victims of earthquakes, floods and armed conflicts. Through our donations, Umicore shows solidarity with those affected communities. As an organization, we hope these contributions can help people overcome any hardships they face in the wake of such disasters.

Knowledge is the key to building a better world

Educational initiatives are particularly relevant for Umicore as a technology-oriented business. For more than a decade, we have been working with UNICEF to reach children in most need. We currently support two long-term projects:

1. **UNICEF Upshift** empowers young people in India by developing the skills they need to enter a labor market characterized by high unemployment.

2. **STEM education for girls** organizes bootcamps and skills sessions around STEM education for girls in Indonesia. STEM – science, technology, engineering and mathematics – are important skills for employment and empowerment.

Colleagues around the world have also joined forces to collect goods for Ukraine. In the US and Canada, our colleagues raised funds to purchase relief items for the Ukrainian people. In Hanau, Germany, colleagues bought and packed food, baby and hygiene products, and other essential goods to be transported to the Ukrainian-Polish border; and supported the integration of Ukrainian schoolchildren with the help of music courses and schoolbooks.

Entrepreneurship as a force for good

Umicore is a founding member of Entrepreneurs pour Entrepreneurs/ Ondernemers voor Ondernemers (OVO). Established in 2000, the Belgian based NGO pairs corporate donors with development charities that focus on promoting entrepreneurship in the developing world. Over the years, Umicore and OVO have supported work in many countries.

In 2023, we continued to support [Rikolto's business incubation program](#) in Uganda aimed at transforming the food systems in Mbale and Gulu. By 2024, up to 50 young entrepreneurs will be trained to develop green agribusinesses and provide sustainable food solutions to their communities. The program has already reached 5,000 citizens and increased the incomes of over 1,000 food producers.



UP SHIFT banner at Khotakha Primary School at their school's assembly ground in Wangdue District, Western Bhutan

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In El Salvador, Umicore supports VIA Don Bosco's project to train young people in solar panel installation and electricity. The project, which runs from 2022 to 2026, will benefit over 9,500 students, mostly girls, connecting them with local businesses. **This project reflects Umicore's vision of creating a cleaner and more sustainable future for all.**

Special focus on the Democratic Republic of Congo

Umicore is committed to supporting communities in the Democratic Republic of the Congo (DRC) where we source some of our materials, especially cobalt. We also have a historical connection to the region through our African heritage.

Umicore started new partnerships with several organizations that are making a positive difference to the lives of the people in the DRC. [SOS Children Villages](#), for example, helps families at risk of separation so that more children can grow up within their own family. In 2023, **our donation supported 560 families including 3,380 children in Bukava and Kinshasa.**

[EIGHT](#) is another charity with which we work, and which provides unconditional monthly cash transfers to villages in DRC. This innovative approach has shown positive results in helping people overcome extreme poverty. In addition, we support Doctors Without Borders to power a hospital in South Kivu using a reliable and sustainable source of solar energy.

[Mamas for Africa](#), an NGO in Eastern Congo which provides assistance to women and girls who have suffered violence and exploitation, is another organization supported by Umicore. Assistance includes medical care, psychological support, prevention, mediation and awareness-raising.

Finally, our long-term engagement in the DRC also reflects our contribution to education. We built a primary school with six classes in Lubumbashi before the COVID-19 pandemic, offering quality education to 1,000 children. Recently, we added 10 more classes to the primary school, which offer technical training courses that can lead to employment.



Young entrepreneurs in Uganda training on green agribusinesses

For further information about Umicore's donations see the interview with Natalia Agüeros-Macario, Umicore's ESG director and Quentin Poncelet, Internal Communications Manager.

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Society key figures

Millions of Euros	2019	2020	2021	2022	2023
Raw materials and consumables (excluding water, gas and electricity)	15,539	18,720	21,500	22,625	15,574
Water, gas & electricity cost	100	100	144	251	205
Depreciation & impairments	307	363	339	328	351
Other costs (net)	434	533	532	706	715
Total tax paid	107.4	98	198	246	238
Creditors	41	58	52	77	78
Minority Shareholders	11	5	8	3	-8
Shareholders (dividends only)	180	60	181	192	192
Charitable donations	1,5	1,5	1,6	2	2,2
Payroll and related benefits	776	799	853	907	981

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INTERVIEW

Giving back to people and planet



“Combining climate or environment with social dimensions can maximize positive impact on people and the planet in line with our ambitions.”

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Exploring Umicore’s donations and social impact work

Natalia Agüeros-Macario, Umicore’s ESG director and **Quentin Poncelet**, Internal Communications Manager, discuss how we target our donations and social impact, including how we align our policies with our Let’s Go for Zero ambitions and a new initiative to bring climate impact into the program we support.



Syntropic Forestry Project in Caatinga, Brazil

Why does Umicore have a donations committee and what are its criteria for supporting projects?

Quentin: Umicore has a deep commitment to supporting projects that deliver a direct and sustainable impact to people and their communities. We foster partnerships with international organizations such as UNICEF with a strong track record in delivering this sort of impact. The donations committee ensures that donations align with our 2030 RISE strategic ambition to strive to be a Sustainability Champion. Projects also need to contribute to the regional spread of our donation efforts with a primary focus on the regions where Umicore is present.

Why was “planet” added to the donations policy this year?

Natalia: In 2021 we launched our Let’s Go for Zero sustainability ambitions, with its three pillars of Net Zero Scopes 1 and 2 greenhouse gas (GHG) emissions, Zero Inequality and Zero Harm. I saw an opportunity to update our existing donations policy. Our impact on local communities was always visible in the policy. So I asked, if we, as an organization, are looking to improve our climate impact, how can we do that in a way that also supports local initiatives?

“I feel proud to be at Umicore, and tremendously lucky that Umicore continues to provide opportunities to investigate ways to maximize the impact that we can have, including through our donations policy.”

Natalia Agüeros-Macario ESG director



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“It makes me really proud to see first-hand how our donations make a difference to the lives of people who benefit from them.”

Quentin Poncelet Internal Communications Manager



Syntropic Forestry Project in Caatinga, Brazil

I explained to the donations committee the approaches known as climate equity and environmental justice, which combine climate or environment with social dimensions, so that environmental and social impact happen together. Integrating these approaches could maximise positive impact on people and the planet in line with our ambitions. The committee agreed that this was a worthwhile addition to our existing donations policy.

What is the first “planet” project Umicore has chosen to support, and why?

Natalia: The Syntropic Forestry Project is a lighthouse project in that it’s our first venture in the climate equity and environmental justice space. As we’re active in Brazil, it’s a project that provides the chance to have an impact in our value chain.

The deforestation crisis in Brazil is no secret, nor is the impact it has on climate change. However, the impact on local rural communities suffering from both environmental degradation from deforestation and the effects of climate change, is maybe less visible. Syntropic forestry is one way that communities can tackle these negative impacts. It is an innovative approach to sustainable farming that helps restore biodiversity and regenerate forests. The project connects an agricultural community in Caatinga with new skills, information and training. Local farmers can create resilient and self-sustaining agroecosystems that can adapt

to changing conditions through agricultural practices, upskilling and knowledge-sharing.

The project also improves the overall environmental quality of the agricultural activity that’s happening there and contributes to biodiversity, which are key features of syntropic forestry.

What have been the key achievements of the syntropic forestry project so far?

Natalia: It’s the first year of a three-year agricultural and forestry project, so it’s still quite small. That said, there have been vast amounts of remediation training, soil has been prepped and seedlings have been planted.

The team is particularly proud of the fact that even though the landscape is very challenging, the project has managed to stay on schedule.

Have you always been interested in sustainability and the environment?

Natalia: I’ve always been passionate about sustainability, even as a kid. I’ve worked in sustainability for the last 20 years, and when I started, it was with projects that explored how the environment could contribute to the overall wellbeing of low-income communities. Today, I feel proud to be at Umicore, and tremendously lucky that Umicore continues to provide opportunities to investigate ways to maximize the impact that we can have, including through our donations policy.

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Disaster relief is a big issue given the recent earthquake in Morocco and the wars in Ukraine and Gaza. How does this aspect of Umicore's donation policy work?

Quentin: We have a specific budget that's earmarked for major disasters so that we can donate quickly to support those most in need. In 2023 we donated to Doctors Without Borders and the Red Cross to support victims of earthquakes in Libya, Morocco, Syria and Turkey. We also donated to World Central Kitchen, an NGO serving fresh meals to Ukrainian families fleeing from the war.

Are there any new partnerships that have launched in the past year?

Quentin: We've started a number of new partnerships all focusing on the Democratic Republic of Congo (DRC), which is important for Umicore in terms of cobalt sourcing. These include a partnership with SOS Children's Villages where we help families at risk of separation so that more children can grow up within their own family. We also have a partnership with Mamas for Africa, an NGO providing psychological and medical support to women and girls who have suffered violence and exploitation.

What do you most enjoy about your work on the donations committee?

Quentin: I'm really proud of my role in coordinating the projects, building and maintaining the relationship with all our partners.

I also enjoy bringing the donation committee together, ensuring we support worthy causes in accordance with our policy. This includes making sure we can respond quickly when a disaster occurs. Most of all, I'm proud of Umicore's continuous engagement to give back to people and planet.

Have you had an opportunity to see the projects Umicore supports, in action?

Quentin: A few years ago, I visited the classrooms built by UNICEF in Madagascar with Umicore's support. And last year I visited UNICEF's supply hub in Copenhagen. When there's a crisis they can ship whatever is needed, whether it's vaccines or medical equipment, around the world really quickly. So, when war broke out in Ukraine, UNICEF was one of the first organizations to ship medical supplies to the borders to help the victims of the war. Seeing these projects on the ground gives you a real sense of the reality. It makes me really proud to see first-hand how our donations make a difference to the lives of people who benefit from them.



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Colleagues at our battery materials offices in Nysa, Poland

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Governance

The Supervisory Board

The **Supervisory Board** is responsible for Umicore's general policy and strategy. It appoints and dismisses the members of the Management Board and supervises its performance. It is also vested with specific powers, such as establishing the annual accounts, drafting the annual report and declaring an interim dividend. At the time of publication, the Supervisory Board is assisted in its role by four committees:

- The **Audit Committee (A)** ensures oversight of the Group's financial and non-financial reporting process, including monitoring the integrity of the financial statements, the Statutory Auditor's qualifications and independence, the performance of both the internal audit department and the Statutory Auditor, and the annual review of the internal control and risk management systems to ensure that the main risks, including compliance, Environment, Social and Governance (ESG) and fraud-related risks are identified and adequately managed.
- The **Investment Committee (I)** ensures oversight of capital expenditure or investment proposals exceeding €200 million and commercial contracts that would lead to the requirement of such an investment.
- The **Nomination & Remuneration Committee (NR)** ensures oversight of current and prospective Supervisory Board membership, current and prospective management board membership, remuneration and incentives.
- The **Sustainability Committee (S)** ensures oversight of the Group's sustainability agenda, strategy, policies and performance related to ESG commitments and the ability to create shared value.

The Supervisory Board approves the strategic plans and budgets submitted by the Management Board, determines the risk appetite of Umicore in order to achieve its strategic objectives, and also ensures Umicore operates in accordance with good governance/ESG principles.

A more exhaustive list of the Supervisory Board responsibilities can be found in Appendix 3 to [Umicore's corporate governance charter](#).

An overview of the composition and experience of the Supervisory Board can be found in the [biographies of its members](#).

The Management Board

The **Management Board** – composed of nine Executive Vice Presidents (EVP) that are led by the Chief Executive Officer (CEO) – is responsible for the management of the company, including proposing the overall strategy of Umicore to the Supervisory Board; operational and day-to day management; screening and addressing the various risks and opportunities that Umicore may encounter in the short, medium or long term; defining and applying Umicore's ESG approach; and legal representation of the company with respect to third parties. For more information on the roles and responsibilities, see [Leadership overview](#).

The **Management Board** approves the strategies of individual business units and corporate divisions and monitors their implementation. Final accountability for all aspects of Umicore's business and performance lies with the Management Board.

For more information on management principles roles and responsibilities, see [Management approach](#).

An overview of the composition and experience of the Management Board can be found in the [biographies of its members](#).

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Supervisory Board



Board diversity

TENURE



INDEPENDENCE



GENDER



From left to right:
 Géraldine Nolens (Board Secretary),
 Thomas Leysen, Allison Henwood,
 Mark Garrett, Birgit Behrendt,
 Marc Grynberg, Mario Armero,
 Koenraad Debackere, Françoise
 Chombar, Laurent Raets

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Thomas Leysen

Chair

Belgian, 63

Date appointed to board

10 May 2000 (date appointment Chair: 19 November 2008)

Education

Law – KU Leuven, Belgium

Experience

Thomas Leysen became Chair of Umicore in November 2008 after serving as Chief Executive Officer of Umicore from 2000-08. During his mandate, he transformed the former Union Minière from a non-ferrous company into an international materials technology group called Umicore. He joined the group in 1993 as member of the Executive Committee, and successively managed several industrial divisions.

External appointments

Chair, Mediahuis, a European newspaper publishing group, Belgium – dsm – firmenich, Switzerland.

Expiration of mandate

Annual General Meeting of 2024

Chair since

19 November 2008

Chair of the Nomination & Remuneration Committee since

19 November 2008

Chair of the Investment Committee

15 February 2023

Mario Armero

Member

Spanish, 65

Date appointed to board

30 April 2020

Education

Law – University Complutense of Madrid, Spain

Experience

Mario Armero started his professional career at the Armero Law firm and later joined AT&T Spain. From 1992-99 he served as Secretary General at General Electric Plastics Spain, a position that he held until 2001. He was appointed Chair and CEO of General Electric Spain and Portugal in 2001, with responsibility for all the Group's Divisions in Iberia. In March 2008, he joined Corporación Llorente, a diversified family-owned industrial group, as CEO. Following that he joined Ezentis as Executive Chair. From 2012-20, Mr Armero was the Executive Vice President of ANFAC, the Spanish car manufacturers association.

External appointments

Advisor of Global Infrastructure Partners - Chair of ENSO - Independent Board member of Bankinter Consumer Finance - Vice Chair of Culmia - Member of the CEDE Foundation (Spanish Confederation of Executives) - Board member of non-lucrative association Junior Achievement.

Member of the Nomination & Remuneration Committee since

9 December 2020

Expiration of mandate

Annual General Meeting of 2026

Member of the Sustainability Committee

15 February 2023

Birgit Behrendt

Independent member

German, 64

Date appointed to board

29 April 2021

Education

Business Administration – Academy of Administration and Economics (Verwaltungs-und Wirtschaftsakademie – VWA), Germany

Experience

Birgit Behrendt had, throughout her career, various global leadership positions at Ford Motor Company and was elected a company officer and Vice President Global Purchasing in 2013. From 2018- 19 Mrs. Behrendt assumed the position of Vice President Joint Ventures, Alliances & Commercial Affairs. She is currently a Senior Advisor and Venture Partner at AP Ventures LLP, London, a leading independent venture capital fund across the hydrogen value chain.

External appointments

Member of the Supervisory Boards of Thyssenkrupp AG, KION Group AG and Rolls-Royce Holdings plc – Member of the Board of Directors, Infinium Holdings, Inc US – Member of the Administrative Board, Stulz Verwaltungs GmbH & Co. KG Germany – Member of the Advisory Council.

Expiration of mandate

Annual General Meeting of 2024

Chair of the Sustainability Committee

15 February 2023

Member of the Investment Committee

15 February 2023

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Françoise Chombar

Independent member

Belgian, 61

Date appointed to board

26 April 2016

Education

Master Applied Language Studies Dutch, English, Spanish – Ghent University, Belgium

Experience

Françoise Chombar is co-Founder and Chair of the Board of Directors of Melexis, where she served as CEO 2003-21. She was previously planning manager at Elmos GmbH and operations manager and director at several companies within the Elex group. Françoise was a mentor in the Belgian Network for Gender studies, Sofia, for 17 years. She is committed to STEM and gender balance advocacy, for which she received a Flemish Community Honour in 2019. In 2012, she was granted an Honorary Ambassadorship for Applied Languages by the University of Ghent. In 2018, she received the title of Science Fellow at VUB, Brussels and in 2021 the first Medal of Honor, awarded by the Science and Technology Group of KU Leuven.

External appointments

Chair of the Board of Directors, Melexis NV, Belgium - Managing Director of Sensinnovat BV (Belgium) and non-executive Director of several of its non-listed portfolio companies – Chair, Flemish STEM Platform, Belgium – Independent board member, Soitec SA, France – Independent Board member of Mediafin, Belgium – Independent Board member of Antwerp Management School, Belgium – Independent board member of SMART Photonics, The Netherlands.

Expiration of mandate

Annual General Meeting of 2025

Member of the Nomination & Remuneration Committee since

26 April 2018

Member of the Sustainability Committee

15 February 2023

Koenraad Debackere

Independent member

Belgian, 62

Date appointed to board

26 April 2018

Education

Engineering – Ghent University, Belgium; Management – Ghent University, Belgium; Management – MIT Sloan School of Management, US

Experience

Prof. Dr. Ir. Koenraad Debackere has been with KU Leuven since 1995, where he teaches Technology & Innovation Management and Policy. He has won numerous awards for his research, and in 2010 was awarded a Francqui Lecture Chair in economics and business. From 2005-20 he was the general manager of KU Leuven as well as a Board member. Since 2022, he has been Chair of the Board of KU Leuven Association.

External appointments

Chair & Independent Director, Chair of Nomination Committee, Chair of Remuneration Committee, KBC Group NV, Belgium Member Board of Governors, RWTH Aachen University, Germany.

Expiration of mandate

Annual General Meeting of 2024

Member of the Nomination & Remuneration Committee since

9 December 2020

Member of the Audit Committee since

26 April 2018

Mark Garrett

Independent member

Australian/Swiss, 61

Date appointed to board

28 April 2015

Education

Economics – University of Melbourne, Australia; Applied Information Systems – Royal Melbourne Institute of Technology, Australia

Experience

Mark Garrett built an extensive career in the oil, gas, petrochemical and chemical/materials industries. He served as Chair of OMV AG in Austria from 2020 until May 2023 and before that for four years as Chair of Axalta Coatings Systems in the US. From 2018 until 2022 he was CEO of Marquard and Bahls AG and from 2007 until 2018 he was CEO of Borealis AG. Prior to that he worked for Ciba-Geigy and Dupont. Currently he focuses on his private family office and work in the PE field where he is currently CEO of PE held Archroma Management GmbH.

External appointments

Non-executive CEO Archroma Management GmbH, Switzerland, Independent Board Member, Orica Limited, Australia.

Expiration of mandate

Annual General Meeting of 2024

Member of the Nomination & Remuneration Committee since

29 July 2017

Member of the Audit Committee since

27 April 2023

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Marc Grynberg

Member

Belgian, 58

Date appointed to board

27 April 2023

Education

Master of Science in Business Engineering - Solvay Brussels School of Economics & Management, Belgium

Experience

Marc Grynberg was Umicore's Chief Executive Officer from November 2008 to November 2021. During his CEO mandate, he positioned Umicore as a global leader in clean mobility materials and recycling. Marc joined Umicore in 1996, served as CFO of the Company between 2000 and 2006 and headed the Automotive Catalysts business from 2006 to 2008. Prior to joining Umicore, Marc held several management positions at DuPont de Nemours in Brussels and Geneva.

External appointments

Independent, non-executive director of Nexans, member of its Strategy & Sustainability Committee, Audit & Risk Committee and Climate Director. Independent, non-executive director of Wienerberger, member of its Innovation & Sustainability Committee, as well as of its Audit & Risk Committee.

Expiration of mandate

Annual General Meeting of 2026

Member of the Nomination & Remuneration Committee since

27 April 2023

Alison Henwood

Independent member

UK, 58

Date appointed to board

28 April 2022 (effective 1 September 2022)

Education

Bachelor of Arts in Natural Sciences, University of Cambridge, UK - Ph.D, Department of Earth Sciences, University of Cambridge, UK Chartered Institute of Management Accountants and the Association of Corporate Treasurers

Experience

Alison Henwood is a highly experienced finance professional with nearly 30 years at Shell, where she has held various financial leadership positions in Europe and the US, including the position of Executive Vice President Finance, Shell Trading and Supply. She finished her executive career at Shell end of June 2022. From 2017-23, she has chaired the Audit Committee of the UK Hydrographic Office, a Ministry of Defence agency that provides hydrographic and marine geospatial data to mariners and maritime organizations across the world. In September 2021, she joined the Board of Spectris plc, a global supplier of precision instrumentation, test equipment and software and a constituent of the FTSE 250.

External appointments

Board Member and Audit Committee Member, Spectris plc.

Expiration of mandate

Annual General Meeting of 2025

Member of the Audit Committee since

1 September 2022

Member of the Sustainability Committee

15 February 2023

Laurent Raets

Member

Belgian, 44

Date appointed to board

25 April 2019

Education

Commercial Engineering – Solvay Brussels School of Economics & Management, Belgium

Experience

Laurent Raets joined Groupe Bruxelles Lambert (GBL) in 2006 and became a partner in 2021. He began his career in 2002 as an M&A Consultant at Deloitte Corporate Finance, where he was involved in buying and selling mandates, due diligence and valuation assignments.

External appointments

Member of the Board of Directors and of the Audit Committee of Imerys S.A., France.

Expiration of mandate

Annual General Meeting of 2025

Member of the Audit Committee since

25 April 2019

Member of the Investment Committee

15 February 2023

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Ines Kolmsee

Former independent member

German, 53

Date appointed to board

26 April 2011

Education

Process and Energy Engineering – Technische Universität Berlin, Germany; Industrial Engineering – École nationale supérieure des Mines de Saint-Étienne, France; Business Administration – INSEAD Business School, France

Experience

Ines Kolmsee is currently a partner at Matterwave Ventures, an early-stage deep-tech Venture Fund. Prior to this, she was CEO of Services & Solutions at Aperam SA from 2017–20. She previously served as CEO of SKW Stahl-Metallurgie Group, a specialty chemicals company with operations worldwide; COO and CTO at German utility EWE AG; and CFO at Arques Industries AG.

End mandate

27 April 2023

Eric Meurice

Former independent member

French, 67

Date appointed to board

28 April 2015

Education

Economics – Sorbonne, France ; Mechanical Engineering – École Centrale Paris, France; Business Administration – Stanford Graduate School of Business, US

Experience

Eric Meurice was formerly President and CEO of Netherlands-based ASML Holding, a major provider of advanced technology systems for the semiconductor industry. He was previously EVP in charge of Thomson Multimedia TV Division and held senior positions in several technology groups such as Intel, ITT, and Dell Computer.

End mandate

27 April 2023

Géraldine Nolens


Board secretary,
Belgian, 52
(see [Management Board](#))

Karel Vinck

Honorary Chair

About the Supervisory Board

The Supervisory Board's cumulative industry experience is broad, covering automotive, electronics, chemicals, metals, energy and financial sectors. It also includes people experienced in the public and private sector and in academia, and members with experience in the different regions in which Umicore is active. Collectively, the Supervisory Board possesses strong experience of managing industrial operations and counts four active or former CEOs in its ranks. It counts several members with extensive experience in the fields of sustainability and industrial safety.

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Management Board



From left to right: Bart Sap, Veerle Slenders, Wannas Peferoen, Ana Fonseca Nordang, Mathias Miedreich, Géraldine Nolens, Ralph Kiessling, Geert Olbrechts, Frank Daufenbach

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Mathias Miedreich

Chief Executive Officer

German, 48

Education

International Business Management – Erlangen-Nuremberg Friedrich-Alexander University

Experience

Mathias Miedreich joined Umicore and was appointed Chief Executive Officer in October 2021, after serving as Executive Vice President of the Clean Mobility division of Faurecia, a global automotive supplier with a strong focus on sustainable mobility. Mathias started his career in Strategy Consulting at KPMG and then moved to the automotive industry, in which he has accumulated more than 20 years of experience in various senior leadership roles in Europe and Asia.

Prior to joining Faurecia in 2013 as their Vice President Strategy & New Technologies for the Clean Mobility business, he worked at Siemens and Continental.

Wannes Peferoen

Chief Financial Officer

Belgian, 43

Education

Business Engineering – KU Leuven, Belgium
MBA – Vlerick Business School, Brussels, Belgium

Experience

Wannes Peferoen was appointed Chief Financial Officer in October 2022. He joined Umicore in 2005 and has accumulated over 10 years' experience as a controller of several business units, building up a strong expertise in financial controlling including strategic planning, introducing new systems and managing financial risk. Subsequently Wannes held positions in general management in Belgium and France, and served as Senior Vice President for Electro-Optic Materials.

Prior to Umicore, Wannes worked for PriceWaterhouseCoopers in audit & advisory.

Géraldine Nolens

Executive Vice President - Chief Legal Counsel

Belgian, 52

Education

Master of Laws – University of Chicago Law School, US
European Economic Law – Julius-Maximilians-Universität Würzburg, Germany
Law – KU Leuven, Belgium

Experience

Géraldine Nolens was appointed Chief Legal Counsel for the Group in 2009 and joined the Management Board in 2015.

She started her career at the international law firm Cleary Gottlieb Steen & Hamilton before joining GDF Suez (now Engie) in 2001, where she was Electrabel's Chief Legal Officer for Southern Europe, France and new European markets.

Géraldine's career includes periods working and living in Belgium, Germany, Italy and the US.

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Ralph Kiessling

Executive Vice President Energy & Surface Technologies

German, 58

Education

PhD Chemical Engineering – University of Erlangen, Germany

Experience

Ralph Kiessling was appointed Executive Vice President Energy & Surface Technology on 1 March 2021. Before this he was Executive Vice President Catalysis from 2019 till 2021, after serving as Senior Vice President Operations for Automotive Catalysts from 2015 to 2019.

He previously occupied successive management functions in process technology, production and business controlling, including five years in China. In 2012, he moved to India where he built Umicore's automotive catalyst plant.

Prior to joining Umicore, Ralph held management positions in the Degussa group.

Bart Sap

Executive Vice-President, Catalysis

Belgian, 45

Education

Commercial Science – Vlekho Business School Brussels, Belgium

Experience

Bart Sap was appointed Executive Vice President Catalysis on 1 March 2021.

Bart joined Umicore in 2004 as a controller for Cobalt & Specialty Materials and, after successive assignments in Korea and Belgium covering finance, supply of raw materials, business development and refining operations, he became Senior Vice President for Cobalt & Specialty Materials and Supply at the beginning of 2020.

Frank Daufenbach

Chief Strategy Officer

French, 45

Education

Master in Management, HEC Business School, Paris, France

Experience

Frank Daufenbach joined Umicore's Management Board as Chief Strategy Officer in December 2021.

He previously worked at Faurecia, a leading global automotive supplier with a strong focus on sustainable mobility, where he served as Vice President Strategy and Marketing of the Clean Mobility business group. His prior roles include those of consultant at Monitor Deloitte, KPMG and Oliver Wyman.

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Ana Fonseca Nordang

Executive Vice President People & Organization

Portuguese, 46

Education

Bachelor Degree in Politics & International Relations – University of Kent, Canterbury, UK

MBA – George Washington University School of Business, USA

Experience

Ana Fonseca Nordang was appointed Executive Vice President People & Organization on 1 September 2023. She brings over 20 years of international experience in various executive human resources roles and spent the largest part of her career at Equinor, previously Statoil, where most recently she served as Senior Vice President Renewables. Prior to that, she was the group's Chief Human Resources Officer.

Geert Olbrechts

Executive Vice President & Chief Technology Officer

Belgian, 50

Education

PhD in Physical Chemistry – KU Leuven, Belgium

Executive MBA – Vlerick Management School, Belgium

Experience

Geert Olbrechts was appointed Chief Technology Officer and Executive Vice President on 1 August 2023. Geert began his career at Umicore in 2000 and prior to his appointment as CTO and EVP, he served as Senior Vice President Research & Technology and Supply at Umicore's Automotive Catalysts (AC) business unit, having held different functions in controlling and product management in the same unit. Prior to joining AC in 2010 Geert occupied different positions in Research & Development and served as operations manager in the Precious Metals Refining business unit.

Veerle Slenders

Executive Vice President Recycling

Belgian, 53

Education

Master's Degree in Chemical Engineering with a focus on industrial chemistry and environment – University of Hasselt, Belgium

Postgraduate in Business Administration and Management – KU Leuven, Belgium.

Experience

Veerle Slenders was appointed Executive Vice President Recycling as of 1 June 2023. She previously served as President Region Europe West at Linde Group, global multinational chemical company, active in industrial and medical gases.

Veerle's career includes periods working and living in the US, Germany, France and Belgium.

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Denis Goffaux

Former Executive Vice President Recycling

Belgian, 56

Education

Mining Engineering – Université de Liège, Belgium

Experience

Denis was appointed Executive Vice President Energy & Surface Technologies in 2018. He took up the position of Executive Vice President Recycling as of 1 April 2021. Previously, he served as Chief Technology Officer from 2010–18 and EVP for Precious Metals Refining from 2015–18.

Prior to that, he occupied successive business line and country management functions in China and Japan.

Denis began his career at Umicore with Research & Development in Olen, before moving to what was then our Cobalt & Energy Products Business Unit.

Denis resigned effective 1 June 2023.

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Leadership overview

As of time of publication



Mathias Miedreich
Chief Executive Officer
 Group Communications & Investor Relations
 Chief Executive Officer Office

Frank Daufenbach
Chief Strategy Officer
 Corporate development
 Government Affairs
 New Business Incubation and Digitalization
 Strategic projects

Ralph Kiessling
Executive Vice President Battery Materials
 Umicore Battery Materials
 China
 North-America

Géraldine Nolens
Executive Vice President ESG and General Counsel
 Legal
 Environment Social Governance
 Environmental Health and Safety
 Enterprise Risk Management
 Internal Audit
 Corporate Security

Ana Fonseca Nordang
Executive Vice-President People & Organization
 People & Organization

Geert Olbrechts
Chief Technology Officer & Executive Vice President Specialty Materials
 Corporate Research Development
 Cobalt & Specialty Materials
 Metal Deposition Solutions
 Electro-Optic Materials

Bart Sap
Executive Vice President Catalysis
 Purchasing and Transportation
 Umicore Marketing Services
 Automotive Catalysts
 Precious Metals Chemistry
 Fuel Cell & Stationary Catalysts
 Precious Metals Management
 South-America

Veerle Slenders
Executive Vice President Recycling
 Precious Metals Refining
 Battery Recycling Solutions
 Jewelry & Industrial Metals

Wannes Peferoen
Chief Financial Officer
 Corporate Finance
 Financial risk Management
 Information Systems

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General management

 **The Umicore Way spells out our fundamental beliefs** and is the basis of our management approach. The Umicore Way is supplemented by detailed company codes, setting guidelines throughout the company. These codes include:


- The  [Code of Conduct](#), which contains a comprehensive framework for ethical business practice;
- The Umicore  [Corporate Governance Charter](#), which sets out our management philosophy and governance principles;
- The Umicore  [insider dealing code](#), which spells out Umicore's policy in respect of market abuse including insider trading;
- The Umicore  [Global Sustainable Sourcing Policy](#), which outlines our commitment to align our supply chain to our own values and practices; and
- Many internal policies developed in support of our vision and values such as  [Safety](#),  [Human Rights and Working Conditions](#),  [Product Stewardship](#) and  [Product Safety testing & Animal Welfare](#), Training & Development, Donations & Sponsorship, and others, many of which are available in the governance  [documents section](#) of the Umicore website.

Our business model strives to deliver positive impact for society. We offer solutions to sustainability challenges that are linked to megatrends and create value for all our stakeholders. Our 2030 RISE Strategy is our compass for value creation.

Performance evaluation

Economic, environmental, and social performance is measured against a set of KPIs. The data are collected and reported at the relevant entity level: site, region, business unit or business group. The corporate divisions aggregate the performance data from all parts of

the Group to evaluate Umicore's overall progress for review by the Management Board.

Both financial and non-financial performance indicators are included in overall general management performance measurement as described in our  [Remuneration policy](#) which integrates climate, emissions, diversity and safety performance metrics for members of the Management Board. Performance data linked to the 2030 RISE Strategy pillars is monitored using an internal dashboard and is featured as part of Umicore's annual integrated reporting.

Umicore obtains third party assurance for both financial and non-financial/ESG data. Since 2021, this assurance has been carried out by EY in its capacity of statutory auditor. EY evaluates the completeness and reliability of the reported data as well as the robustness of the associated data management system. Performance indicators and reporting processes are reviewed and updated after every assurance cycle. Umicore is committed to transparency and increased disclosure, which is ongoing and will spread over several reporting cycles as part of a continuous improvement process.

Performance responsibilities

Umicore business units and corporate functions are accountable for their contribution to the Group's value creation and for their adherence to Group strategies, policies, standards and to the sustainable development approach. Business units are clustered in business groups according to strategic business development topics.

This implies an effective decision-making process based on the allocation of responsibilities as described in the [Governance overview](#), ensuring optimal balance between a culture of entrepreneurship at the level of the business units and effective steering and oversight processes centrally.

Day-to-day responsibility for all dimensions of performance lies with the EVP, corporate function, and business unit managers, as well as site managers. Corporate divisions develop technical guidance, ensuring collective understanding of concepts, definitions, roles and responsibilities. Regular workshops and meetings are organized each year at various levels of the organization to share best practices.

Strategy management

Our approach to strategy management derives from our vision to be a people-oriented, purpose-led, and performance-driven organization.

Policies

Specific processes and guidelines have been developed to monitor the implementation of the 2030 RISE Strategy. These include market intelligence gathering and sharing, performance reporting and planning processes.

Performance responsibilities

The Chief Strategy Officer has overall oversight of Umicore's strategy and performance monitoring. He is supported by a dedicated team that monitors the Group's performance against 2030 RISE objectives and ensures that integrated business planning is both market- and performance-reactive, and dynamic in nature.

Each member of the Management Board is responsible for the strategic performance of their business group or corporate division(s). Umicore business units and corporate functions are co-accountable for their contribution to the Group's adherence to, and performance against, the 2030 RISE Strategy objectives.

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Financial management

Our approach to financial and economic management derives from our vision, values and organizational principles as described in

 [The Umicore Way.](#)

Umicore aims to create value for its shareholders. This is achieved through the development of a compelling strategy and by delivering against the strategic objectives. We seek to grow our existing businesses while maintaining or establishing strong leadership positions on the back of innovative technologies. ROCE is the primary performance metric for the Group.

Umicore aims to safeguard the business through sound financial management and by maintaining a strong balance sheet. We seek to maintain a leverage ratio within an investment grade rating¹. We also seek to maintain a healthy balance between short- and longer-term debt and between debt secured at fixed and floating interest rates. This approach, coupled with strong cash flow generated from operations, allows us to self-fund the majority of our growth initiatives.

Policies

Specific internal policies and guidelines have been developed to frame Umicore's approach to specific financial aspects including dividends, financing and funding, transfer pricing, credit management, hedging, ROCE calculation methodologies and ROCE targets. The approach to tax management is laid down in the

 [Tax Strategy.](#)

Performance responsibilities

Accountability for the overall financial performance of Umicore lies with the CEO and the Management Board, and each member of the Management Board is responsible for the financial performance of their business group or corporate division(s). The Chief Financial Officer has overall oversight of Umicore's financial and economic performance and is supported by a Corporate Finance team that includes specific expertise centers covering aspects such as tax, treasury, and accounting & control. At business unit level, the head of

the business unit is responsible for the operational and financial performance of the business unit. Financial controllers support the heads of the business units in managing the financial and reporting aspects of the business unit and support the financial allocation process for environmental, climate, health and safety-related projects.

Operational management

Umicore seeks to generate economic value through its existing businesses, organic growth initiatives and acquisitions that it undertakes. This entails generating an operational return on capital employed (ROCE: adjusted EBIT / average capital employed for the period) in excess of our overall pre-tax cost of capital. This cost of capital can vary over time as a function of our risk profile and the state of the debt and equity markets.

We deal with precious and other rare metals, and we therefore have high working capital intensity. Management is therefore incentivized to optimize performance both from an earnings perspective and by minimizing capital employed.

Investments are assessed on a case-by-case basis: acquisitions are expected to be earnings-enhancing in the early phase of their integration and value-enhancing shortly thereafter. Similar criteria exist for organic investments, although the pursuit of longer-term growth projects invariably requires a longer view on expected returns.

When designing growth projects, we carefully consider overall contribution to our sustainability/ESG ambitions.

Understanding the increasing importance of climate resilience, we integrate the recommendations of the Task Force on Climate Related Financial Disclosures (TCFD), mitigate our climate-related risks, and pursue opportunities linked to climate change mitigation. Managing these risks and opportunities is closely linked to our business model and our vision for global operations and positive impact on society.

Policies

Specific internal policies and guidelines have been developed to frame Umicore's approach to specific operational aspects including operational excellence and Mergers & Acquisitions.

Performance responsibilities

Management Board members are each responsible for operational management and performance within their reporting lines. The Chief Strategy Officer has oversight of mergers and acquisitions supported by the Corporate Development department, and of ensuring the Group's operational integration of the 2030 RISE objectives and monitoring performance. The Efficiency for Growth program is directly supervised by the CEO and members of the Management Board and the results are subject to regular performance reviews. At business unit level, the head of the business unit is responsible for the overall operational performance. The general manager of each site has a similar responsibility at site level.

Innovation management

Technology is at the core of what we do and enables our capability to deliver value to our customers and markets by developing state-of-the-art products, processes, and services. Sustainability is a key driver of our technology development, targeting safe processes, sustainable products, supply and processes, with ambitious targets to go for zero GHG emissions in 2035 for Scopes 1 and 2. We invest consistently between 5-7% of revenues (excluding metal) in R&D and innovation, working on the basis of a balanced portfolio ensuring short-term delivery to our businesses and customers while carefully preparing for the longer-term future. Our portfolio spans over three time horizons and includes a core competence dimension, securing technological excellence in all crucial areas.

Policies

All business units develop a business roadmap that translates to a product and service roadmap, both of which are linked to a technology and competence roadmap. These roadmaps are validated regularly based on changes in markets and technologies and are used to steer our project and activity portfolio.

¹ i.e., within 2.5x times Net debt / LTM adj. EBITDA ratio.

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Umicore continues to strengthen its innovation and technology leadership. The Chief Technology Officer (CTO) drives the Group's long-term technology roadmap and fosters technology synergies Group-wide, enabling Umicore's innovation momentum in line with the 2030 RISE Strategy.

The CTO organization is structured around Umicore's Corporate Research & Development (CRD) activities, which works in partnership with the R&D teams in the business units as well as the New Business Incubation (NBI) and Open Innovation teams to develop mid- to long-term technologies tailored to the specific needs of their customers and end-markets. It defines R&D governance and standards within the Group.

The Management Board reviews the complete portfolio of technology and innovation on a quarterly basis, covering program milestones, competences and innovation value and performance KPIs as part of the Technology & Innovation Board, led by the CTO. Preparation and coordination are done by corporate R&D through a central project management office.

Sustainability/ESG management

Our business model is dedicated to delivering sustainable products and services, and we are committed to leveraging our expertise and resources to developing safe, sustainable, and innovative solutions that enhance the quality of life for people and the planet. Umicore strives to maximize the positive impact on society, through our operations, in our value chain and with our products and services.

Umicore is a signatory of the UN Global Compact. Upstream, we act to eliminate social or environmental harm in our supply chain. In our operations, we work to ensure a safe, healthy, equitable and sustainable work environment and we pursue opportunities for positive impact of our operations on local communities, nature, and climate. Downstream, positive impact comes from our products and services and from our commitment to sustainable and responsible sourcing.

Umicore ensures transparent and accurate reporting on impacts related to sustainability/ESG. These impacts are fully integrated into our annual reporting.

Beyond providing insights to authorities and co-creating technology roadmaps, Umicore aims to share knowledge and work collaboratively with many partners to advance the global transition towards a sustainable future. See [Advocacy for impact](#).

Policies

Umicore is committed to supporting the Ten Principles of the United Nations Global Compact in the areas of Human Rights, Labor, Environment and Anti-Corruption, and to contributing to the SDGs. We identify SDGs where we have the largest impact and disclose our efforts towards contributing to these goals.

Our Let's Go for Zero ESG ambitions, launched in 2021, (Net Zero GHGs, Zero Harm, Zero Inequality and Best-in-class Governance set targets that are embedded in the other management elements described in this chapter. Umicore's executive [Remuneration policy](#) includes sustainability performance targets in full alignment with our sustainability ambitions.

Our approach to managing impact on the environment is captured in our [Environmental Stewardship Policy](#). An internal Group EHS Guidance Note, where the environmental guidance was developed in accordance with ISO14001 "Environmental Management Systems", is applicable worldwide for all consolidated operations where Umicore has management control, including all business units and to the extent relevant and applicable, corporate functions. It details the approach to measuring impacts, performance and risks and reporting on environmental topics including eco-efficiency, emissions to air, water and soil, waste generation, energy use and climate change. In addition, a specific internal Energy efficiency and reduction of carbon footprint policy brings a high-level awareness and commitment at sites and within business units to strive for continual energy efficiency improvement. Umicore also encourages all initiatives that increase recycling potential.

Our approach to responsible sourcing is described in the Umicore [Global Sustainable Sourcing Policy](#) and the supporting sourcing frameworks, e.g.: the [Sustainable Procurement Framework for Cobalt](#), for [Nickel](#), for [Lithium](#), and the [Responsible global supply chain of minerals from conflict-affected and high risk areas Policy](#).

Our commitment to ensuring the safety and sustainability of our products throughout their lifecycle is detailed in a number of internal policies and supported by a robust lifecycle assessment process. See [Umicore product stewardship](#) and [Product Safety Testing & Animal Welfare Policy](#).

Umicore has a Group Policy on donations and sponsorships with general guidelines on the thematic focus of donations and on budget allocation. Group donations focus on projects that have a direct sustainable impact on society and the planet through the empowerment of minorities and local communities. Projects that are in line with our Let's Go for Zero ambitions and contribute to both environmental and social issues (e.g., environmental learning and skills development projects, climate equity or justice projects, etc.) are of particular interest. Most of the donations from the business units go to charities close to their sites, in support of their local community. As a matter of policy, Umicore does not make donations to political parties or organizations.

Performance responsibilities

Accountability for the overall positive impact of Umicore lies with the CEO and the Management Board. For donations at Group level, the budget is set at the discretion of the CEO and donations are coordinated and managed by a Group Donations Committee reporting to the CEO. The Supervisory Board's Sustainability Committee ensures the necessary sustainability-related policies and processes are in place, and reviews performance linked to them.

In the Management Board, the EVP ESG and General Counsel oversees sustainability/ESG integration, performance, strategy, engagement and disclosure. The ESG steering committee brings together senior management representatives from each business group, as well as senior management representatives of corporate Environment,

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Health and Safety (EHS), ESG, Finance and People & Organization. Implementation and performance against ESG KPIs are reviewed monthly by the ESG steering committee and recorded using an internal dashboard. The Management Board members are each responsible for the overall ESG performance within their reporting lines, including e.g., sustainable, and responsible sourcing, decarbonization or diversity in recruitment.

The Senior Vice President (SVP) for Environment, Health and Safety (EHS) ensures environmental compliance, risk mitigation and data reporting across Group activities. The Group ESG division manages the programs aimed at the creation, integration, and acceleration of strategic sustainability initiatives (e.g., Scopes 1, 2 and 3 decarbonization, environmental impact, responsible sourcing) as well as programs or initiatives linked to sustainability governance topics, stakeholder engagement and materiality, ESG strategy, green finance and ESG disclosure. Group ESG is co-accountable with business units and corporate divisions in delivering performance, where each has “Let’s Go for Zero champions”, that, together with the Group ESG team, work to implement the most efficient pathways to reaching our shared goals.

Our annual integrated reporting discloses objectives, targets, and performance under our sustainability strategy, and our efforts in terms of continuous improvement. We seek stakeholder feedback and monitor emerging standards, providing robust and meaningful information on our sustainability journey.

Performance indicators for sustainability/ ESG impacts can be found in [Environment](#), [Society](#), and in the [Environmental](#) and [Social](#) Statements.

Workforce management

Our approach to workforce management derives from The Umicore Way and is reflected in the [Global Framework Agreement on Sustainable Development](#), to which we subscribed in 2007, and renewed in 2019. Umicore implements the guidance on Human Rights, collective bargaining, equal opportunities, violence and harassment at work, safe and healthy working conditions, and environmental issues.

Umicore is committed to zero inequality and zero harm and we believe it is equally important to continuously monitor, control and report our social performance and the wellbeing of our workforce.

Policies

An internal Group Social Reporting Guidance Note provides detailed guidance on measuring and reporting on social performance. Internal policies have been developed to frame specific elements of our social management approach including [Diversity & Inclusion](#), Recruitment, [Safety](#), [Human Rights and Working Conditions](#) and Training & Development.

For our approach to health and safety, the Umicore Group Safety Policy provides a framework for business units to develop and implement safety programs needed to achieve and maintain excellence in safety performance. The Policy is guided by core safety principles that can be translated by each business unit to their specific environment to take actions according to their specific risks. It is coupled with an internal Guidance Note which describes the group wide EHS requirements and expectations and is applicable worldwide for all consolidated operations where Umicore has management control, including all business units and to the extent relevant and applicable, corporate functions.

Performance responsibilities

In the Management Board, the EVP People & Organization has oversight responsibilities for Umicore’s Human Resources. The EVP ESG and General Counsel is responsible for health and safety matters and co-accountable for performance against diversity goals. The SVP EHS ensures safety compliance, performance and reporting across Group activities.

The Management Board members are each responsible for the overall workforce performance within their reporting lines. At business unit level, the head of the business unit is responsible for workforce performance. The general manager of each site has a similar responsibility at site level. A regional Human Resources organization has transitioned to a BU-led People & Organization to manage social aspects within their business unit, and to provide structural support at regional and country level in all aspects of human resources.

Implementation and performance against health and safety KPIs are internally measured and reported monthly. Implementation and performance against workforce KPIs are monitored as part of the People & Organization Board. Implementation and performance against diversity and health and safety KPIs are also monitored as part of the ESG Board. Workforce, health and safety performance indicators can be found in [Employees](#) and in the [Social Statements](#) sections of this report.

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Managing risk effectively

The aim of our risk management system is to enable the Group to identify risks and opportunities in a proactive way and manage or mitigate them to an acceptable level wherever possible. To anticipate economic and geopolitical uncertainty; the increased focus on climate change and energy transition; and the rapidly changing technological landscape, a robust risk management process supported by strong governance is needed to support the Group in achieving its financial and [strategic objectives](#).

Each of the Group's activities is exposed to a variety of risks that are financial or non-financial in nature but have the potential to impact the Group's financial performance. Financial risks include changes in: metal prices; foreign currency exchange rates in certain market-defined commercial conditions; in interest rates; and credit and liquidity risks. Non-financial risks include natural catastrophes, loss of assets as a result of a major incident, supply chain risks and other operational risks. The Group's overall risk management program seeks to mitigate risks and potential adverse effects on the Group's financial performance, including through the use of hedging and insurance instruments. For more on Managing financial risks, see [Note F3](#).

All identified risks and opportunities are assessed against three criteria: their time horizon (short, <1y; medium, 1<5y; long >5y); their likelihood of occurrence; and the impact that the materialization of a risk or opportunity could have.

Sustainability matters are also assessed on their impact on the Group as well as on people, society and the environment.


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Process and framework

Umicore's Enterprise Risk Management (ERM) framework is based on the "Three lines of defence" model, where the primary source, the responsibility and ownership for identifying risks and opportunities lies within the individual business units.

As they operate in an environment carrying specific growth expectations and differing degrees of market and technological uncertainty potentially impacting strategic objectives, each business unit is responsible for implementing the necessary mitigating actions, which are systematically reported corresponding to the respective strategic objectives, and identified risks and opportunities.

The second line of defence is assured by specific corporate departments in close collaboration with the ERM function.

Under the auspices of the Management Board, the corporate departments are also tasked with identifying, managing and mitigating certain risks and opportunities while ensuring that adequate systems are in place to address them. These risks and opportunities cover Group-wide elements that extend beyond the purview of individual business units, (e.g. financial, strategic, social, reputational, climate and environmental-related risks and opportunities) in the short, medium or longer term.

Together, they aggregate the risks and opportunities and provide a consolidated view while the ERM function will also assure a regular follow-up of the mitigation actions.

Finally, the Internal Audit function, through its independent review, assures the effectiveness and efficiency of the Risk Management process, while at the same time aligning the internal audit plan with ERM priorities.

This model is subject to continuous improvement and is designed to be dynamic and flexible in a way that enables Umicore to respond appropriately to the Risk & Opportunity Environment.

An example of such improvement is the creation of a Risk Steering Committee as shown in the above figure, which was implemented in 2023. Going forward, the frequency of the Risk Steering Committee is set to be quarterly with additional ad-hoc meetings when necessary.

Umicore also enhanced its ERM organization by implementing a Governance, Risk and Compliance tool (GRC), supporting the visibility of the different risks and opportunities.

Moreover, to identify, quantify and prioritise mitigation actions for climate related physical risks and their impact on the Group's operations, Umicore implemented a Sustainability Risk Assessment tool, allowing for in-depth analyses and quantification of its current and future physical climate related risks as well as Biodiversity & Ecosystem Services (BES) impact risks for the different sites worldwide.

Governance and oversight

The Management Board, as the "Executive Risk Owner" and "Subject Matter Expert" will make risk-priority decisions following the regular review of the Group's top risks. The Audit Committee of the Supervisory Board reviews all financial and non-financial risks at Group-level annually.

Our internal control system

Internal control is a key aspect of risk management. Different internal control mechanisms exist throughout Umicore to manage, with reasonable assurance, our ability to achieve our objectives.

They cover:

- Effectiveness and efficiency of operations
- Reliability of financial processes and reporting
- Compliance with laws and regulations
- Mitigation of errors and fraud risks

Umicore adopted the COSO¹ framework for its Internal Control System and has adapted its various constituents within its organization and processes. [The Umicore Way](#) and the [Code of Conduct](#) are the cornerstones of the internal control environment; together with the concept of management by objectives and through the setting of clear roles and responsibilities, they establish the operating framework for the company.

Specific internal control mechanisms have been developed by business units at their level of operations, while shared operational functions and corporate services provide guidance and set controls for cross-organizational activities. These give rise to specific policies, procedures and charters covering areas such as corporate security, environment, health and safety, human resources, information systems, legal, trade compliance, research and development and supply chain management.

Umicore operates a system of Minimum Internal Control Requirements (MICR) specifically to address the mitigation of financial risks and to enhance the reliability of financial reporting. Umicore's MICR framework requires all Group entities to comply with a uniform set of internal controls in 12 processes.

Within the internal control framework, specific attention is paid to the segregation of duties and the definition of clear roles and responsibilities. MICR compliance is monitored by means of self-assessments to be signed off by senior management. The outcome is reported to the Management Board and Audit Committee. The Internal Audit department reviews the compliance assessments during its missions.

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¹ Committee of Sponsoring Organizations of the Treadway Commission.

Out of the 12 control cycles, two cycles (Internal Control Environment and Metal & Currency Hedging) were assessed in the new self-assessment tool in 2023 by the 103 control entities currently in scope. Risk assessments and actions taken by local management to mitigate potential internal control weaknesses identified through prior assessments are monitored continuously.

Insurance

One of the techniques used to respond to risks is the use of insurance as a risk transfer mechanism. Umicore currently has insurance programs in place to protect itself against a number of risks including Property Damage & Business Interruption, Public & Products Liability, Employer’s Liability, Workers Compensation, Transport, Directors’ and Officers’ Liability and Credit Insurance.

As part of its risk transfer strategy, Umicore has been actively using its fully owned reinsurance captive in Luxembourg to retain part of the (insurable) risks before transfer to the (direct) insurance market.

The type of insurance and the respective insured limits purchased from the direct insurance market are regularly reviewed and aligned with our assessment of the relevant risks and the Group’s risk appetite.

Opportunities & risks overview

Risk & Opportunity	Link to Material topics	Change in Risk profile	Change in Opportunity Profile
Regulatory & Legal Context	<ul style="list-style-type: none"> • Digitalization & Cybersecurity • Ethical Supply • Product Stewardship • Responsible Governance • Sustainability Governance 	↑	→
Sustainable & Ethical Supply	<ul style="list-style-type: none"> • Climate & Environment • Ethical Supply • Sustainable Governance • Sustainable Sourcing & Recycling Services 	→	→
Metal Price	<ul style="list-style-type: none"> • Sustainable Sourcing & Recycling Services 	↓	→
Market	<ul style="list-style-type: none"> • Innovation • Product Quality & Production Capacity • Sustainability Governance 	↑	→
Technology & Substitution	<ul style="list-style-type: none"> • Innovation • Product Quality & Production Capacity • Product Stewardship 	→	→
Information Security & Data Protection	<ul style="list-style-type: none"> • Digitalization & Cybersecurity 	→	→
Talent Attraction & Retention	<ul style="list-style-type: none"> • Employee Engagement • Employee Health, Safety & Wellbeing • Sustainability Governance 	↓	→
Climate & Environment	<ul style="list-style-type: none"> • Climate & Environment • Innovation • Sustainability Governance • Waste • Water 	→	→

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1 Regulatory and legal context



Risk description

The globally changing regulatory environment brings both threats and opportunities for Umicore. This applies not only in the countries and regions where Umicore operates, but also in those where its products are sold and used.

Umicore's business operations are subject to a variety of increasingly stringent environment, sustainability governance, health & safety related laws, regulations and standards. In the **short term**, these present operational challenges for our businesses, resulting in continuous improvements and investments (which may impact costs) and potentially in an uneven competitive environment. One of the areas in which this short-term impact is visible is the renewal or "ex officio" amendment of operational (environmental) permits for Umicore's production sites. In 2021, the Flemish Government imposed new and more stringent environmental requirements for Umicore's recycling plant in Hoboken. These challenging requirements include, among others, annually declining limits for levels of lead in the blood of children under the age of 12 living in the vicinity of the Hoboken plant. Despite Umicore's continuing efforts to reduce the harmful effects of emissions, it cannot be excluded that certain of these new targets in the Hoboken permit will not be met in the future. As Umicore's recycling activities are concentrated on this one unique site, not reaching an environmental target might have a significant impact on Umicore's earnings and cash flows.

Similarly, environmental legislation can impact the way end-of-life batteries must be handled, transported and stored, which in turn can drive business decisions.

The European Green Deal, EU Taxonomy Regulation and Corporate Sustainability Reporting Directive (CSRD) collectively shape a demanding regulatory environment in the **short to medium term**. This also brings opportunities. These initiatives drive the transition towards sustainability by requiring significant shifts towards clean energy, reduced emissions, transparency, good governance, and sustainable practices. The EU Taxonomy Regulation sets out detailed disclosures on how companies' activities align with environmental sustainability criteria, encouraging the adoption of sustainable operations. The CSRD significantly widens the scope and detail of required sustainability-related disclosures, enhancing reporting on environmental impacts, social responsibilities, and governance practices. Together, these regulations accelerate and substantially expand reporting obligations, demanding robust data management and disclosure practices. They present opportunities for enhancing transparency, fostering investor trust, and supporting the growth of sustainability-linked finance. Importantly, they also directly incentivize the development and scaling of sustainable activities themselves, fostering an ecosystem where environmentally and socially responsible practices become a cornerstone of business innovation and market competitiveness.

In the **mid- to longer term**, Umicore can benefit from these trends, especially those regarding the reduction of vehicle emissions, electrification and the circular economy.

Data protection and intellectual property rights have a significant impact on technology-driven businesses including Umicore. Failure to adequately manage data, knowledge and intellectual property (IP) rights may, in the **short- and medium term**, have a negative impact on Umicore's business and freedom to operate. Despite robust mitigation measures in place, it cannot be excluded that Umicore becomes the victim of a data breach and will be fined or have to compensate victims as a result of such a breach. Umicore could also be forced to take legal action against perpetrators to safeguard its intellectual property rights. It is also exposed to the risk of having to

defend itself against alleged breaches of third-party IP rights, despite processes in place to manage its IP portfolio.

Geopolitical conditions, trade legislations and restrictions continue to be a factor in Umicore's trans-border activities in the short, medium and **long term**. More countries now require review or approval procedures for cross-border technology transfers, acquisitions and exports. Compliance with such measures may adversely affect the speed of innovation and/or the flexibility to collaborate with third parties or even within the same group. They may, however, also create opportunities for Umicore whether in protecting its technology or creating barriers to market entry by foreign competitors.

Today, Umicore is the only cathode player to produce industrial cathode active materials on two continents. In 2023, the organization commenced construction of a local manufacturing facility in Canada (Loyalist, ON) completing its global rollout of regional supply chains for automotive and cell customers on three continents.

The growing trend towards electrification and more stringent emission control should be seen as an opportunity to Umicore's business as described in [Investing in Umicore](#). Although Europe announced, in 2023, a ban on the sale of new fossil fuel cars from 2035, governments in other parts of the world may still postpone implementing such new legislation. In the short term, such delays could have a negative impact on certain parts of Umicore's business. In the medium term, however, electrification and more stringent emissions control will be an **opportunity** for further market development, positively impacting sales and revenues.

The US Inflation Reduction Act of 2022 (IRA) requires a certain percentage of critical minerals in a battery to have been recycled in North America and extracted or processed in a country that has a free-trade agreement with the US. The battery must also have been manufactured or assembled in North America. Such requirements represent an opportunity for Umicore. Our cathode active battery materials (CAM) plants in South Korea and our future manufacturing facility for CAM and their precursor materials (pCAM) in Canada (Loyalist, ON), for where construction started in 2023, will enable

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Umicore to supply “IRA compliant” products to its customers in North America.

National and international tax regulation and enforcement are increasing and becoming more complex, which increases the Group’s tax compliance burden (particularly in the field of transfer pricing and indirect taxes such as VAT). The uncertainty associated with announced or potential tax reforms is also increasing both on a national level (e.g. in Brazil) and on an international level (e.g. OECD initiatives). These developments and the resulting uncertainties may impact the Group’s earnings despite Umicore continuing to manage the requirements proactively by implementing best practice processes and systems. Umicore currently has an active process of monitoring and provisioning of uncertain tax positions.

Risk profile

Although the global regulatory environment remains very complex and legislation continues to become more stringent, overall we consider that the risk profile remains stable compared with 2022. At the same time, new opportunities will equally arise out of more stringent legislation.

Risks and opportunities related to trade and tariffs (including export regulations regarding both goods and technologies) require close monitoring and follow-up.

The risk profile for matters related to intellectual property (IP) rights and data protection is increasing as a result of the stricter regulations. The IP landscape has also become more litigious. Despite our active management of patents and other IP rights, Umicore cannot exclude that any of our patents will be violated (and we may not always be able to act successfully to stop or obtain compensation for any such violations), nor can the company exclude litigation against it for any alleged infringement of a third-party IP right.

Risk mitigation

Umicore provides continuous training on regulatory requirements to ensure compliance with applicable legislation.

Umicore is continuously and systematically monitoring the regulatory landscape on health, safety, environment and climate change, and adapting its frameworks and reporting accordingly. See [8. Climate and Environment](#), later in this chapter.

To ensure ongoing compliance with EHS legislation on our industrial sites, Umicore has a well-established EHS compliance audit program and constantly monitors changes in legal requirements where it operates. See [Environment](#).

Our facility in Hoboken is the world’s largest and most complex precious metals recycling operation, processing over 200 types of raw material and recovering over 20 different metals. We ensure that a high volume of the metals that we process come from secondary sources such as production scraps, residues and end-of-life materials. We can also recycle customers’ residues and production scrap to help them maximize their material efficiency and then transform the recovered materials into new products. In total we recover 28 metals from our closed-loop activities, and we continue to adapt our processes to recycle new and more complex end-of-life products. Several initiatives have been taken and continue to be taken to reduce the possible impact of harmful emissions from Umicore’s production, such as the creation of a “green zone” on and next to the Hoboken production facility, as described in [Environment](#).

At Umicore, we are committed to the responsible and sustainable management of our products throughout their lifecycle. We recognize the importance of product stewardship in protecting human health and the environment. We work collaboratively with our stakeholders to ensure the responsible management of our products. For Umicore, a specialty materials company, this also includes managing the potential risks associated with the chemicals used and implementing measures to reduce those risks. Umicore ensures regulatory compliance of the products worldwide and therefore closely monitors all changes in regulations, interpretations and guidance documents that might affect its European REACH implementation strategy. In 2023, we started 11 new substances dossiers for registration under REACH due to new business developments.

As part of regular maintenance, we updated 53 REACH dossiers for reasons including changing the tonnage band, replying to ECHA requests and including new information. Additionally, two full Registration dossiers for UK-REACH have been completed to support new UK-import activities. Umicore submitted two registrations in Korea in 2023 for priority chemical substances. See [Product Stewardship](#).

To mitigate the potential impact of (product) liability claims, Umicore has implemented mechanisms such as contract management and risk transfer using insurance, in addition to rigorous quality controls.

Umicore’s dedicated Intellectual Property Team within the global legal department, has rigorous processes that monitor the requirements to commercialize our products.

Governments have implemented new or enhanced legislation on data protection, such as GDPR in Europe, LGPD in Brazil, POPI in South Africa or PIPL in China. Umicore closely monitors any changes and new regulations on this topic and has put in place the appropriate governance structures.

To safeguard its data and innovations, Umicore provides training to its employees worldwide on how they can contribute to, and ensure, the protection of trade secrets. To that end, the “I Stay Alert” campaign, which was launched in 2021, was continued throughout 2023 as described in information security and data protection.

The Umicore Trade Compliance Team follows closely and responds to global trade conditions including the imposed sanctions following the geopolitical events in 2023.

Umicore played an active role in informing legislators of various emission control technologies for both diesel- and gasoline-powered vehicles, to help them make knowledgeable decisions about future emission and testing norms. To manage policy risks, Umicore participates in public consultations and is a member of relevant industry associations, including those related to sourcing, climate and business. As described in [Engaging for impact](#) Umicore is

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supportive of challenging targets in areas such as battery regulation, as they represent opportunities for us.

As a founding member of the Global Battery Alliance (GBA), Umicore is one of the driving forces and co-developers of the Battery Passport. Transparency on a battery's lifecycle enables consumers, companies and regulators to make well-informed choices, propelling decarbonized electric driving.

Umicore is re-enforcing its international tax team and has increased third-party advisory services to monitor and manage tax-related risks.

2 Sustainable and ethical supply



Risk description

In the **short term**, potential disruption in supply chains due to factors such as changes in trade regulation, geopolitical events and subsequent delays at borders and ports, container transportation shortage, and high energy prices remain a risk. A further source of stress in the supply relates to stricter regulations on cross-border movements of waste and/or bans by carriers, ports or countries to accept waste or dangerous goods. Securing a sufficient supply of input metals is essential for the ongoing viability of our product and service offering, and to achieve our growth objectives. Responsible sourcing is a key priority and competitive edge for Umicore: when sourcing materials or through indirect procurement, suppliers are checked and risk-based due diligence conducted to ensure that no harm is inflicted on people (e.g., human rights violations), the environment or society. More details about what we expect from our suppliers can be found in [Society](#). Insufficient availability of raw materials such as palladium, rhodium, lithium or battery nickel units, combined with a lack of alternatives, can impact metal prices as described in the [metal price chapter](#).

In the **medium term**, price volatility and limited supply remain a concern, in particular for battery materials where demand is expected to increase, or for certain platinum group metals, the use of which is currently closely linked to internal combustion engine (ICE) technology. The uncertain grade mix for battery materials may lead to inadequate supplies. There are risks that development of new supply may not precisely match demand increases. A gap in supply and demand during the anticipated rapid future growth could lead to temporary supply shortages or excesses, which in turn would

impact metal prices. Other materials such as germanium may face long-term supply challenges due to changing market conditions and competition. Umicore's supply chain needs to align with its ESG ambitions, fully certified against environment, social and governance criteria and decarbonization targets for Scopes 1, 2 and 3. In addition to the grade, price volatility and limited availability, the GHG impact of raw materials is as an additional dimension to be taken into account when managing supply and spans over the short, medium and the long term.

In the **long term**, Umicore requires certain metals or metal-containing raw materials to manufacture its products and feed its recycling activities. Some of these raw materials are comparatively scarce and require very specific sourcing strategies. Obtaining adequate supplies of these materials will continue to be important for the ongoing success and growth of our business.

Risk profile

For battery materials in particular, demand is expected to increase significantly in the coming years, as is competition for the ethically sourced and low-carbon input materials. Physical supply is currently tight and sensitive to any short-term supply or demand disruption for certain precious metals and platinum group metals (PGM). In the longer term, this is sensitive to the pace of electrification and alternative drive train technologies such as fuel cells.

Geopolitical risks have remained elevated, causing disruption of the global supply chain and increased costs.

Existing and upcoming laws at national and EU level on due diligence and sustainable product policy have increased awareness about the topics of responsible sourcing and sustainable value chains, in particular for designated conflict minerals (tin, tantalum, tungsten and gold) and more recently also for battery materials (cobalt, nickel, lithium, manganese). Requirements for robust due diligence management systems, compliance and reporting will increase in the coming years for the entire supply chain. Increased standards are also an **opportunity** for Umicore because of our long-standing experience in due diligence and responsible sourcing, and because they will create a more level playing field for the industry.

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Risk mitigation

Umicore continues to ensure that its production operations are certified as conflict-free and receives site and metal-specific responsible sourcing certifications from the LBMA, RJC and RMI. For more information, see [Society](#).

Umicore has implemented policies and measures covering human rights, the right for workers to organize, collective bargaining, equal opportunities and non-discrimination, banning of child labour, banning of forced labour, consistent with International Labour Organisation (ILO) standards, as supported through a Global Framework Agreement (GFA) on Sustainable Development with IndustriALL Global Union. The GFA captures Umicore's engagement to both our employees and our suppliers.

Umicore's policies and charters such as the [Code of Conduct](#), [Human Rights Policy](#) and the [Umicore Global Sustainable Sourcing Policy \(UGSSP\)](#) illustrate our long-standing and growing experience in ensuring we only buy from suppliers who can guarantee sustainable and ethical sourcing.

In addition to these general policies, Umicore also has specific risk-based policies in force, designed to protect human rights in our supply chain, and safeguard the environment: the [Sustainable Procurement Frameworks for Cobalt, Nickel and Lithium](#), and [Responsible global supply chain of minerals from conflict-affected and high-risk areas](#) which follow the principles of the United Nations Guiding Principles on Business and Human Rights and OECD Due Diligence Guidance.

Both policies include a robust due diligence system. This includes background screening of suppliers, a risk assessment based on country, material and supplier risk and risk mitigation actions, in combination with onsite visits and third-party audits for critical suppliers. Under the due diligence system of the Battery Materials Framework (cobalt, nickel and lithium), any indication of potential "zero-tolerance issues" or "issues of concern" triggers enhanced due diligence and engagement with the supplier on the related issue.

The case will be appropriately followed up through an internal decision-making process involving senior management. Umicore was the first company globally to get annual third-party assurance on its responsible sourcing framework [for Cobalt through the annual compliance report \(publicly available\)](#).

Together with the launch of the dedicated Frameworks for Nickel and Lithium, a reviewed and strengthened Cobalt Framework became applicable in 2023. Updates include a broader scope of ESG criteria and a strengthened risk assessment and mitigation approach.

In 2022, to underpin its sustainable sourcing commitments, Umicore defined a Scope 3 reduction target focusing on purchased goods and services. Battery materials and precious metals are the main contributors to the impact of this Scope 3 category. We have identified ways to achieve our target by 2030 and have started working with suppliers to understand their GHG emission profile and reduction opportunities so that we can provide our customers with both responsible and sustainable products.

Umicore continues to ensure that its production operations are certified as conflict-free and receives site and metal-specific responsible sourcing certifications from the LBMA, RJC and RMI.

To manage the risk of supply disruption for critical materials, we ensure that materials come from several reliable suppliers. In addition, we closely monitor developments in other regions and investigate other projects to diversify sourcing, seek out secondary raw material sources and negotiate long-term contracts.

3 Metal price



Risk description

Umicore's metal price risk has reduced because there is lower price volatility in the metals markets, but the volatility of metal prices remains an important risk to manage.

Earnings are exposed to risks relating to the prices of the metals that are processed or recycled. These risks relate mainly to the impact that metal prices have on the surplus metals recovered from materials supplied for recycling, and concern platinum, palladium, rhodium, gold, silver and a wide range of base and specialty metals.

Umicore also faces transactional price risks on metals. The majority of its metal-based transactions use global metal market references. If the underlying metal price were constant, the price Umicore pays for the metal contained in the raw materials purchased would be transferred to the customer as part of the price charged for the product. However, because of the lapse of time between the conversion of purchased raw materials into products and the sale of products, the volatility in the reference metal price creates differences between the price paid for the contained metal and the price received. Accordingly, there is a transactional exposure to any fluctuation in price between the time raw materials are purchased (when the metal is "priced in") and the time the products are sold (when the metal is "priced out"). As lithium and manganese have become increasingly valuable and volatile components in rechargeable battery materials, in 2022 Umicore decided to no longer treat them as a consumable but to hedge the transactional exposure going forward, in line with other battery metals like nickel and cobalt.

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For more information on the structural risk and on the transactional and inventory risk related to the metal prices, see [Note F3 of Statements](#).

Materials produced by Umicore contain precious or scarce metals which are partly sourced from in-house recycling operations and, for the balance, procured from primary metal producers. Umicore's ability to procure the required quantity of such metals is key in determining our ability to produce the materials which have been ordered by our customers.

The availability of metals such as cobalt, lithium and nickel, as described in [Ethical and sustainable supply](#), is the main **long-term** risk.

Due to the liquidity of the metal markets for precious metals, platinum group metals (PGM) and battery metals, Umicore's impact on the metal price is limited.

Risk profile

Prices for precious metals, such as rhodium and to a lesser extent Palladium, continued their downward trend throughout 2023.

After a short increase at the start of 2023, the nickel price dropped further during the year. The cobalt price also dropped further in the first half of 2023, before stabilising in the second half. The Lithium price dropped significantly in comparison with the historic highs of 2022.

As described in the [sustainable and ethical supply risk](#), metal scarcity is increasing because of supply / demand tightness and other factors such as geopolitical tensions or trade regulations.

Risk mitigation

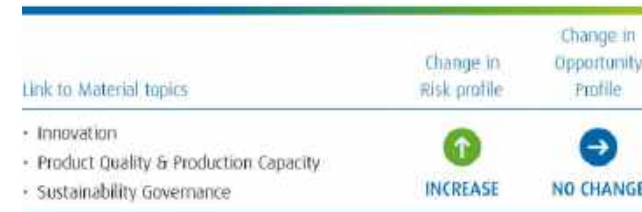
For some metals quoted on futures markets, Umicore hedges a proportion of its forward metal exposure to cover part of the future price risks.

Umicore stepped up its strategic metal hedging approach to reduce volatility, to increase visibility on future cash flows and to reduce future earnings from exposure to certain precious metals prices. Over the course of 2023, it has entered into forward contracts to cover a substantial part of its expected structural price exposure to certain precious metals for a substantially longer period (up to 2028) and a significantly larger portion of its structural price exposure compared with its past approach. For 2024, based on the respective currently expected exposures, the following lock-ins have been secured: close to three quarters for palladium, more than two thirds for rhodium, close to two thirds for gold, close to half for silver, and above one quarter for platinum. For the years 2025-28, Umicore has increasingly secured its structural price exposure on precious metals and platinum group metals by entering into forward contracts.

The Group's policy is to hedge the transactional risk to the maximum possible extent, primarily through forward contracts. For a selection of metals, either no derivatives markets exist, or the existing market does not offer the required liquidity to enter forward contracts. This is increasingly the case for metals gaining in importance, such as cobalt and lithium. To mitigate the price risk on its transactions in these metals, Umicore maximizes the use of back-to-back hedging, matching the [price reference of purchases and sales](#).

Umicore aims to increase the production of precious and scarce metals from its recycling capabilities, thereby securing a significant proportion of its metals' needs. In addition, the Group maintains close commercial relationships with leading primary metals producers from which it procures metals through annual or evergreen contracts.

4 Market



Risk description

The main industries served by Umicore are automotive (clean mobility materials such as automotive catalysts and fuel cell catalysts, rechargeable battery materials, recycling), consumer electronics (rechargeable battery materials, recycling, coating and electroplating solutions), and non-ferrous metal mining and refining industries (recycling activities). Umicore is sensitive to any major growth or global reduction in activity levels or market disruptions in these industries.

The transformation of the automotive industry poses one of the main risks for Umicore today.

In the **short term**, Umicore has a limited visibility on future automotive (ICE and EV) demand. Geopolitical tensions create market uncertainty in the short and medium term. Persistent supply chain disruptions impact the supply and demand market dynamics. The pace of electrification also impacts demand for our products. Electrification will reduce the demand for automotive catalysts and boost the demand for cathode active materials. Increased demand for cathode active materials requires more production lines and sites, entailing challenges in hiring and training people, acquiring the right qualifications against the right timelines and funding. The lack of visibility on demand for cathode active materials is a risk in both the short and **medium term**.

The shift to electrification influences not only Umicore's cathode active materials activities, but also its catalysis and recycling activities. Since the production of emission control catalysts requires platinum group metals (PGMs), a declining demand for such catalysts

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as a result of the reduced production of ICE vehicles will have an impact on PGM prices. The availability of recyclable “end of life” catalysts is also expected to decrease over time (medium to long term). The electrification can also lead to price volatility of metals needed to produce cathode active materials. To mitigate the consequences of such price volatility the necessary hedging mechanisms have been put in place (see above). A consistent supply of metals for rechargeable battery materials (as described in [ethical and sustainable supply](#)) is imperative to ensure efficient production of these products.

In the **long term**, the transition to electrification changes the competitive environment. The market for cathode active materials remains an emerging market with different dynamics per continent (for example in terms of over and under supply). Through its current customer and product portfolio, Umicore is exposed to the mass and premium automotive segments (NMC, mid- and high-nickel) for cathode active materials technology, and as announced in 2023 the industrialization of manganese-rich HLM (high lithium, manganese) battery materials technology, which will serve the entry-to-mass automotive segments. Compatible with the NMC technology, this future HLM production is foreseen at Umicore’s battery materials plants in Korea and Poland as well as at the new facility under construction in Canada. The addition of HLM to our existing NMC portfolio will enable us to serve all segments of this rapidly growing and rapidly evolving market. Umicore is also working on next generation battery materials technologies. See [At the Core](#).

As the pace of electrification is increasing rapidly, technological disruptions could have a negative impact on Umicore if a battery technology, to which Umicore is not exposed, would be preferred by the industry over another. The market for rechargeable battery materials is becoming more crowded as new players enter. At the same time, more original equipment manufacturers (OEMs) have started producing rechargeable battery materials – in addition to being Umicore’s customer, they have become a competitor.

By actively pursuing R&D to offer new solutions to car OEMs and cell makers, and due to its positioning and long-term relationships

with the overall market (through its Catalysis activities and its long-term value-creative battery materials contracts), Umicore is also influencing the changing market structure for rechargeable battery materials for the automotive industry. Umicore is uniquely positioned to offer the market a closed-loop solution for cathode active materials, as we are both a producer of cathode active materials and a recycler of batteries. In addition, Umicore’s recycling services have a positive impact on society by enabling a shift towards a low impact industrial future.

Risk profile

As confirmed by the scenario analysis of our climate-related risks and opportunities, the electrification of mobility increases Umicore’s risk profile for its catalysis business, while at the same time increasing Umicore’s **opportunity** profile for the rechargeable battery materials and recycling businesses.

Risk mitigation

Notwithstanding the limited visibility on automotive demand, and even in fast electrification scenarios, the Catalysis Business Group is expected to continue to benefit from its strong market position in gasoline catalyst applications in Europe and China. Umicore works continuously to maintain its excellent cost position with continued work on operational efficiencies, a globally optimized production footprint and a low break-even point, which resulted in continued market share gains in 2023. We have a good product and technology portfolio with strong customer demand, as evidenced by the fact that we have further increased our exposure to the longevity segment¹ of the market, which represents a very significant part of our automotive catalyst activities. Umicore also has a balanced regional presence in this light-duty gasoline segment with Europe, China and America, providing an excellent platform for the business going forward.

In the Energy & Surface Technologies Business Group, and more specifically in the Rechargeable Battery Materials Business Unit, Umicore is actively diversifying its customer and platform exposure. In 2023, the business unit continued to secure long-term strategic customer contracts and partnerships, securing future market share

and also non-refundable government grants for its capacity expansions. These milestones are described in the [operations section](#) of this report.

Increased intimacy with car OEMs and qualifications for the right platforms are ever more important, which is why we focused on solidifying our relationships with customers. Umicore’s agility in its operations and supply chain equip us to adapt quickly to changes in demand.

In terms of competitive environment, the Rechargeable Battery Materials Business Unit has more than 25 years’ experience in cathode active materials (first for portable electronic applications, then for electric vehicle (EV) applications). Its innovation roadmap is combined with a proven product and process technology leadership track record and demonstrated industrial capabilities in manufacturing cathode active materials and the related precursor materials at mass scale at the highest quality and environmental standards. In addition, it is currently the first and only cathode player to produce industrial cathode active materials in Europe, it has an existing footprint in Asia and in its future North American plant (Canada, ON).

Umicore is therefore uniquely positioned with a regional local-for-local fully integrated supply chain.

In terms of demand and supply dynamics for cathode active materials (CAM), Umicore’s fully integrated supply chain and its existing and planned CAM manufacturing footprint in Europe and North America will play an important role in supporting regional demand for battery and car OEMs.

With its local footprint in Europe and North America, Umicore is also well equipped to comply with the US Inflation Reduction Act and the EU Critical Raw Materials and Net Zero Industry Act.

The market risk is intimately associated with the metal price risk. As described in the [metal price section above](#), we hedge a proportion of our forward metal exposure to cover part of the future price risks

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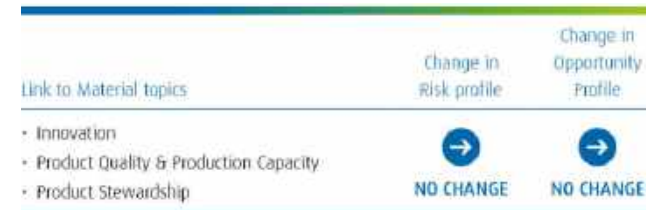
¹ The longevity segment is the heavy-duty diesel and the light-duty gasoline part of the market, which will be there in the long term, especially given the hybridisation of the market.

and maximize the use of back-to-back hedging, matching the price reference of purchases and sales. In 2023, in the framework of its strategic metal hedging approach, Umicore entered into forward contracts covering for a longer period and a significantly larger portion of its structural price exposure compared with the past approach. The aim is to reduce volatility, protect future earnings linked to its exposure to certain precious metal prices and to increase visibility on future cash flows.

The complementarity of our activities has proven to be a true competitive advantage. In Energy & Surface Technologies and Catalysis we serve the automotive market by enabling electrification on a mass scale and by offering cutting-edge technologies for clean combustion engines. Through our Recycling (including the Battery Recycling Solutions) activities, we close our own and our customers' materials loop and offer a unique sustainable and circular approach that will become even more important in a world of raw materials scarcity.

Umicore aims to further strengthen its market position with our ambition and plan to capture growth from the next wave of sustainability-driven markets, such as fuel-cell catalysts and battery recycling. See [Financial](#), [Operations](#) and [Strategy](#).

5 Technology and substitution



Risk description

Umicore is a materials technology group with a strong focus on the development of innovative materials and processes. The choice and development of these technologies for existing and new markets represents the single biggest **opportunity** and risk for Umicore.

The European Commission (EC) last year announced its intention to reduce emissions from heavier vehicles by 65% from January 2035 and by 90% from January 2040 relative to 2019 levels. Although Umicore's business related to HDD (Heavy Duty Diesel) is mainly situated in China, this announcement by the EC may affect Umicore's business in this segment. The substitution of internal combustion engines by electrical vehicles and fuel cell cars presents an **opportunity** for Umicore in the short and medium term. Apart from the opportunity for Umicore's battery materials, Umicore can leverage its catalysis expertise in hydrogen applications. Umicore's risk/opportunity depends on how well the development of our technologies will correspond to such new demands.

Achieving the best cost-performance balance for materials is a priority for Umicore and its customers. There is always a risk that customers will seek alternative materials for their products, should those of Umicore not provide this optimum balance. The risk is especially present in businesses producing materials containing expensive metals (especially those with historically volatile pricing characteristics).

In achieving an optimal cost-benefit balance, the cost efficiency of our production processes plays a key role. Hence, there is a risk that

we could fall behind the competition in our operational excellence and digitalization.

It is crucial for Umicore to consistently develop winning technologies, such as in battery recycling and for cathode active materials. For example, lithium iron phosphate (LFP) battery chemistry is a mainstream technology in China. This chemistry is not produced by Umicore, and the risk is that LFP would become widely adopted elsewhere. A switch to solid state batteries, as a substitution for lithium-ion batteries, is an **opportunity** in the **long term** as this battery technology calls for more sophisticated materials solutions that may require Umicore's expertise. In that respect, in June 2023 Umicore inaugurated one of the world's largest and most advanced solid-state battery material prototyping facilities in Olen, Belgium, which will expand and accelerate its innovation and technology development.

Risk profile

In comparison with 2022, both Umicore's opportunity and risk profile have remained stable.

Risk mitigation

Timely introduction of key technologies is essential. As described in the market risk, Umicore closely monitors the market and makes sure a close relationship with its customers is maintained to focus on the right technology trends at the right time. We prioritize key development projects and allocate the necessary resources. We are continuously working on the efficiency and digitalization of our R&D. We have installed a rigorous governance system for our R&D activities with a key focus on essential milestones and risks to be covered.

As described in the [regulatory and legal context risk](#), the environmental permit for the smelter on our Hoboken site is a risk for our license to operate. To mitigate this risk, Umicore has leveraged robotic process automation (RPA) to automate the "wind barometer" process that steers which activities on the site can be conducted according to the weather forecast. We are also evaluating whether we can engineer the slags on our Hoboken site towards a cement replacement product.

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To support our **opportunity** in hydrogen technology, Umicore has set up a dedicated "Fuel Cells" business unit and in our New Business Incubator there is a portfolio of projects around hydrogen. On December 1st, 2023, Umicore held the groundbreaking ceremony for its large-scale fuel cell catalyst plant in China.

With the increasing popularity of green hydrogen, the demand for fuel cell catalyst products is growing rapidly. Over the past 30 years, Umicore has been committed to the research and development of fuel cell catalysts, providing platinum and iridium catalysts for different Proton Exchange Membrane (PEM) fuel cells, covering a wide range of industries such as automotive, marine industry, aerospace, energy storage, and water electrolysis for hydrogen production. Leveraging its durable and high-performance fuel cells catalysts and working closely with customers across the value chain, Umicore has become a global leader in PEM fuel cell catalysts for the mobility segment. Its new greenfield plant in China, which is expected to become the world's largest PEM catalyst production facility to date, will enable Umicore to cater for the rapidly growing customer demand to 2030.

As a pioneer in battery recycling, we have continued to develop our technologies, focusing on the most relevant battery chemistries. This has been done with a keen focus on the sustainability but also on the recovery of all essential metals with the highest yields, including Cu, Ni, Co and also Li. By developing our processes in an integrated way, pre-processing and refining, we can ensure the lowest environmental impact. For cathode active materials, we are investigating a range of chemistries to be ready for the market. We design products both for performance and for cost-driven segments. In line with the trend to lower cobalt and nickel contents in the cost-driven segment and to mitigate the risk posed by LFP, we are further developing and starting the industrialization of our HLM cathode active materials technology.

Umicore patents disruptive technologies. In 2023, Umicore registered 77 new patent families. For more information, see [Innovation](#).

6 Information security & data protection



Risk description

Umicore's production plants and services are highly dependent on the availability of IT services. Cybersecurity includes our hardware, software and information protection. Due to cyber incidents, Umicore's servers or network could be blocked, and data breaches could jeopardize the confidentiality of our data and personal data. Unavailability of services, disruption of the supply chains or interruption of our production facilities due to cyber-attacks could have a major impact on our customers and our financial results. Any compromise on the confidentiality of intellectual property would negatively impact our competitive advantage. Unauthorized modification of financial data would jeopardize accurate reporting to shareholders. A personal data breach could result in a fine and exposure to negative reputational consequences. Whether in the short, medium or long term, any cyber incident or data breach would have an immediate impact.

Beyond Umicore's own operations, we could also be impacted if any of our main suppliers experiences a cyber incident. Cyber incidents can be local, regional or global and if Umicore is attacked, this could have consequences for our customers.

Risk profile

Cyber attacks may be very focused and advanced. The expanding threat landscape and expanding digital footprint is leading to an increase in cyber attacks. The risk profile is increasing because there are more cyber attacks, and they are becoming more sophisticated as the attacks happen in multiple layers.

In addition, due to the increased use of a digital work environment (on site and at home), the role of IT services in delivering seamless access to all corporate resources as well as ensuring information security remains important.

In 2023, there was no change in opportunity profile.

Risk mitigation

Umicore protects its data for confidentiality, availability and integrity.

Umicore continues to regularly assess and improve its information security, and the state of cyber resilience of its IT landscape, against evolving threats. A security operation center analyses the logs of the systems and warns us of any suspicious movement. We have ourselves tested by ethical hackers and scan all our hardware and software to exclude technical vulnerability.

Umicore has put in place in-service training sessions for our employees about phishing and all employees are part of a mobile device management platform to protect Umicore's applications and data. The "I Stay Alert" campaign continues to be a base to inform and raise awareness about information security. Its developed materials remain available to all and are used for (refresher) trainings. An additional module called "Follow-me printing" was launched to support the global roll-out of secure printing. This is an ID-enabled printing system activated on the printers, that allows Umicore employees to queue documents virtually and print them at a time and Umicore location of choice, making printing more efficient, secure and eco-friendly. With Artificial Intelligence entering more into the work environment, initiatives are taken to inform and train the workforce to be aware of the opportunities and consequences of such a resource.

Since April 2022, Umicore obtained ISO 27001 (information security) certification, following an independent external audit by the British Standards Institute (BSI). Moreover, third party expert security assessments are conducted and additional audits were performed in 2023 on compliance with GDPR, TISAX and recertification of ISO 27001.

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Both the corporate cyber security team and the corporate security department have expanded. Umicore consistently increases its investments in security-related IT systems and applications such as backup processes, virus and access protection, authentication and encryption tools. Security-related IT controls are being extended and are tested as part of Umicore's external audit process.

In 2022, a Proof of Concept was performed with the objective to determine the maturity of operational technology (OT) and to upgrade the resilience of industrial control systems against malicious actions. Umicore continued the effort in 2023 by expanding the project scope to more business units and sites and by initiating an OT security governance. The result is being used to improve the security concept from the start for new build and expansions and as a reference for retrofit where deemed appropriate.

7 Employee attraction and engagement



Risk description

The attraction, and engagement of skilled workforce in a labor market which is driven by talent scarcity, are important factors in enabling Umicore to fulfil its strategic ambitions and to build further expertise, knowledge and capabilities in the business. This represents a critical risk for Umicore because being unable to do so would compromise our ability to deliver on our 2030 RISE ambitions in the short, medium and long term.

Umicore's main **short-term** risk remains linked to keeping our employees healthy and safe.

As part of the expansion of the group, we will continue the onboarding and where needed upskilling of employees, especially in the battery-related business units, while at the same time anticipating a number of retirements at some production sites in the coming years.

In the **medium term**, Umicore is faced with the challenge of ensuring a safe working environment in an industrial operation combined with a deep need to foster and operationalize a new safety culture. Employee safety impacts employees, their families and our operations. Employee wellbeing is key to both employee engagement and recruitment.

Talent management, attraction, retention and engagement pose a **medium- to long-term** risk, especially in terms of expected strategic growth as part of our 2030 RISE objectives, this might be accompanied by new skills to be developed or acquired. Umicore aspires to have an agile workforce so we can adapt and

respond quickly to change – key elements towards maintaining a competitive advantage.

Diversity of thought at Umicore is a reality we live in our organization: our employees are active across the globe, in our different business units and support organizations, representing multiple generations as well as different communities and genders. We firmly believe that this diversity of thought, where different perspectives are valued, leveraged and where knowledge is shared across the organization and generations, will continue to enrich our employees in triggering bold, new and creative ideas, leading to even more innovative teams.

Risk profile

The short-term risk remains keeping our employees healthy and safe.

In the longer term, the war for talent is still a reality. As Umicore is growing, the onboarding of new colleagues will generate more opportunities to boost diversity in the company's workforce.

Risk mitigation

A new People & Organization operating model has been put in place. Streamlining the recruitment approach, pro-active sourcing and reinforced recruitment teams in alignment with our revised hiring plans, are some of the initiatives we take to mitigate our main risk of talent attraction. We have refined talent management processes globally to improve employee engagement by supporting, for example, internal mobility or providing the right learning programs for our employees. Employee wellbeing is also a strategic priority and multiple initiatives, which had been launched earlier, such as burn-out prevention and vitality, have continued throughout 2023 to support this objective.

Following the Umicore's Group EHS Guidance Note, units and sites identify occupationally linked health and safety hazards and risks. Workplace injuries and occupationally related health symptoms are thoroughly investigated, reported and discussed at the site's safety committee. This information contributes to the set-up, maintenance and, where needed, improvement of a health

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and safety management system with the aim of preventing all workplace-related injuries and health symptoms.

A process safety management system is deployed on all sites following strict process risk analysis and risk reduction methods. Regular internal health and safety audits evaluate the efficiency of its implementation.

We are improving the safety culture within the company, by deploying a “Coaching for Safety” program. Active leadership engagement is in place to stimulate engagement on all levels and measures endorsed by the shop floor are implemented. Safety programs focus on Control of High Risk activities, behavioral aspects, administrative measures and include in-service training. Health programs aim at reducing exposure and also focus on improving physical and mental wellbeing at the workplace.

In the [Employees section](#), many initiatives and programs illustrate how Umicore is mitigating the risks linked to talent management and how we are developing our diversity of thought.

8 Climate and environment



Risk description

In the **short term**, many of the climate and environmental risks are either [regulatory](#), or linked to the impact of our operations on the environment. Increasingly stringent regulations on energy use and emissions can induce higher operational costs and our license to operate is predicated on managing the impact of our operations in the communities where we operate. Any incident in a plant can affect emissions in air or water and increase noise, impacting the immediate surroundings, which is a risk on any time horizon. There is also an environmental risk linked to the shipment of materials. Many of the materials Umicore processes, such as scrap and residues, are classified as dangerous goods and maritime and air transport are increasingly reluctant to ship this hazardous material. The scarcity of transport could impact Umicore’s operational efficiency and there is also an impact on society, as a leakage of hazardous materials during transport could have negative consequences for the environment and for people’s health.

In the **medium term**, Umicore experiences the market risk of increasing requirements for carbon footprint of products and processes. Increasing requirements for environmental impacts such as biodiversity and land use could pose a risk and the rising cost of water is a risk in the medium and long term, as well as access to renewable energy, which is both a risk and an **opportunity**.

The consequences of climate change are the main **long-term** risk for Umicore.

Umicore has conducted climate-related risk analysis. Scenarios were chosen for relevance to Umicore and to represent the entire spectrum of possible future worlds, from Paris-aligned, through business as usual, to strongly increased physical risks. Short term is defined as until 2025, medium term until 2030 and long term after 2030.

Umicore has conducted a climate-related transition risks scenario analysis of a 1.8°C scenario (RCP2.6, Paris-aligned) and a 3.0°C scenario (RCP4.5), based on the IEA ETP and WEO 2020 reports, for our own operations with a timeframe of 10 and 30 years. Umicore’s climate-related transition risks and opportunities could be linked to market, reputation, policy & legal and technology. In the process of 2030 RISE Strategy development we quantified the financial impact of climate transition-related opportunities and risks. In a 1.8°C scenario, Umicore has a transition risk in the automotive catalysts business as demand for catalysts might be impacted given the foreseen declining demand for cars with internal combustion engines. Most other Umicore product lines (e.g. rechargeable battery materials, fuel cells and recycling services) show transition opportunities in both the 1.8°C and 3.0°C scenarios, the degree of which is linked to the pace of the shift towards electric mobility.

For the climate-related physical risk analysis, we chose the 3.0°C scenario (RCP4.5) and the worst-case climate change scenario (RCP8.5) until 2050 in which we identified both chronic and acute physical risks. For both climate-related physical risk scenarios, climate change causes extreme natural events, chronic deviations in temperatures and precipitation patterns, and rising sea levels. This could impact our sites or supply chain. For example, Flanders, an area in which Umicore has several production sites, has been declared an area at risk of drought. Umicore’s main physical risks are related to flooding and water availability.

Risk profile

The climate and environmental risks from a regulatory or operational point of view remained the same. The opportunity profile remains the same as in the previous year. The ongoing transition to a lower carbon economy continues to present Umicore with opportunities to

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expand and develop processes in ways that can mitigate or address climate change and environmental risks.

Risk mitigation

Umicore plays a key role in the transition to a low-carbon future as our materials tackle global trends for clean air and e-mobility, and our closed-loop business model tackles resource stewardship.

Our facility in Hoboken is the world's largest and most complex precious metals recycling operation, processing over 200 types of raw material and recovering over 20 different metals. We ensure that a high volume of the metals we process come from secondary sources (e.g. production scraps, residues and end-of-life materials). We can also recycle customers' residues and production scrap to help them maximize their material efficiency and then transform the recovered materials into new products. In total we recover 28 metals from our closed-loop activities, and we continue to adapt our processes to recycle new and more complex end-of-life products. As described in the [regulatory and legal context](#) and in [Environment](#), we are mitigating the risk concerning the environmental permit in Hoboken. Umicore's recycling activity is the best mitigation to both climate change and environmental degradation, because recycling metals emits less greenhouse gases and is more resource efficient than mining metals.

To mitigate the impact of our operations, Umicore keeps to the most stringent environmental standards for air and water and works every year to improve our energy efficiency and environmental footprint despite our growth and increased production. Umicore takes measures, such as windshields and green buffer zone to further minimize the impact of operations and manages its historical environmental legacy, ensuring adequate financial provisions are in place, which are reviewed twice a year. For more information, see [Environment](#).

Umicore supports the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) and has embedded this in its ERM system, including by implementing a structural approach to tracking sustainability-related physical risks using a Sustainability Risk Assessment tool which was added to the ERM system in 2023.

The tool allows for in depth analyses and quantification of current and future physical climate related risks as well as Biodiversity & Ecosystem Services (BES) impact risks for all sites. [Read more about our approach to biodiversity in Environment](#).

Similarly, Umicore maps its sites in water stress areas and keeps track of water types and consumption to mitigate our risk with respect to water availability and rising costs of water. Only the Olen and Hoboken, Belgium sites have been identified as material in terms of both water impact and risks. Building on the Group-wide water stewardship program, which was defined in 2022, Umicore conducted detailed "Water Risk Assessments" for the two above mentioned sites. The program further includes an ongoing education and awareness campaign, review of data granularity for improved disclosure, the development of contextual targets based on granular process-by-process water use data at material sites, and development of internal water risk guidance.

To address the environmental impact of our products, Umicore is committed to the responsible and sustainable management of our products throughout their lifecycle. (See [Legal & Regulatory risks](#) for more on REACH and online for more on Umicore [Product Stewardship](#).) To address the carbon footprint of products and processes, Umicore performs lifecycle assessments on selected products and services on a rolling and ongoing basis to sharpen insight on environmental performance, through the right choice of the chemistry, energy mix, and raw materials, including recycled materials.

In a further key step in the Group's decarbonization journey, Umicore unveiled its [Climate Transition Plan](#) in 2023, underscoring its commitment to climate action, resilience, and transparency. This plan not only captures ongoing efforts to reduce greenhouse gas emissions across the Group's operations but also how Umicore engages its entire value chain in driving meaningful climate impact. Climate related risk mitigation measures corresponding to this plan include:

- Avoiding emissions by improving energy and heat efficiency, such as the heat and power cogeneration in Olen, Belgium, which

increases energy efficiency. In addition, our R&D is at the heart of our successful pilot in capturing nitrous oxide. This is the case for our nitric acid plant in Hoboken where we capture nitrous oxide emissions and transform them into nitric acid for reuse in our precious metals refinery.

- Avoiding emissions by ensuring carbon-neutral growth, [such as production at our site in Nysa being 100% powered by renewables](#).
- Replacing emissions by generating renewable electricity across several sites; reducing the need for purchased electricity, piloting circular energy storage projects and securing long-term green power purchase agreements (PPAs). [We actively pursue and sign green PPAs for our largest sites around the world](#), as part of our commitment to meet 100% renewables in Europe and 60% globally by 2025. For more, see [Environment](#).
- Designing out emissions through research and development as part of our R&D roadmap.

Umicore's businesses, strategy and financial planning reflect many climate-related risks and opportunities. Our global footprint and diverse site locations reduce our exposure to physical risks. New sites have been chosen considering proximity to customers, access to skilled workforce, excellent logistics, infrastructure and green energy. The focus of our products and services, our investments in R&D and operational excellence, our policies for collaboration with our suppliers and our [2030 RISE objectives](#) are a few examples of these strategic choices. They are embedded in our ongoing financial planning and decision making through their integration in business planning and the development of the ESG dashboard. Further analysis will be repeated or refined on a recurring basis to identify risks based on current scientific findings.

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Corporate research and development researcher preparing a filter press for an experiment for our battery materials in Olen, Belgium

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Consolidated income statement

Thousands of Euros	Notes	2022	2023
Turnover	F9	25,435,523	18,265,890
Other operating income	F9	184,552	148,513
Operating income		25,620,075	18,414,403
Raw materials and consumables	F9	(22,875,549)	(15,778,905)
Payroll and related benefits	F10	(906,507)	(981,425)
Depreciation and impairments	F9	(328,382)	(351,061)
Other operating expenses	F9	(696,621)	(707,254)
Operating expenses		(24,807,059)	(17,818,645)
Income (loss) from other financial assets	F12	5,651	(5,075)
RESULT FROM OPERATING ACTIVITIES		818,667	590,683
Financial income	F11	7,279	34,736
Financial expenses	F11	(101,719)	(135,435)
Foreign exchange gains and losses	F11	(27,699)	(8,339)
Share in result of companies accounted for using the equity method	F17	13,473	399
PROFIT (LOSS) BEFORE INCOME TAX		710,001	482,044
Income taxes	F13	(137,600)	(104,941)
PROFIT (LOSS) FROM CONTINUING OPERATIONS		572,401	377,103
Profit (loss) of the period		572,401	377,103
of which minority share		2,523	(7,972)
of which Group share		569,878	385,075
(EUR)			
Basic earnings per share from continuing operations	F39	2.37	1.60
Diluted earnings per share from continuing operations	F39	2.37	1.60
Dividend payout per share		0.80	0.80

The notes F1 (p. 203) through Parent company separate summarized financial statements (p. 269) are an integral part of these consolidated financial statements.

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Consolidated statement of comprehensive income

Thousands of Euros	Notes	2022	2023
Profit (loss) of the period from continuing operations		572,401	377,103
Items in other comprehensive income that will not be reclassified to P&L			
Changes due to remeasurements of post employment benefit obligations		92,628	(37,219)
Changes in deferred taxes directly recognized in other comprehensive income		(26,239)	10,134
Items in other comprehensive income that may be subsequently reclassified to P&L			
Changes in other equity investments at FV through OCI reserves		8,047	(7,460)
Changes in cash flow hedge reserves		(49,428)	33,278
Changes in deferred taxes directly recognized in other comprehensive income		11,202	(9,266)
Changes in currency translation differences		18,863	(53,610)
Other comprehensive income from continuing operations	F23	55,073	(64,143)
TOTAL COMPREHENSIVE INCOME FOR THE PERIOD		627,474	312,960
of which Group share		627,018	322,282
of which minority share		456	(9,322)

The deferred tax impact on the consolidated statement of comprehensive income is due to changes in the cash flow hedge reserves for € -9.3 million and in the employee benefit reserves for € 10.1 million.

The movements on exchange differences are mainly related to weaker CNY (€ -37.1 million), KRW (€ -32.7 million) and USD (€ -15.6 million) and the strengthening of the PLN (€ 50.7 million) compared to EUR.

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Consolidated balance sheet

Thousands of Euros	Notes	31/12/2022	31/12/2023
Non-current assets		3,394,075	4,154,536
Intangible assets	F14, F15	343,366	381,041
Property, plant and equipment	F16	2,532,301	3,036,744
Investments accounted for using the equity method	F17	158,943	314,734
Other equity investments	F18	22,165	19,545
Loans granted	F18	2,592	2,444
Trade and other receivables	F20	18,712	29,692
Deferred tax assets	F21	315,996	370,336
Current assets		6,548,297	5,811,134
Loans granted	F18	1,273	249
Inventories	F19	3,393,674	2,850,106
Trade and other receivables	F20	1,830,540	1,357,483
Income tax receivables	F21	82,941	87,806
Cash and cash equivalents	F22	1,239,869	1,515,490
TOTAL ASSETS		9,942,372	9,965,670

Thousands of Euros	Notes	31/12/2022	31/12/2023
Equity of the Group		3,566,050	3,697,430
Group shareholders' equity		3,516,481	3,661,072
Share capital and premiums		1,384,273	1,384,273
Retained earnings		2,526,051	2,715,614
Currency translation differences and other reserves	F23	(127,887)	(177,217)
Treasury shares		(265,956)	(261,598)
Minority interest		49,569	36,358
Non-current liabilities		2,242,010	2,672,282
Provisions for employee benefits	F27	286,476	314,801
Financial debt	F24	1,626,179	2,019,445
Trade and other payables	F25	48,037	95,106
Deferred tax liabilities	F21	30,029	28,741
Provisions	F29, F30	251,289	214,189
Current liabilities		4,134,312	3,595,958
Financial debt	F24	717,259	728,698
Trade and other payables	F25	3,110,059	2,591,416
Income tax payable	F21	261,950	222,803
Provisions	F29, F30	45,044	53,041
TOTAL EQUITY & LIABILITIES		9,942,372	9,965,670

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Consolidated statement of changes in equity

Thousands of Euros	Share capital & premiums	Reserves	Currency translation & other reserves	Treasury shares	Minority interest	Total for continuing operations
Balance at the beginning of 2022	1,384,273	2,151,292	(196,370)	(226,313)	54,392	3,167,274
Result of the period	-	569,878	-	-	2,523	572,401
Other comprehensive income for the period	-	-	57,140	-	(2,067)	55,073
Total comprehensive income for the period	-	569,878	57,140	-	456	627,474
Changes in share-based payment reserves	-	-	11,824	-	-	11,824
Dividends	-	(192,057)	-	-	(5,310)	(197,367)
Transfers	-	(3,054)	(481)	3,535	-	-
Changes in treasury shares	-	-	-	(43,178)	-	(43,178)
Changes in scope	-	(8)	-	-	31	23
BALANCE AT THE END OF 2022	1,384,273	2,526,051	(127,887)	(265,956)	49,569	3,566,050
Result of the period	-	385,075	-	-	(7,972)	377,103
Other comprehensive income for the period	-	-	(62,793)	-	(1,350)	(64,143)
Total comprehensive income for the period	-	385,075	(62,793)	-	(9,322)	312,960
Changes in share-based payment reserves	-	-	14,117	-	-	14,117
Dividends	-	(192,316)	-	-	(3,892)	(196,208)
Transfers	-	(1,435)	(654)	2,089	-	-
Changes in treasury shares	-	-	-	2,269	-	2,269
Other movements	-	(1,768)	-	-	-	(1,768)
Changes in scope	-	7	-	-	3	10
BALANCE AT THE END OF 2023	1,384,273	2,715,614	(177,217)	(261,598)	36,358	3,697,430

The legal reserve of €55.0 million which is included in the retained earnings is not available for distribution. The share capital of the Group as at 31 December 2023 was composed of 246,400,000 shares with no par value.

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Consolidated statement of cash flow

Thousands of Euros	Notes	2022	2023
Profit (loss) from continuing operations		572,401	377,103
Adjustments for profit of equity companies		(13,473)	(399)
Adjustment for non-cash transactions	F34	411,803	304,930
Adjustments for items to disclose separately or under investing and financing cashflows	F34	206,570	188,596
Change in working capital requirement	F34	(342,166)	346,482
Cashflow generated from operations		835,135	1,216,712
Dividend received		12,153	6,110
Tax paid during the period		(216,063)	(209,319)
Government grants received		2,942	29,155
NET OPERATING CASHFLOW	F34	634,167	1,042,658
Acquisition of property, plant and equipment	F16	(458,859)	(807,474)
Acquisition of intangible assets	F14	(32,431)	(77,268)
Acquisition of / capital increase in associates and joint ventures	F17	-	(78,859)
Acquisition of financial assets	F18	-	(4,590)
New loans extended	F18	(2,091)	(662)
Sub-total acquisitions		(493,381)	(968,853)
Disposal of property, plant and equipment		6,126	9,671
Disposal of intangible assets		59	-
Disposal of subsidiaries, associates and joint ventures, net of cash disposed		6,210	9,096
Repayment of loans	F18	212	1,389
Sub-total disposals		12,607	20,156
NET CASHFLOW GENERATED BY (USED IN) INVESTING ACTIVITIES	F34	(480,774)	(948,697)

Thousands of Euros	Notes	2022	2023
Own shares		(43,178)	2,269
Payment of lease liabilities	F24	(20,050)	(20,064)
Interest received		3,913	29,257
Interest paid		(70,164)	(84,661)
New loans and repayments	F24	214,599	398,538
Dividends paid to Umicore shareholders		(192,053)	(192,300)
Dividends paid to minority shareholders		(5,595)	(3,763)
NET CASHFLOW GENERATED BY (USED IN) FINANCING ACTIVITIES	F34	(112,528)	129,276
Effect of exchange rate fluctuations		14,155	19,224
TOTAL NET CASHFLOW OF THE PERIOD		55,020	242,461
Net cash and cash equivalents at the beginning of the period for continuing operations	F22	1,166,316	1,221,335
Net cash and cash equivalents at the end of the period for continuing operations	F22	1,221,335	1,463,796
of which cash and cash equivalents		1,239,869	1,515,490
of which bank overdrafts		(18,534)	(51,694)

The notes [F1 \(p. 203\)](#) through [Parent company separate summarized financial statements \(p. 269\)](#) are an integral part of these consolidated financial statements.

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Notes of the financial statements

General information about the financial statements

The company's consolidated financial statements and the management report prepared in accordance with article 3:33 of the Belgian Companies and Associations Code set forth in the sections labelled [About us \(p. 9\)](#) through [Management Responsibility Statement \(p. 271\)](#) for the year ended 31 December 2023 were authorized for issue by the Supervisory Board on 8 March 2024. They have been prepared in accordance with the legal and regulatory requirements applicable to the consolidated financial statements of Belgian companies. They include those of the company, its subsidiaries and its interests in companies accounted for using the equity method.

F1 Basis of preparation

The Group presents its annual consolidated financial statements in accordance with all International Financial Reporting Standards (IFRS) adopted by the European Union (EU).

The consolidated financial statements are presented in thousands of euros, rounded to the nearest thousand, and have been prepared on a historical cost basis, except for those items that are measured at fair value. All figures shown are rounded, so minor discrepancies may arise within the tables due to rounding of these amounts.

Umicore is a Société Anonyme - Naamloze vennootschap company with its registered office in Brussels, Belgium at Rue du Marais 31 (Broekstraat 31) B - 1000 Brussels (Belgium) and has following LEI code 529900F3AIQECS8ZSV61 .

Umicore operates its business from Belgium. Umicore NV-SA is the ultimate parent company of the Umicore Group.

Umicore Group did not change his name compared to previous year.

Umicore is the circular materials technology Group. It focuses on application areas where its expertise in materials science, chemistry and metallurgy makes a real difference. Its activities are organised in three business groups (four as from January 1st 2024): Catalysis, Energy & Surface Technologies and Recycling. Each business group is divided into market-focused business units offering materials and solutions that are at the cutting edge of new technological developments and essential to everyday life. Umicore generates the majority of its revenues and dedicates most of its R&D efforts to clean mobility materials and recycling. Umicore's overriding goal of sustainable value creation is based on an ambition to develop, produce and recycle materials in a way that fulfils its mission: materials for a better life. Umicore's industrial and

commercial operations as well as R&D activities are located across the world to best serve its global customer base.

F2 Accounting policies

2.1 Principles of consolidation

2.1.1 Subsidiaries

Subsidiaries are all entities over which the Group has control.

The Group controls an entity when the Group is exposed, or has rights, to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Subsidiaries are fully consolidated from the date the Group obtains control until the date control ceases. The Group applies the purchase method of accounting for business combinations.

Note F5 lists all significant subsidiaries of the Group at the closing date.

Inter-company transactions, balances and unrealized gains or losses on transactions between group companies are eliminated. When necessary, amounts reported by subsidiaries have been adjusted to conform with the Group's accounting policies. The lines "other operating income" and "other financial income" of the income statement include, depending on the nature of the underlying transactions, the currency translation differences due to intercompany transactions to be translated from the transaction currency into functional currency which may differ from euro for some entities and regions.

IFRS 5 (Non-current Assets Held for Sale and Discontinued Operations) does not specify the treatment for the elimination of inter-company transactions between discontinued and continued operations. As an accounting policy Umicore opts not to eliminate the intercompany transactions within the income statement between the discontinued and continued operations. For the balance sheet presentation however, IFRS 10 (Consolidated Financial Statements) overrides IFRS 5 and requires all intercompany balances to be eliminated including those between the discontinued and continued operations.

2.1.2 Joint arrangements

The Group applies IFRS 11 to all joint arrangements. Under IFRS 11 investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations each investor. The Group has assessed the nature of its joint arrangements and determined them to be joint ventures. Joint ventures are accounted for using the equity method. Under the equity method of

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accounting, interests in joint ventures are initially recognized at cost and adjusted thereafter to recognize the Group's share of the post-acquisition profits or losses and movements in other comprehensive income.

When the Group's share of losses in a joint venture equals or exceeds its interests in the joint ventures (which includes any long-term interests that, in substance, form part of the Group's net investment in the joint ventures), the Group does not recognize further losses, unless it has incurred obligations or made payments on behalf of the joint ventures.

Unrealized gains on transactions between the Group and its joint ventures are eliminated to the extent of the Group's interest in the joint ventures. Unrealized losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of the joint ventures have been changed where necessary to ensure consistency with the policies adopted by the Group.

2.1.3 Investments in associates and joint ventures

The Group has investments in joint ventures when it shares joint control with other investors, and it has rights to the net assets of these joint ventures. Associates are all entities over which the Group has significant influence but not control, generally accompanying a shareholding of between 20% and 50% of the voting rights. Investments in associates and joint ventures are accounted for using the equity method of accounting. Under the equity method, the investment is initially recognized at cost, and the carrying amount is increased or decreased to recognize the investor's share of the profit or loss of the investment after the date of acquisition.

The Group's share of post-acquisition profit or loss is recognized in the consolidated income statement in the line "Share in result of companies accounted for using the equity method", and its share of post-acquisition movements in other comprehensive income is recognized in other comprehensive income with a corresponding adjustment to the carrying amount of the investment. Investments in associates and joint ventures are presented as non-current asset on the balance sheet on the line "Investments accounted for using the equity method".

Profits and losses resulting from upstream and downstream transactions between the Group and its associate are recognized in the Group's financial statements only to the extent of unrelated investor's interests in the associates. Unrealized losses are eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of associates have been changed where necessary to ensure consistency with the policies adopted by the Group. Dilution gains and losses arising in investments in associates are recognized in the income statement.

2.2 Principles of segmentation

Note F7 provides the Group's segment information, in line with IFRS 8. Umicore is organized in business units. Operating segments under IFRS 8 at Umicore are differentiated by their growth drivers in the areas of Catalysis, Energy & Surface Technologies, and Recycling.

The Catalysis segment provides automotive catalysts for gasoline and diesel light and heavy-duty diesel applications, including on-road and non-road vehicles. The business group also offers stationary catalysis for industrial emissions control and produces precious metals based compounds and catalysts for use in fuel cell applications and in the pharmaceutical and fine chemicals industries.

The Energy & Surface Technologies segment is focused on products that are found in applications used in the production and storage of clean energy and in a range of applications for surface technologies that bring specific properties and functionalities to end products. All the activities offer a closed loop service for the customers.

The Recycling segment treats complex waste streams containing precious and other specialty metals. The operations can recover 20 of these metals from a wide range of input materials ranging from industrial residues to end-of-life materials. Other activities include production of precious metals-based materials that are essential for applications as diverse as high-tech glass production, electrics and electronics.

Corporate covers corporate activities, shared operational functions and the Group's Research, Development & Innovation unit. Umicore's minority share in Element Six Abrasives and Ieqsa (disposed in August 2023) is also included in Corporate.

Operating segments are reported in a manner consistent with the internal reporting provided to the supervisory board and the management board.

The segment results, assets and liabilities include items directly attributable to the segment as well as those elements that can reasonably be allocated to a segment.

The pricing of inter-segment sales is based on an arm's length transfer pricing system. In the absence of relevant market price references, 'cost plus' mechanisms are used.

Associate and joint ventures companies are allocated to the business group with the closest fit from a market segment perspective.

2.3 Inflation accounting

For the reported period, there is one subsidiary in the Umicore Group having a functional currency belonging to a hyperinflationary economy in Argentina. However, in view of significance to the Group, this is not material for IAS 29 to be applied.

2.4 Foreign currency translation

Functional currency: items included in the financial statements of each entity in the Group are measured using the currency that best reflects the economic substance of the underlying events and circumstances

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relevant to that entity. To consolidate the Group and each of its subsidiaries in euros, the financial statements are translated as follows:

- Assets and liabilities at the year-end rate as published by the European Central Bank or by the Central Bank of Brazil for the Brazilian Real.
- Income statements at the average exchange rate for the year.
- The components of shareholders' equity at the historical exchange rate.

Note F6 presents the rates applied for the period.

Exchange differences arising from the translation of the net investment in foreign subsidiaries, joint ventures and associated entities at the period-end exchange rate are recorded as part of the shareholders' equity under "currency translation differences".

When a foreign operation is partially disposed of or sold, exchange differences that were recorded in equity are recognized in the income statement as part of the gain or loss on sale.

2.5 Foreign currency transactions

Foreign currency transactions are recognized during the period in the functional currency of each entity at exchange rates prevailing at the date of transaction. The date of a transaction is the date at which the transaction first qualifies for recognition. For practical reasons a rate that approximates the actual rate at the date of the transaction is used for some operations, for example, an average rate for the week or the month in which the transactions occur.

Subsequently, monetary assets and liabilities denominated in foreign currencies are translated at the closing rate at the end of the reporting period.

Gains and losses resulting from the settlement of foreign currency transactions, and from the translation of monetary assets and liabilities denominated in foreign currencies, are recognized in the income statement as a financial result.

In order to hedge its exposure to certain foreign exchange risks, the Company has entered into certain forward contracts (see Note F2.22, Financial instruments).

2.6 Intangible assets & equity transaction expenses

2.6.1 Equity transaction expenses

Expenses for formation and capital increase are deducted from the share capital.

2.6.2 Goodwill

Goodwill represents the excess of the cost of an acquisition of a subsidiary, associate or jointly controlled entity over the Group's share in the fair value of the identifiable assets and liabilities of the acquired entity at the date of acquisition. Goodwill is recognized at cost less any accumulated impairment losses.

Goodwill from associates and joint ventures is presented in the balance sheet on the line "Investments accounted for under the equity method", together with the investment itself.

Goodwill and fair value adjustments arising on the acquisition of a foreign entity are treated as local currency assets and liabilities of the foreign entity and are translated at the closing rate.

To assess impairment, goodwill is allocated to a cash generating unit (CGU). At each balance sheet date, these CGUs are tested for impairment, meaning an analysis is performed to determine whether the carrying amount of goodwill allocated to the CGU is fully recoverable.

If the carrying amount is not fully recoverable, an appropriate impairment loss is recognized in the income statement. These impairment losses are never reversed.

The excess of the Group's interest in the fair value of the net identifiable assets acquired over the cost of acquisition is recognized in the income statement immediately.

2.6.3 Research and development

Research costs related to the prospect of gaining new scientific or technological knowledge and understanding are recognized in the income statement as an incurred expense.

Development costs are defined as costs incurred for the design of new or substantially improved products and for the processes prior to commercial production or use. They are capitalized if, among others, the following conditions are met:

- the intangible asset will give rise to future economic benefits, or in other words, the market potential has been clearly demonstrated.
- the expenditures related to the process or product can be clearly identified and reliably measured.

In case it is difficult to clearly distinguish between research or development costs, the costs are considered as being research. If development costs are capitalized they are amortized using a straight-line method over the period of their expected benefit, in general five years.

2.6.4 CO₂ emission rights

Within the framework of the Kyoto protocol, a third emission trading period started, covering 2013-2020 and the fourth phase started on January 1, 2021 (till 2030). Therefore, the Flemish Government granted

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emission rights to the Flemish sites of certain companies, including Umicore. Each year, at the end of February, two-thirds of these emission rights is put on an official registry account.

Emission rights are recognized as intangible assets at cost (purchasing value) if purchased from a third party or at fair value if they are granted by the state. The emission rights shall not be reported directly in the income statement but deferred until the moment they are used. Emission rights owned are subject to impairment testing but are not depreciated. If, at a certain closing date, it appears that the closing market price is below the carrying value, an impairment is booked.

At each closing date, the Group estimates the actual use of rights for the period and recognizes a provision for the rights that will have to be restored to the Government for the emission of the past year. The charge related to the impairment loss or the recognition of provisions are compensated in the income statement by the release of deferred revenue. Historically, Umicore owns the required rights to ensure its normal operating activities.

2.6.5 Other intangible assets

All the following types are recorded at historical cost, less accumulated amortization and impairment losses:

- Concessions, patents, licenses: are amortized over the period of their legal protection with a minimum of 5% (in general over 5 years).
- Customer portfolios: are typically amortized over a period of five years.
- ERP software is typically amortized over a period of ten years.
- Smaller software is typically amortized over a period of five years.

Umicore has currently no intangible asset with an indefinite useful life.

2.7 Property, plant and equipment

Property, plant and equipment ("PPE") is recorded at historical cost, less accumulated depreciation and impairment losses. Cost includes all direct costs and appropriate allocation of indirect costs incurred to bring the asset to working condition for its intended use.

Borrowing costs that are directly attributable to investments are capitalized together with the costs of the assets in accordance with IAS 23. All borrowing costs that cannot be linked directly to an investment are recognized as expenses in the period when incurred.

The straight-line depreciation method is applied through the estimated useful life of the assets.

Useful life is the period of time over which an asset is expected to be used by the company.

Repair and maintenance costs are expensed in the period in which they are incurred, if they do not increase the future economic benefits of the asset. Otherwise they are classified as separate components of items of property, plant and equipment. Those major components of items of property, plant and equipment that are replaced at regular intervals are accounted for as separate assets as they have useful lives different from those items of property, plant and equipment to which they relate.

Umicore's PPE, being complex and highly customized industrial assets, typically do not have an individual resale value if put outside the overall context of the operations. Therefore, no residual value is taken into account when determining the depreciable value.

The typical useful life per main type of property, plant and equipment are as per table below. For material newly acquired or constructed assets, the useful life is separately assessed at the moment of the investment request and can deviate from the above standards.

Management determines the estimated useful lives and related depreciation charges for property, plant and equipment. Management uses standard estimates based on a combination of physical durability and projected product life or industry life cycles. These useful lives could change significantly as a result of technical innovations, market developments or competitor actions. Management will increase the depreciation charge where useful lives are shorter than previously estimated, or it will impair technically obsolete or non-strategic assets that have been abandoned or sold.

Land use rights are part of the Property, Plant and Equipment and are typically amortized over the contractual period.

	years
Land	Non-depreciable
Buildings	
- Industrial buildings	20
- Improvements to buildings	10
- Offices and laboratories	40
Plant, machinery and equipment	10
- Furnaces	10 - 15
- Small equipment	5
Furniture and vehicles	
- Vehicles	5
- Mobile handling equipment	7
- Computer equipment	3 - 5
- Furniture and office equipment	5 - 10

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2.8 Lease

At the commencement date of a lease, the Group recognizes a lease liability (i.e. a liability to make lease payments), and a right-of-use asset (i.e. an asset representing the right to use the underlying asset over the lease term). Right-of-use assets are presented in property, plant and equipment.

The lease liabilities are recognized at the present value of the remaining lease payments (see note F24) in non-current liabilities or in current liabilities depending on the due date.

The right-of-use asset is depreciated over the term of the lease (see note F16). Interest expense is recognized on the lease liability (see note F11). The lease liability is remeasured upon the occurrence of certain events (e.g. a change in the lease term or a change in future lease payments resulting from a change in index). Such remeasurements of the lease liability will generally be recognized as an adjustment to the right-of-use asset.

The Group applies the lease recognition exemptions for short-term leases and leases for which the underlying asset is of low value. The Group elects, by class of underlying asset, not to separate non-lease components from lease components and instead accounts for each lease component and any associated non-lease component as one single lease component.

The Group leases metals to and from third parties for specified periods for which the Group receives or pays fees. Metal lease contracts are typically concluded for less than one year.

The metal leases from and to third parties are still reported as off-balance sheet commitments, as not in the scope of IFRS 16.

2.9 Other equity investments, loans and non-current receivables

All movements in other equity investments, loans and non-current receivables are accounted for at trade date.

Financial assets that are equity instruments are measured at fair value. Subsequent fair value recognition through profit or loss or other comprehensive income ("OCI") is determined at moment of initial recognition.

Changes through OCI are recognized in the line "changes in other equity investments at fair value ("FV") through OCI reserves" of the consolidated statement of comprehensive income. Gain and losses from the measurement of equity investments through the consolidated statement of comprehensive income are never recycled to the income statement but instead reclassified to retained earnings on disposal. For investments quoted in an active market, the quoted market price is the best measure of fair value. Interest in companies that are not material to the consolidated financial statements and for which reasonable fair

values can not be reliably determined without undue cost or effort are measured at historical cost less any impairment.

Loans and non-current receivables are carried at amortized cost less any impairment.

All impairments are recorded on a separate account and are netted with the carrying amounts when all chances of recovery are depleted.

2.10 Impairment of non-financial assets

Property, plant and equipment and other non-current assets, including intangible assets and financial assets not held for trading, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. If any such indication exists, the recoverable amount of the asset is estimated.

The recoverable amount is the higher of an asset's net selling price and value in use. To estimate the recoverable amount of individual assets the company often determines the recoverable amount of the cash-generating unit (CGU) to which the asset belongs.

Whenever the carrying amount of an asset exceeds its recoverable value, an impairment loss is recognized as an expense immediately.

A reversal of impairment losses is recognized when there is an indication that the impairment losses recognized for the asset or for the CGU no longer exist or have decreased. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized.

2.11 Inventory

Inventories are classified as:

1. Base products (gross values)
 - a. Permanently tied up metal inventories (not hedged)
 - b. Commercially available metal inventories (hedged)
 - c. Other base products inventories (not hedged)
2. Consumables (gross values)
3. Write-down and impairments
4. Advances paid
5. Contracts in progress

Inventories are carried at cost. Cost comprises direct purchase or manufacturing costs and an appropriate allocation of overheads.

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Base products (gross values) are mostly metal-containing products on which Umicore is exposed to price fluctuation risks. Most of these inventories follow Umicore’s metal accounting rules and are classified in two inventory categories that reflect their specific nature and business use: the permanently tied up metal inventories and the commercially available metal inventories. The latter inventories are subject to an active and systematic hedging process to minimize the effects of market price fluctuations on the financial performance of the Group. Conversely, the permanently tied up metal inventories are typically not hedged. Next to these categories, the other base product inventories consist of materials used in the manufacturing processes to obtain the marketable basis products. These inventories are also typically not hedged. More details on the hedging mechanisms can be found in note F3.

Individualized or weighted average valuation is applied on the initial at cost valuation per category of inventory complemented with the following fair value principles:

- On the permanently tied up metal inventories: In view of their permanent nature, Umicore opted to apply the measurement and recognition rules of Property, Plant and Equipment (IAS 16) and Impairment of Assets (IAS 36). The valuation is based on the “historical cost less any accumulated depreciation and accumulated impairment” principle. As the inventories are considered to have an unlimited useful life, no depreciations are applied. Instead they are subject to Umicore’s annual impairment testing of the CGUs carrying these inventories. Any impairments booked are classified under the caption Write-downs & Impairments.
- On the commercially available metal inventories: These inventories are economically hedged. For the part of the inventory where Umicore obtained IFRS 9 Fair Value hedge accounting, Umicore applies the mark-to-market valuation principles. When IFRS 9 Fair Value hedge accounting cannot be obtained (see note F2.22.1 transactional risks – fair value hedging), LOCOM (lower of cost or net realizable value, meaning the estimated selling price less the estimated costs of completion and the estimated cost necessary to make the sale) is applied.
- On the other base products inventories, LOCOM and slow moving principles are applied. Any write-downs booked are classified under the caption Write-downs & Impairments.

Consumables (gross values) are products that are not used in a direct way in the manufacturing processes (for example: packaging material). They are valued using the weighted-average cost method and are subject to LOCOM. Any write-downs booked are classified under the caption Write-downs & Impairments.

Write-downs & Impairments are any impairments or write-downs booked on the Base products and Consumables which are captured under this line item.

Advances paid are down-payments on transactions with suppliers for which the physical delivery has not yet taken place and are booked at nominal value.

Contracts in progress are valued using the percentage-of-completion method.

2.12 Trade and other receivables

Trade and other receivables are measured at amortized cost, i.e. at the net present value of the receivable amount. Unless the impact of discounting is material, the nominal value is taken. Receivables are written down for irrecoverable amounts. All write-downs are recorded on a separate account and are netted with the carrying amounts when all chances of recovery are depleted.

Trade receivables of which substantially all the risks and rewards have been transferred are derecognized from the balance sheet. The positive fair value of derivative financial instruments is included under this heading.

Trade and other receivables are subject to an impairment methodology, referred to as the Expected Credit Loss (ECL) model, measuring the expected credit losses based on shared credit risk characteristics. Umicore has established an allowance matrix based on different customer and sector ratings, ageing balances, macro-economic and regional factors and historical loss patterns.

The Group may undertake certain linked contracts to sell or buy metal and commit to repurchase or sell the metal in the future. An asset representing the metal which the Group has committed to sell or a liability representing the obligation to repurchase the metal are recognized in trade and other receivables or trade and other payables, respectively. Accordingly, principal cash flows in respect of sale and repurchase agreements are shown as cash flows from operating activities in the cash flow statement rather than cash flows from financing activities as long the financing is short term in time and the underlying transactions are not rolled over. Consistently interest paid and received are shown as cash flows from operating activities and presented as other income in the income statement in line with lease and factoring fees. No revenues are recognized in respect of the sale leg or costs are recognized in respect of the purchase leg if it regards the same metals and quantities engaged with the same party.

2.13 Cash and cash equivalents

Cash includes cash-in-hand and cash with banks. Cash equivalents are short-term, highly liquid investments that are readily convertible into known amounts of cash, have maturity dates of three months or less and are subject to an insignificant risk of change in value.

These items are carried in the balance sheet at nominal value or amortized cost. Bank overdrafts are included in the current liabilities on the balance sheet.

2.14 Share capital and retained earnings

A. Repurchase of own shares: When the company purchases some of its own shares, the consideration paid, including any attributable transaction costs net of income taxes, is deducted from the total shareholders’ equity as treasury shares. No gain or loss shall be recognized in profit or loss on the

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purchase, sale, issue or cancellation of own shares. When such shares are subsequently sold or reissued, any consideration received is included in shareholders' equity.

B. Incremental costs directly attributable to the issue of new shares are shown in equity as a deduction from the proceeds of the issue, net of tax.

C. Dividends of the parent company payable on ordinary shares are only recognized as a liability following approval by the shareholders.

2.15 Minority interests

Minority interests represent a portion of the fair value of identifiable assets and liabilities recognized upon acquisition of a subsidiary that is attributable to third parties, together with the appropriate portion of subsequent profits and losses.

In the income statement, the minority share in the Group's profit or loss is presented separately from the Group's consolidated result.

2.16 Provisions

Provisions are recognized in the balance sheet when:

- There is a present obligation (legal or constructive) as a result of a past event.
- It is probable that an outflow of resources will be required to settle the obligation.
- A reliable estimate can be made on the amount of the obligation.

A constructive obligation is an obligation that derives from company actions where, by an established pattern of past practice or published policies, the company has indicated that it will accept certain responsibilities and, as a result, the company has created a valid expectation that it will discharge those responsibilities.

The amount recognized as a provision is the best estimate of the expenditure required to settle the present obligation at the end of the reporting period and taking into account the probability of the possible outcome of the event. Where the effect of the time value of money is material, the amount of a provision is the present value of the expenditure expected to be required to settle the obligation. The result of the yearly discounting of the provision, if any, is accounted for as a financial result.

The main types of provision are the following:

2.16.1 Provisions for employee benefits (See note F2.17 - Employee benefits)

2.16.2 Environmental obligations

Environmental provisions are based on legal and constructive obligations from past events, in accordance with the company's environmental approach and applicable legal requirements.

The full amount of the estimated obligation is recognized at the moment the event occurs.

When the obligation is production/activity related, the provision is recognized gradually depending on normal usage/production level.

2.16.3 Other Provisions

These include provisions for litigation, onerous contracts, warranties, exposure to equity investments and restructuring. A provision for restructuring is recognized when the company has approved a detailed and formal restructuring plan and the restructuring has either commenced or has been announced publicly before the end of the reporting period. Any restructuring provision only includes the direct expenditure arising from the restructuring which is necessarily entailed and is not associated with the ongoing activities of the Company.

2.17 Employee benefits

2.17.1 Short-term employee benefits

These include wages, salaries and social security contributions, paid annual leave and sick leave, bonuses and non-monetary benefits, and are taken as an expense in the relevant period.

All company managers are eligible for bonuses that are based on indicators including personal performance and key financial targets. The amount of the bonus is recognized as an expense, based on an estimation made at the end of the reporting period.

2.17.2 Post-employment benefits (pensions, medical care)

The company has various pension and medical care schemes in accordance with the conditions and practices of the countries it operates in. The schemes are generally funded through payments to insurance companies or trustee-administered funds.

2.17.2.1 Defined benefit plans

The company has accounted for all legal and constructive obligations both under the formal terms of defined benefit plans and under the company's informal practices.

The amount presented in the balance sheet is based on actuarial calculations (using the projected unit credit method) and represents the present value of the defined benefit obligations netted with the fair value of the plan assets.

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The past service costs are immediately recognized in the income statement since IAS 19 revised.

All remeasurements as a result of changes in the actuarial assumptions of post-employment defined benefit plans are recognized through other comprehensive income (OCI) in the period in which they occur and are disclosed in the statement of comprehensive income as post-employment benefit reserves.

In Belgium, in line with the Belgian legislation applicable to 2nd pillar pension plans (so-called “Law Vandenbroucke”), all Belgian Defined Contribution plans, for which the legal minimum guaranteed return is applicable have to be considered under IFRS as Defined Benefit plans. Liabilities and costs of these plans are therefore calculated following the Projected Unit Credit Method.

In Germany three defined contribution pension plans exist which are externally financed via the “Pensionskasse Degussa” (PKD), the support fund “Unterstützungskasse Degussa” (RUK) or the insurer “Allianz”. In recent years, due to the low interest rate environment, there is a risk that the required adjustments of pensions paid by PKD and RUK cannot be fully borne by PKD or RUK. In case of such shortfalls, PKD and RUK would call upon Umicore to contribute the necessary extra funding, which could lead to an additional defined benefit pension obligation plans. Management applied a best estimate method to calculate this obligation.

2.17.2.2 Defined contribution plans

The company pays contributions to publicly or privately administered insurance plans.

The payments are recognized as expenses as they fall due and as such are included in personnel costs.

2.17.3 Other long-term employee benefits (jubilee premiums)

These benefits are accrued for their expected costs over the period of employment using an accounting methodology similar to that for defined benefit pension plans. These obligations are in general valued annually by independent qualified actuaries. All remeasurements as a result of changes in the actuarial assumptions are immediately recognized in the income statement.

2.17.4 Termination benefits (pre-retirement plans, other termination obligations)

These benefits arise as a result of the company’s decision to terminate an employee’s employment before the normal retirement date or of an employee’s decision to accept voluntary redundancy in exchange for those benefits. When they are reasonably predictable in accordance with the conditions and practices of the countries the company operates in, future obligations are also recognized.

These benefits are accrued for their expected costs over the period of employment, using an accounting methodology similar to that for defined benefit pension plans. In general, these obligations are valued

annually by independent qualified actuaries. All remeasurements as a result of changes in the actuarial assumptions are immediately recognized in the income statement.

2.17.5 Equity and equity-related compensation benefits (share-based payments IFRS 2)

Different stock option and share programs allow company employees and company senior management to acquire or obtain shares of the company.

Within the Group there are three types of share-based payment plans that qualify as equity-settled:

- Stock options
- Shares
- Performance Share Unit (“PSU”)

The stock option or share exercise price equals the market price of the (underlying) instrument at the date of the grant. When the stock options are exercised, shares are delivered to the beneficiaries from existing own shares. For the share programs, shares are delivered to the beneficiaries from existing own shares. In both cases, the equity is increased by the amount of the proceeds received corresponding to the exercise price.

The stock options and shares are typically vested at the moment of the grant and their fair value is recognized as an employee benefit expense with a corresponding increase in equity as share-based payment reserves. For the options, the expense to be recognized is calculated by an actuary, using a valuation model which takes into account all features of the stock options, the volatility of the underlying stock and an assumed exercise pattern.

As long as the options granted have not been exercised, their value is reported in the Statement of Changes in Equity as ‘share-based payments reserve’. The value of the options exercised during the period is transferred to ‘retained earnings’.

The PSU's vest after three years, depending on the achievement of pre-set performance goals and provided continued service on the date of vesting. The objectives are defined by the Supervisory Board upon proposal of the Nomination and Remuneration Committee and include measurable and sustainable targets. The fair value of PSU's corresponds to the closing share price at grant date. The expense is recognized as employee benefit expense during the vesting period (i.e. the period in which the service and, where applicable, the performance conditions are fulfilled). The cumulative expense recognized for the PSU plans at each reporting date reflects the already expired portion of the vesting period and the Group’s best estimate of the number of awards that will ultimately vest. The expense or credit in the statement of income for a period represents the movement in cumulative expense recognized as at the beginning and end of that period.

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2.17.6 Presentation

The impact of employee benefits on results is booked under operating results in the income statement, except for the interest and discount rate impacts which are classified under financial results.

2.18 Financial liabilities

All movements in financial liabilities are accounted for at trade date.

Borrowings are initially recognized as proceeds received, net of transaction costs.

Subsequently they are carried at amortized cost using the effective interest rate method.

Amortized cost is calculated by taking into account any issue costs, and any discount or premium on issue. Any differences between cost and redemption value are recognized in the income statement upon redemption.

Financial debt also contains the lease liability as per IFRS 16 (see note F2.8).

The convertible bond is considered as a compound instrument. It contains a liability and a equity component. This instrument is convertible into shares at the option of the holder. Each component is, therefore, accounted for separately. The liability element is determined by fair valuing the cash flows excluding any equity component. The residual is assigned to equity. The equity component is not remeasured, nor at conversion nor at maturity. Note, finally, that the convertible bond is a zero coupon instrument.

2.19 Trade and other payables

Trade payables are measured at amortized cost, i.e. at the net present value of the payable amount. Unless the impact of discounting is material, the nominal value is taken.

The Group may undertake certain linked contracts to sell or buy metal and commit to repurchase or sell the metal in the future. An asset representing the metal which the Group has committed to sell or a liability representing the obligation to repurchase the metal are recognized in trade and other receivables or trade and other payables, respectively. Accordingly, principal cash flows in respect of sale and repurchase agreements are shown as cash flows from operating activities in the cash flow statement rather than cash flows from financing activities as long the financing is short term in time and the underlying transactions are not rolled over. Consistently interest paid and received are shown as cash flows from operating activities and presented as other income in the income statement in line with lease and factoring fees. No revenues are recognized in respect of the sale leg or costs are recognized in respect of the purchase leg if it regards the same metals and quantities engaged with the same party.

The negative fair value of derivative financial instruments is included under this heading.

2.20 Income taxes

Taxes on profit or loss of the year include current and deferred tax. Such taxes are calculated in accordance with the applicable tax regulations in effect in each country the company operates in.

Current tax is the expected tax payable on the taxable income of the year, using tax rates enacted at the end of the reporting period, and any adjustment to tax payable (or receivable) in respect of previous years.

The tax payable is determined based on tax laws and regulations that apply in each of the numerous jurisdictions in which the Group operates. The income tax positions taken are considered by the Group to be supportable and likely to withstand challenge from tax authorities. However, it is accepted that some of the positions can be uncertain and include interpretation of complex tax laws.

Tax provisions are recognized where the precise impact of the tax laws and regulations on taxes payable with respect to profit arising in those jurisdictions is unclear and could trigger a tax adjustment represented by a future flow of funds to a tax authority or an adjustment to a deferred tax asset. Uncertain tax positions are assessed periodically, following the application of IFRIC 23. Uncertainties are considered individually or collectively based on the approach providing the best prediction of the resolution of the uncertainties with the tax authorities, assuming that the tax authority will examine the position (if entitled to do so) and will have full knowledge of all the relevant information. Uncertain Tax Positions or UTPs (or groups of UTPs) are recognized using either the most likely amount or the expected value, depending on which is thought to give a better prediction of the resolution of each (group of) UTP(s), to reflect the likelihood of an adjustment being realized and sustained upon examination. The estimation and judgements in relation to uncertain tax positions are reassessed if the facts and circumstances on which those estimates and judgements were based have changed or as a result of new information that affects the initial assessments. In the assessment and measurement of the Uncertain tax positions, the Group considers the statute of limitation applicable in each jurisdiction as well as any additional interest and penalties that may become due.

Deferred taxes arise due to temporary differences between the tax base of assets and liabilities and their carrying amounts in the financial statements as well as for tax loss carryforwards and unused tax credits. The deferred taxes are measured using the corporate income tax rate enacted or substantially enacted at the end of the reporting period in the countries the Company operates in.

Deferred tax assets are only recognized to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilized.

Deferred tax assets and liabilities are offset against each other and presented on a net basis if they relate to income taxes levied by the same taxation authority on the same taxable entity or consolidated tax filing group.

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Deferred tax liabilities are recognized for differences between the proportional IFRS equity and the tax base of the investment in a consolidated subsidiary if a reversal of these differences is expected in the foreseeable future. Deferred tax liabilities are recognized for dividend distributions planned for the following year if these distributions lead to a reversal of temporary differences.

2.21 Revenue recognition

2.21.1 Revenue recognition from contracts with customers

Despite the complexity of several processes within each business unit, the performance obligations are rather straightforward, those being:

- **Catalysis:** the delivery of the goods in accordance with contract specifications. These specifications have been predefined and validated through samples. This latter is not considered as a significant stream for further analysis under IFRS 15.
- **Recycling:** the return of the refined metals back to the client in accordance with the contract either in their pure metal content or as part of a (semi)finished product and the sale of metal (including surplus metal recovered) towards the customers.
- **Energy and Surface Technologies:** the delivery of the products according to specification agreed in the sales order received.

Umicore has carefully considered the satisfaction of the performance obligation and concludes that for sales within Catalysis the revenue is recognized at a point of time when the control transfers to the customer. Despite the products being customized, the considerations for over time have not been met given that the customer does not control the production process nor has the Group the entitlement to be paid prior to delivery of the goods. The control is therefore transferred based upon the usual delivery terms (incoterms) and the customer accepting the goods upon delivery.

For sales within Recycling, the vast majority of revenue is recognized at a point in time when the control of the refined products or metal is back in the hands of the customers (refinery) or in the hands of the customers (sale of metal, including surplus metal recovered), embarked by the delivery.

For sales within Energy and Surface Technologies the revenue is recognized at a point in time when the control is transferred to the customer, this moment being driven by the delivery of the products according to the incoterms.

No revenue is recognized for the sale leg of contracts under which the Group sells or buys precious metal and commits to repurchase or sells the metal in the future.

Some of the contracts do contain commercial discounts and rebates, however frequency is relatively low, and magnitude is not significant. If applicable, these are recognized in the same period the sale is established.

There are no additional warranty agreements sold to clients on top of legal requirements, therefore these are not considered as a separate performance obligation.

Consequently, the transaction price identified within the agreement is allocated in full to the performance obligation.

There are no significant contract balances where the Group has performed the performance obligation for which no billing occurred yet. Advance payments for long term product supply agreements for which the performance obligation has not been satisfied are recognized in non-current trade payables if the performance obligation will occur more than 12 months after the end of the reporting period. An accretion expense, representing the time value of the upfront deposit, is recognized in financial expense. The revenue from the advance payment is recognized as the specific product identified in the contract is delivered.

The revenue from contracts with customers is further detailed in note F7 and F9.

The assessment in view of impairment losses is captured under the expected credit loss model as detailed in note F20.

2.21.2 Government grants

A government grant is accounted for in the balance sheet initially as deferred income when there is reasonable assurance that it will be received and that the company will comply with the conditions attached to it. Grants are recognized in the income statement over the period necessary to match them with the costs they are intended to compensate.

2.22 Financial instruments

The Group uses derivative financial and commodity instruments primarily to reduce the exposure to adverse fluctuations in foreign exchange rates, commodity prices, interest rates and other market risks. The Group uses mainly spot and forward contracts to cover the metal and currency risk, and swaps to hedge the interest rate risk. The operations carried out on the futures markets are not of a speculative nature.

2.22.1 Transactional risks – fair value hedging

Derivative financial and commodity instruments are used for the protection of the fair value of underlying hedged items (assets, liabilities and firm commitments) and are recognized initially at fair value at trade date. The hedged items (physical commitments and commercially available inventory, primarily) are, under Umicore's economical hedging policies, initially valued at fair value by applying mark-to-market.

Where possible Umicore documents hedge accounting according to the criteria set out in IFRS 9. The bottom layer or the net position approach for the fair value hedge on groups of closed portfolios of

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foreign exchange risk and commodity risk exposures are applied. Under the bottom layer approach, a layer representing the nominal amount of an exposure that has historically been present on a constant and continuous basis is defined.

This layer is further split into smaller unit of accounts, sublayers, which are designated as hedged items. The sublayers are then hedged by hedging instruments that are designated as hedging multiples of such sublayers.

Under the net position approach, hedging is applied based on a group of items with offsetting risk positions, the net position being the hedged item hedged by a hedging instrument.

In both approaches, it regards closed hedged portfolios in which items cannot be added, removed or replaced without treating each change as the transition to a new portfolio. In both approaches, the exposures cover a group of both on balance and off balance foreign exchange and commodity positions, that is, either trade payables, inventories and purchase commitments or trade receivables and sales commitments exposed to the variability of foreign currencies or commodity prices.

In the absence of reaching IFRS 9 hedge accounting as the bottom layer or net position criteria are not met or when no market-based derivatives are available, Umicore recognizes the hedged items at cost. Since under Umicore economical hedging policy, all transactional hedging positions are marked to market for operational risk monitoring purposes, this consists in reversing any positive fair value on these hedged items to keep them at cost (in case of inventories) or off-balance (in case of commitments). Hedges in this category are labelled as economical hedges and are not considered speculative instruments.

When there is a consistent practice of trading of commodities through the use of commodity contracts by a dedicated subsidiary or a cash generating unit (CGU) of the Group and by which the entity takes delivery of the underlying commodity to sell it within a short period after delivery for the purpose of generating a profit from short-term fluctuations in price or trading margins, the inventory is valued at fair value through the income statement and the related physical and / or commodity commitments are classified as derivatives and measured at fair value through the income statement.

2.22.2 Structural risks – cash flow hedging

Derivative financial and commodity instruments used for the protection of future cash flows are designated as hedges under cash-flow hedge accounting. The effective portion of changes in the fair value of hedging instruments which qualify as cash flow hedges are recognized in the shareholders equity as hedging reserves until the underlying forecasted or committed transactions occur (i.e. affect the income statement). At that time the recognized gains and losses on the hedging instruments are transferred from equity to the income statement.

When the underlying hedged transactions are no longer probable or the hedges become ineffective, the corresponding hedging instrument will immediately be terminated and all profits or losses including those which were deferred in equity, are immediately recognized in the income statement.

In the absence of obtaining cash-flow hedge accounting at inception as defined under IFRS 9, then the fair value of the related hedging instruments is recognized in the income statement instead of the equity and this prior to the occurrence of the underlying forecasted or committed transactions.

2.22.3 Embedded derivatives

Executory contracts (the “host contract”) may sometimes contain embedded derivatives.

Embedded derivatives cause some or all of the cash flows that would otherwise be expected from the host contract, to be modified according to a specified interest rate, financial instrument price, commodity price, foreign exchange rate, or another variable. If it is concluded that such a derivative is not closely related to the host contract, it is separated from the host contract and accounted for under the rules of IFRS 9 (fair value through profit or loss). The host contract is accounted for using the rules applicable to executory contracts, which effectively means that such a contract is not recognized in the balance sheet or profit and loss before delivery on the contract takes place.

2.23 Climate change

In preparing the consolidated financial statements, the Group has considered the potential impact of climate-related risks which cover both transition risks (market, reputation, policy & legal, technology) and physical risks (direct damage to assets and supply chain disruption). The long term consequences of climate change and the climate-related transition risks scenario analysis for Umicore are further described in the Risk & Opportunities section of this report.

The potential impact of climate change on a number of areas within the financial statements has been considered such as:

- The forecasts and cash flows used in impairment review of non-current assets (including goodwill).
- Recoverability of deferred taxes.
- Expected lives of property, plant and equipment and their exposure to the physical risk posed by climate change. Their expected lives tend to be short to medium term, as such the physical risk posed by climate change in the long term is low.

There is inherent uncertainty over the assumptions used within these areas and how they will impact the Group’s business operations, cash flows and profit projections. Nevertheless, the latest outlooks of the Group reflect continuous investment in sustainable technologies and our unique position to meet the market with sustainable solutions.

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With the commitment to reach Net Zero Scope 1 and 2 greenhouse gas emissions by 2035 and to run 100% of operations in Europe on renewable electricity by 2025, the Group secures long-term green power purchase agreements (PPAs) for its plants and offices through onshore wind farms, offshore wind farms and solar panel installations. Agreements are analysed under IFRS to determine whether they are own-used contracts, financial instruments or if they contain a lease. As of 31 December 2023, all of our PPAs contracts are accounted for as own-used contracts. Currently, signed contracts have an average duration of 15 years ranging from 5 to 25 years for a total yearly volume of approximately 700 GWh.

Renewable energy certificates linked to those contracts are either automatically canceled, redeemed by us, or redeemed on our behalf and expensed during the period to which the electricity was consumed.

2.24 Adjustments

The adjustments to the result relate to restructuring measures, impairment of assets linked to restructuring measures and other income or expenses arising from events or transactions that are clearly distinct from the ordinary activities of the company such as discontinuation of activities and environmental provisions that relate to historical pollution or linked to non-active sites.

F3 Financial risk management

Each of the Group's activities is exposed to a variety of risks that are financial or non-financial in nature but have the potential to impact the financial performance of the Group. Financial risks include changes in metal prices, in foreign currency exchange rates, in certain market-defined commercial conditions, and in interest rates as well as credit and liquidity risks. The Group's overall risk management program seeks to mitigate risks and potential adverse effects on the financial performance of the Group, including through the use of hedging and insurance instruments.

3.1 Currency risk

Umicore's currency risk can be split into three distinct categories: structural, transactional and translational risks.

3.1.1 Structural risk

A portion of Umicore's revenues are structurally denominated in US dollar (USD), while many of the related operations are located outside the USD zone (particularly in Europe and Asia).

Any change in the USD exchange rate against the EUR or other currencies which are not pegged to the USD will have an impact on the results.

A large portion of such structural currency exposure derives from USD denominated metal prices linked to the recycling and refining operations.

Next to the sensitivity USD vs EUR, there is also a structural and increasing sensitivity to certain other currency pairs such as the USD and EUR vs the Korean won (KRW), the Chinese yuan (CNY), the Canadian dollar (CAD), the Polish Zloty (PLN) and the Brazilian real (BRL).

Structural currency hedging

Umicore's hedging policy allows for hedging forward its structural currency exposure, either in conjunction with the hedging of structural metal price exposure or in isolation, typically when a currency exchange rate or a metal price denominated in EUR is above its historical average and at a level where attractive margins can be secured. This includes amongst other hedging forward significant capital expenditure projects which are denominated in another currency than EUR or another functional currency than the one of the entity.

In relation to the structural risk, the Group assesses the hedge effectiveness through a critical terms match between the hedged item (future probable cash flows) and the hedging instrument including amount and maturity. The Group applies a prudent approach in the application of structural hedging, never up to 100 %, avoiding thereby ineffectiveness arising from difference in maturity between hedged item and hedging instrument or changes in exposure amounts.

At the end of 2023, Umicore had structural currency hedging in place relating to its non-metal related currency sensitivity including the following pairs of currencies: EUR/USD, USD/KRW, EUR/PLN, EUR/CAD and USD/CAD.

3.1.2 Transactional risk

The company is also subject to transactional risks in respect of currencies, i.e. the risk of currency exchange rates fluctuating between the time the price is fixed with a customer or supplier and the time the transaction is settled. The Group's policy is to hedge the transactional risk to the maximum extent possible, primarily through forward contracts.

In relation to the transactional risk, the Group assesses the hedge effectiveness through a critical terms match between the hedged item (balance sheet items and commitments) and the hedging instrument including amount and maturity. The Group hedges transactional risks to the maximum extent up to 100 %. Any ineffectiveness can arise from difference in maturity between hedged item and hedging instrument or changes in exposure amounts, but this is not expected to be material.

3.1.3 Translational risk

Umicore is an international company and has foreign operations which do not have the EUR as their functional currency. When the results and the balance sheets of these operations are consolidated into Umicore's Group accounts the translated amount is exposed to variations in the value of such local

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currencies against the EUR, predominantly the KRW, CNY, USD, BRL, PLN and ZAR. While Umicore does not systematically hedge its translational currency exposures, it may enter into ad hoc translational hedges.

3.2 Metal price risk

Umicore's metal price risk can be split into three distinct categories: structural, transactional and inventory risks.

In relation to the structural and transactional risk, for the purpose of assessing the hedge effectiveness, the Group applies a critical terms match between the hedged item and the hedging instrument including in terms of quantity and maturity. Hedge ratio is 100% whereby our sources of ineffectiveness could be a difference in maturity between hedged item and financial instrument or a change in exposure.

3.2.1 Structural risk

Umicore is exposed to structural metal related price risks. Those risks relate mainly to the impact that metal prices have on surplus metals recovered from materials supplied for treatment or any other revenue component that fluctuates with the metal price. Umicore's policy allows hedging of such metal price exposure, typically if forward metal prices expressed in the functional currency of the concerned businesses are above their historical average and at a level where attractive margins can be secured. The extent to which metal price risk can be hedged depends on the availability of hedging instruments and sufficient associated market liquidity.

The Recycling segment recycles platinum, palladium, rhodium, gold and silver and a wide range of other base and specialty metals. In this segment the short-term sensitivity of revenues and operating profits to metals prices is particularly material. However, given the variability of the raw-material feed over time and the variable duration of the supply contracts negotiated, it is not suitable to provide a fixed sensitivity to any particular metal. In general terms, higher metals prices tend to be earnings enhancing for the Recycling business (and vice versa). Umicore also has a metal price sensitivity in its other business segments (Catalysis, Energy & Surface Technologies) linked primarily to the revenue components that are metal price related and depending on the metals used in these segments. Also, in these cases a higher metal price tends to carry short term benefits for the profitability of each business (and vice versa). However, other commercial conditions which are largely independent of the metal price, such as product premiums, are also significant and independent drivers of revenues and profitability. Finally, sustained high metal prices could in some cases increase other risks such as the risk of substitution or the risk of supply chain disruptions.

Structural metal price hedging

For some metals Umicore hedges part of its forward metal exposure. This hedging is based on documentation demonstrating a high probability of future metal price based cash flows originating from commercial contracts. Umicore hedged part of its forward metal exposure. Over the course of 2023,

Umicore entered into forward contracts to cover a substantial part of its expected structural price exposure to certain precious metals already up to 2028. For 2024, based on the respective currently expected exposures, the following lock-ins have been secured: close to three quarters for palladium, more than two thirds for rhodium, close to two thirds for gold, close to half for silver, and above one quarter for platinum. For 2025, the lock-in ratios are: close to three quarters for palladium and rhodium, more than half for gold and silver, and less than one quarter for platinum. For 2026, close to three quarters of the exposure has been locked in for palladium and rhodium, half for gold and silver, and less than one quarter for platinum. For 2027, more than half for palladium, more than one third for gold, and less than one quarter for silver, rhodium and platinum has been locked in. For 2028, more than one third for gold, close to one third for palladium, one quarter for silver, and less than a quarter for platinum has been locked in. Finally, Umicore also has hedges in place for a portion of its expected copper and nickel exposure for 2024.

In relation to the structural risk, the Group assesses the hedge effectiveness through a critical terms match between the hedged item (future probable cash flows) and the hedging instrument amongst others amount and maturity. The Group applies a prudent approach in the application of structural hedging, never up to 100 %, avoiding thereby ineffectiveness arising from difference in maturity between hedged item and hedging instrument or changes in exposure amounts.

3.2.2 Transactional risk

The Group faces transactional price risks on metals. The majority of its metal-based transactions use third party metal market references, such as the London Metal Exchange. If the underlying metal price were to be constant, the price Umicore pays for the metal contained in the raw materials purchased would be passed through to the customer as part of the price charged for the product. However, because of the lapse of time between the conversion of purchased raw materials into products and the sale of products, the volatility in the reference metal price creates differences between the price paid for the contained metal and the price received.

Accordingly, there is a transactional exposure to any fluctuations in price between the moment raw materials are purchased (i.e., when the metal is "priced in") and the moment the products are sold (i.e. when the metal is "priced out").

The Group's policy is to hedge the transactional risk to the maximum extent possible, primarily through forward contracts.

In relation to the transactional risk, the Group assesses the hedge effectiveness through a critical terms match between the hedged item (balance sheet items and commitments) and the hedging instrument amongst others amount and maturity. The Group hedges transactional risks to the maximum extent up to 100 %. Any ineffectiveness of such hedges can arise from difference in maturity between hedged item and hedging instrument or changes in exposure amounts, but this is not expected to be material.

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The accelerating growth in battery materials in recent years substantially increased the exposure to specific related metals such as cobalt, lithium or nickel. Increasing volumes, the vulnerability to the associated price volatility and in the case of certain metals such as lithium the absence of a liquid paper forward market result in increased metal risks. For lithium, Umicore's transactional hedging policy aims to match to a maximum extent the pricing in and pricing out of the contracted metal. Such physical back-to-back hedging allows management of transactional risks related to lithium in a volatile market.

The Group's economical transactional metal hedging policy prescribes that mark-to-market valuation principles are initially applied on all elements of the transactional hedging position, hedging instruments as well as hedged items. Where possible this happens under IFRS 9 hedge accounting criteria. When IFRS 9 hedge accounting cannot be applied or obtained, Umicore reverses positive mark-to-markets (see note F2.22.1 – Transactional risks – fair value hedging).

3.2.3 Metal inventory risk

The Group faces metal price risks on its permanently tied up metal inventories. This risk is related to the market metal price moving below the carrying value of these inventories.

Umicore tends not to hedge against this risk.

3.3 Interest rate risk

Interest rate risks arise from changes in prevailing market interest rates, which can lead to changes in the fair value of fixed-rate debt instruments and in changes in interest payments for variable-rate debt instruments. This risk is managed by regularly assessing the debt profile of the Group and by entering into interest rate swaps. At the end of December 2023, the Group's gross financial debt stood at € 2,748 million, of which 2,235 million carrying a fixed interest rate.

New US private placements were drawn in January 2023 (issued in November 2022) for a total of € 232 million and USD 363 million, with the part in USD hedged to EUR with cross-currency swaps.

3.4 Credit risk

Credit risk and concentration of credit risk

Credit risk is the risk of non-payment by any counterparty in relation to sales of goods or metal lease operations. In order to manage its credit exposure, Umicore has determined a credit policy with credit limit requests, approval procedures, continuous monitoring of the credit exposure and dunning procedure in case of delays. The credit risk resulting from sales is, to a certain extent, covered by credit insurance, letters of credit or similar secure payment means. Umicore entered into several credit insurance agreements with different insurers. One global credit insurance contract has been put in place on a world-wide basis. This contract protects the insured activities against insolvency, political and commercial risks with an individual deductible per invoice of 5% and foresees an indemnification cap set at regional

or country levels. Umicore has determined that in a certain number of cases where the cost of credit insurance is disproportionate in relation to the risk to be insured, no such global credit insurance coverage will be sought. For those businesses, characterized by a significant level of customer concentration or by a specific and close relationship with the customers, specific insurance contracts may be set up for a certain period. It should be noted that some sizeable transactions, such as the sales of precious metals by Recycling, have a limited credit risk as payment before delivery is a widely accepted practice. Umicore may further limit selected credit risks by entering into without recourse receivables discounting arrangements or particularly in China by without recourse bank draft discounting. Regarding its risk exposure to financial institutions such as banks and brokers, Umicore is also establishing internal credit lines. Specific limits are set, per financial instrument, covering the various risks to which the Group is exposed when transacting with such counterparties. In accordance with IFRS 9, impairments for expected credit losses on receivables are measured and recognized, applying a simplified approach.

3.5 Liquidity risk

Liquidity risk relates to the ability to service and refinance debt (including notes issued) and to fund operations. The Group manages liquidity risk by maintaining adequate sources of funding, by ensuring a very wide diversification of such funding sources (in terms of instruments, lending banks and other institutions and in terms of geography), by matching as close as possible the maturity profiles of financial assets and liabilities and by staggering the maturities of financing sources. Sources of funding include a.o. operating cash flows, committed and uncommitted bank facilities including Chinese bank draft lines, metal lease lines, commercial paper issuance and long term private debt placements.

Please refer to note F20 and F24 for further details.

3.6 Tax uncertainties

The tax charge included in the financial statements is the Group's best estimate of its tax liability acknowledging that, until such time as audits by tax authorities are concluded, there is a degree of uncertainty regarding the final tax liability for the period. The Group's policy is to submit tax returns within the statutory time limits and engage with the tax authorities as appropriate to ensure that the Group's tax affairs are current and that any material differences in the interpretation of tax legislation and regulations are resolved. Changes in tax laws or in their application with respect to matters such as transfer pricing, VAT, foreign dividends, R&D tax credits, investment incentives and tax deductions, could impact the Group's effective tax rate and net result positively or negatively. Based on the tax risks and opportunities identified, management performed a detailed assessment for uncertain tax positions, resulting in provisions recorded for these uncertainties pursuant to IFRIC 23.

The company is presently involved in tax litigation in Brazil, Canada, Argentina, and Germany which is properly provisioned and is not expected to have a material impact on the Group financial position.

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3.7 Capital risk management

The Group's objectives when managing capital are to safeguard its ability to continue as a going concern, to provide returns for shareholders and benefits for other stakeholders, and to maintain an optimal capital structure to reduce the cost of capital.

In order to maintain or adjust the capital structure, the Group may for example adjust the amount of dividends paid to shareholders, return capital to shareholders, buy back its own shares or issue new shares.

The Group monitors its capital structure primarily on the basis of the gearing ratio and the net financial debt over adjusted EBITDA ratio. The gearing ratio is calculated as net financial debt divided by the sum of net financial debt and total Group equity. Net financial debt is calculated as non-current financial debt plus current financial debt less cash and cash equivalents.

The figures for the presented periods are detailed under the note F24 on Financial Debt.

In an ordinary course of business operating environment, the group aims for a capital structure equivalent to investment-grade credit rating status. The group could consider temporarily exceeding the equivalent level of indebtedness in the case of an extraordinary event, such as for example a major acquisition.

3.8 Strategic and operational risks

Umicore faces certain strategic and operational risks that are not necessarily financial in nature but which have the potential to impact the financial performance of the Group. These include a.o. technology risks, supply risks, the risk of product substitution by customers, security of supply related risks (such as for selected critical metals), operational risks related to critical production installations, information system availability and cyber security risks, risks from legal disputes and proceedings, risks related to metal trading activities, asset impairment risks due to a change in the asset's underlying business context & outlook, etc. In some cases a direct link exists between financial and operational risks. For example, a potential continuity of supply risk for certain critical raw materials or metals due to sudden or extreme physical supply tightness could substantially enhance financial risks and in particular metal price-related risks. In the past, certain metals such as for example rhodium or cobalt showed high price volatility related to supply tightness considerations. Please refer to the chapter about [Managing Risk Effectively](#) for a description of some of these risks and an outline of Umicore's general approach to risk management.

F4 Critical accounting estimates and judgments

Estimates and judgments used in developing and applying the consolidated entity's financial statements are continually evaluated and are based on historical experience and other factors, including the expectations of future events that may have a financial impact on the entity and that are believed to be

reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results.

Assumptions and estimates are applied when:

- Assessing the need for and measurement of impairment losses.
- Accounting for pension obligations.
- Recognizing and measuring provisions for tax, environmental, warranty and litigation risks, product returns, onerous contracts and restructuring.
- Determining inventory write-downs.
- Assessing the extent to which deferred tax assets will be realized.
- Useful lives of Property, Plant and Equipment and Intangible assets excluding goodwill.

The critical estimates and judgments that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are listed below.

4.1 Impairment testing

The Group performs an impairment test on the carrying value of its cash generating units whenever certain external or internal triggering events suggest a potential impairment risk for such unit. The Group performs annual impairment tests on the goodwill carried by its cash generating units. An impairment loss is recognized when the carrying value exceeds the recoverable amount in a structural way. The recoverable amount is the higher of the fair value less costs to sell and its value in use in accordance with the accounting policy. This value in use is calculated by discounting related future free cash flows (DCF model) to calculate their present value. These calculations require the use of and are sensitive to estimates and assumptions such as discount rates, exchange rates, commodity prices, future capital requirements and future operating performance. Internal estimates of future business performance are based on an analysis of a combination of factors including: market growth projections, market share estimates, competitive landscape, pricing and cost evolution. Such analysis combines both internally-generated estimates and data from external sources.

As at 31 December 2023, the carrying amount of the goodwill for the consolidated entities was € 158.3 million (€ 158.4 million in 2022). We refer to note F15 Goodwill for more details on the annual goodwill impairment testing.

4.2 Rehabilitation obligations

Provision is made for the anticipated costs of future rehabilitation of industrial sites and surrounding areas to the extent that a legal or constructive obligation exists in accordance with accounting policy 2.16. These provisions include future cost estimates associated with reclamation, plant closures, waste site closures, monitoring, demolition, decontamination, water purification and permanent storage of historical residues. These future cost estimates are discounted to their present value. The calculation of these

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provision estimates requires assumptions such as application of environmental legislation, plant closure dates, available technologies and engineering cost estimates and specifically related to the Hoboken Green Zone, the purchase cost of houses. A change in any of the assumptions used may have a material impact on the carrying value of rehabilitation provisions. As at 31 December 2023, the carrying amount of rehabilitation provisions was € 103.0 million (€ 108.3 million in 2022). We refer to note F29 Environmental provisions for more details.

4.3 Defined benefit obligations

An asset or liability in respect of defined benefit plan is recognized on the balance sheet in accordance with accounting policy 2.17. The present value of a defined benefit obligation is dependent upon a number of factors that are determined on an actuarial basis.

The consolidated entity determines the appropriate discount rate to be used at the end of each year. The consolidated entity's employee benefit obligations are discussed in more detail in Note F27. At 31 December 2023, a liability with respect to employee benefit obligations of € 314.8 million was recognized (€ 286.5 million in 2022).

4.4 Recoverability of deferred tax assets

Deferred tax assets are recognized for deductible temporary differences and unused tax losses/credits only if it is probable that future taxable profits (based on Group operational plans) are available to use those temporary differences and losses/credits. The actual tax results in future periods may differ from the estimates made at the time the deferred taxes are recognized.

Other assumptions and estimates are disclosed in the respective notes relevant to the item where the assumptions or estimates were used for measurement.

4.5 Provisions for other liabilities and charges

The fast growth of Umicore's battery materials sales for transport applications in particular is increasing the Group's exposure to the automotive industry end market. This industry has a practice of applying warranty and recall settlements related to potential product quality events (irrespective of whether any legal obligation exists). In view thereof, Umicore continued in 2023 its dedicated provisioning model for battery materials as introduced in previous years.

Additional significant provisions for other liabilities and charges are related to onerous contracts. An onerous contract provision is recognized when the unavoidable cost of meeting the obligations under the contract exceed the economic benefits expected to be received under it.

As at 31 December 2023, the carrying amount of the provisions for other liabilities and charges amount to € 96.8 million (€ 126.7 million in 2022).

4.6 Provisions for uncertainty over income tax treatments

As mentioned under the note F2.20, Umicore performs a detailed assessment of all tax uncertainties within the Group as per IFRIC 23. In the assessment and measurement of the Uncertain Tax Positions, the Group has considered the applicable tax laws and regulations, including the statute of limitations, typically in a range of three to ten years depending on the jurisdiction. The final resolution of the tax positions taken by the Group may in some cases require a considerable period of time and the outcome may be difficult to predict with certainty. The Uncertain Tax Positions reflect all relevant facts the Group has identified, including routine audits the Group is involved in; potential tax exposures related to transfer pricing and transactional business models; or ongoing discussions with tax authorities. The estimation of the tax liability and income tax expense includes any applicable penalties and late payment interests. The Uncertain Tax Positions are measured using the expected value consisting of the sum of the probability-weighted range of potential outcomes, or the most likely amount. Most of the provisions for uncertainty over tax treatment are related to uncertainties about whether a tax authority will accept a certain applied transfer pricing methodology or the deductibility of an expense for tax purposes. The Group provision for uncertainty over tax treatments at December 2023 amounts to € 93.1 million (2022: € 108.9 million). This provision is included in Income Tax Payable in the consolidated balance sheet. The decrease by € 15.8 million is the net result of audit settlements; remeasurement of existing uncertain tax positions; reversal of uncertain tax positions based on mitigation actions taken, the expiration of the statute of limitations, and the recognition of additional uncertain tax provisions (whether positive or negative).

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F5 Group companies

Below is a list of the main operating companies included in the consolidated financial statements

		% INTEREST IN	% INTEREST IN
		2022	2023
For continuing operations			
Argentina	Umicore Argentina S.A.	100.00	100.00
Australia	Umicore Marketing Services Australia Pty Ltd.	100.00	100.00
Austria	Oegussa GmbH	100.00	100.00
Belgium	Todini (BE 0834.075.185)	100.00	100.00
-	Umicore Financial Services (BE 0428.179.081)	100.00	100.00
-	Umicore Marketing Services Belgium (BE 0402.964.625)	100.00	100.00
-	Umicore Specialty Materials Brugge (BE 0405.150.984)	100.00	100.00
-	Umicore Holding Belgium (BE 0731.571.921)	100.00	100.00
Brazil	Coimpa Industrial Ltda	100.00	100.00
-	Umicore Brasil Ltda	100.00	100.00
-	Clarex S.A.	100.00	100.00
-	Umicore Shokubai Brasil Industrial Ltda	60.00	60.00
-	Umicore Catalisadores Ltda.	100.00	100.00
-	Todini Brasil Representações Ltda	70.00	70.00
Canada	Umicore Canada Inc.	100.00	100.00
-	Umicore Autocat Canada Corp.	100.00	100.00
-	Umicore Precious Metals Canada Inc.	100.00	100.00
-	Umicore Battery Materials Canada Inc	100.00	100.00
China	Umicore Marketing Services (Shanghai) Co., Ltd.	100.00	100.00
-	Umicore Hong Kong Company Limited	100.00	100.00
-	Umicore Autocat (China) Co. Ltd.	100.00	100.00
-	Umicore Changxin Surface Technology (Jiangmen) Co., Ltd.	80.00	80.00
-	Jiangmen Umicore Changxin New Materials Co., Ltd.	90.00	90.00
-	Umicore Shokubai (China) Co Ltd	60.00	60.00
-	Umicore Platinum Engineered Materials (Suzhou) Co., Ltd.	100.00	100.00
-	Umicore Catalyst (China) Co., Ltd.	100.00	100.00
-	Umicore Fuel Cell Catalyst (China) Co., Ltd.	100.00	100.00
Denmark	Umicore Denmark ApS	100.00	100.00
Finland	Umicore Finland OY	100.00	100.00

		% INTEREST IN	% INTEREST IN
		2022	2023
France	Umicore Hexagone S.A.S.	100.00	100.00
-	Umicore IR Glass S.A.S.	100.00	100.00
-	Umicore Autocat France S.A.S.	100.00	100.00
-	Umicore Specialty Powders France S.A.S.	100.00	100.00
-	Umicore France S.A.S.	100.00	100.00
-	Todini France S.A.S.	100.00	100.00
Germany	Umicore AG & Co. KG (*)	100.00	100.00
-	Agosi AG	100.00	100.00
-	Umicore Galvanotechnik GmbH	100.00	100.00
-	Todini Deutschland GmbH	100.00	100.00
Italy	Todini and CO. S.P.A.	100.00	100.00
India	Umicore Autocat India Pvt LTD	100.00	100.00
-	Umicore India Private Limited	100.00	100.00
-	Todini Metals and Chemicals India Private Limited	70.00	70.00
Japan	Umicore Japan KK	100.00	100.00
-	Umicore Shokubai Japan Co Ltd	60.00	60.00
South Korea	Umicore Korea Ltd.	100.00	100.00
-	Umicore Marketing Services Korea LLC	100.00	100.00
-	Umicore Catalysis Korea LLC	100.00	100.00
Liechtenstein	Umicore Thin Film Products AG	100.00	100.00
Luxemburg	Umicore International	100.00	100.00
-	Umicore Autocat Luxembourg	100.00	100.00
-	Umicore Shokubai	60.00	60.00
-	Fininco	100.00	100.00
Mexico	Todini Atlántica S.A. de C.V.	70.00	70.00
Netherlands	Schöne Edelmetaal BV	100.00	100.00
Philippines	Umicore Specialty Chemicals Subic Inc.	78.20	78.20
Poland	Umicore Autocat Poland sp. z o.o.	100.00	100.00
-	Todini Europe sp. z o.o.	70.00	70.00
-	Umicore Battery Materials Poland Sp. z o.o.	100.00	100.00

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		% INTEREST IN	% INTEREST IN
		2022	2023
Portugal	Umicore Iberica Lda	100.00	100.00
South Africa	Umicore Africa (Proprietary) Limited	100.00	100.00
-	Umicore Catalyst South Africa (Pty) Ltd.	65.00	65.00
Spain	Todini Quimica Ibérica, S.L.	100.00	100.00
Sweden	Umicore Autocat Sweden AB	100.00	100.00
Taiwan	Umicore Thin Film Products Taiwan Co Ltd	100.00	100.00
Thailand	Umicore Precious Metals Thailand Ltd.	100.00	100.00
-	Umicore Autocat (Thailand) Co., Ltd.	100.00	100.00
-	Umicore Shokubai (Thailand) Co., Ltd.	60.00	60.00
United Kingdom	Umicore Coating Services Ltd.	100.00	100.00
-	Umicore UK Ltd.	100.00	100.00
USA	Umicore USA Inc.	100.00	100.00
-	Umicore Autocat USA Inc.	100.00	100.00
-	Umicore Precious Metals NJ LLC	100.00	100.00
-	Umicore Precious Metal Chemistry USA LLC	100.00	100.00
-	Umicore Precious Metals USA Inc.	100.00	100.00
-	Umicore Optical Materials USA Inc.	100.00	100.00
-	Umicore Shokubai USA Inc	60.00	60.00
-	Palm Commodities International LLC	100.00	100.00
-	Umicore Electrical Materials USA Inc.	100.00	100.00
-	Umicore Catalyst USA, LLC	100.00	100.00
-	Umicore Battery Materials USA Inc	100.00	100.00

(*) Umicore AG & Co. KG, with its registered office in Hanau, Germany, is exempt from its obligation to prepare, audit and publish annual and consolidated financial statements and a management and group management report in accordance with sections 264b and 291 of the German Commercial Code (HGB).

F6 Foreign currency measurement

For the main currencies applicable within the Group's consolidated entities and investments, the prevailing rates used for translation into the Group's presentation currency (EUR), are as set out below. All subsidiaries, associates and joint-ventures have as functional currency the currency of the country in which they operate, except for Element Six Abrasives (United Kingdom) where the functional currency is the US dollar (USD).

		CLOSING RATES		AVERAGE RATES	
		2022	2023	2022	2023
American Dollar	USD	1.067	1.105	1.053	1.081
Korean Won (100)	KRW	13.441	14.337	13.581	14.129
Polish Zloty	PLN	4.681	4.340	4.686	4.542
Chinese Yuan	CNY	7.358	7.851	7.079	7.660
Canadian Dollar	CAD	1.444	1.464	1.369	1.459
Brazilian Real	BRL	5.565	5.350	5.439	5.401
Hong Kong Dollar	HKD	8.316	8.631	8.245	8.465
South African Rand	ZAR	18.099	20.348	17.209	19.955
Japanese Yen	JPY	140.660	156.330	138.027	151.990
Indian Rupee	INR	88.171	91.905	82.686	89.300
Thai Baht	THB	36.835	37.973	36.856	37.631

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F7 Segment information

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Thousands of Euros	Notes	Catalysis Energy & Surface Technologies	Recycling	Corporate & Unallocated	Eliminations	Total Continued	
Total segment turnover		7,737,980	4,974,110	15,337,950	44,233	(2,658,750)	25,435,523
External turnover		7,570,330	4,957,480	12,863,480	44,233	-	25,435,523
Inter-segment turnover		167,650	16,630	2,474,470	-	(2,658,750)	-
Total segment revenues (excluding metals)		1,776,470	1,277,547	1,106,600	-	(5,420)	4,155,197
External revenues		1,775,140	1,277,397	1,102,660	-	-	4,155,197
Inter-segment revenues		1,330	150	3,940	-	(5,420)	-
Result from operating activities	F9	330,609	163,597	462,711	(138,250)	-	818,667
Adjusted		341,850	161,500	462,854	(117,769)	-	848,435
Adjustments		(11,241)	2,096	(143)	(20,481)	-	(29,768)
Share in result of companies accounted for using the equity method	F9	-	4,929	-	8,545	-	13,473
Adjusted		-	4,929	-	11,275	-	16,204
Adjustments		-	-	-	(2,731)	-	(2,731)
EBIT	F9	330,609	168,525	462,711	(129,705)	-	832,140
Adjusted		341,850	166,429	462,854	(106,495)	-	864,639
Adjustments		(11,241)	2,096	(143)	(23,212)	-	(32,499)
Depreciation and amortisation	F9	76,952	123,778	69,300	15,877	-	285,907
Adjusted		76,952	123,778	69,300	15,877	-	285,907
EBITDA	F9	407,561	292,303	532,011	(113,828)	-	1,118,047
Adjusted		418,802	290,207	532,154	(90,618)	-	1,150,545
Consolidated total assets		2,934,242	5,431,475	1,389,803	1,895,611	(1,708,759)	9,942,372
Segment assets		2,934,242	5,380,156	1,389,803	1,787,987	(1,708,759)	9,783,429
Investments accounted for using the equity method		-	51,319	-	107,624	-	158,943
Consolidated total liabilities		1,423,712	2,670,793	1,040,149	2,950,427	(1,708,759)	6,376,322
Capital Employed at 31/12 of previous year		1,551,494	2,275,465	460,723	89,213	-	4,376,895
Capital Employed at 30/06		1,486,142	2,483,699	425,709	79,205	-	4,474,755
Capital Employed at 31/12	F31	1,563,571	2,750,911	346,513	55,001	-	4,715,996
Average Capital Employed in first half year	F31	1,518,818	2,379,582	443,216	84,209	-	4,425,825
Average Capital Employed in second half year	F31	1,524,856	2,617,305	386,111	67,103	-	4,595,375
Average Capital Employed for the period	F31	1,521,837	2,498,444	414,664	75,656	-	4,510,600
ROCE	F31	22.46%	6.66%	111.62%	-140.76%	0.00%	19.17%
Capital expenditure	F34	67,358	295,709	81,332	25,479	-	469,878
Total R&D expenditure	F9	139,088	106,519	23,837	46,422	-	315,866
R&D recognized in operating expenses	F9	133,030	91,513	23,503	46,407	-	294,453
R&D capitalized as intangible assets	F34	6,058	15,005	334	15	-	21,412

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BUSINESS GROUP INFORMATION 2023

Thousands of Euros	Notes	Catalysis Energy & Surface Technologies	Recycling	Corporate & Unallocated	Eliminations	Total Continued	
Total segment turnover		6,242,860	3,393,940	10,066,100	35,170	(1,472,180)	18,265,890
External turnover		6,139,920	3,380,210	8,710,590	35,170	-	18,265,890
Inter-segment turnover		102,940	13,730	1,355,510	-	(1,472,180)	-
Total segment revenues (excluding metals)		1,803,510	1,066,750	1,012,540	-	(7,190)	3,875,610
External revenues		1,800,260	1,066,460	1,008,890	-	-	3,875,610
Inter-segment revenues		3,250	290	3,650	-	(7,190)	-
Result from operating activities	F9	355,078	97,841	281,653	(143,888)	-	590,683
Adjusted		364,157	129,741	295,485	(116,922)	-	672,461
Adjustments		(9,079)	(31,901)	(13,832)	(26,966)	-	(81,778)
Share in result of companies accounted for using the equity method	F9	-	(2,583)	-	2,982	-	399
Adjusted		-	(2,583)	-	3,689	-	1,105
Adjustments		-	-	-	(707)	-	(707)
EBIT	F9	355,078	95,257	281,653	(140,906)	-	591,081
Adjusted		364,157	127,158	295,485	(113,234)	-	673,566
Adjustments		(9,079)	(31,901)	(13,832)	(27,673)	-	(82,485)
Depreciation and amortisation	F9	71,906	132,157	76,270	18,193	-	298,526
Adjusted		71,906	132,157	76,103	18,193	-	298,360
EBITDA	F9	426,984	227,415	357,922	(122,713)	-	889,608
Adjusted		436,063	259,315	371,588	(95,040)	-	971,926
Consolidated total assets		2,320,170	4,942,592	1,316,070	2,775,643	(1,388,805)	9,965,670
Segment assets		2,320,170	4,719,458	1,316,070	2,684,043	(1,388,805)	9,650,936
Investments accounted for using the equity method		-	223,134	-	91,600	-	314,734
Consolidated total liabilities		1,389,576	1,460,043	864,173	3,938,478	(1,384,031)	6,268,240
Capital Employed at 31/12 of previous year	F31	1,563,571	2,750,911	346,513	55,001	-	4,715,996
Capital Employed at 30/06	F31	1,236,893	3,276,186	468,415	114,273	-	5,095,766
Capital Employed at 31/12	F31	1,013,540	3,468,010	456,285	63,812	-	5,001,646
Average Capital Employed in first half year	F31	1,400,232	3,013,549	407,464	84,637	-	4,905,881
Average Capital Employed in second half year	F31	1,125,216	3,372,098	462,350	89,042	-	5,048,706
Average Capital Employed for the period	F31	1,262,724	3,192,823	434,907	86,839	-	4,977,294
ROCE	F31	28.84%	3.98%	67.94%	-130.39%	0.00%	13.53%
Capital expenditure	F34	75,693	645,743	81,789	53,582	-	856,807
Total R&D expenditure	F9	128,450	82,855	27,004	42,702	-	281,011
R&D recognized in operating expenses	F9	123,814	65,209	21,351	42,701	-	253,076
R&D capitalized as intangible assets	F34	4,636	17,646	5,653	0	-	27,935

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Segment information is presented in respect of the Group's business segments as defined below.

The segment results, assets and liabilities include items directly attributable to the segment as well as those elements that can reasonably be allocated to a segment.

The pricing of inter-segment sales is based on at arm's length transfer prices. In the absence of relevant market price references, a 'cost plus' method is used. Segment turnover and revenue (without metals) are taking into account intragroup transactions. Those are mainly related to recycling services and sales of refined metal from the recycling segment to the other group segments and are important to assess the performance of the segments concerned.

Since these transactions cannot be considered as external operations, they are eliminated at the Group level, to present a net position. Eliminations of total assets and total liabilities represent the intra-segment eliminations as well as the inter-segment eliminations.

The Group's business segments have no single external customer that amounts to 10 percent or more of the Group's turnover.

Umicore determined segments as the accurate level of detail to split the product sales since the underlying business, competences and technologies, application and product characteristics and customer portfolio within each individual segment are similar. Moreover, obtaining information at a more disaggregated level would result in excessive costs and efforts compared to the added value for an external reader of the consolidated financial statements.

GEOGRAPHICAL INFORMATION 2022

Thousands of Euros	Notes	Europe	of which Belgium	Asia-Pacific	North America	South America	Africa	Total
Total segment turnover		13,050,441	158,623	6,399,746	4,618,198	1,151,961	215,177	25,435,523
Total non current assets		1,656,524	618,814	1,189,977	128,273	70,002	3,760	3,048,536

GEOGRAPHICAL INFORMATION 2023

Thousands of Euros	Notes	Europe	of which Belgium	Asia-Pacific	North America	South America	Africa	Total
Total segment turnover		9,403,672	163,664	4,167,524	3,681,555	839,785	173,354	18,265,890
Total non current assets		2,209,630	856,212	1,119,230	349,081	75,923	3,217	3,757,081

Total non current assets by region does not include deferred tax assets, loans granted and assets related to employee benefits.

Investments accounted for using the equity method are allocated based on their country of incorporation.

BUSINESS GROUPS

The Group is organized into the following reporting segments:

CATALYSIS

The segment includes the Automotive Catalysts, Precious Metals Chemistry and Fuel Cell & Stationary Catalysts business units. Catalysis provides automotive catalysts for gasoline and diesel light and heavy-duty diesel applications, including on-road and off-road vehicles. The business group also offers stationary catalysis for industrial emissions control and produces precious metals-based compounds and catalysts for use in fuel cell applications and in the pharmaceutical and fine chemicals industries.

ENERGY & SURFACE TECHNOLOGIES

The segment includes the Cobalt & Specialty Materials, Electro-Optic Materials, Metal Deposition Solutions and Rechargeable Battery Materials business units. Energy & Surface Technologies' products are found in applications used in the production and storage of clean energy and in a range of applications for surface technologies that bring specific properties and functionalities to end products. All the activities offer a closed loop service for the customers. This segment includes the associates Ganzhou Yi Hao Umicore Industries and Jiangmen Chancsun Umicore Industry as well as the joint venture IONWAY.

As from fiscal year 2024, Umicore's business units will be housed in four, instead of currently three, business groups. The new segmentation still reflects the important synergies and common characteristics while at the same time bringing increased focus on the different business activities. The current business unit Rechargeable Battery Materials will be reported as the new business group Battery Materials. This set-up will provide the needed focus and structure to support the anticipated strong growth of the battery material business and will provide additional transparency and insights into the business group's performance. The business units Cobalt & Specialty Materials, Electro-Optic Materials and Metal Deposition Solutions, now part of Energy & Surface Technologies, will be grouped in a 4th business group, Specialty Materials.

External reporting according to this new structure will be implemented as from the fiscal year 2024.

RECYCLING

The segment consists of the business units Precious Metals Refining, Jewelry & Industrial Metals, Precious Metals Management and Battery Recycling Solutions. Recycling treats complex waste streams containing

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precious and other specialty metals. The recycling operations can recover 20 of these metals from a wide range of input materials ranging from industrial residues to end-of-life materials.

Other activities include production of precious metals-based materials that are essential for applications as diverse as high-tech glass production and electronics.

CORPORATE

Corporate covers corporate activities, shared operational functions and the Group's Research, Development & Innovation unit. Umicore's shareholdings in Element Six Abrasives and Ieqsa (disposed in August 2023) are also included in Corporate.

In the geographical segment information, the figures presented as non-current assets exclude the amounts for long term investments, non-current loans granted, deferred tax assets and assets for employee benefits as required by IFRS 8. Performance of the segments is reviewed by the chief operating decision maker based on the adjusted EBIT(DA)/ result from operating activities. As illustrated in the table above, the difference between the adjusted result from operating activities and the result of operating activities as presented in the Consolidated income statement consists of the adjustments for which definitions are given in the glossary.

Associate companies and joint ventures are allocated to the business group with the closest fit from a market segment perspective.

F8 Business combinations and acquisitions of associates and joint ventures

There were no business combinations during the year 2023.

F9 Result from operating activities

Thousands of Euros	2022	2023
Sales	25,266,272	18,098,890
Services	169,251	167,000
Turnover	25,435,523	18,265,890
Re-invoicing of costs to third parties	123,929	64,253
Operating grants	20,275	23,598
Royalties and license fees	13,827	14,493
Emission rights income	16,040	20,458
Insurance recovery	8,871	2,977
Various interests and penalties for late payments	761	450
Gains on disposals of assets	3,201	942
Translation difference on intra-group eliminations	(11,389)	5,055
Tax incentives	3,707	6,108
Tax credits	2,329	-
Other	3,001	10,179
Other operating income	184,552	148,513
OPERATING INCOME OF CONTINUING OPERATIONS	25,620,075	18,414,403
Raw materials and consumables	(22,875,549)	(15,778,905)
Payroll and related benefits	(906,507)	(981,425)
Depreciation and amortisation	(285,907)	(298,526)
Impairment loss	(24,931)	(45,790)
Write-down on inventory and impairment of financial assets	(17,544)	(6,744)
Depreciation and impairments	(328,382)	(351,061)
Services and outsourced refining and production costs	(547,584)	(607,896)
Royalties, licence fees, consulting and commissions	(81,667)	(93,363)
Taxes other than income taxes	(29,748)	(28,371)
Provisions (increase/use and reversal)	(35,944)	23,992
Losses on disposal of assets	(1,678)	(1,616)
Other operating expenses	(696,621)	(707,254)
OPERATING EXPENSES OF CONTINUING OPERATIONS	(24,807,059)	(17,818,645)

Turnover refers to turnover from customers as per IFRS 15. The further disaggregation is detailed in note F7. As described in the accounting policy 2.21, the revenue from contracts with customers are mainly

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recognized at a point in time. The decrease in turnover in 2023 is mainly related to the decrease of metal prices.

Services mainly include the revenues from tolling contracts.

The decrease in raw materials and consumables used is mainly related to the decrease of metal prices. Raw materials and consumables include primarily the value of the purchased metals. Utilities (water, gas and electricity) represent for € 205.1 million in 2023 (€ 250.8 million in 2022).

The impairment losses have increased compared to 2022. In 2023, those impairments are mainly resulting from obsolete assets and impairment of capitalized development expenses in Energy & Surface Technologies.

The line provisions contains the movements in the environmental provisions and in the provisions for other liabilities and charges which are detailed in the notes F29 and F30.

ADJUSTMENTS INCLUDED IN THE RESULT

Thousands of Euros	Notes	2022			2023		
		Total	Adjusted	Adjustments	Total	Adjusted	Adjustments
Turnover	a	25,435,523	25,435,523	-	18,265,890	18,253,199	12,691
Other operating income	b	184,552	181,849	2,703	148,513	147,974	539
Operating income	c=a+b	25,620,075	25,617,372	2,703	18,414,403	18,401,173	13,230
Raw materials and consumables	d	(22,875,549)	(22,875,549)	-	(15,778,905)	(15,769,105)	(9,800)
Payroll and related benefits	e	(906,507)	(906,393)	(114)	(981,425)	(978,137)	(3,288)
Depreciation and impairments	f	(328,382)	(316,156)	(12,227)	(351,061)	(306,743)	(44,318)
of which depreciation and amortisation	g	(285,907)	(285,907)	-	(298,526)	(298,360)	(166)
Other operating expenses	h	(696,621)	(670,141)	(26,480)	(707,254)	(675,159)	(32,095)
Operating expenses	i=d+e+f+h	(24,807,060)	(24,768,239)	(38,821)	(17,818,645)	(17,729,144)	(89,502)
Income (loss) from other financial assets	j	5,652	(697)	6,349	(5,075)	431	(5,507)
Result from operating activities	k=c+i+j	818,667	848,435	(29,768)	590,683	672,461	(81,778)
Share in result of companies accounted for using the equity method	l	13,473	16,204	(2,731)	399	1,105	(707)
EBIT	m=k+l	832,140	864,639	(32,499)	591,081	673,566	(82,485)
EBITDA	n=m-g	1,118,047	1,150,546	(32,499)	889,608	971,926	(82,319)
Net financial result	F11	(122,139)	(124,792)	2,653	(109,038)	(109,822)	784
Income taxes	F13	(137,600)	(144,933)	7,333	(104,941)	(121,257)	16,316
Profit (loss) of the period	q=m+o+p	572,401	594,914	(22,513)	377,103	442,487	(65,385)
of which minority share	r	2,523	1,855	668	(7,972)	(4,201)	(3,771)
of which Group share	s=q-r	569,878	593,059	(23,181)	385,075	446,688	(61,614)
Effective tax rate	t=p/(k+o)	20%	20%	27%	22%	22%	20%

R&D EXPENDITURE

Thousands of Euros	Notes	2022	2023
R&D recognized in other operating expenses		294,453	253,076
R&D capitalized as intangible assets	F14	21,412	27,935
TOTAL R&D EXPENDITURE FOR CONTINUING OPERATIONS		315,866	281,011

Total R&D expenditure was € 281.0 million in the fully consolidated companies in 2023 (€ 315.9 million in 2022). The part of the R&D expenditures that is directly recognized in operating expenses amounts to € 253.1 million in 2023 (€ 294.4 million in 2022).

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ADJUSTMENTS PER SEGMENT AND NATURE INCLUDED IN THE RESULT

Thousands of Euros	2022					2023				
	Total	Catalysis	Energy & Surface Technologies	Recycling	Corporate & Unallocated	Total	Catalysis	Energy & Surface Technologies	Recycling	Corporate & Unallocated
Turnover	-	-	-	-	-	12,691	-	-	12,691	-
Other operating income	2,703	2,389	4	214	97	539	403	3	133	-
Operating income	2,703	2,389	4	214	97	13,230	403	3	12,824	-
Raw materials and consumables	-	-	-	-	-	(9,800)	-	-	(9,800)	-
Payroll and related benefits	(114)	(114)	-	-	-	(3,288)	-	-	(3,288)	-
Depreciation and impairments	(12,227)	(12,157)	-	(69)	-	(44,318)	(2,026)	(33,036)	(9,256)	-
Other operating expenses	(26,480)	(1,359)	2,093	(287)	(26,927)	(32,095)	(7,456)	1,132	(4,312)	(21,460)
Operating expenses	(38,821)	(13,630)	2,093	(357)	(26,927)	(89,502)	(9,482)	(31,904)	(26,656)	(21,460)
Income (loss) from other financial assets	6,349	-	-	-	6,349	(5,507)	-	-	-	(5,507)
Result from operating activities	(29,768)	(11,241)	2,096	(143)	(20,481)	(81,778)	(9,079)	(31,901)	(13,832)	(26,966)
Share in result of companies accounted for using the equity method	(2,731)	-	-	-	(2,731)	(707)	-	-	-	(707)
EBIT	(32,499)	(11,241)	2,096	(143)	(23,212)	(82,485)	(9,079)	(31,901)	(13,832)	(27,673)
Related to restructuring	(1,862)	(2,884)	3,093	(64)	(2,006)	(20,032)	(7,456)	1,204	(2,222)	(11,558)
Related to environment	(26,500)	-	(1,000)	508	(26,008)	(7,764)	-	(72)	(2,103)	(5,589)
Related to asset impairments	(12,255)	(11,949)	-	-	(306)	(46,166)	(2,026)	(33,036)	(9,020)	(2,084)
Other	8,118	3,593	4	(587)	5,108	(8,524)	403	3	(486)	(8,444)

Adjustments had a negative impact of € 82 million on EBIT and EBITDA. In Catalysis, € 9 million is related to the announced plant closure and applied tech center restructuring in Japan (Himeji plant). In Energy & Surface Technologies, € 32 million is primarily resulting from the impairment of obsolete assets and capitalized development expenses. In Recycling, € 14 million is largely resulting from a loss on the sale of assets of an historical technical materials activity in North America (Umicore Electrical Materials).

In Corporate, € 28 million is resulting from (i) the creation of a separate legal entity for the Rechargeable Battery Materials activities; (ii) the increase in some environmental provisions related to legacy remediation initiatives; (iii) the loss on the divestment of a historical activity in zinc chemicals (IEQSA), and (iv) the settlement of a historical litigation related to the divestment of Building Products.

Including positive adjustments to financial and tax items of € 1 million and € 16 million respectively, and taking into account minority interests of € 4 million, the total adjustments to the profit of the period (Group share) corresponded to a negative impact of € 62 million.

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F10 Payroll and related benefits

Thousands of Euros	2022	2023
Wages, salaries and direct social advantages	(681,056)	(738,630)
Other charges for personnel	(42,349)	(39,396)
Temporary staff	(10,357)	(9,979)
Share-based payments	(11,824)	(14,117)
<i>Employee salaries</i>	(745,586)	(802,122)
<i>Employer's social security</i>	(119,003)	(131,769)
Defined benefit contributions	(34,179)	(34,285)
Contribution to defined contribution plans	(17,443)	(25,275)
Employer's voluntary contributions (other)	(3,406)	(4,544)
Pensions paid directly to beneficiaries	(4,733)	(3,104)
Provisions for employee benefits (-increase / + use and reversal)	17,842	19,673
<i>Pensions and other benefits</i>	(41,919)	(47,535)
PAYROLL AND RELATED BENEFITS OF CONTINUING OPERATIONS	(906,507)	(981,425)

The defined contribution plans of the Group in some countries like the USA, Canada, South Africa and Germany are directly recognized in the Consolidated income statement under the line "Contribution to defined contribution plans".

The cash discounts that the authorities give back to Umicore Belgium on the social security contributions, relating to incentives regarding a.o. shift premiums, overtime and R&D are disclosed under the item "Employer's social security".

AVERAGE HEADCOUNT IN CONSOLIDATED COMPANIES

	2022	2023
Executives and managerial staff	2,156	2,374
Non managers	9,151	9,382
Total for continuing operations	11,307	11,756

SHARE-BASED PAYMENTS

Thousands of Euros	Notes	2022	2023
Date of grant		16/02/2022	16/02/2023
Share price at the date of grant (Belgium & Other)	F28	33.86	32.69
Number of stock options granted	F28	1,289,064	1,299,550
Valuation model		Present Economic Value	
Assumed volatility (% pa)		27.50	30.00
Risk-free interest rate (% pa)		0.110	2.500
Dividend increase (% pa)		10.00	10.00
Rate of pre-vesting forfeiture (%pa)		NA	NA
Rate of post-vesting leaving (%pa)		2.00	2.00
Minimum gain threshold (% pa)		15.00	15.00
Proportion who exercise given minimum gain achieved (% pa)		100.00	100.00
Fair value per granted instrument determined at the grant date (EUR)		6.43	7.38
<i>Total fair value of options granted</i>		8,289	9,591
49.811 shares granted at 33,22 EUR		1,655	-
43.459 shares granted at 34,23 EUR		1,488	-
10.000 shares granted at 38,22 EUR		382	-
0.334 shares granted at 31,75 EUR		11	-
14.000 shares granted at 32,69 EUR		-	458
42.237 shares granted at 31,57 EUR		-	1,333
10.321 shares granted at 28,88 EUR		-	298
<i>Total fair value of shares granted</i>		3,535	2,089
PSU's			
PSU's expenses		-	2,438
TOTAL SHARE-BASED PAYMENTS CONTINUING OPERATIONS		11,824	14,117

The Group recognized a share-based payment expense of € 14.1 million during the year.

The part of this expense related to stock options is calculated by an external actuary using the Present Economic Value model which takes into account all features of the stock option plans and the volatility of the underlying stock. This volatility has been determined using the historical volatility of the Group shareholders' return over different averaging periods and different terms. For the calculation of the option value based on the lattice model, weekly steps were introduced, therefore focusing on a weekly term of volatility. The retained volatility assumption was set at 30.0% to reflect the increase of observed volatility. No other market condition has been included in the basis of calculation of fair market value.

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The free share part of the expense is valued at the market price of the shares at the grant date. In 2023, shares have been granted mainly to senior management resulting in an expense of € 2.1 million.

In 2023, the expenses related to the performance share unit ("PSU") plans amount to € 2.4 million.

The PSU plans reward strategic achievements driving long-term sustainable performance over a period of three years. The first awards will vest in 2025 provided the vesting conditions are met and subject to the achievement of the PSU performance objectives.

Performance objectives are balanced between financial and ESG targets. Group financial performance objectives are split evenly between average ROCE and Total Shareholder Return versus a peer group. Group sustainability performance objectives are in line with Umicore's Let's Go for Zero strategy and relate to climate, health & safety and diversity.

F11 Net financial result

Thousands of Euros	2022	2023
Interest income	7,095	32,615
Interest expenses	(81,396)	(110,214)
Discounting of non-current provisions	(6,047)	(8,758)
Foreign exchange gains and losses	(27,698)	(8,339)
Other financial income	184	2,121
Other financial expenses	(14,277)	(16,463)
TOTAL OF CONTINUING OPERATIONS	(122,139)	(109,038)

All interest income and expenses are recognized using the effective interest rate method.

The 2023 interest income reached € 32.6 million benefiting from higher interest rates on deposit of excess liquidity. The interest expenses amounted to € 110.2 million. Those expenses included € 10.4 million of interest expenses (theoretical phantom interests) on the debt component of the convertible debt (€ 10.2 million in 2022) and € 1.4 million of interests related to leases as per IFRS 16. The increase versus last year mainly comes from the USPP drawn in January 2023.

The discounting of non-current provisions relates mainly to employee benefits provisions and to a lesser extent to provisions for other liabilities and charges. This amount is influenced by the present value of these liabilities, which in turn is influenced by changes in the discount rate, by the cash-out profile and by the recognition of new non-current liabilities. Most of the discounting results in 2023 were booked in Germany and to a lesser extent in Belgium.

Foreign exchange results, mainly explained by the cost of forward points in hedging instruments, include realized exchange results and the unrealized translation adjustments on monetary items using the closing rate of the period. They also include fair value gains and losses on other currency financial instruments (see Note F33).

Other financial expenses include payment discounts, bank expenses and other financial fees incurred.

F12 Income from other financial investments

Thousands of Euros	2022	2023
Capital gains and losses on disposal of financial investments	6,210	(4,871)
Dividend income	251	237
Interest income from financial assets	3	3
Impairment results on financial investments	(811)	(444)
TOTAL FOR CONTINUING OPERATIONS	5,651	(5,075)

In 2022, capital gain and losses on disposal of financial investments includes € 6.2 million of profit linked to the disposal of Umicore's Zinc Chemicals activities which occurred in 2016 and for which Umicore was contractually entitled to some earn-out that materialised in that year. In 2023, the loss of € 4.9 million mainly relates to sale of associates.

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F13 Income taxes

Thousands of Euros	2022	2023
Income tax expense		
Recognized in the income statement		
Current income tax	(244,991)	(172,248)
Deferred income tax	107,391	67,307
Total tax expense for continuing operations	(137,600)	(104,941)
RELATIONSHIP BETWEEN TAX EXPENSE (INCOME) AND ACCOUNTING PROFIT		
Result from operating activities	818,667	590,683
Financial result	(122,139)	(109,038)
Profit (loss) before income tax of consolidated companies	696,528	481,645
Weighted average theoretical tax rate (%)	27.62	28.36
Income tax calculated at the weighted average theoretical tax rate for continuing operations	(192,362)	(136,584)
Tax effect of :		
Expenses not deductible for tax purposes	(6,056)	(10,740)
Tax-exempted revenues	4,497	8,959
Dividends from consolidated companies, associates and joint ventures	(18)	(23)
Gains & Losses taxed at a reduced rate	592	39
Tax incentives and tax holidays	49,890	28,663
Tax computed on other basis	(3,868)	(6,214)
Utilisation of previously unrecognized tax losses	4,182	5,251
Derecognition / Recognition of deferred tax assets	(1,371)	16,246
Change in applicable tax rate	15,522	(17)
Other tax credits (excluding R&D tax credits)	7,072	644
Non recoverable foreign withholding taxes	(7,615)	(17,878)
Previous years adjustments	(13,313)	(11,700)
Other (including IFRIC 23)	5,248	18,413
TAX EXPENSE AT THE EFFECTIVE TAX RATE FOR THE YEAR	(137,600)	(104,941)

The weighted average theoretical tax rate increases from 27.6% in 2022 to 28.4% in 2023 due to the relative increase in profits in countries with a higher nominal tax rate, such as Germany. In 2023, no tax rate changes were substantially enacted in the jurisdictions where Umicore operates.

Excluding the impact of adjustments, the adjusted effective tax rate ("ETR") for 2023 was 21.6%. This compares to 20.0% in 2022.

The 2023 ETR is positively impacted by tax incentives in Korea and Belgium; the re-assessment of deferred tax assets under IAS 12 principles in France, Japan, Denmark, China, and Canada driven by expected evolution in taxable profit; and the decrease in IFRIC 23 provisions.

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F14 Intangible assets other than goodwill

Thousands of Euros	Development expenses capitalized	Concessions, patents, licences, etc.	Software	CO2 emission rights	Other intangible assets	Total
At the beginning of previous year						
Gross value	156,213	104,755	158,921	17,884	116,012	553,785
Accumulated amortisation	(120,207)	(91,965)	(130,418)	-	(29,932)	(372,522)
Net book value at the beginning of previous year	36,006	12,790	28,503	17,884	86,079	181,263
. additions	6,226	294	3,535	-	22,375	32,431
. disposals	-	-	(5)	0	0	(4)
. amortisation charged (included in "Depreciation and impairments")	(9,057)	(5,548)	(8,282)	-	(4,377)	(27,265)
. impairment losses recognized (included in "Depreciation and impairments")	(11,969)	(3,659)	(66)	-	(334)	(16,028)
. emission rights allowances	-	-	-	8,329	-	8,329
. translation differences	(388)	(3)	(43)	0	267	(166)
. other movements	16,092	5	10,040	0	(19,747)	6,391
At the end of previous year	36,910	3,880	33,683	26,214	84,264	184,951
Gross value	152,534	105,008	170,955	26,214	119,250	573,961
Accumulated amortisation	(115,624)	(101,128)	(137,272)	-	(34,986)	(389,010)
Net book value at the end of previous year	36,910	3,880	33,683	26,214	84,264	184,951
. additions	4,746	25,928	3,823	-	42,771	77,268
. disposals	-	-	(3)	(0)	-	(4)
. amortisation charged (included in "Depreciation and impairments")	(9,203)	(3,589)	(9,990)	-	(3,539)	(26,321)
. impairment losses recognized (included in "Depreciation and impairments")	(7,641)	-	(71)	-	(11)	(7,723)
. emission rights allowances	-	-	-	4,308	-	4,308
. translation differences	(217)	1	(196)	(0)	193	(220)
. other movements	9,417	(0)	12,505	-	(31,412)	(9,490)
At the end of the year	34,011	26,220	39,751	30,522	92,265	222,769
Gross value	156,789	91,004	184,473	30,522	130,153	592,940
Accumulated amortisation	(122,777)	(64,784)	(144,722)	-	(37,888)	(370,171)
NET BOOK VALUE FOR CONTINUING OPERATIONS	34,011	26,220	39,751	30,522	92,265	222,769

In 2023, additions amounted to € 77.3 million and contain capitalized expenses in internally generated developments for € 27.9 million (see note F9), of which € 23.7 million is included in "Other intangible assets" as intangible assets in progress. Additions mainly relate to capitalized development expenses in new product and technologies in Rechargeable Battery Materials and in battery recycling, acquisition of licences for € 26.0 million as well as capitalized expenses related to the renewal of a Group software. Impairment losses are mainly linked to impairment on selected capitalized development projects in Energy & Surce Technologies. Net increase of emission right allowances amounts to € 4.3 million in 2023 (new grants € 21.4 million and settlement €-17.1 million). Other movements mainly include the transfer between intangible assets in progress (included under "other intangible assets") and the other categories of intangible assets and transfers from tangible assets. The other intangible assets category contains intangible assets in progress for € 82.3 million (mainly capitalized development costs) but also some

business portfolio and customers' list acquired for € 8.8 million. There are no pledges on, or restrictions to, the title on intangible assets, other than disclosed in note F35.

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F15 Goodwill

Thousands of Euros	31/12/2022	31/12/2023
At the end of the previous year		
Gross value	168,915	171,495
Accumulated impairment losses	(10,330)	(13,080)
Net book value at the end of previous year	158,585	158,415
. impairment losses recognized (included in "Depreciation and impairment")	(2,149)	-
. translation differences	1,979	(144)
At the end of the year	158,415	158,271
Gross value	171,495	168,892
Accumulated impairment losses	(13,080)	(10,621)
NET BOOK VALUE FOR CONTINUING OPERATIONS	158,415	158,271

This table includes goodwill related to fully consolidated companies only. Goodwill relating to companies accounted for using the equity method is detailed in note F17.

The change of the period relates to the translation differences.

The goodwill accounted in each of the CGU groups, but summarized by segment, is as follows:

Thousands of Euros	Catalysis	Energy & Surface Technologies	Recycling	Total
31/12/2022	47,795	92,297	18,322	158,415
31/12/2023	47,726	92,236	18,308	158,271

Management tests annually whether goodwill has suffered any impairment in accordance with the accounting policy stated in note F2. Such impairment tests are performed at a cash generating unit level, which may vary in scope from a total business unit to an individual plant but never a full segment scope. The recoverable amounts of cash-generating units to which goodwill is allocated have been determined based on value-in-use calculations by means of discounted cash flow modelling on the basis of the Group's operational plans which typically look forward 5 years, followed by a long term projection. On macroeconomic and external indicators such as currency and metal prices, the testing uses typically prevailing market conditions at the time the plans are drafted. The rates used are typically the ones observed on international exchanges in the last quarter of the year. The 2023 goodwill impairment testing indicated sufficient headroom in the respective cash generating units and hence no goodwill impairments were recognized. The 2023 impairment testing used an average tax rate of 25.0% (unchanged versus 2022) and a weighted average cost of capital post-tax of 7.7% (same as in 2022). A uniform WACC rate

was applied across cash generating units with unit-specific risk factors considered to be reflected in the underlying cash flow projections. Terminal values were determined on the basis of a perpetual growth rate of on average 2% (same as in 2022). Inflation rates were based on guidance from national and international institutes such as the NBB or ECB.

In this exercise, the Group has considered the potential impact of climate change (forecasts and cash flows used, expected live of property, plant and equipment, capital expenditures to meet net zero scope 1 and 2 greenhouse gas emissions). In particular, the electrification of mobility has been taken into consideration for the catalysis business and reasonable deviation from the key assumptions would not trigger an impairment.

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F16 Property, plant and equipment

Thousands of Euros	Land and buildings	Plant, machinery and equipment	Furniture and vehicles	Other tangible assets	Construction in progress and advance payments	Total
At the beginning of previous year without leasing						
Gross value	1,382,096	2,703,328	276,986	39,340	512,940	4,914,690
Accumulated depreciation	(591,513)	(1,821,529)	(190,017)	(22,540)	-	(2,625,599)
Net book value at the beginning of previous year without leasing	790,583	881,799	86,970	16,799	512,940	2,289,091
. additions	22,479	39,665	10,742	6,122	379,852	458,859
. disposals	(2,541)	(1,103)	(354)	(586)	(14)	(4,598)
. depreciations (included in "Depreciation and impairments")	(52,591)	(163,603)	(21,493)	(654)	-	(238,340)
. net impairment losses recognized (included in "Depreciation and impairments")	(1,342)	(1,819)	(594)	-	-	(3,754)
. translation differences	(4,622)	(5,878)	209	4	(5,226)	(15,513)
. other movements	63,216	190,895	13,311	1,476	(275,011)	(6,114)
At the end of previous year without leasing	815,183	939,956	88,791	23,161	612,541	2,479,631
At the beginning of the year without leasing						
Gross value	1,451,062	2,877,669	289,795	46,294	612,541	5,277,361
Accumulated depreciation	(635,880)	(1,937,713)	(201,004)	(23,133)	-	(2,797,729)
Net book value at the beginning of the year without leasing	815,183	939,956	88,791	23,161	612,541	2,479,631
. additions	17,256	48,800	12,667	401	728,349	807,474
. disposals	(137)	(8,653)	(235)	-	(1,338)	(10,363)
. depreciations (included in "Depreciation and impairments")	(54,884)	(174,276)	(22,100)	(879)	-	(252,139)
. net impairment losses recognized (included in "Depreciation and impairments")	(3,346)	(33,207)	(1,055)	(465)	-	(38,073)
. translation differences	(13,803)	(24,258)	(1,498)	(87)	16,997	(22,649)
. other movements	57,664	156,455	16,322	713	(221,181)	9,972
At the end of the financial year without leasing	817,932	904,817	92,892	22,845	1,135,367	2,973,853
Gross value	1,495,128	2,932,632	306,095	46,266	1,135,367	5,915,488
Accumulated depreciation	(677,196)	(2,027,814)	(213,202)	(23,421)	-	(2,941,635)
NET BOOK VALUE FOR CONTINUING OPERATIONS WITHOUT LEASING	817,932	904,817	92,893	22,845	1,135,367	2,973,853

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Thousands of Euros	Land and buildings	Plant, machinery and equipment	Furniture and vehicles	Other tangible assets	Construction in progress and advance payments	Total
Gross value	68,958	2,310	28,436	625	-	100,329
Accumulated depreciation	(22,707)	(1,463)	(13,888)	(228)	-	(38,286)
Net book value at the beginning of previous year for leasing	46,251	847	14,549	397	-	62,044
. additions	6,172	43	7,583	12	-	13,811
. depreciations (included in "Depreciation and impairments")	(11,802)	(848)	(7,542)	(103)	-	(20,296)
. net impairment losses recognized (included in "Depreciation and impairments")	(2,986)	-	3	-	-	(2,984)
. translation differences	97	(14)	11	(1)	-	93
At the end of previous year for leasing	37,732	28	14,603	306	-	52,669
Leasing at the beginning of the year						
Gross value	70,390	159	31,823	637	-	103,010
Accumulated depreciation	(32,659)	(131)	(17,220)	(331)	-	(50,340)
Net book value at the beginning of the year for leasing	37,732	28	14,603	306	-	52,669
. additions	12,066	1,864	17,638	-	-	31,569
. depreciations (included in "Depreciation and impairments")	(10,694)	(969)	(8,301)	(104)	-	(20,069)
. translation differences	(1,324)	43	3	(0)	-	(1,279)
At the end of the financial year for leasing	37,780	966	23,943	201	-	62,890
Gross value	76,730	4,391	41,635	637	-	123,393
Accumulated depreciation	(38,950)	(3,425)	(17,691)	(436)	-	(60,502)
NET BOOK VALUE FOR LEASING	37,780	966	23,943	201	-	62,891
Tangible asset including leasing						
Gross value	1,571,858	2,937,022	347,730	46,903	1,135,367	6,038,881
Accumulated depreciation	(716,147)	(2,031,239)	(230,894)	(23,857)	-	(3,002,136)
NET BOOK VALUE FOR CONTINUING OPERATIONS INCLUDING LEASING	855,712	905,783	116,836	23,046	1,135,367	3,036,744

Capital expenditure totaled € 857 million (including additions on intangible assets but without the capitalized R&D costs as per Umicore's capital expenditures definition), compared to € 470 million the previous year. Taking into account investments in Rechargeable Battery Materials' greenfield plants in Poland and Canada, Energy & Surface Technologies accounted for close to three quarters of Group capital expenditures.

Impairments on property, plant and equipment are mainly related to impairment of obsolete assets in Energy & Surface Technologies and impairment of assets in Catalysis following the announced plant closure and applied tech center restructuring in Japan.

The line 'other movements' mainly includes the transfer between construction in progress and the other categories of assets and to a lesser extent transfer to intangible assets.

There are no pledges on, or restrictions to, the title on property, plant and equipment, other than disclosed in note F35.

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F17 Investments accounted for using the equity method

The investments in companies accounted for using the equity method are composed mainly of the following associates and joint ventures:

	Country	Measurement currency	Percentage	Percentage
			2022	2023
For continuing operations				
Associates and joint ventures				
IEQSA	Peru	PEN	40.00%	0.00%
Ganzhou Yi Hao Umicore Industries	China	CNY	40.00%	40.00%
Element Six Abrasives	United Kingdom	USD	40.22%	40.22%
Jiangmen Chancsun Umicore Industry Co.,LTD	China	CNY	40.00%	40.00%
Joint ventures				
IONWAY	Belgium	EUR	0.00%	50.00%

Investments in associates and joint ventures are accounted for in accordance with the equity method and represent approximately 3.2% of Umicore's consolidated balance sheet total.

Associates

Umicore has no individual material investments in associates. Considering the objectives of the IFRS 12 disclosure requirements, the most significant associate is Element Six Abrasives, in which Umicore holds 40.22%. Element Six Abrasives is a synthetic diamond materials group, part of De Beers Group, its majority shareholder. The group operates worldwide with primary manufacturing facilities in Ireland, Germany, the UK, the US and South Africa. Element Six Abrasives is on an adjusted results basis a profitable group, generating positive cash flow. The group's functional currency is USD. Umicore is represented in the Board of Directors and the audit committee of Element Six Abrasives. Besides its equity share in this company, Umicore has no other commitments, guarantees or obligations arising from its involvement in this associate. Adjustments, if any, in respect of the financial statements of Element Six Abrasives, are separately disclosed under the relevant captions of Umicore's consolidated financial statements (see note F9 for adjustments).

Joint ventures

Umicore and Volkswagen Group-backed battery company PowerCo created in 2023 the joint venture IONWAY BV with registered offices in Brussels. Umicore's interest in IONWAY amounts to 50% (+1 share) and the Group accounts for this interest using the equity method. Umicore is represented in the Board of Directors and in the Board of Management. IONWAY is active in the production of precursors and cathode active materials for batteries and battery cells and their upstream value chains. The joint venture is scaling up the EU footprint in the e-mobility business with the ambition to grow its annual production

capacity to 160 GWh by the end of the decade, corresponding to 2.2 million battery-electric vehicles. The first production plant of the company will be located in Nysa, Poland. In line with the ramp up of the joint venture's production capacity, partners are likely to contribute additional equity in the joint venture in the coming years which will depend on an appropriate equity vs debt ratio. Umicore has no other commitments, guarantees or obligations of a financial nature arising from its involvement in this joint venture.

Changes in investments accounted for using the equity method (associates and joint ventures)

Thousands of Euros	Net book value	Goodwill	Total
At the end of previous year	113,025	45,919	158,943
. capital increase	178,863	-	178,863
. Profit (loss) of the period	399	-	399
. dividends	(5,872)	-	(5,872)
. disposal	(10,322)	(4,129)	(14,452)
. change in other reserves	1,473	-	1,473
. translation differences	(2,430)	(305)	(2,734)
. other movements	(1,885)	-	(1,885)
AT THE END OF THE YEAR FOR CONTINUING OPERATIONS	273,249	41,485	314,734
of which joint ventures	177,702	-	177,702
of which associates	95,548	41,485	137,032

During the year, the Group contributed to the capital increase of IONWAY for € 178.9 million, of which € 100.0 million has been called in December 2023 but paid in full end of January 2024.

In August 2023, the Group disposed of its share in Ieqsa whose carrying amount was € 14.5 million.

The elements recognized in other comprehensive income for investments accounted for using the equity method are mainly related to employee benefits reserves and translation reserves.

Summarized financial information of associates on the basis of Umicore's interest

Umicore's share in the aggregated balance sheet and profit and loss items of the associates would have been as follows:

Thousands of Euros	31/12/2022	31/12/2023
Assets	302,125	222,678
Liabilities	170,650	110,454
Turnover	355,164	224,759
profit (loss) of the period	13,473	3,535

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Summarized financial information of material joint-ventures on a 100% basis

Thousands of Euros	31/12/2023
Equity interest in %	50%
Non-current assets	71,604
Current assets	345,113
of which cash and cash equivalents	242,285
Non-current liabilities	158
of which financial debt	125
Current liabilities	61,170
Equity	355,389
Thousands of Euros	31/12/2023
Profit (loss) of the period	(5,967)
Other comprehensive income	3,898
Total comprehensive income	(2,069)

Reconciliation of financial information to the carrying amount of the investment accounted for using the equity method for material joint-ventures

Thousands of Euros	31/12/2023
. capital increase	357,711
. Profit (loss) of the period	(5,967)
. translation differences	3,898
. Other movements	(253)
Equity at the end of the year	355,389
Proportionate equity	177,702
Carrying amount of equity-accounted investment	177,702

F18 Other equity investments and loans granted

Thousands of Euros	Other equity investments	Loans granted
Non-current financial assets		
At the beginning of previous year	14,120	2,608
. increase	-	970
. decrease	-	(212)
. impairment losses (included in "Income (loss) from other financial assets")	-	(794)
. translation differences	(7)	(42)
. fair value recognized in equity	8,076	-
. other movements	(24)	63
At the end of previous year	22,165	2,592
. increase	4,590	618
. decrease	-	(233)
. impairment losses (included in "Income (loss) from other financial assets")	(2)	(443)
. translation differences	(40)	(89)
. fair value recognized in equity	(7,435)	-
. other movements	268	-
AT THE END OF THE FINANCIAL YEAR FOR CONTINUING OPERATIONS	19,545	2,444
CURRENT FINANCIAL ASSETS		
At the end of the preceding financial year	-	1,273
. increase	-	44
. decrease	-	(1,077)
. translation differences	-	9
AT THE END OF THE FINANCIAL YEAR FOR CONTINUING OPERATIONS	-	249

In 2023, Umicore invested € 4.6 million in solid-state battery equity investments.

In 2023, € 7.4 million loss (€ 8.1 million gain in 2022) was recognized in other comprehensive income for equity investments measured at fair value through other comprehensive income.

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F19 Inventories

Thousands of Euros	31/12/2022	31/12/2023
Analysis of inventories		
Base products - gross value	3,389,853	2,839,235
. Permanently tied up metal inventories (not hedged)	1,052,088	1,257,257
. Commercially available metal inventories (hedged) (*)	2,028,691	1,185,067
. Other base products inventories (not hedged)	309,074	396,911
Consumables - gross value	125,699	132,767
Write-downs	(137,666)	(134,481)
Advances paid	4,103	6,526
Contracts in progress	11,686	6,060
TOTAL INVENTORIES FOR CONTINUING OPERATIONS	3,393,674	2,850,106

* applying Umicore's transactional metal hedging - see note F2.22.1 and F3.2.2

Inventories have decreased by € 543.6 million compared with December 2022. Lower prices for battery metals led to lower inventory values in Energy & Surface technologies, while the substantially lower prices of PGMs combined with lower inventory level drove Catalysis down. The increase of permanently tied up inventories is linked to battery material activities, where continued ramp-up of production capacity and start-up of new production lines requires higher quantities of permanent metal inventory.

The total gross book value of Umicore's permanently tied-up metal inventories at 31 December 2023 compares to a value of € 2,082 million when applying the 31 December 2023 market prices (€ 4,067 million at end December 2022).

In line with Umicore's accounting policies related to inventories (see Note F2.11), metals are classified in inventory categories that reflect their specific nature and business use. Umicore classifies permanently tied-up metal inventories as a separate inventory category. At start of the year, Umicore carried permanently tied-up inventories for silver, gold, platinum, palladium, rhodium, cobalt, nickel, germanium, lead, lithium and copper. As this inventory category is considered to have an unlimited useful life, no depreciations are applied but instead it will be subject to Umicore's annual impairment testing of the Cash Generating Units carrying these inventories. Applying the LOCOM principle on permanently tied-up metal inventories on 31 December 2023 would have given rise to a non-cash impairment charge of € 412.9 million for the Group.

The change in inventory recognized in Raw Materials and Consumables in the consolidated income statement is a negative amount of € 429 million (representing the cash movements on inventory balances). The net write-down of inventory recorded in the consolidated income statement in 2023 amounts to € 2.6 million.

Write-downs on inventories amount to € 134.5 million and mainly relate to write-downs on slow moving spare parts, on scrapping during production and on materials for which the market value is below the carrying amount of the material.

There are no pledges on, or restrictions to, the title on inventories.

F20 Trade and other receivables

Thousands of Euros	Notes	31/12/2022	31/12/2023
Non current			
Cash guarantees and deposits		9,596	10,402
Other receivables maturing > 1 year		4,330	14,161
Assets employee benefits		4,786	5,129
TOTAL FOR CONTINUING OPERATIONS		18,712	29,692
Current			
Trade receivables (at cost)		1,313,156	984,968
Trade receivables (write down)		(17,893)	(16,340)
Other receivables (at cost), interest receivable, deferred charges and accrued income		425,108	219,056
Other receivables (write down)		(378)	(378)
Fair value receivable financial instruments held for cash-flow hedging	F33	62,187	64,096
Fair value receivable - financial instruments related to FV hedging (IFRS 9 hedge accounting)	F33	23,141	65,452
Fair value receivable - financial instruments related to FV hedging (economic hedging)	F33	25,219	40,629
TOTAL FOR CONTINUING OPERATIONS		1,830,540	1,357,483

Decrease in current trade receivables and other receivables in mainly explained by lower metal prices.

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Thousands of Euros	Total	Not due	Overdue between			
			0-30 days	30-60 days	60-90 days	> 90 days
Ageing balance analysis at the beginning of the year						
Trade receivables (w/o doubtful and securitized receivables) - at cost	1,296,087	1,140,691	120,486	26,522	6,778	1,610
Loss allowance	15,536	9,257	1,438	232	798	3,811
Expected loss rate	1.20%	0.81%	1.19%	0.87%	11.77%	236.67%
Ageing balance analysis at the end of year						
Trade receivables (w/o doubtful and securitized receivables) - at cost	974,045	884,506	63,493	16,470	2,550	7,025
Loss allowance	14,520	6,974	903	143	93	6,407
Expected loss rate	1.49%	0.79%	1.42%	0.87%	3.64%	91.20%

CREDIT RISK – TRADE RECEIVABLES

Thousands of Euros	Trade receivables (write-down)	Other receivables (write-down)	Total
At the beginning of previous year	(18,771)	(207)	(18,977)
. Impairment losses recognized in income statement	(1,022)	(171)	(1,193)
. Reversal of impairment losses	1,700	-	1,700
. Impairment written off against asset carrying amount	171	-	171
. Other movements	148	-	148
. Translation differences	(120)	(1)	(121)
At the end of previous year	(17,893)	(378)	(18,271)
At the beginning of the financial year	(17,893)	(378)	(18,271)
. Impairment losses recognized in income statement	(25,067)	-	(25,067)
. Reversal of impairment losses	21,020	-	21,020
. Impairment written off against asset carrying amount	4,373	-	4,373
. Other movements	762	-	762
. Translation differences	464	0	464
AT THE END OF THE FINANCIAL YEAR FOR CONTINUING OPERATIONS	(16,340)	(378)	(16,718)

The Group applies the IFRS 9 simplified approach to measure expected credit losses which uses a lifetime expected loss allowance for all trade receivables. To measure the expected credit losses, trade receivables have been grouped based on shared credit risk characteristics and the days past due. The expected loss rates are based on historical payment profiles of sales and the corresponding credit losses experienced. The historical loss rates are adjusted to reflect current and forward-looking information on macro-economic factors affecting the ability of the customers to settle the receivables. The Group has identified macro-economic factors, Probability of Default (PD) and Loss Given Default (LGD) to be the most relevant factors, and accordingly adjusts the historical loss rates based on expected changes in these factors.

In principle, Umicore uses credit insurance as a means to mitigate the credit risk related to trade receivables. In 2023, three main credit insurance policies with three different insurers were in place. At closing, € 265 million of the Group's outstanding invoices were covered by a policy where indemnification in case of non-payment amounts to 95% with an indemnification cap set at regional or country level. The other two policies covered € 289 million of trade invoices with a global annual deductible of € 5 million, a maximum indemnity per year of € 200 million and an indemnification in case of non-payment of 95%. The Group also managed credit exposure by selling invoices to financial institutions without recourse (€ 227 million end of 2023 compared to € 533 million end of 2022), partly covered by the above credit insurance policies. Under one of these facilities, the carrying amount of receivables sold before the transfer amounts to € 109 million while total carrying amount of the assets that the entity continues to recognize and the related continuing involvement liability equal to € 19.2 million as of 31 December 2023. The latter consist mainly of non-transferred credit risk as well as late payment risk over the relevant portfolio. Other facilities, amounting to € 141 million, are derecognized in their entirety.

Specifically in China, Umicore reduces credit risk by discounting bank acceptance drafts it receives from its customers without recourse (and hence derecognized) (€ 101 million end of year 2023 compared to € 268 million end of 2022).

Finally, some businesses units do not use credit insurance and instead use internal credit limits that are set based on available financial information and business knowledge. These limits are duly reviewed and approved by management.

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F21 Tax assets and liabilities

Thousands of Euros	31/12/2022	31/12/2023
Tax assets and liabilities		
Income tax receivables	82,941	87,806
Deferred tax assets	315,996	370,336
Income tax payable	(261,950)	(222,803)
Deferred tax liabilities	(30,029)	(28,741)

Thousands of Euros	Assets		Liabilities		Net	
	2022	2023	2022	2023	2022	2023
At the end of preceding financial year	219,248	315,996	(24,294)	(30,029)	194,954	285,967
Deferred tax recognized in the P&L	111,110	75,124	(3,719)	(7,817)	107,391	67,307
Deferred tax recognized in equity	5,933	(5,556)	(21,025)	6,598	(15,092)	1,042
Translation differences	(1,200)	(12,806)	(86)	85	(1,286)	(12,721)
Transfer	(19,095)	(2,422)	19,095	2,422	-	-
AT THE END OF FINANCIAL YEAR	315,996	370,336	(30,029)	(28,741)	285,967	341,595

Thousands of Euros	Assets		Liabilities		Net	
	2022	2023	2022	2023	2022	2023
Deferred tax in respect of each type of temporary difference						
Intangible assets	31,180	36,959	(1,815)	(1,863)	29,365	35,096
Goodwill on fully consolidated companies	-	-	(590)	-	(590)	-
Property, plant and equipment	9,193	14,391	(36,849)	(44,016)	(27,656)	(29,625)
Long term receivables	72	321	(227)	(215)	(155)	106
Inventories	164,375	172,129	(28,669)	(38,919)	135,706	133,210
Trade and other receivables	18,641	20,971	(53,822)	(39,791)	(35,181)	(18,820)
Group Shareholder's equity	-	-	(4,313)	(5,345)	(4,313)	(5,345)
Long Term Financial Debt and other payable	18,749	26,485	(17,478)	(16,422)	1,271	10,063
Provisions						
Employee Benefits	51,854	62,380	(13,546)	(16,083)	38,308	46,297
Provisions for Environment	28,785	26,843	(285)	(364)	28,500	26,479
Provisions for other liabilities and charges	31,219	25,638	(1,169)	(934)	30,050	24,704
Current Financial Debt	-	-	(567)	(166)	(567)	(166)
Current Provisions for Environment	4,731	5,975	-	-	4,731	5,975
Current Provisions for Other Liabilities & Charges	4,703	3,853	(8)	(8)	4,695	3,845
Trade and other payables	84,638	59,284	(1,840)	(5,710)	82,798	53,574
Total deferred tax due to temporary differences	448,140	455,229	(161,178)	(169,836)	286,962	285,393
Tax losses to carry forward	58,137	157,099	-	-	58,137	157,099
Investments deductions	650	385	-	-	650	385
Other	2,039	1,866	-	-	2,039	1,866
Deferred tax assets not recognized	(61,821)	(103,148)	-	-	(61,821)	(103,148)
Total tax assets/liabilities	447,145	511,431	(161,178)	(169,836)	285,967	341,595
Compensation of assets and liabilities within same entity	(131,149)	(141,095)	131,149	141,095	-	-
NET AMOUNT	315,996	370,336	(30,029)	(28,741)	285,967	341,595

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	2022	2023	2022	2023
Thousands of Euros	Base	Base	Tax	Tax
Amount of deductible temporary differences, unused tax losses or tax credits for which no deferred tax asset is recognized in the balance sheet				
Expiration date within 5 years	41,882	21,139	10,470	5,700
Expiration date within 10 years	1,800	27,209	468	8,182
Expiration date with no time limit	188,024	310,818	50,883	89,266

The changes in temporary differences are charged to the consolidated income statement except those arising from events that were recognized directly in the consolidated statement of comprehensive income.

The main movements recognized in the consolidated statement of comprehensive income are deferred taxes generated by temporary differences included within “Provisions for employee benefits” (positive by € 10.3 million) and “Trade and other payables” (negative by € 7.4 million). The main movements in deferred tax recognized in the consolidated income statement are “Trade and other receivables” (positive by € 16.8 million), “Trade and other payables” (negative by € 21.9 million), “Tax losses carried forward” (positive by € 99 million) and “Deferred tax assets not recognized” (negative by € 41 million).

The main net deferred tax assets are recorded in Belgium, Korea, China, and the USA. Deferred tax assets are only recognized to the extent that their utilization is probable, i.e., if a tax benefit is expected in future periods. The Group assesses a recoverability in a range of 5 to 10 years in function of the characteristics of the asset, also considering the applicable tax loss carry forward provisions. The actual tax results in future periods may differ from the estimates made at the time when the deferred tax assets are recognized.

Unrecognized deferred tax assets of € 103 million arise mainly from carry-forward tax losses in Umicore International SA (Luxembourg) of € 75.6 million, Umicore Shokubai SA (Luxembourg) of € 9.2 million, Umicore Japan KK of € 2.3 million, Umicore Catalyst (China) Co., Ltd. of € 3.5 million and Umicore Shokubai Japan Co Ltd of € 8.2 million and deductible temporary differences in Umicore Shokubai Japan Co Ltd of € 3.6 million.

In accordance with IAS 12, deferred tax liabilities that are not probable to be realized in the foreseeable future have not been recognized.

Group current income tax payable at 31 December 2023 amounting to € 222.8 million (2022: € 262.0 million) includes uncertain tax positions of € 93.1 million (€ 108.9 million in 2022). The decrease in uncertain tax positions is mainly explained by the release of provisions (e.g., statute of limitation, audit resolution), remeasurements, and new uncertainties (whether positive or negative) recorded with an overall positive effect.

F22 Net cash and cash equivalents

Thousands of Euros	31/12/2022	31/12/2023
Cash and cash equivalents		
Short-term investments : bank term deposits	612,839	1,082,190
Short-term investments : term deposits (other)	98	102,399
Cash-in-hands and bank current accounts	626,932	330,901
Total cash and cash equivalents	1,239,869	1,515,490
Bank overdrafts	18,534	51,694
NET CASH AS IN CASH FLOW STATEMENT	1,221,335	1,463,796

All cash and cash equivalents are fully available for the Group.

Liquidity risk management implies maintaining sufficient cash and marketable securities, the availability of funding through an adequate amount of committed (unused in 2023), uncommitted credit facilities from a large pool of financial institutions and the ability to close out market positions.

Due to the dynamic nature of the underlying businesses, the Group aims to maintain funding flexibility through committed credit lines. Excess liquidities are invested for very short periods and are spread over a limited number of banks, all enjoying a satisfactory credit rating.

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F23 Currency translation differences and other reserves

The detail of the Group's share in currency translation differences and other reserves is as follows:

Thousands of Euros	Conversion rights recognized in equity	Other equity investments at FV through OCI reserves	Cash flow hedge reserves - Commodities	Cash flow hedge reserves - Currencies	Cash flow hedge reserves - IRS	Deferred taxes directly recognized in OCI	Changes in post employment benefits, arising from changes in actuarial assumptions	Share-based payment reserves	Currency translation differences	Total
Balance at the beginning of previous year	50,324	(3,009)	70,804	(13,649)	(2,885)	48,391	(282,085)	52,994	(117,259)	(196,370)
Remeasurements recognized in other comprehensive income	-	8,076	10,056	(18,402)	(6,159)	(23,205)	94,387	-	-	64,752
Remeasurements recognized in equity	-	-	-	-	-	-	-	11,824	-	11,824
Remeasurements derecognized out of other comprehensive income	-	-	(44,952)	11,907	-	7,708	-	-	-	(25,337)
Transfer from/to retained earnings	-	(402)	-	-	-	-	646	(725)	-	(481)
Exchange differences	-	(28)	(186)	(777)	586	78	(1,754)	-	19,807	17,725
BALANCE AT THE END OF PREVIOUS YEAR	50,324	4,637	35,723	(20,922)	(8,458)	32,972	(188,806)	64,092	(97,452)	(127,887)
Balance at the beginning of the year	50,324	4,637	35,723	(20,922)	(8,458)	32,972	(188,806)	64,092	(97,452)	(127,887)
Remeasurements recognized in other comprehensive income	-	(7,435)	(4,513)	26,104	(3,690)	3,696	(38,188)	-	-	(24,027)
Remeasurements recognized in equity	-	-	-	-	-	-	-	14,117	-	14,117
Remeasurements derecognized out of other comprehensive income	-	-	(13,613)	24,291	2,926	(2,326)	-	-	-	11,278
Transfer from/to retained earnings	-	-	-	-	-	-	-	(654)	-	(654)
Exchange differences	-	(27)	(687)	511	757	(153)	910	-	(51,354)	(50,042)
BALANCE AT THE END OF THE YEAR	50,324	(2,825)	16,910	29,984	(8,465)	34,190	(226,084)	77,555	(148,806)	(177,217)

The net gains recognized in the OCI regarding cash flow hedges (€ 17.9 million) are the changes in fair value of new cash flow hedging instruments or existing ones at opening but which have not yet expired at year end. The net losses derecognized from OCI (€ 13.6 million) are the fair values of the cash-flow hedging instruments existing at the opening which expired during the year. The total impact incurred at expiration of the cash-flow hedges during the year represents a loss of € 16.1 million, recognized in the income statement. This amount includes the mentioned net losses derecognized from OCI (€ 13.6 million) and the fair value changes incurred in the course of the year on expired existing cash-flow hedges and on new instruments contracted during the year (€ 2.5 million).

Remeasurements as a result of changes in the actuarial assumptions on the defined post-employment benefit plans have been recognized in OCI for € -38.2 million (refer to Note 27 on Provisions for employee benefits). The 2023 shares and stock option plans and the PSU's have led to a share-based payment reserve increase of € 14.1 million (refer to note F10 on employee benefits). € 0.6 million, linked to exercised options and free shares plans, have been transferred to retained earnings.

The movements on exchange differences are mainly related to weaker CNY (€ -37.1 million), KRW (€ -32.7 million) and USD (€ -15.6 million) and the strengthening of the PLN (€ 50.7 million) compared to EUR. The total exchange differences are mainly impacted by the following currencies : CNY, BRL, KRW, PLN, ZAR, ARS and USD.

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F24 Financial debt

Thousands of Euros	Bank loans	Lease liability	Other loans	Total
Non-current				
At the beginning of previous year	1,205,000	62,892	456,145	1,724,037
. Increase	-	13,842	42,328	56,170
. Decrease	-	(20,050)	-	(20,050)
. Translation differences	-	40	(3)	37
. Transfers	(88,000)	(16,015)	(30,000)	(134,015)
At the end of previous year	1,117,000	40,709	468,470	1,626,179
. Increase	602,989	31,469	12,553	647,011
. Decrease	-	(20,064)	-	(20,064)
. Translation differences	(33,265)	(1,273)	(2)	(34,540)
. Transfers	(199,000)	(141)	-	(199,141)
At the end of the financial year	1,487,724	50,700	481,021	2,019,445
Current portion of long-term financial debts				
At the end of the preceding financial year	88,000	16,015	30,000	134,015
. Increase / decrease	(88,000)	-	(30,000)	(118,000)
. Transfers	199,000	141	-	199,141
At the end of the financial year	199,000	16,156	-	215,156

Thousands of Euros	Short term bank loans	Bank overdrafts	Short term loan : commercial paper	Other loans	Total
Current					
At the end of the preceding financial year	258,591	18,534	94,918	211,201	583,244
. Increase / decrease	(57,637)	35,192	17,484	(48,430)	(53,390)
. Translation differences	(2,203)	(2,032)	-	(12,078)	(16,313)
At the end of the financial year	198,751	51,694	112,402	150,694	513,541

Net financial debt at 31 December 2023 stood at € 1,265.8 million compared with € 1,103.6 million at the start of the year.

The financial debt includes the Schuldschein issued in 2017 (€ 242 million; fair value € 233.0 million), the US private placements issued in 2017 (€ 360 million; fair value € 337.6 million), 2019 (€ 390 million; fair value of € 351.5 million) and 2023 (€232 million and USD 363 million; fair value of €242.5 million and USD 372.4 million respectively), the European Investment Bank (EIB) loan issued in 2020 (€ 125 million; fair value € 110.8 million) and the convertible bond issued in 2020 (€ 500 million ; fair value € 481.0 million).

On December 31, 2023 an amount of € 112.4 million was outstanding on the French NEU CP program (out of € 600 million available in the program).

On December 31, 2023, there were no outstanding advances under the € 500 million sustainability-linked Syndicated Bank Credit Facility concluded in 2021 and maturing in October 2027, nor under the € 600 million sustainability-linked Syndicated Bank Credit Facility contracted in December 2023 and maturing in December 2028.

The aforementioned Syndicated Bank Credit Facilities and the long term debt instruments require the Company to comply with certain financial covenants. Umicore has not faced any breach of those covenants in 2023 or in previous years.

The long-term debts mainly consist of debt instruments in euros. New US private placements were issued in November 2022 but only drawn in January 2023. This new debt amounts to a total of € 232 million and USD 363 million, with the part in USD hedged to EUR with cross-currency-swaps.

The interest rate on the average gross debt amounted to 3.33% for full year 2023 (2.66% for full year 2022).

The line "new loans and repayment of loans" in the consolidated statement of cash flow does not include the movements on bank overdrafts and the currency translation differences, nor the theoretical phantom interests on the debt component part of the convertible debt (€ 10.4 million in 2023) which is non cash.

The net gearing ratio (see definition in Glossary) end of 2023 of 25.5% (23.6% in 2022) and the net financial debt over adjusted EBITDA ratio of 1.30x (compared to 0.96x end of 2022) position the Group well within its targeted capital structure limits.

Maturity of gross financial debt

Thousands of Euros	Type of Interest	Due within 1 year	Due between 1 and 5 years	Due beyond 5 years	Total
Gross Financial debt of previous year					
Lease Liabilities		16,015	25,743	14,966	56,724
Credit Institutions	Fixed/Floating	488,325	-	-	488,325
Commercial Papers	Floating	124,919	-	-	124,919
Schuldschein	Fixed/Floating	88,000	242,000	-	330,000
US Private Placement	Fixed	-	210,000	540,000	750,000
EIB Loan	Fixed	-	125,000	-	125,000
Convertible Bond	Fixed	-	468,470	-	468,470
TOTAL		717,259	1,071,213	554,966	2,343,438

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Thousands of Euros	Type of Interest	Due within 1 year	Due between 1 and 5 years	Due beyond 5 years	Total
Gross financial debt of the year					
Lease Liabilities		16,156	50,700	-	66,857
Credit Institutions	Fixed/Floating	401,140	9,217	-	410,357
Commercial Papers	Floating	112,402	-	-	112,402
Schuldschein	Fixed/Floating	199,000	43,000	-	242,000
US Private Placement	Fixed	-	379,231	931,276	1,310,507
EIB Loan	Fixed	-	125,000	-	125,000
Convertible Bond	Fixed	-	481,021	-	481,021
TOTAL		728,698	1,088,169	931,276	2,748,143

Analysis of long term debts by currencies (including current portion)

Thousands of Euros	EUR	USD	Other currencies	Total
Analysis of long term debts by currencies (including current portion)				
Bank loans	1,349,000	328,507	9,217	1,686,724
Other loans	481,021	-	-	481,021
NON-CURRENT FINANCIAL DEBTS (INCLUDING CURRENT PORTION)	1,830,021	328,507	9,217	2,167,745

Net financial debt

Thousands of Euros	2022	2023
Non current financial debt	1,626,179	2,019,445
Current portion of non current financial debt	134,015	215,156
Current financial debt	583,244	513,541
Cash and cash equivalents	(1,239,869)	(1,515,490)
IFRS NET FINANCIAL DEBT	1,103,569	1,232,653
excluding revaluation impact (*)	-	33,181
NET FINANCIAL DEBT	1,103,569	1,265,834

(*) revaluation impact corresponds to the revaluation impact of financial debt denominated in a currency which is not the functional currency of the entity and for which the Group is hedged

Proportion of gross outstanding debt by category

Gross outstanding debt	
Short term bank loans	14.5%
Long term bank loans	54.1%
Commercial paper	4.1%
Bank overdrafts	1.9%
Lease liability	2.4%
Convertible Bond	17.5%
Other bank facilities	5.5%

Gearing ratio (%)

Millions of Euros	2022	2023
Net financial debt	a	1,103.6
Equity of the Group	b	3,566.1
Total	c=a+b	4,669.6
Gearing ratio (%)	d=a/c	23.6

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F25 Trade and other payables

Thousands of Euros	Notes	31/12/2022	31/12/2023
Non-current			
Long-term trade payables		23	32,296
Other long-term debts		6,324	6,401
Investment grants and deferred income from grants		41,690	56,409
Total for continuing operations		48,037	95,106
Current			
Trade payables		2,250,707	1,772,833
Advances received on contracts in progress		33,061	27,916
Tax payable (other than income tax)		31,645	24,903
Payroll and related charges		183,630	180,201
Other amounts payable		116,096	211,487
Dividends payable		11,616	11,637
Accrued interest payable		11,181	34,223
Fair value payable financial instrument held for cash flow hedging	F33	56,541	26,032
Fair value payable - financial instruments related to FV hedging (IFRS 9 hedge accounting)	F33	64,867	42,668
Fair value payable - financial instruments related to FV hedging (economical hedging)		14,477	2,362
Accrued charges and deferred income		336,237	257,153
Total for continuing operations		3,110,059	2,591,416

Other amounts payable include € 100 million payable for the capital increase in IONWAY joint venture which was called in December 2023 and paid in full in January 2024.

Non-current trade payables increased by € 47.1 million compared to 2022 and correspond to € 21.0 million of contract liability for performance obligations yet to be delivered as from 2026 and € 11.3 million of financial liabilities that fall due more than 12 months after the end of the reporting period.

Compared with 31 December 2022, trade payables decreased, driven mainly by lower metal prices. Trade payables include bank acceptance drafts issued by Umicore in China. Bank acceptance drafts are a commonly used form of payment in China, often preferred by suppliers in view of their transferability, their use as financing collateral or their ability to be discounted. End of 2023, Umicore issued € 231 million of bank acceptance drafts in China (compared to € 336 million end of 2022). Trade payables end of 2023 include contracted metals to be repurchased for an amount of € 89 million (compared to € 210 million end of 2022). The tax payables (other than income tax) mainly include VAT payables.

Umicore has no global supply chain program. However, some suppliers have agreements in place with banks through which Umicore is expected to provide confirmation that suppliers invoices are correct and will be settled on the due date. At the end of 2023, such confirmations were provided for a total outstanding payable amount of € 155 million (compared to € 267 million end of 2022).

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F26 Liquidity of the financial liabilities

PREVIOUS FINANCIAL YEAR

Thousands of Euros	Earliest contractual maturity					Total
	< 1 Month	1 to 3 Months	3 Months to 1 Year	1 to 5 Years	> 5 years	
Financial debt	406,340	28,799	282,119	1,071,213	554,966	2,343,438
Current	406,340	28,799	282,119	-	-	717,259
Short term bank loans	81,689	28,799	148,103	-	-	258,591
Bank overdrafts	18,534	-	-	-	-	18,534
Short-term loan: commercial paper	94,918	-	-	-	-	94,918
Other loans	211,200	-	1	-	-	211,201
Current portion of long-term bank loans	-	-	88,000	-	-	88,000
Current portion of other long-term loans	-	-	30,000	-	-	30,000
Lease liability	-	-	16,015	-	-	16,015
Non-current	-	-	-	1,071,213	554,966	1,626,179
Bank loans	-	-	-	577,000	540,000	1,117,000
Lease liability	-	-	-	25,743	14,966	40,709
Other loans	-	-	-	468,470	-	468,470
TRADE AND OTHER PAYABLES	2,224,458	570,447	285,722	63,328	14,140	3,158,094
Current	2,224,458	570,447	285,722	29,431	-	3,110,058
Trade payables	1,823,579	368,251	58,877	-	-	2,250,707
Advances received on contracts in progress	10,816	17,811	4,435	-	-	33,061
Tax payable (other than income tax)	27,315	119	4,210	-	-	31,645
Payroll and related charges	54,844	48,747	80,039	-	-	183,630
Other amounts payable	16,868	77,677	21,552	-	-	116,096
Dividends payable	11,616	-	-	-	-	11,616
Accrued interest payable, third parties	6,735	579	3,867	-	-	11,181
Fair value payable financial instrument held for cash flow hedging	5,446	3,915	28,049	19,132	-	56,541
Fair value payable - financial instruments related to FV hedging (IFRS 9 hedge accounting)	7,659	11,720	35,189	10,299	-	64,867
Fair value payable - financial instruments related to FV hedging (economical hedging)	-	11,009	3,467	-	-	14,477
Accrued charges and deferred income	259,581	30,619	46,037	-	-	336,237
Non-current	-	-	-	33,896	14,140	48,037
Long-term trade payables	-	-	-	23	-	23
Other long-term debts	-	-	-	1,293	5,031	6,324
Investment grants and deferred income from grants	-	-	-	32,580	9,110	41,690

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FINANCIAL YEAR

Thousands of Euros	Earliest contractual maturity					Total
	< 1 Month	1 to 3 Months	3 Months to 1 Year	1 to 5 Years	> 5 years	
Financial debt	441,342	12,755	274,601	1,088,169	931,276	2,748,143
Current	441,342	12,755	274,601	-	-	728,698
Short term bank loans	126,552	12,755	59,444	-	-	198,751
Bank overdrafts	51,694	-	-	-	-	51,694
Short-term loan: commercial paper	112,402	-	-	-	-	112,402
Other loans	150,694	-	-	-	-	150,694
Current portion of long-term bank loans	-	-	199,000	-	-	199,000
Lease liability	-	-	16,156	-	-	16,156
Non-current	-	-	-	1,088,169	931,276	2,019,445
Bank loans	-	-	-	556,448	931,276	1,487,724
Lease liability	-	-	-	50,700	-	50,700
Other loans	-	-	-	481,021	-	481,021
TRADE AND OTHER PAYABLES	1,868,374	436,800	240,036	128,546	12,765	2,686,521
Current	1,868,374	436,800	240,036	46,205	-	2,591,416
Trade payables	1,392,090	311,798	68,946	-	-	1,772,833
Advances received on contracts in progress	4,938	15,530	7,448	-	-	27,916
Tax payable (other than income tax)	13,834	2,060	9,009	-	-	24,903
Payroll and related charges	56,712	45,067	78,423	-	-	180,201
Other amounts payable	158,124	15,980	37,383	-	-	211,487
Dividends payable	11,637	-	-	-	-	11,637
Accrued interest payable, third parties	29,379	954	3,890	-	-	34,223
Fair value payable financial instrument held for cash flow hedging	1,360	1,009	10,850	12,813	-	26,032
Fair value payable - financial instruments related to FV hedging (IFRS 9 hedge accounting)	3,688	2,382	3,206	33,392	-	42,668
Fair value payable - financial instruments related to FV hedging (economical hedging)	175	801	1,386	-	-	2,362
Accrued charges and deferred income	196,436	41,220	19,496	-	-	257,153
Non-current	-	-	-	82,341	12,765	95,106
Long-term trade payables	-	-	-	32,296	-	32,296
Other long-term debts	-	-	-	1,148	5,253	6,401
Investment grants and deferred income from grants	-	-	-	48,897	7,513	56,409

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F27 Provisions for employee benefits

The Group has various legal and constructive defined benefit obligations, the vast majority of them being “final pay” plans linked to the Belgian and German operations.

Thousands of Euros	Post-employment benefits, pensions and similar	Post-employment benefits - other	Termination benefits early retirement & similar	Other long-term employee benefits	Total
At the end of the previous year	246,725	2,785	22,768	14,198	286,476
. Increase (included in "Payroll and related benefits")	27,538	105	4,593	2,076	34,312
. Reversal (included in "Payroll and related benefits")	663	-	-	(68)	595
. Use (included in "Payroll and related benefits")	(48,887)	(83)	(4,405)	(1,206)	(54,581)
. Interest and discount rate impacts (included in "Financial expenses")	9,171	29	999	496	10,695
. Translation differences	374	(205)	(1,218)	(56)	(1,105)
. Transfers	307	-	0	-	308
. Recognized in other comprehensive income	34,940	122	3,081	(33)	38,111
. Other movements	1	-	(7)	(3)	(9)
AT THE END OF THE FINANCIAL YEAR	270,833	2,753	25,811	15,404	314,801

The above table shows the balances and the movements in provisions for employee benefits of the fully consolidated subsidiaries only.

The termination benefits mainly concern some severance pay schemes in Korea and Belgian pre-retirement plans. Other long-term benefits mainly concern jubilee premium in Belgium and Germany.

The lines “Increase”, “Reversal” and “Use” of employee benefits provisions can be linked with the line “Provisions for employee benefits” of the note F10. The amount recognized in other comprehensive income originates mainly from a decrease in discount rates on the pension plans. A reconciliation with the note F23 and the consolidated statement of comprehensive income is provided in the tables below.

The transfers mainly relates to transfer to assets employee benefits which are disclosed in note F20.

The defined contribution plans of the Group in some countries like in the USA, Canada, South Africa and Germany are not part of this note as the amounts are directly recognized in the income statement under the line “Contribution to defined contribution plans” (see note F10).

The following disclosure requirements under IAS 19 amended were derived from the reports obtained from external actuaries.

The largest post-employment plans in 2023 are in Belgium and in Germany. These two countries represent 90% of the total defined benefit obligations.

Thousands of Euros	31/12/2022	Movements 2023	31/12/2023
Belgium	47,996	2,455	50,451
Germany	215,453	18,367	233,820
Subtotal	263,449	20,822	284,271
Other entities	23,028	7,503	30,530
TOTAL	286,476	28,325	314,801

	Thousands of Euros
Reimbursement rights	
Net transfer in/(out) (including the effect of any business combinations/divestitures)	4,365
Actual reimbursement	(173)
Expected return	154
Remeasurements on reimbursement rights	(101)
At the end of the financial year	4,245

Umicore defined benefit pension schemes for the 2 major countries are the following:

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BELGIUM

Characteristics of the Defined Benefit plans Umicore companies in Belgium operate defined benefit plans that provide retirement or long-term employee benefits which are related to salary and age or length of service. These retirement and long term benefit plans represent a defined benefit obligation of € 286.5 million and assets for € 236.1 million. They foresee in lump sum or monthly payments upon retirement or pre-retirement and benefits in case of reaching a number of years of service or in case of death or disability prior to retirement.

The net provisions for pension of € 50.4 million can be broken down in post-employment defined benefit plans (€ 37.2 million of which € 152.4 million is the obligation and € 115.2 million relates to plan assets), termination benefits plan (€ 1.7 million of obligation not funded), jubilee premium (€ 3.5 million, not funded) and post-employment defined contributions plans and bonus saving plans with guaranteed return and therefore treated as Defined Benefit plans (€ 8.0 million of which € 128.8 million is the obligation and € 120.8 million relates to plan assets).

Funding The post-employment plans are externally funded through either insurance companies or a self-administrated institution for occupational retirement provision (“IORP”). For the IORP, the necessary governance processes for risk management are in place. One of the risk measures is to perform on a regular basis a “Continuity Test” in which the consequences of strategic investment policies are analyzed in terms of risk- and-return profiles and solvency measures. A statement of investment principles and funding policy are derived from this. The purpose is to have a well-diversified asset allocation to control the risk.

Fair values of plan assets The fair values of the equity and debt instruments are determined based on quoted market prices in active markets (level 1 fair value classification). The plans hold no direct positions in Umicore shares or bonds, nor do they own any property used by an Umicore entity. Investments are well diversified so that the failure of any single investment would not have a material impact on the overall level of assets.

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Characteristics of the Defined Benefit plans Post-employment benefits based on pension commitments made before April 1, 1999 are financed partly via “Pensionskasse Degussa” (PKD) and partly directly via defined benefit plans. The directly financed portion is of defined benefit type providing retirement, disability and death benefits, which are based on the final or final average salary. The portion financed via the PKD is treated as a defined contribution plan.

Pension commitments as from April 1, 1999 are financed via a reinsured support fund “Unterstützungskasse Degussa” (RUK) and as from 2021/2023 via a reinsured “Allianz” support fund and “Allianz” direct insurance. The plans financed by RUK and Allianz are treated as defined contribution plans.

Deferred compensation benefits are financed internally via book reserves. These benefits are based on annual deferred compensation and are subject to a guaranteed interest rate of 3.0% p.a. (6.0% p.a. for deferred compensation prior to 2014). The deferred compensation plan is defined benefit.

All plans are closed except those financed by Allianz and the deferred compensation plan. All post-employment plans represent a defined benefit obligation of € 239.6 million and assets for € 5.8 million.

The net provisions for pension of € 233.8 million mainly includes the defined benefit pension commitments, including defined benefit commitments from the PKD and RUK pension adjustments (€ 180.4 million), the deferred compensation plan (€ 42.3 million), a jubilee premium plan (€ 7.0 million) and other benefits (€ 4.1 million).

Funding The defined benefit post-employment benefits (as described above) are mainly unfunded plans. A minor part is funded by pledged reinsurance contracts.

Fair values of plan assets All plan assets relate to pledged insurance contracts and have no quoted market price.

The most significant risks related to the defined benefit plans are:

- **Asset volatility:** The plan liabilities are calculated using a discount rate set with reference to corporate bond yields; if plan assets underperform this yield, this will create a deficit.
- **Changes in bond yields:** A decrease in corporate bond yields will increase plan liabilities, although this will be partially offset by an increase in the value of the plan’s bond holdings.
- **Salary risk:** The majority of the plans’ benefit obligations are calculated by reference to the future salaries of plan members. As such, any salary increase of plan members higher than expected will lead to higher liabilities.
- **Longevity risk:** All pension plans beside the new deferred compensation plan as from 2014 provide life annuities which involve the risk of longevity i.e. the risk that the payment period of the pension increases due to the increase in life expectancy. The company uses mortality rates which depend on the year of birth to include this risk in the pension obligation.
- **Risk of cash outflow:** Since death as active and disability benefits are provided there is a risk of cash outflow before retirement.
- **Legislation risks:** If the law which define the benefit changes, it can result in a change of the obligations.


Some additional risks are related to Germany only:

- In Germany three defined contribution pension plans exist which are externally financed via the “Pensionskasse Degussa” (PKD), the support fund “Unterstützungskasse Degussa” (RUK) or the insurer “Allianz”. With respect to the required pension adjustments of pensions paid by PKD and RUK, there is a risk that these adjustments cannot be fully borne by the PKD or RUK and therefore can result in additional unfunded pension obligations. This part of the PKD and RUK plans is therefore considered as a Defined Benefit Plan and the risk of the additional obligation expected until end of 2025 has been included in the defined benefit obligation and is yearly reviewed (additional obligation of € 13.1 million for PKD and € 0.6 million for RUK at the end of 2023).
- The closed deferred compensation plan provides a guaranteed interest rate of 6% which increases the risk for a pension cost in addition to the converted salary. The plan was closed at 31 December 2013 and replaced by a plan with no significant risk in this respect.

And some risks are related to Belgium only:

- Because of the Belgian legislation applicable to 2nd pillar pension plans (so-called “Law Vandenbroucke”), all Belgian Defined Contribution plans have to be considered under IFRS as Defined Benefit plans. Law Vandenbroucke states that in the context of defined contribution plans, the employer must guarantee a minimum return of 3.75% on employee contributions and 3.25% on employer contributions. However, shortly before year-end 2015, a change in the Belgian Law was enacted resulting in a decrease of the guaranteed return from 3.25 % to a minimum interest rate

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defined based upon the Belgian 10-year interest rate but within the range 1.75% – 3.75%. The new rate (currently 1.75%) applies for the years after 2015 on future contributions and also on the accumulated past contributions as at 31 December 2015 if the financing organization does not guarantee a certain result on contributions until retirement age. If the organization does guarantee such a result, the rates 3.25/3.75% still apply on the accumulated past contributions as at 31 December 2015. Because of this minimum guaranteed return, the employer is exposed to a financial risk: further contributions could be required if the return on assets would not be sufficient to reach the minimum benefits to be paid. The Group has plans that are financed through insurance contract as well as one plan financed through an IORP. The related defined benefit obligations have been aggregated with the other obligations for defined benefit plans. The Projected Unit Credit (PUC) methodology has been used. Total defined benefit obligations related to those plans amounts to € 128.8 million as at the end of December 2023 and related plan assets to € 120.8 million.

Change in benefit obligation

Thousands of Euros	2022	2023
Change in benefit obligation		
Benefit obligation at beginning of the year	677,967	551,662
Current service cost	40,519	34,105
Interest cost	9,648	20,575
Plan Participants' Contributions	1,089	1,010
Remeasurements - changes in demographic assumptions	(1,615)	1,511
Remeasurements - changes in financial assumptions	(178,215)	40,781
Remeasurements - experience adjustments	40,444	2,874
Benefits paid from plan/company	(35,310)	(33,610)
Expenses paid	(3,765)	(4,270)
Exchange rate changes	900	(1,320)
BENEFIT OBLIGATION AT END OF THE YEAR	551,662	613,318

Change in plan assets

Thousands of Euros	2022	2023
Change in plan assets		
Fair value of plan assets at the beginning of the year	291,479	269,972
Expected return on plan assets	3,392	9,726
Remeasurements on plan assets	(42,086)	7,895
Employer contributions	54,380	53,438
Member contributions	1,089	1,010
Benefits paid from plan/company	(35,310)	(33,610)
Expenses paid	(3,825)	(4,336)
Net transfer in/(out) (including the effect of any business combinations/divestitures)	-	(4,365)
Exchange rate changes	853	(329)
FAIR VALUE OF PLAN ASSETS AT THE END OF THE YEAR	269,972	299,401

Pension plans mainly in Belgium, Korea, Liechtenstein and Japan are wholly or partly funded with assets covering a substantial part of the obligations. All other plans have no material funding or are unfunded.

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Change in net liability

Thousands of Euros	2022	2023
Amount recognized in the balance sheet		
Defined benefit obligations	551,662	613,318
Fair value of plan assets	269,972	299,401
Funded Status	281,690	313,917
NET LIABILITY (ASSET)	281,690	313,917
Components of pension costs		
Amounts recognized in income statement		
Current service cost	40,519	34,105
Interest cost	9,648	20,575
Interest income on plan assets	(3,392)	(9,726)
Expected return on reimbursement rights	-	(154)
Remeasurement of other long term benefits	(4,454)	(741)
Administrative expenses and taxes	60	66
Total pension cost recognized in income statement	42,381	44,125
Amounts recognized in other comprehensive income ("OCI")		
Cumulative remeasurements at opening	254,689	161,210
Remeasurements of the year	(92,846)	38,113
Minorities	(26)	60
Other movements	(646)	-
Translation differences	39	52
Total recognized in the OCI at subsidiaries	161,210	199,435
Remeasurements at associates and joint ventures	27,595	26,649
TOTAL RECOGNIZED IN THE OCI	188,805	226,084
Remeasurements recognised in OCI as per Note F23 (w/o Minorities)	94,387	(38,188)
Currency translation differences as per Note F23 (w/o Minorities)	(1,754)	910
Remeasurements related to Minorities (including ctd's on Minorities)	(5)	59
Total Remeasurement shown in OCI	92,628	(37,219)
.Currency translation differences as per Note F23 (w/o Minorities)	1,754	(910)
.Currency translation differences related to Minorities	(22)	1
.Remeasurements related to equity companies	(1,514)	15
REMEASUREMENTS OF THE YEAR SHOWN IN NOTE F27	92,846	(38,113)

Thousands of Euros	2022	2023
Remeasurements (recognized in OCI)		
Effect of changes in demographic assumptions	(1,615)	1,585
Effect of changes in financial assumptions	(174,568)	40,096
Effect of experience adjustments	41,265	4,306
(Return) on plan assets (excluding interest income)	42,072	(7,975)
(Return) on reimbursement rights (excluding interest income)	-	101
TOTAL REMEASUREMENTS INCLUDED IN OCI	(92,846)	38,113

The interest cost and return on plan assets and reimbursement rights as well as the remeasurement impact on the non post- employment benefit plans, are recognized under the financial expenses (discounting of non-current provisions) in the income statement (see note F11). All other elements of the expense of the year are classified under the wages, salaries and direct social advantages in operating expenses.

Remeasurements of the year recognized in other comprehensive income originate mainly from a change in discount rates on the pension plans and differences between the expected and actual return on plan assets.

The average duration of the benefit obligation for 2023 is 12 years.

	2022	2023
PRINCIPAL ACTUARIAL ASSUMPTIONS		
Weighted average assumptions to determine benefit obligations at year end		
Discount rate (%)	3.73	3.28
Rate of compensation increase (%)	2.57	2.32
Rate of price inflation (%)	2.02	2.07
Rate of pension increase (%)	1.58	1.39
Weighted average assumptions used to determine net cost		
Discount rate (%)	1.17	3.73
Rate of compensation increase (%)	2.62	2.57
Rate of price inflation (%)	1.80	2.02
Rate of pension increase (%)	1.27	1.58

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Category of plan assets

	2023	
	Fair value of all plan assets	Fair Value of plan assets with quoted market price
Plan assets		
Cash and cash equivalents	23,547	23,547
Equity instruments	66,755	66,755
Debt instruments	107,821	107,821
Real estate	10,141	10,141
Assets held by insurance company	82,149	76,344
Other	8,988	8,143
TOTAL PLAN ASSETS	299,401	292,751

Assumptions are recommended by the local actuaries in line with the IAS19 revised. The standard reference for the Eurozone is iBOXX AA Index yield and similar indexes are used for the other regions. Mortality tables used are country specific.

Other plan assets are predominantly invested in insurance contracts and bank term deposits. The expected long-term rate of return on assets assumptions is documented for the individual plans as recommended by the local actuaries.

Sensitivities on the defined benefits obligation

Thousands of Euros	2023	
	Valuation trend +0,25%	Valuation trend -0,25%
Sensitivity to trend rate assumptions on discount rate		
Present value of defined benefit obligation	595,101	630,173
Sensitivity to trend rate assumptions on inflation rate		
Present value of defined benefit obligation	593,587	573,008
Sensitivity to trend rate assumptions on salary increase rate		
Present value of defined benefit obligation	618,066	602,774

Balance sheet reconciliation

Thousands of Euros	2022	2023
BALANCE SHEET RECONCILIATION		
Balance sheet liability (asset) as of previous year	386,489	281,689
Pension expense recognized in income statement for the period	42,381	44,125
Amounts recognized in OCI	(92,846)	38,113
Employer contributions via funds for the period	(41,191)	(41,248)
Employer contributions paid directly for the period	(13,189)	(12,190)
Credit to reimbursements	-	53
Net transfer in/(out) (including the effect of any business combinations/diversitures)	-	4,365
Currency translation differences	46	(991)
BALANCE SHEET LIABILITY (ASSET) AS OF END OF THE YEAR	281,690	313,917
Provisions for employee benefits in non current liabilities as per Balance Sheet	286,476	314,801
Asset employee benefit in non current asset (note F20)	(4,786)	(5,129)
NET OBLIGATION ON BALANCE SHEET	281,690	309,672

At 31 December

Thousands of Euros	2019	2020	2021	2022	2023
Present value of defined benefit obligation	651,685	697,222	677,967	551,662	613,318
Fair value of plan assets	259,952	271,690	291,479	269,972	299,401
Deficit (surplus) in the plan	391,733	425,532	386,488	281,690	313,917
Experience adjustments on plan assets	(17,138)	(5,398)	(11,671)	42,086	(7,895)
Experience adjustments on plan liabilities	3,032	2,942	723	40,444	2,874

Thousands of Euros

Thousands of Euros	2023
EXPECTED CASH FLOWS FOR FOLLOWING YEAR	
Expected employer contributions	48,926
Expected total benefit payments	
Year 1	23,718
Year 2	23,363
Year 3	33,537
Year 4	32,633
Year 5	42,532
Next 5 years	173,588

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F28 Stock option plans granted by the company

Plan	Expiry date	Exercise	Exercise price EUR (the exercise price may be higher in certain countries)	Number of options still to be exercised
ISOP 2017	13/02/2024	all working days of Euronext Brussels	25.50	378,000
			27.04	23,000
				401,000
ISOP 2018	08/02/2025	all working days of Euronext Brussels	40.90	956,125
				956,125
				1,129,250
ISOP 2019	10/02/2026	all working days of Euronext Brussels	34.08	1,129,250
			36.78	5,000
				1,134,250
ISOP 2020	09/02/2027	all working days of Euronext Brussels	42.05	1,139,375
				1,139,375
				1,103,500
ISOP 2021	10/02/2028	all working days of Euronext Brussels	47.08	1,103,500
				1,103,500
				1,279,064
ISOP 2022	16/02/2029	all working days of Euronext Brussels	33.22	1,279,064
				1,279,064
				1,282,050
ISOP 2023	16/02/2030	all working days of Euronext Brussels	32.69	1,282,050
			26.00	17,500
				1,299,550
TOTAL				7,312,864

ISOP refers to “Incentive Stock Option Plan” (worldwide plan for senior managers and above).

The stock options, which are typically vested at the time of the grant, are foreseen to be settled with treasury shares. Options which have not been exercised before the expiry date elapse automatically.

	2022		2023	
	Number of share options	Weighted average exercise price	Number of share options	Weighted average exercise price
DETAILS OF THE SHARE OPTIONS OUTSTANDING DURING THE YEAR				
Outstanding at the beginning of the year	5,201,500	38.23	6,264,514	37.78
Granted during the year	1,289,064	33.22	1,299,550	32.60
Forfeited during the year	28,000	37.17	117,500	32.48
Exercised during the year	198,050	20.13	133,700	16.97
OUTSTANDING AT THE END OF THE YEAR	6,264,514	37.78	7,312,864	37.30
Exercisable at the end of the year	2,718,575	34.31	401,000	25.59

The options outstanding at the end of the year have a weighted average contractual life until July 2027.

The details concerning the calculation of the fair value of the options granted are detailed under note F10 on Payroll and related Benefits.

F29 Environmental provisions

Thousands of Euros	Provisions for soil clean-up & site rehabilitation	Other environmental provisions	Total
At the end of previous year	108,267	31,092	139,359
. Increase (included in "Other operating expenses")	7,215	27,206	34,422
. Reversal (included in "Other operating expenses")	(358)	(3,372)	(3,729)
. Use (included in "Other operating expenses")	(12,386)	(19,207)	(31,593)
. Discounting (included in "Financial expenses")	195	-	195
. Translation differences	82	-	82
. Other movements	0	2,067	2,067
AT THE END OF THE FINANCIAL YEAR	103,016	37,786	140,802
Of which - Non Current	101,027	13,415	114,442
Of which - Current	1,989	24,371	26,360

Provisions for environmental legal and constructive obligations are recognized and measured by reference to an estimate of the probability of future cash outflows as well as to historical data based on the facts and circumstances known at the end of the reporting period. The actual liability may differ from the amounts recognized.

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Provisions increased overall by € 1.4 million, with additional provisions which are higher than the uses and reversals of existing provisions.

The increase of € 7.2 million of provisions for soil and site rehabilitation are mainly related to revised provisions taken for former industrial activities. The use of provision in 2023 mainly relates to the green zone neighboring the Hoboken plant for € 6.4 million and the remaining use of the period is linked to the realization of site remediation programs in France, in the USA and in Belgium.

Early 2020, the Federal Agency for Nuclear Control issued guiding principles for the permanent remediation and storage of the legacy radioactive material related to Umicore's Olen site in Belgium. Joint working groups have been established, including governmental agencies such as NIRAS/ONDRAF, OVAM, FANC and Umicore to elaborate a roadmap describing the different steps that need to be taken to reach a permanent storage solution. Going forward, the joint working groups will provide updates of the estimated future remediation and storage costs and the dedicated existing environmental provisions. The provision will be adapted in view of changing circumstances and insights developed during the project. Developing and implementing this detailed roadmap is currently expected to take several years. Umicore will in the meantime continue the monitoring works to guarantee that no risks are emanating from those remnants, neither for the workers on site, nor for the surrounding population.

The movements of the other environmental provisions are mainly related to CO2 emission rights in Belgium. The use relates to the CO2 emission rights remitted for the past year and the increase represents the Group's estimate of the actual use of the period.

Management expects the most significant cash outflows on these projects for non-current elements to take place within 10 years.

F30 Provisions for other liabilities and charges

Thousands of Euros	Provisions for reorganisation & restructuring	Provisions for litigation	Provisions for other liabilities and charges	Total
At the end of the previous year	30,280	2,187	124,512	156,974
. Increase (included in "Other operating expenses")	10,869	-	20,060	30,929
. Reversal (included in "Other operating expenses")	(3,398)	(46)	(39,746)	(43,190)
. Use (included in "Other operating expenses")	(6,777)	-	(4,055)	(10,832)
. Discounting (included in "Financial expenses")	-	-	(2,132)	(2,132)
. Translation differences	(1,314)	(0)	(4,013)	(5,327)
AT THE END OF THE FINANCIAL YEAR FOR CONTINUING OPERATIONS	29,661	2,141	94,626	126,428
Of which - Non Current	25,165	452	74,131	99,748
Of which - Current	4,496	1,689	20,495	26,680

Provisions for reorganization and restructuring and other liabilities and charges are recognized and measured by reference to an estimate of the probability of future outflow of cash as well as to historical data based on the facts and circumstances known at the end of the reporting period. The actual liability may differ from the amounts recognized.

Provisions for other liabilities and charges relate to provisions for onerous contracts, warranty and quality recall risks (€ 81.4 million) and other provisions (€ 13.2 million).

In 2023, provisions decreased overall by € 30.6 million.

Net reversal of other provisions for liabilities and charges include € 20.2 million of provision for warranty and quality recall risks that are mainly linked to risks related to automotive end market applications in both Catalysis and Energy & Surface Technologies (the latter referring to the dedicated provisioning model for battery materials). The use of provisions mainly relates to onerous contract provisions accrued in prior years.

Additional provisions for reorganization and restructuring (€10.9 million) mainly relate to the announced plant closure and applied tech center restructuring in Japan in Automotive catalysts. The uses of provision for reorganization and restructuring (€ 6.8 million) mainly concern the execution of the previously announced restructurings in Catalysis in Denmark and in the USA.

The provisions for litigation are not including the tax provisions related to IFRIC 23 as those are booked under the line Income tax payable in the balance sheet.

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No reliable estimation could be made regarding the expected timing of cash outflows related to the non-current part of the provisions for other liabilities and charges.

F31 Capital employed

Thousands of Euros	Notes	31/12/2022	30/06/2023	31/12/2023
Intangible assets	F14,F15	343,366	382,173	381,041
Property, plant and equipment	F16	2,532,301	2,658,725	3,036,744
Investments accounted for using the equity method	F17	158,943	231,362	314,734
Other equity investments	F18	22,165	28,970	19,545
Inventories	F19	3,393,674	2,968,804	2,850,106
Non current receivable (excluding assets employee benefits)	F20	13,926	13,466	24,563
Current trade and other receivables for capital employed calculation		1,730,814	1,728,527	1,283,846
Income tax receivable		82,941	78,591	87,806
Assets included in capital employed		8,278,131	8,090,619	7,998,385
Non-current trade and other payables	F25	48,037	62,990	95,106
Current trade and other payables for capital employed calculation		3,053,518	2,586,957	2,565,384
Translation reserves	F23	(97,444)	(141,373)	(148,806)
Non-current provisions	F29,F30	251,289	232,987	214,189
Current provisions	F29,F30	45,044	45,213	53,041
Income tax payable		261,950	210,905	222,803
Liabilities included in capital employed		3,562,394	2,997,679	3,001,717
Capital employed		4,715,737	5,092,940	4,996,668
Eliminations		259	2,827	4,978
CAPITAL EMPLOYED AS PUBLISHED		4,715,996	5,095,766	5,001,646
Average Capital Employed in first half of the year (*)		4,425,825		4,905,881
Average Capital Employed in second half of the year (**)		4,595,375		5,048,706
Average Capital Employed for the period		4,510,600		4,977,294
Adjusted EBIT	F9	864,639		673,566
ROCE		19.17%		13.53%

(*) calculated as the average of the Capital Employed at June 30 and the Capital Employed at the end of the previous year

(**) calculated as the average of the Capital employed at the end of the period and the capital employed at June 30

The current trade and other receivables used for the calculation of the capital employed do not take into account the margin calls (€ 9.5 million at the end of 2023) and the gains booked on the mark-to-market value of strategic hedging instruments (€ 64.1 million in 2023). The current trade and other payables used for the calculation of the capital employed do not take into account the losses booked on the mark-to-market value of strategic hedging instruments (€ 26.0 million at the end of 2023).

Average capital employed for the period is calculated as the average of the capital employed of both half years.

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F32 Financial instruments by category

AS AT THE END OF PREVIOUS YEAR

Thousands of Euros	Level	Fair value	Held for trading - economic hedging	Fair value hedge accounting	Cash Flow hedge accounting	Loans, receivables and payables	Carrying amount Other equity investments at FV through OCI reserves
ASSETS							
Other equity investments		22,165	-	-	-	-	22,165
Other equity investments	1	22,165	-	-	-	-	22,165
Loans granted		3,865	-	-	-	3,865	-
Loans granted		3,865	-	-	-	3,865	-
Trade and other receivables		1,849,252	25,219	23,141	62,187	1,738,705	-
Non-current							
Cash guarantees and deposits		9,596	-	-	-	9,596	-
Other receivables maturing in more than 1 year		4,330	-	-	-	4,330	-
Assets employee benefits		4,786	-	-	-	4,786	-
Current							
Trade receivables (at cost)		1,313,156	-	-	-	1,313,156	-
Trade receivables (write-down)		(17,893)	-	-	-	(17,893)	-
Other receivables (at cost), interest receivable, deferred charges and accrued income		425,108	-	-	-	425,108	-
Other receivables (write-down)		(378)	-	-	-	(378)	-
Fair value of financial instruments held for cash-flow hedging	2	62,187	-	-	62,187	-	-
Fair value receivable - financial instruments related to FV hedging	2	48,359	25,219	23,141	-	-	-
Cash and cash equivalents		1,239,869	-	-	-	1,239,869	-
Short-term investments: bank term deposits		612,839	-	-	-	612,839	-
Short-term investments: term deposits (other)		98	-	-	-	98	-
Cash-in-hand and bank current accounts		626,932	-	-	-	626,932	-
TOTAL OF FINANCIAL INSTRUMENTS (ASSETS)		3,115,151	25,219	23,141	62,187	2,982,439	22,165

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Thousands of Euros	Level	Fair value	Held for trading - economic hedging	Fair value hedge accounting	Cash Flow hedge accounting	Loans, receivables and payables	Carrying amount Other equity investments at FV through OCI reserves
LIABILITIES							
Financial debt		2,294,869	-	-	-	2,343,438	-
Non-current							
Bank loans		1,068,431	-	-	-	1,117,000	-
Lease liability		40,709	-	-	-	40,709	-
Other loans		468,470	-	-	-	468,470	-
Current							
Short term bank loans		346,591	-	-	-	346,591	-
Lease liability		16,015	-	-	-	16,015	-
Bank overdrafts		18,534	-	-	-	18,534	-
Short term loan: commercial paper		94,918	-	-	-	94,918	-
Other loans		241,201	-	-	-	241,201	-
Trade and other payables		3,158,095	14,477	64,867	56,541	3,022,210	-
Non-current							
Long term trade payables		23	-	-	-	23	-
Other long term debts		6,324	-	-	-	6,324	-
Investments grants and deferred income from grants		41,690	-	-	-	41,690	-
Current							
Trade payables		2,250,707	-	-	-	2,250,707	-
Advances received on contracts in progress		33,061	-	-	-	33,061	-
Tax - other than income tax - payable		31,645	-	-	-	31,645	-
Payroll and related charges		183,630	-	-	-	183,630	-
Other amounts payable		116,096	-	-	-	116,096	-
Dividends payable		11,616	-	-	-	11,616	-
Accrued interest payable		11,181	-	-	-	11,181	-
Fair value financial instrument held for cash flow hedging	2	56,541	-	-	56,541	-	-
Fair value payable - financial instruments related to FV hedging	2	79,344	14,477	64,867	-	-	-
Accrued charges and deferred income		336,237	-	-	-	336,237	-
TOTAL OF FINANCIAL INSTRUMENTS (LIABILITIES)		5,452,964	14,477	64,867	56,541	5,365,649	-

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Thousands of Euros	Level	Fair value	Held for trading - economic hedging	Fair value hedge accounting	Cash Flow hedge accounting	Loans, receivables and payables	Carrying amount Other equity investments at FV through OCI reserves
ASSETS							
Other equity investments		19,545	-	-	-	-	19,545
Other equity investments	1	19,545	-	-	-	-	19,545
Loans granted		2,693	-	-	-	2,693	-
Loans granted		2,693	-	-	-	2,693	-
Trade and other receivables		1,387,175	40,629	65,452	64,096	1,216,998	-
Non-current							
Cash guarantees and deposits		10,402	-	-	-	10,402	-
Other receivables maturing in more than 1 year		14,161	-	-	-	14,161	-
Assets employee benefits		5,129	-	-	-	5,129	-
Current							
Trade receivables (at cost)		984,968	-	-	-	984,968	-
Trade receivables (write-down)		(16,340)	-	-	-	(16,340)	-
Other receivables (at cost), interest receivable, deferred charges and accrued income		219,056	-	-	-	219,056	-
Other receivables (write-down)		(378)	-	-	-	(378)	-
Fair value of financial instruments held for cash-flow hedging	2	64,096	-	-	64,096	-	-
Fair value receivable - financial instruments related to FV hedging	2	106,081	40,629	65,452	-	-	-
Cash and cash equivalents		1,515,490	-	-	-	1,515,490	-
Short-term investments: bank term deposits		1,082,190	-	-	-	1,082,190	-
Short-term investments: term deposits (other)		102,399	-	-	-	102,399	-
Cash-in-hand and bank current accounts		330,901	-	-	-	330,901	-
TOTAL OF FINANCIAL INSTRUMENTS (ASSETS)		2,924,903	40,629	65,452	64,096	2,735,181	19,545

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Thousands of Euros	Level	Fair value	Held for trading - economic hedging	Fair value hedge accounting	Cash Flow hedge accounting	Loans, receivables and payables	Carrying amount Other equity investments at FV through OCI reserves
LIABILITIES							
Financial debt		2,908,228	-	-	-	2,748,143	-
Non-current							
Bank loans		1,647,809	-	-	-	1,487,724	-
Lease liability		50,700	-	-	-	50,700	-
Other loans		481,021	-	-	-	481,021	-
Current							
Short term bank loans		397,751	-	-	-	397,751	-
Lease liability		16,156	-	-	-	16,156	-
Bank overdrafts		51,694	-	-	-	51,694	-
Short term loan: commercial paper		112,402	-	-	-	112,402	-
Other loans		150,694	-	-	-	150,694	-
Trade and other payables		2,686,521	2,362	42,668	26,032	2,615,459	-
Non-current							
Long term trade payables		32,296	-	-	-	32,296	-
Other long term debts		6,401	-	-	-	6,401	-
Investments grants and deferred income from grants		56,409	-	-	-	56,409	-
Current							
Trade payables		1,772,833	-	-	-	1,772,833	-
Advances received on contracts in progress		27,916	-	-	-	27,916	-
Tax - other than income tax - payable		24,903	-	-	-	24,903	-
Payroll and related charges		180,201	-	-	-	180,201	-
Other amounts payable		211,487	-	-	-	211,487	-
Dividends payable		11,637	-	-	-	11,637	-
Accrued interest payable		34,223	-	-	-	34,223	-
Fair value financial instrument held for cash flow hedging	2	26,032	-	-	26,032	-	-
Fair value payable - financial instruments related to FV hedging	2	45,030	2,362	42,668	-	-	-
Accrued charges and deferred income		257,153	-	-	-	257,153	-
TOTAL OF FINANCIAL INSTRUMENTS (LIABILITIES)		5,594,749	2,362	42,668	26,032	5,363,602	-

Loans and debt have been issued at market rates which would not create any major differences with effective interest expenses. All categories of financial instruments of Umicore are at fair value except the non-current bank loans for which the carrying amounts differ from the fair value (see note F24).

The fair value of financial instruments traded in active markets is based on quoted market prices at the end of the reporting period. The fair value of financial instruments that are not traded in an active market is determined using valuation techniques, mainly discounted cash-flow, using market assumptions prevailing at the end of the reporting period. In particular, the fair value of interest rate swaps is calculated as the present value of the estimated future cash flows. The fair value of forward foreign exchange, metal and energy contracts is determined using quoted forward exchange, metal and energy rates at the end of the

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reporting period. The fair value of quoted financial assets held by the Group is their quoted market price at the end of the reported period. Interest in companies that are not material to the consolidated financial statements and for which reasonable fair values can not be reliably determined without undue cost or effort are measured at historical cost less impairment.

The fair value of financial liabilities is estimated by discounting the future contractual cash flows at the current market interest rate that is available to the Group for similar financial instruments. The carrying value less impairment provision of trade receivables and payables are assumed to approximate their fair values.

32.1 Fair value hierarchy

Disclosures of fair value measurements by level are based on the following fair value measurement hierarchy:

- Level 1: fair value based on quoted prices in active markets for identical assets or liabilities.
- Level 2: fair value based on inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly.
- Level 3: fair value for the asset or liability valuation are based on unobservable inputs.

In the Group, the fair values on financial assets at fair value through OCI are measured as level 1.

All the metal, energy and foreign currency derivatives are measured as level 2.

During the year, there were no transfer between levels in the fair value hierarchy.

32.2 Sensitivity analysis on financial instruments

Umicore is sensitive to commodity prices, foreign currency and interest rate risk on its financial instruments. The fair values of the financial instruments reflect the difference between the contract rates and the closing rates. The sensitivity calculations are performed by stressing the closing rates (being commodity prices, currency exchange rates, electricity and gas prices and interest rates) with 10% up and down. The market values in the stressed scenario's are then compared to the original market values.

32.2.1 Commodity prices

The fair value on financial instruments related to cash flow hedging sales would have been € 12.1 million lower/higher if the metal prices would strengthen/weaken by 10%.

The fair value on financial instruments related to cash flow hedging purchases would have been € 8.4 million higher/lower if the energy prices would strengthen/weaken by 10%.

The fair value on other commodity sales hedge compliant financial instruments would have been € 23.3 million lower/higher and the fair value on other commodity purchases hedge compliant financial instruments would have been € 2.3 million higher/lower if the metal prices would strengthen/weaken by 10%.

The fair value on other commodity sales financial instruments according to economic logic would have been € 18.0 million lower/higher and the fair value on other commodity purchases financial instruments according to economic logic would have been € 0.5 million higher/lower if the metal prices would strengthen/weaken by 10%.

32.2.2 Foreign currency

The fair value of forward currency contracts related to cash flow hedging would have been € 49.1 million higher if the EUR would strengthen against USD by 10% and would have been € 50.1 million lower if the EUR would weaken against USD by 10%.

The fair value of forward currency contracts related to cash flow hedging would have been € 26.2 million lower if the USD would strengthen against KRW by 10% and would have been € 26.2 million higher if the USD would weaken against KRW by 10%.

The fair value of forward currency contracts related to cash flow hedging would have been € 5.7 million lower if the USD would strengthen against CNY by 10% and would have been € 5.7 million higher if USD would weaken against CNY by 10%.

The fair value of forward currency contracts related to cash flow hedging would have been € 15.6 million lower if the USD would strengthen against BRL by 10% and would have been € 15.6 million higher if USD would weaken against BRL by 10%.

The fair value of forward currency contracts related to cash flow hedging would have been € 5.4 million lower if the USD would strengthen against CAD by 10% and would have been € 6.6 million higher if USD would weaken against CAD by 10%.

The fair value of forward currency contracts related to cash flow hedging would have been € 34.9 million lower if the EUR would strengthen against CAD by 10% and would have been € 42.6 million higher if EUR would weaken against CAD by 10%.

The fair value of forward currency contracts related to cash flow hedging would have been € 12.5 million lower if the EUR would strengthen against PLN by 10% and would have been € 15.2 million higher if EUR would weaken against PLN by 10%.

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The fair value of other forward currency contracts sold would have been € 42.3 million higher if the EUR would strengthen against USD by 10% and would have been € 51.8 million lower if the EUR would weaken against USD by 10%.

The fair value of other forward currency contracts bought would have been € 8.9 million lower if the EUR would strengthen against USD by 10% and would have been € 10.9 million higher if the EUR would weaken against USD by 10%.

The fair value of net position of current assets and liabilities exposed to USD would have been € 7.1 million higher if the EUR would strengthen against USD by 10% and would have been € 8.6 million lower if the EUR would weaken against USD by 10%.

The fair value of other forward currency contracts sold would have been € 13.0 million higher if the EUR would strengthen against CNY by 10% and would have been € 15.9 million lower if the EUR would weaken against CNY by 10%.

The fair value of net position of current assets and liabilities exposed to CNY would have been € 3.0 million lower if the EUR would strengthen against CNY by 10% and would have been € 3.6 million higher if the EUR would weaken against CNY by 10%.

The fair value of other forward currency contracts sold would have been € 5.9 million higher if the EUR would strengthen against PLN by 10% and would have been € 7.2 million lower if the EUR would weaken against PLN by 10%.

The fair value of net position of current assets and liabilities exposed to PLN would have been € 1.0 million lower if the EUR would strengthen against PLN by 10% and would have been € 1.1 million higher if the EUR would weaken against PLN by 10%.

The fair value of other forward currency contracts sold would have been € 15.4 million lower if the EUR would strengthen against KRW by 10% and would have been € 18.9 million higher if the EUR would weaken against KRW by 10%.

The fair value of other forward currency contracts bought would have been € 1.5 million higher if the KRW would strengthen against USD by 10% and would have been € 1.5 million lower if the KRW would weaken against USD by 10%.

The fair value of net position of current assets and liabilities exposed to KRW would have been € 3.7 million lower if the EUR would strengthen against KRW by 10% and would have been € 4.5 million higher if the EUR would weaken against KRW by 10%.

32.2.3 Interest rate

The fair value of long term loans would have been € 28.7 million lower if interest rate levels would increase by 10% and € 29.3 million higher if interest rate levels would decrease by 10%.

F33 Fair value of financial instruments (derivatives)

Umicore hedges its structural and transactional commodity (metal and energy), currency and interest rate risks using respectively commodity derivatives (mainly quoted on the London Metal Exchange), currency derivatives and cross-currency interest rate swaps with reputable brokers and banks.

33.1 Financial instruments related to cash-flow hedging

Thousands of Euros	Notional or Contractual amount		Fair value		Change in fair value
	31/12/2022	31/12/2023	31/12/2022	31/12/2023	31/12/2023
Forward commodities sales	151,101	145,109	9,680	25,360	15,680
Forward commodities purchases	(89,600)	(91,956)	25,388	(8,450)	(33,838)
Forward currency contracts sales	787,569	862,143	(22,001)	27,038	49,039
Forward currency contracts purchases	(96,565)	(532,080)	2,801	3,164	363
Forward (cross-currency) IRS contracts	796,913	617,724	(10,222)	(9,049)	1,173
Total fair value impact subsidiaries			5,646	38,063	32,417
recognized under trade and other receivables			62,187	64,096	
recognized under trade and other payables			(56,541)	(26,032)	
Total fair value impact associates and joint ventures			(1,735)	(218)	
Total			3,911	37,846	

The principles and documentation on the hedged risks as well as the timing related to the Group's cash flow hedging operations are included in note F3 Financial risk management.

The fair values of the effective hedging instruments are in the first instance recognized in the fair value reserves recorded in equity and are derecognized when the underlying forecasted or committed transactions occur (see note F23).

The forward commodities sales contracts are set up to hedge primarily the following commodities: gold, silver, palladium, platinum, nickel, lead, cobalt and copper. The forward commodity purchase contracts are set up to hedge primarily the electricity, gas and fuel oil price risks. The forward currency contracts are set up to hedge USD towards EUR, KRW, CNY, BRL and CAD as well as EUR towards PLN and CAD, for its structural currency exposure, including forward contracts to hedge significant capital expenditure projects which are

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denominated in another currency than EUR or another functional currency than the one of the entity. The terms and conditions of the forward contracts are common market conditions.

Cross-currency interest rate swap contracts are set up to hedge the issuance of US private placements in November 2022 for USD 363 million and intercompany loans to Group's entities whose functional currency is different from the loan currency.

Umicore did not face any ineffectiveness on cash flow hedging in P&L in 2022 and 2023.

The fair values of the hedging instruments reflect the difference between the contract rates and the closing rates. The total fair value of financial instruments for cash-flow hedging has a positive impact on the fair value reserves in equity at end of 2023. This positive impact is most significant for forward currency contracts and commodities purchased and sold, while cross-currency interest swaps offset part of this positive impact. All of the hedging instruments have their maturity within the next three years except for the cross currency interest rate swaps related to the new issuance of US private placements which have longer maturities.

33.2 Financial instruments related to fair value hedging

Thousands of Euros	Notional or Contractual amount		Fair value		Change in fair value 31/12/2023
	31/12/2022	31/12/2023	31/12/2022	31/12/2023	
Forward commodities sales (IFRS 9-hedge accounting)	360,386	333,053	(53,093)	57,703	110,796
Forward commodities sales (economic hedging)	168,485	192,036	10,451	36,812	26,361
Forward commodities purchases (IFRS 9-hedge accounting)	(79,685)	(46,583)	16,940	(2,369)	(19,309)
Forward commodities purchases (economic hedging)	(21,413)	(4,368)	291	1,455	1,164
Forward currency contracts sales	1,260,888	1,112,287	(668)	4,290	4,958
Forward currency contracts purchases	(428,554)	(433,505)	(4,905)	(36,840)	(31,935)
Total fair value impact subsidiaries			(30,984)	61,051	92,035
recognized under trade and other receivables (IFRS 9- hedge accounting)			23,141	65,452	
recognized under trade and other receivables (economic hedging)			25,219	40,629	
recognized under trade and other payables (IFRS 9- hedge accounting)			(64,867)	(42,668)	
recognized under trade and other payables (economic hedging)			(14,477)	(2,362)	
Total			(30,984)	61,051	

The principles and documentation related to the Group's transactional hedging are included in note F3 "Financial Risk Management". Under Umicore's economical hedging policy, financial instruments for currency and commodity hedging are used to protect the fair value of underlying hedged items (assets, liabilities and firm commitments) and are recognized at fair value at closing date. Umicore obtained for the fair value hedging of its currency risk exposures hedge accounting under the criteria of IFRS 9 (see note F2.22.1).

For the fair value hedging of its commodity risk exposures, Umicore did not obtain hedge accounting under the criteria of IFRS 9 for some metals. Hedge accounting principles are accepted for copper, lead and nickel. In the absence of hedge accounting, the financial instruments are measured at fair value as if they were held for trading. However, such instruments are being used to cover existing transactions, considered as hedged items under Umicore transactional hedging risk policy (primarily inventory and firm commitments) and so these commodity hedging instruments held for trading are not speculative in nature.

The fair values are immediately recognized in the income statement under Other Operating income for the commodity instruments and the Net Finance cost for the currency instruments. The adjustments for the hedged items as well as the hedging instruments are recorded in the following caption of the statement of financial position: "trade and other receivables" and "trade and other payables".

The fair values of the hedging instruments reflect the difference between the contract rates and the market closing rates. In view of the intent of the Group policy on transactional hedging, the net impact on operating income of fair value movements on both hedging instruments and hedged items is neutral. The booking of the fair value movements on financial instruments under fair value hedging had a negative impact on the operating income at the end of 2023. Most of the fair values of the hedging instruments are not significant as the closing rates do not materially differ from the strike rates. Only for the commodities sold and purchased the fair values are significant. These concern metal hedging instruments of which most have their maturity within the next year. The forward commodities sales contracts are set up to hedge primarily the following commodities: nickel, lead and copper. The forward commodity purchase contracts are set up to hedge primarily nickel, lead and copper. The forward currency contracts are set up to hedge mainly USD towards EUR, BRL and KRW as well as EUR towards CNY, KRW, and PLN.

The forward contracts following the economic logic are contracts to hedge following commodities: silver, gold, platinum and palladium.

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Fair value hedged items and hedging instruments compliant with IFRS 9 hedge accounting

Thousands of Euros	31/12/2022		31/12/2023		Change in Fair Value Hedged Items	Change in Fair Value Hedging Instruments	Ineffectiveness
	Fair Value Hedged Items	Fair Value Hedging Instruments	Fair Value Hedged Items	Fair Value Hedging Instruments			
Transactional metal hedges	55,080	(41,920)	(58,031)	61,908	(113,111)	103,828	(9,282)

The main source of hedge ineffectiveness on the fair value hedging originates from differences in maturity dates between the hedging instruments and the underlying hedged item. With respect to the fair value currency hedges, the hedged items are mirroring the hedging instruments and are included in various sections of the balance sheet.

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Thousands of Euros	Earliest contractual maturity (undiscounted) - notional amounts				Total	Earliest contractual maturity (undiscounted) - fair value				Total
	< 1 Month	1 to 3 Months	3 Months to 1 Year	1 to 5 Years		< 1 Month	1 to 3 Months	3 Months to 1 Year	1 to 5 Years	
FINANCIAL INSTRUMENTS ASSETS (FAIR VALUE)										
Interest Rate Risk										
(Cross-currency) Interest rate swaps	-	-	40,000	362,032	402,032	-	-	367	7,305	7,672
Commodity risk										
Total forward sales (CFH)	2,213	13,395	49,859	28,085	93,552	644	2,021	7,505	10,608	20,779
Total forward purchases (CFH)	-	-	67,574	22,026	89,600	-	-	(3,086)	28,474	25,388
Total forward purchases (FV - IFRS 9 Hedge Accounting)	18,438	14,177	35,265	-	67,881	3,739	2,829	10,381	-	16,950
Total forward sales (FV economic hedging)	5,274	8,999	51,506	14,493	80,272	2,067	3,234	15,632	3,969	24,901
Total forward purchases (FV economic hedging)	-	20,223	-	-	20,223	-	317	-	-	317
FX Risk										
Forward currency contracts sales (CFH)	2,093	4,186	18,843	(70,334)	(45,212)	111	235	1,166	4,036	5,547
Forward currency contracts purchases (CFH)	3,557	7,114	32,056	53,837	96,565	216	386	993	1,206	2,801
Forward currency contracts sales (FV - IFRS 9 Hedge Accounting)	465,048	268,646	123,938	7,800	865,433	2,775	(1,477)	4,364	278	5,940
Forward currency contracts purchases (FV - IFRS 9 Hedge Accounting)	60,449	58,311	67,615	-	186,375	171	18	61	-	251
FINANCIAL INSTRUMENTS LIABILITIES (FAIR VALUE)										
Interest Rate Risk										
(Cross-currency) Interest rate swaps	-	20,361	154,520	220,000	394,881	-	(368)	(3,404)	(14,123)	(17,895)
Commodity risk										
Total forward sales (CFH)	3,814	5,888	29,906	17,941	57,549	(472)	(1,245)	(5,969)	(3,412)	(11,098)
Total forward sales (FV - IFRS 9 Hedge Accounting)	24,773	67,531	196,307	71,775	360,386	(5,234)	(8,171)	(31,104)	(8,585)	(53,093)
Total forward purchases (FV - IFRS 9 Hedge Accounting)	2,354	9,451	-	-	11,804	5	(15)	-	-	(10)
Total forward sales (FV economic hedging)	-	59,988	28,225	-	88,213	-	(11,009)	(3,440)	-	(14,450)
Total forward purchases (FV economic hedging)	-	-	1,190	-	1,190	-	-	(27)	-	(27)
FX Risk										
Forward currency contracts sales (CFH)	55,789	58,224	321,211	297,557	732,780	(4,974)	(2,301)	(18,676)	(1,597)	(27,548)
Forward currency contracts sales (FV - IFRS 9 Hedge Accounting)	129,273	175,451	90,732	-	395,455	(671)	(2,920)	(3,017)	-	(6,608)
Forward currency contracts purchases (FV - IFRS 9 Hedge Accounting)	143,101	34,645	23,645	40,788	242,179	(1,759)	(614)	(1,068)	(1,714)	(5,156)

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Thousands of Euros	Earliest contractual maturity (undiscounted) - notional amounts					Earliest contractual maturity (undiscounted) - fair value				
	< 1 Month	1 to 3 Months	3 Months to 1 Year	1 to 5 Years	Total	< 1 Month	1 to 3 Months	3 Months to 1 Year	1 to 5 Years	Total
Financial Instruments Assets										
Interest Rate Risk										
(Cross-currency) Interest rate swaps	-	-	-	9,217	9,217	-	-	-	228	228
Commodity risk										
Total forward sales (CFH)	6,818	13,241	43,139	72,368	135,566	3,375	4,759	14,977	3,257	26,368
Total forward purchases (CFH)	317	634	1,585	-	2,536	11	25	105	-	141
Total forward sales (FV - IFRS 9 Hedge Accounting)	57,693	60,772	113,224	39,074	270,763	4,544	10,609	32,187	11,548	58,888
Total forward purchases (FV - IFRS 9 Hedge Accounting)	1,468	957	-	-	2,425	66	2	-	-	68
Total forward sales (FV economic hedging)	7,844	21,510	25,477	44,462	99,293	4,084	10,815	9,543	14,557	38,999
Total forward purchases (FV economic hedging)	1	1,987	-	-	1,988	1,555	75	-	-	1,630
FX Risk										
Forward currency contracts sales (CFH)	24,746	52,313	238,371	184,134	499,564	1,222	2,395	14,192	10,714	28,523
Forward currency contracts purchases (CFH)	4,839	9,679	48,044	82,959	145,521	760	1,498	6,432	145	8,835
Forward currency contracts sales (FV - IFRS 9 Hedge Accounting)	192,401	368,968	220,042	14,679	796,090	1,330	2,711	1,798	50	5,889
Forward currency contracts purchases (FV - IFRS 9 Hedge Accounting)	33,927	14,814	2,817	2,924	54,482	240	219	154	(6)	607
Financial Instruments Liabilities										
Interest Rate Risk										
(Cross-currency) Interest rate swaps	-	25,000	195,000	388,507	608,507	-	(469)	(5,264)	(3,544)	(9,277)
Commodity risk										
Total forward sales (CFH)	426	854	3,862	4,401	9,543	(15)	(32)	(223)	(738)	(1,008)
Total forward purchases (CFH)	-	-	32,948	56,472	89,420	-	-	(987)	(7,604)	(8,591)
Total forward sales (FV - IFRS 9 Hedge Accounting)	22,130	21,407	18,753	-	62,290	(690)	(263)	(232)	-	(1,185)
Total forward purchases (FV - IFRS 9 Hedge Accounting)	19,302	24,856	-	-	44,158	(999)	(1,438)	-	-	(2,437)
Total forward sales (FV economic hedging)	-	73,654	19,089	-	92,743	-	(801)	(1,386)	-	(2,187)
Total forward purchases (FV economic hedging)	2,380	-	-	-	2,380	(175)	-	-	-	(175)
FX Risk										
Forward currency contracts sales (CFH)	29,906	4,320	130,712	197,641	362,579	(1,345)	(508)	(3,719)	4,087	(1,485)
Forward currency contracts purchases (CFH)	-	-	43,710	342,849	386,559	-	-	(657)	(5,014)	(5,671)
Forward currency contracts sales (FV - IFRS 9 Hedge Accounting)	156,626	58,915	72,301	28,355	316,197	(735)	(339)	(449)	(76)	(1,599)
Forward currency contracts purchases (FV - IFRS 9 Hedge Accounting)	232,993	35,061	90,980	19,989	379,023	(1,264)	(342)	(2,525)	(33,316)	(37,447)

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F34 Notes to the cash flow statement

34.1 Definitions

The cash flow statement identifies operating, investing and financing activities for the period.

Umicore uses the indirect method for the operating cash flows. The profit (loss) of the period is adjusted for:

- the effects of non-cash transactions such as provisions, impairment losses, mark to market, etc., and the variance in operating capital requirements.
- items of income or expense associated with investing or financing cash flows.

Thousands of Euros	2022	2023
Adjustments for non cash transactions		
Depreciation and amortisation	285,907	298,526
(Reversal) Impairment loss	24,931	45,790
Mark to market of inventories and commitments	64,068	20,805
Exchange difference on long-term loans	(14,811)	(31,459)
(Reversal) Impairment loss on other financial assets	811	444
Write-down on inventory and impairment of financial assets	17,544	6,744
Depreciation on government grants	(2,401)	(14,909)
Share-based payments	11,824	14,117
Change in provisions	23,928	(35,131)
Total	411,803	304,930
Adjustments for items to disclose separately or under investing and financing cash flows		
Income taxes of the period	137,600	104,941
Interest (income) charges	76,954	78,347
(Gain) loss on disposal of fixed assets	(7,732)	5,545
Dividend income	(251)	(237)
Total	206,571	188,596
Change in working capital requirement analysis		
Inventories	(524,603)	543,568
Trade and other receivables	(28,658)	457,555
Trade and other payables	367,231	(510,721)
As in the consolidated balance sheet	(186,030)	490,402
Non-cash items (*)	(138,534)	(97,527)
Items disclosed elsewhere (**)	(29,508)	18,611
Currency translation differences	11,906	(65,004)
As in the consolidated cash flow statement	(342,166)	346,482

(*) In 2023, non-cash items mainly include the effect of € 100 million outstanding payable for the capital increase in IONWAY joint venture which was called in December 2023 and paid in full in January 2024. Besides this element, non-cash items are mainly linked to mark to market of strategic and transactional hedging as well as impairments on inventories and receivables.

(**) Item disclosed elsewhere are mainly due to changes in interests, tax receivable and payable as well as government grants.

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Thousands of Euros	Net cash and cash equivalent	Loans (w/o bank overdrafts)	IFRS Net financial debt	Excluding revaluation impact (*)	Net financial debt
At the end of previous year	(1,221,335)	2,324,905	1,103,570	-	1,103,570
Cash flow of the period	(242,461)	378,474	136,013	-	136,013
Other non-cash movements		26,251	26,251	-	26,251
Revaluation impact		(33,181)	(33,181)	33,181	-
AT THE END OF THE FINANCIAL YEAR	(1,463,796)	2,696,449	1,232,653	33,181	1,265,834

(*) revaluation impact corresponds to the revaluation impact of financial debt denominated in a currency which is not the functional currency of the entity and for which the Group is hedged

Net cash and cash equivalent includes bank overdrafts as disclosed in note F22.

34.2 Net cash flow generated by operating activities

Net operating cash flow is € 1,043 million. Net working capital for the Group decreased by € 346 million compared to the end of 2022. Working capital needs in Catalysis decreased due to the reduction of inventory levels, thanks to further optimization and lower PGM price levels. In Energy & Surface Technologies, increase in working capital in anticipation of growing volumes was largely offset by the decrease in battery metal prices, while in Recycling the working capital increased.

34.3 Net cash flow used in investing activities

Net cash used in investing activities increased by € 468 million in 2023 compared to 2022. Capital expenditure reached € 857 million (compared to € 470 million in 2022), excluding capitalized R&D costs as per Umicore's definition of capital expenditures (refer to Glossary). Taking into account investments in Rechargeable Battery Materials' greenfield plants in Poland and Canada, Energy & Surface Technologies accounted for close to three quarters of Group capital expenditures. In Catalysis, the Automotive Catalysts business unit continued to focus on investments in production footprint optimization and targeted capacity expansions. In Recycling, the capital expenditure was related to environmental and safety investments in the Precious Metals Refining business unit. Capitalized development expenses amounted to € 28 million, up compared to 2022.

During the year, Umicore contributed € 78.9 million in equity to IONWAY, its joint venture with PowerCo.

Thousands of Euros		2022	2023
Acquisition of tangible assets	a	458,859	807,474
Acquisition of intangible assets	b	32,431	77,268
Acquisitions of assets	c=a+b	491,290	884,742
Capitalized R&D	d	21,412	27,935
Capital expenditure	e=c-d	469,878	856,807

34.4 Net cash flow generated by (used in) financing activities

The cash generated in financing activities is mainly the consequence of the net increase of the indebtedness (€ 398.5 million) offset by the payment of dividends (€ 196.1 million) and interests (€ 84.7 million).

The effect of exchange rate fluctuations in the statement of cash flow includes the effect of exchange rate fluctuations on cash held on one hand and the currency translation effect on the intercompany loan eliminations on the other hand.

F35 Off-balance sheet rights and commitments

Thousands of Euros	2022	2023
Guarantees constituted by third parties on behalf of the Group	64,139	57,930
Guarantees constituted by the Group on behalf of third parties	3,625	3,801
Guarantees received	58,563	60,206
Goods and titles held by third parties in their own names but at the Group's risk	1,988,971	1,584,430
Commitments to acquire and sell fixed assets	25,783	170,102
Commercial commitments for commodities purchased (to be received)	1,106,973	591,583
Commercial commitments for commodities sold (to be delivered)	2,346,619	1,909,043
Goods and titles of third parties held by the Group	6,676,091	4,519,851
TOTAL	12,270,764	8,896,946

35.1 Guarantees constituted by third parties on behalf of the Group

These are secured and unsecured guarantees given by third parties to the creditors of the Group guaranteeing that the Group's debts and commitments, actual and potential, will be satisfactorily discharged.

35.2 Guarantees constituted by the Group on behalf of third parties

These are guarantees or irrevocable undertakings given by the Group in favor of third parties guaranteeing the satisfactory discharge of debts or of existing or potential commitments by the third party to its creditors.

There are no loan commitments given to third parties.

35.3 Guarantees received

These are pledges and guarantees received guaranteeing the satisfactory discharge of debts and existing and potential commitments of third parties towards the Group, with the exception of guarantees and security in cash.

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The guarantees received are mainly related to supplier guarantees backed by bank institutions. Those guarantees are set up to cover the good execution of work by the supplier.

Some guarantees received are related to customer guarantees, received mainly from a customer's mother company on behalf of one of its subsidiaries. A minor part of the received guarantees is related to rent guarantees.

All guarantees are taken at normal market conditions and their fair value is equivalent to the carrying amount. No re-pledge has been done on any of those guarantees.

35.4 Goods and titles held by third parties in their own names but at the Group's risk

These represent goods and titles included in the Group balance sheet for which the Group bears the risk and takes the profit, but where these goods and titles are not present on the premises of the Group. It concerns mainly inventories leased out to third parties or held under consignment or under tolling agreement by third parties.

35.5 Commercial commitments

These are firm commitments to deliver or receive metals to customers or from suppliers at fixed prices.

35.6 Goods and titles of third parties held by the Group

These are goods and titles held by the Group, but which are not owned by the Group. It concerns mainly third-party inventories leased in or held under consignment or tolling agreements with third parties. It also includes in a much lesser extent some non-metal leases that are not in the scope of IFRS 16 because of lower values or short-term.

The Group leases metals (particularly gold, silver, platinum and palladium) from and to banks and other third parties for specified, mostly short term, periods and for which the Group pays or receives fees. As at 31 December 2023, there was a net lease-in position of € 1,275 million vs. € 1,444 million at end of 2022. This decrease is mainly caused by lower volumes. As detailed in Note F2.8, those metal leases are not under the scope of IFRS 16.

F36 Contingencies

The Group is subject to a number of claims and legal proceedings incidental to the normal conduct of its business. It may also be impacted by the outcome of a pending Brazilian collective court proceeding regarding indirect taxes. Management does not believe that such claims and proceedings are likely to have a material adverse effect on the financial condition of Umicore.

Umicore launched the construction of a 35 GWh equivalent battery materials production plant in Ontario, Canada, combining the production of precursor (pCAM) and CAM to serve the North American market. It

received substantial financial support of €0.58 billion from the Governments of Canada and Ontario for this key project given its significance in the establishment of a North American local-for-local EV supply chain. The financial support will be received throughout the period of construction as Umicore incurs eligible expenses and those comply with the conditions attached to the grants.

F37 Related parties

Thousands of Euros	2022	2023
Transactions with joint ventures and associates		
Operating income	301,109	111,853
Operating expenses	(346,673)	(196,897)
Financial income	-	895
Dividends received	(11,902)	(5,872)

Thousands of Euros	2022	2023
Outstanding balances with joint ventures and associates		
Current trade and other receivables	46,036	35,832
Current trade and other payables	124,061	174,526

The transactions with associates and joint ventures are mainly commercial transactions, sales and purchases of goods and services.

During the year, the Group contributed to the capital increase of IONWAY for € 178.9 million, of which € 100.0 million has been called in December 2023 but paid in full end of January 2024. This amount is included in the line current trade and other payables in the table above.

Besides its equity share in its associates and joint ventures, Umicore has no other commitments, guarantees or obligations arising from its involvement in those.

There are no transaction with entities held by key management personnel.

Thousands of Euros	2022	2023
Supervisory Board		
Salaries and other compensation	1,185	1,195
Fixed portion	362	462
Variable portion (based on attended meetings)	428	431
Value of the share grant	393	298
Benefit in kind company car chairman	2	4

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No variable or other compensation element (apart from attendance-related fees) is associated with directorship. No loan or guarantees have been granted by the company to members of the supervisory board.

Thousands of Euros	2022	2023
Management Board		
Salaries and other benefits	13,410	12,030
Short-term employee benefits	5,509	6,639
Post-employment benefits	1,077	1,177
Other long-term benefits	1,909	528
Share-based payments	4,914	3,686

The data above shows the accounting view of the supervisory board and management board remuneration and slightly differs from the information provided in the remuneration report in the Corporate Governance section.

In the tables above, the employer social security contributions, if applicable, are included in the short-term employee benefits. These do not feature in the remuneration report.

The figures related to the annual variable remuneration linked to the reference year 2023 included in the short-term employee benefits, represent the level of accruals at balance sheet date. The remuneration report features the actual amounts paid with respect to the reference year 2023.

Long-term variable remuneration (2022 and 2023 PSU Plans respectively for reference year 2022 and 2023) are included in other long term benefits.

PSU's expense are recognized as employee benefit expense during the vesting period (i.e. the period in which the service and, where applicable, the performance conditions are fulfilled). The cumulative expense recognized for the PSU plans at each reporting date reflects the already expired portion of the vesting period and the Group's best estimate of the number of awards that will ultimately vest. The expense or credit in the statement of income for a period represents the movement in cumulative expense recognized as at the beginning and end of that period.

The award level for vesting in 2025 (for the 2022 PSU Plan) and 2026 (for the 2023 PSU Plan) will depend on long-term performance measures and the exact award levels will be included respectively in the remuneration report 2024 and 2025.

With regard to share-based incentives, the share grant figures included in share-based payments above represent the value of the shares granted in 2023 for services rendered in 2022. The remuneration report shows the value of the shares granted in 2024 for services rendered in the reporting year 2023.

F38 Events after the reporting period

In February 2024, Umicore has concluded a € 350 million, eight-year-maturity loan with the European Investment Bank (EIB). The proceeds will be dedicated to fund part of Umicore's European research, development and innovation (RDI) in rechargeable battery materials technologies for electric vehicles (EV) and the recycling of EV batteries.

The Supervisory Board will propose a gross annual dividend of € 0.80 per share at the Annual General Meeting on 25 April 2024. This compares to a full dividend of € 0.80 per share paid out for the financial year 2022. Taking into account the interim dividend of € 0.25 per share paid out in August 2023 and subject to shareholder approval, a gross amount of € 0.55 per share will be paid out on 4 May 2024.

F39 Earnings per share

Earnings per share

(EUR)	2022	2023
EPS - basic	2.37	1.60
EPS - diluted	2.37	1.60
Basic adjusted EPS	2.47	1.86

The following earnings figures have been used as the numerator in the calculation of basic and diluted earnings per share:

Numerator elements

Thousands of Euros	Notes	2022	2023
Net consolidated profit, Group share	F9		
From continuing operations		569,878	385,075
Adjusted net consolidated profit, Group share	F9	593,059	446,688

The following numbers of shares have been used as the denominator in the calculation of basic and diluted earnings per share:

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Denominator elements

	2022	2023
Total shares issued as at 31 December	246,400,000	246,400,000
of which treasury shares	6,199,341	5,999,083
of which shares outstanding	240,200,659	240,400,917
Weighted average number of outstanding shares	240,340,705	240,381,166
Potential dilution due to stock option plans	345,226	31,674
Adjusted weighted average number of outstanding shares	240,685,931	240,412,840

Total outstanding shares are after deduction of treasury shares, which are held to cover existing stock option plans, PSU's or are available for resale. The denominator for the calculation of diluted earnings per share takes into account an adjustment for stock options and PSU's.

During 2023, no new shares were created. During the year, Umicore used 133,700 of its treasury shares following the exercise of stock options and 66,558 for shares granted. In the course of 2023, Umicore did not buy back any own shares. On 31 December 2023, Umicore owned 5,999,083 of its own shares representing 2.43 % of the total number of shares issued as at that date.

F40 IFRS developments

There were no new standards, amendments and interpretation to standards issued, and **mandatory** for the first time for the financial year beginning 1 January 2023 with a material impact on the Group's consolidated financial statements. The Group has not early adopted any other standard, interpretation or amendment that has been issued but is not yet effective.

Pillar 2 legislation has been enacted or substantively enacted in a number of jurisdictions where the Umicore Group is active, including in Belgium where it is headquartered. Since the Umicore Group has consolidated revenues exceeding € 750 million, it is an in-scope multinational enterprise. The legislation will therefore be effective for the Group's financial year beginning 1 January 2024.

IAS 12 includes a temporary exception to the requirement to recognize and disclose information about deferred tax assets and liabilities that are related to tax laws that are enacted or substantively enacted to implement the Pillar 2 legislation. The Umicore group applies this temporary exception.

The Umicore Group made an assessment of the Group's potential future exposure to Pillar 2 income taxes using the most recent tax filings, Country-by-Country Reporting and financial statements for the constituent entities in the Group.

The Group's assessment indicates that:

- in all of the jurisdictions where the Umicore Group is active, at least one of the Transitional Safe Harbour tests will be met; and
- while Umicore will continue to monitor the Pillar 2 impact, the Group does not expect a material Pillar 2 top-up tax liability and does not expect a material impact on the Group's effective tax rate.

Further, Umicore has the required procedures and controls in place to be compliant with the jurisdictional Pillar 2 requirements for financial years beginning on or after 1 January 2024.

For all other new interpretations and standards not yet mandatory as from 1 January 2024, management has no indications that this will result in a material impact on the Group's consolidated financial statements.

F41 Auditors' remuneration

The worldwide remuneration for the statutory auditor and its affiliated companies totaled € 2.8 million, including an amount of € 2.4 million for the statutory audit missions (thereof € 0.6 million for the audit of the parent company) and € 0.4 million for non-statutory audit services including audit-related services, other attestation services and non-audit services.

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Parent company separate summarized financial statements

The annual accounts of Umicore are given below in summarized form.

In accordance with the Companies code, the annual accounts of Umicore, together with the management report and the statutory auditor's report will be deposited with the National Bank of Belgium.

These documents are also available on request at:

UMICORE
Rue du Marais 31
B-1000 Brussels
(Belgium)

The statutory auditor did not express any reservations in respect of the annual accounts of Umicore.

The legal reserve of € 55.0 million which is included in the retained earnings is not available for distribution.

Thousands of Euros		31/12/2021	31/12/2022	31/12/2023
Summarized balance sheet at 31 December				
1. Assets				
Fixed assets				
		3,296,290	3,543,162	4,046,489
I.	Formation expenses	10,288	6,228	3,516
II.	Intangible assets	99,067	114,396	144,008
III.	Tangible assets	460,546	461,517	480,383
IV.	Financial assets	2,726,389	2,961,021	3,418,582
Current assets				
		2,169,189	2,631,586	2,181,524
V.	Amounts receivable after more than one year	584,998	435,442	369,433
VI.	Stocks and contracts in progress	503,271	720,577	719,706
VII.	Amounts receivable within one year	861,136	1,173,296	698,070
VIII.	Investments	185,936	226,272	248,506
IX.	Cash at bank and in hand	559	4,603	8,012
X.	Deferred charges and accrued income	33,289	71,396	137,797
TOTAL ASSETS		5,465,479	6,174,748	6,228,013
2. Liabilities and shareholders' equity				
Capital and reserves		2,428,079	2,528,617	2,468,383
I.	Capital	550,000	550,000	550,000
II.	Share premium account	848,130	848,130	848,130
III.	Revaluation surplus	91	91	91
IV.	Reserves	391,090	417,915	354,530
V.	Result carried forward	352,163	492,586	441,265
Vbis.	Result for the period	272,454	209,830	268,439
VI.	Investments grants	14,151	10,065	5,928
Provisions and deferred taxation				
VII.A.	Provisions for liabilities and charges	198,047	180,279	210,808
Creditors		2,839,353	3,465,852	3,548,822
VIII.	Amounts payable after more than one year	1,707,589	1,619,444	2,001,803
IX.	Amounts payable within one year	1,040,392	1,697,439	1,272,433
X.	Accrued charges and deferred income	91,372	148,969	274,586
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		5,465,479	6,174,748	6,228,013

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Thousands of Euros	31/12/2021	31/12/2022	31/12/2023
Income statement			
I. Operating income	6,229,378	7,093,132	4,686,933
II. Operating charges	(5,947,989)	(6,932,583)	(4,554,619)
III. Operating result	281,389	160,549	132,314
IV. Financial income	213,675	292,050	427,845
V. Financial charges	(133,578)	(142,949)	(280,583)
VI. Result on ordinary activities before taxes	361,486	309,650	279,576
X. Income taxes	(51,736)	(12,969)	(11,137)
XI. Result for the period	309,750	296,681	268,439
XIII. Result for the period available	309,750	296,681	268,439

Thousands of Euros	2021	2022	2023
Appropriation account			
A. Profit (loss) to be appropriated	661,913	789,267	838,640
1. Profit (loss) for the financial year	309,750	296,681	268,439
2. Profit (loss) carried forward	352,163	492,586	570,201
C. Appropriation to equity	22,985	(26,826)	63,384
3. To the reserve for own shares	22,985	(26,826)	63,384
D. Profit (loss) to be carried forward (1)	492,586	570,201	709,703
2. Profit (loss) to be carried forward	492,586	570,201	709,703
F. Profit to be distributed (1)	(192,312)	(192,241)	(192,321)
1. Dividends			
ordinary shares	(192,312)	(192,241)	(192,321)

(1) The actual amount of these two items will be amended based on the actual amount of the company's own shares held by Umicore on the date of the Annual General Meeting of Shareholders on 25 April 2024 ; the gross dividend of EUR 0.80 will be proposed.

Thousands of Euros	Number of shares	
Statement of capital		
A. Share capital		
1. Issued capital		
At the end of the preceding financial year	550,000	246,400,000
At the end of the financial year	550,000	246,400,000
2. Structure of the capital		
2.1. Categories of shares		
Ordinary shares	550,000	246,400,000
Registered shares or bearer shares		
Registered		45,450,459
Bearer		200,949,541
E. Authorized unissued capital	55,000	

	% capital	Number of shares	Notification date
G. Shareholder base (1)			
Family Trust Desmarais, Albert Frère and Groupe Bruxelles Lambert S.A.	16.49	40,623,159	15/03/2023
BlackRock Investment Management	5.89	14,516,549	22/12/2023
Norges Bank	5.30	13,054,028	12/08/2022
Baillie Gifford & Co and Baillie Gifford Overseas Ltd.	9.91	24,420,971	06/09/2022
APG Asset Management (*)	2.73	6,728,778	21/10/2016
Others	57.25	141,057,432	31/12/2023
Own shares held by Umicore	2.43	5,999,083	31/12/2023
	100.00	246,400,000	
of which free float	100.00	246,400,000	

(1) At 31 December 2023, 7,312,864 options on Umicore shares are still to be exercised

(*) Transparency notification received prior to the 2018 capital increase – according to the information we received, the actual participation would still reach 3%

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Management responsibility statement

We hereby certify that, to the best of our knowledge, the Consolidated Financial Statements as of 31 December 2023, prepared in accordance with the International Financial Reporting Standards (IFRS) as adopted by the European Union, and with legal requirements applicable in Belgium, give a true and fair view of the assets, liabilities, financial position and profit or loss of the Group and the undertakings included in the consolidation taken as a whole, and that the management report includes a fair review of the development and performance of the business and the position of the Group and the undertakings included in the consolidation taken as a whole, together with a description of the principal risks and uncertainties that they face.

8 March 2024,

MATHIAS MIEDREICH
CHIEF EXECUTIVE OFFICER

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Consolidated environmental figures

	unit	notes	2019	2020	2021	2022	2023
CO ₂ e emissions (scope1)	tonnes	E8	389,101	330,451	372,699	346,439	317,849
CO ₂ e emissions (scope2) - Market based ¹	tonnes	E8	402,714	402,094	473,738	352,210	314,093
CO ₂ e emissions (scope2) - Location based ¹	tonnes	E8	426,074	421,089	421,990	372,820	377,705
Biogenic CO ₂ emissions (scope 1+2 market based)	tonnes	E8					56,639
Energy consumption ¹	terajoules	E7	7,476	7,591	8,308	7,471	7,462
Renewable electricity	%	E7	14	15	17	35	41%
Metal emissions to water (load)	kg	E5	2,052	696,523	908,186	774,306	566,035
Metal emissions to water ²	impact units	E5	0.4	120.7	157.0	133.8	100.0
Metal emissions to air (load)	kg	E5	864	984	994	1214	978
Metal emissions to air	impact units	E5	65,189	69,371	70,084	83,111	59,518
Diffuse metal emissions	%	E5	114.2	100.0	64.8	54.6	44.6
SO _x emissions	tonnes	E5	531	389	372	378	467
NO _x emissions	tonnes	E5	280	239	240	247	208
Water withdrawal ³	thousand m ³	E4	6,208	7,813	11,242	10,738	10,374
Fresh water withdrawal ³	thousand m ³	E4			9,977	9,627	9,294
Total waste produced	tonnes	E3	68,317	99,434	94,619	104,337	90,030
Hazardous waste ⁴	tonnes	E3	47,589	78,055	73,551	85,974	73,309
of which recycled ⁴	%	E3	7.9	5.0	8.0	6.7	8.8
Non hazardous waste ⁴	tonnes	E3	20,728	21,379	21,065	18,363	16,720
of which recycled ⁴	%	E3	59.4	64.7	71.4	69.5	61.1
Environmental complaints	N°	E9	33	80	104	66	52
Sites ISO 14001 certified	%	E9	95	96	94	96	98

1 Restatements made in 2023 for 2022 figures.

2 Impact factors have been updated for all years compared with previous years. See more information in Environmental Statements section E5 and Performance section Emissions.

3 Recalculation due to change of scope. Previous years have been adapted in view of consistency. The definition of water withdrawal has changed in 2021. See the respective topics in this section (the Environmental Statements section) for further information.

4 Definitions of KPI's have changed over time. A direct comparison over all years is therefore not fully applicable. See the respective topics in this section (the Environmental Statements section) for further information.

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Notes to the environmental figures

E1 Scope of environmental statements

Environmental key figures include data from consolidated industrial sites where Umicore has operational control. The following sites are new in 2023: Nysa (Poland, Energy & Surface Technologies) and Cheonan site 4. This brings the total number of consolidated industrial sites that report environmental data in 2023 to 54, up from 52 in 2022. Only sites running from January 1st are included.

Within the scope of Umicore's reporting framework, most of the sites report their environmental data at the end of the third quarter, together with a forecast for the fourth quarter. In January, the forecasted values are checked by the sites for significant deviations and, if needed, corrected. The sites with the largest environmental impact for 2023 are Hanau (Germany; Catalysis, Recycling), Olen (Belgium; Energy & Surface Technologies, Corporate R&D), Hoboken (Belgium; Recycling), Jiangmen 1/2 (China; Energy & Surface Technologies), Cheonan Site 1/2/3/4 (Korea; Energy & Surface Technologies), Nysa (Poland, Energy & Surface Technologies) and Kokkola (Finland; Energy & Surface Technologies). These sites reported their full year figures for 2023 during January 2024. A sensitivity analysis, undertaken for the 2022 data on energy consumption data, indicates that the potential deviation of the Group environmental performance would be 1% in case of a 20% error in the forecasted data.

Please note that due to improved analytical and reporting methods, some of the data published in the 2022 annual report have been restated in the 2023 report.

For Scope 3, please see the detailed approach description for each category in the specific Scope 3 section.

E2 Resource efficiency

The raw materials in scope for this indicator are the metals purchased to develop metal-based applications. The percentage is expressed in total raw materials weight.

The resource efficiency indicator provides information on the nature – primary or secondary – of the raw materials processed at the operational sites into a final (Umicore) product.

The following definitions apply for primary and secondary raw materials¹:

- Primary raw material: Material that has never before been subjected to use or processed into any form of end-use product (or part thereof) other than that required for its manufacture. In the absence of information from the supplier on the nature of the raw materials supplied, these raw materials are considered as primary. The collected data are expressed in terms of total tonnage of incoming material.
- Secondary raw material: Material that has been used and/or processed before and can be reused or processed again into any form of end-use product (or part thereof).

Secondary raw materials consist of two sub-groups²:

- Secondary pre-consumer raw material: Material resulting from the industrial processes in the value chain before that material has been processed into a product. Please note that this includes waste materials originating from intermediate manufacturing steps in the value chain using primary raw materials as input. In all cases the material should not be suitable for consumption in the intermediate manufacturing steps from which it originates.
- Secondary post-consumer raw material: Material resulting from products ending in at least one lifetime. Please note that this includes waste materials originating from intermediate manufacturing steps in the value chain using secondary raw materials (pre- and or post- consumer raw materials) as input. This also includes material recovered from waste generated by industrial facilities in their role as end-users of a finished product. In all cases the material should not be suitable for consumption in the intermediate manufacturing steps from which it originates.

E3 Waste

Waste is defined as the total volume of generated waste expressed in tonnes/year. The distinction between hazardous and non-hazardous waste is defined according to the local regulation for the region where the reporting entity is located.

The waste recycling rate is the ratio of the waste recovered by third parties (including waste recovered as energy through incineration) to the total waste.

¹ Inspired by BSI 8001:2017 Framework for implementing the principles of circular economy in organisations.

² Inspired by EN45557:2019 General method for assessing the proportion of recycled content in energy-related products.

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E4 Water

Water withdrawal is defined as the sum of water drawn from surface water, groundwater, seawater or a third-party source for any purpose. As of 2021, water withdrawal figures include both produced water (primarily water/moisture content from incoming raw materials and liquid solutions) and rainwater. However, the "water use" figures reported from 2019 and 2020 do not account for these amounts. The reported values for 2021 and 2022 for water withdrawal, freshwater withdrawal, water discharge, water consumption and freshwater consumption have been restated. The basis for restatement is an updated allocation of water streams at the Kokkola site.

With respect to areas experiencing water stress, the WRI Aqueduct tool has been used to identify the sites located in such areas in water stress. Based on a reassessment performed, the sites material to the group's water withdrawal are limited to the Bangkok, Hoboken, Olen and Shirwal sites.

4.1 Water, by business group

thousand m ³	Catalysis	E&ST	Recycling	Umicore Group
Water withdrawal	554	7,570	2,250	10,374
Fresh water withdrawal	509	6,540	2,244	9,294
Water discharge	303	7,091	1,541	8,934
Fresh water discharge	226	703	1,283	2,212
Water consumption	252	479	709	1,440
Fresh water consumption	283	5,838	960	7,081

E5 Emissions

We focus on the metals present in Umicore's material flow and relevant to the environment in terms of impact. A detailed assessment was conducted in 2010 and subsequently implemented in 2011 to evaluate and define the metals relevant to our operations. A procedure is in place to evaluate the effect of changes to Umicore's material flow at existing sites and newly established sites, or sites joining the company to ensure that the list of metals is up-to-date and relevant. Due to this recurrent evaluation, we have included lithium in the scope of our metal emissions to water as of this reporting year, making the first modification to the list since 2011.

Metal emissions to water

The metals taken into consideration for the impact determination for water are the following: Antimony (Sb), Arsenic (As), Cadmium (Cd), Cerium (Ce), Chromium (Cr) III and VI, Cobalt (Co), Copper (Cu), Gold (Au), Indium (In), Lead (Pb), Lithium (Li), Manganese (Mn), Mercury (Hg), Molybdenum (Mo), Nickel (Ni),

Palladium (Pa), Platinum (Pt), Rhodium (Rh), Selenium (Se), Silver (Ag), Strontium (Sr), Tellurium (Te), Thallium (Tl), Titanium (Ti), Zinc (Zn), and Zirconium (Zr).

Metal emissions to water (load) are defined as the total amount of metals emitted after treatment to surface water from effluent(s) expressed in kg/year. If sites make use of an external wastewater treatment plant, the efficiency of that treatment is considered if known to the site.

Metal emissions to air

The metals taken into consideration for the impact determination for air are the following: Aluminium (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Cadmium (Cd), Chromium (Cr), Cobalt (Co), Copper (Cu), Indium (In), Iron (Fe), Lead (Pb), Lithium (Li), Manganese (Mn), Mercury (Hg), Nickel (Ni), Palladium (Pa), Platinum (Pt), Rhodium (Rh), Selenium (Se), Silicon (Si), Silver (Ag), Tellurium (Te), Thallium (Tl), Tin (Sn), Tungsten (W), Vanadium (V), Zinc (Zn), and Zirconium (Zr).

Metal emissions to air (load) are defined as the total amount of metals emitted to air, after emissions abatement where applicable, in solid fraction by all point sources expressed in kg/year. Emissions include dust fractions and for mercury and arsenic, vapor/fume fractions are counted as well.

Impact factors and assessment

For each of the metals emitted to water and air, an impact factor is applied to account for the different toxicity and ecotoxicity levels of the various metals when they are emitted to the environment. The higher the impact factor, the higher the toxicity is to the receiving water body (for water emissions) or to human health (for air emissions).

The impact factors for water emissions are based on scientific data generated ("predicted no effect concentrations" or PNECs) for the REACH registration of metals and on Tatsi et.al (2015)¹ for thallium. In 2023, a reassessment of the PNEC values was conducted to update the scientific basis for the impact factors related to emissions to water. The impact is evaluated considering the variation in ecotoxicity levels based on the nature of the receiving water body, leading to the formulation of two sets of impact factors for both brackish and marine environments, as well as freshwater environments. From this analysis, an impact factor of 1 was attributed to Mo, with a PNEC of 11900 µg/l in freshwater conditions. This resulted in the revision of impact factors for several metals. The updated set of impact factors for metals released into water is applied to available 2019-23 data, as presented in this report. To represent the metals' impact on the environment, derived from multiplying the loads emitted by the corresponding impact factors, for water emissions, the obtained results have been normalized to the 2023 results. As such, the year-on-year variances are expressed as a percentage of the 2023 results for better interpretability.

¹ Tatsi, K., Turner, A., Handy, R. D., (2015), The acute toxicity of thallium to freshwater organisms: Implications for risk assessment. Science of The Total Environment, 536, 382-390. <https://www.sciencedirect.com/science/article/abs/pii/S0048969715302655?via%3Dihub>

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On the other hand, the impact factors for air emissions are based on the occupational exposure limits (OELs) (reference: American Conference of Industrial and Governmental Hygienists, 2021) and the binding EU OELs. An impact factor of 1 was attributed to the Zn (oxide), with an OEL of 2 mg/m³. Subsequently, an impact factor for all relevant metals was calculated based on these references. The metal impact to water and to air is expressed as “impact units/year”.

Materiality principle

Since 2016, Umicore has applied the materiality principle for emissions, requiring reporting only from sites with a material impact compared to the Group’s total. An assessment of emissions conducted in 2015, the last year when all industrial sites were required to report emissions, revealed that 10 or fewer sites constituted 95% or more of the Group’s total for each specific parameter (evaluated based on load for SO_x and NO_x, and in terms of the impact of metal emissions on water and air). Sites that have joined Umicore since 2015 have been reviewed for their material impact and were categorized as either material or non-material for each specific parameter. This classification was based on comparing them with the two categories established during the 2015 assessment. While this approach may compromise the precision of the previously employed “95% or more” assessment rule, we still approach or exceed 95% of the Group’s total emissions for any material compound. All non-material sites are required to assess whether there were any significant upward deviations from their 2015/recent emissions baseline; triggering a discussion of whether they are to be considered as material in the reporting year.

Other emissions tracked by Umicore are SO_x and NO_x, which are reported in tonnes/year. The majority of the data for SO_x and NO_x are obtained from direct measurements (online analyzers), complemented to a lesser extent by data based on calculations based on site-specific data. While our sites emit additional compounds, a comprehensive examination of trends from the years 2011 to 2015, including data on VOCs, COD, etc., indicates that these emissions are not significant or material. All sites that have joined Umicore since 2015 have been reviewed for potential additional material compounds and no such addition was deemed required.

It is important to highlight that for the current reporting period, the 95% materiality principle, which is typically applied to all environmental KPIs, may not have been fully applied to the NO_x emissions. This observation originates from the noticeable decrease in values compared to the figures from the previous year, and the potential lack of visibility on the NO_x emissions from sites currently not included in the reporting scope.

At all relevant locations with environmental emissions, Umicore is compliant with the applicable laws and legislation that regulate and control emissions to the environment. Legal obligations drive most of our data collection related to emissions; however, additional compounds may be analyzed at higher frequencies more than the strictly legal requirements to improve data reliability. Emission of compounds not legally required to be monitored and those that haven't been voluntarily included in our analysis campaigns may occur. However, the impact of such untracked emissions is considered negligible.

Diffuse metal emissions

The concentration of suspended particulate matter (PM10) in air of relevant metals (lead, arsenic, and cadmium) is measured in µg/Nm³ daily at three measurement stations located in the influence area of our production site in Hoboken. The monthly average concentrations are aggregated to calculate an annual moving average, which is then multiplied by the impact factors to air for the corresponding metals. The data was normalized at the end of 2020, giving the baseline for the corresponding Let’s Go for Zero target.

In 2022 and 2023, a working group dedicated its efforts to develop a comprehensive methodology for conducting screenings in all operations sites across the Group. This program aims to identify other potential material sites that can significantly contribute to the group diffuse metal emissions. We expect to include the performance of other identified sites in future reporting. Their impact will be added to the baseline by projecting their impact backward to the end of 2020, and the baseline will be adapted when new sites are acquired.

E6 Biodiversity

The LEAP approach is a methodology developed by Taskforce on Nature-related Financial Disclosure (TNFD) that allows us to identify, understand and evaluate the nature-related relations with our company's operations. Using a four-phase approach: Locate, Evaluate, Assess, and Prepare, this methodology aims to help organizations conduct the due diligence necessary to communicate their nature-related statements aligning with the TNFD recommendations. The first phase is assessment scoping, identifying the interface between our operations and nature, while the second phase evaluates the related dependencies related to biodiversity based on their potential impacts. The third phase involves assessing the nature-related risks and opportunities, and the fourth is considered a preparation phase to address the identified correspondent issues and report on nature-related material problems.

Using the LEAP approach, Umicore conducted an assessment in Q4 2022 to evaluate the potential impact of our production sites on biodiversity, considering only the active sites. The first step involved a high-level screening to identify sites near ecologically important areas or protected zones. Using the Integrated Biodiversity Assessment Tool (IBAT), we evaluated each site's biodiversity impact based on its proximity to Key Biodiversity Areas (KBAs) and Protected Areas (PAs). The evaluation also incorporated the Species Threat Abatement and Restoration Metric (STAR), a biodiversity metric that integrates data on species, their associated threats, and extinction risk. By assigning scores to each site, we gain insights into their proximity to crucial biodiversity zones and potential zones with restoration opportunities.

The environmental impact evaluation of each site extended beyond biodiversity, involving other environmental pressures including but not limited to water withdrawal and water discharge, waste generation, and air emissions (NO_x, SO_x, and CO₂), as being considered as parameters that could potentially lead to some of the most significant impacts on biodiversity. As a result, a shortlist of sites with a higher potential impact score underwent a more extensive reality check based on a screening of environmental

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impact assessment and additional documentation available. This initial in-depth examination assessed the possible connection between ecological pressures and current biodiversity status.

Following this initial assessment, we prioritized major operational sites. Regarding issues like water usage and emissions, it's logical to assume that the scale of our operations directly relates to the magnitude of the potential environmental impact and the direct drivers of impact on biodiversity. However, aligning with international environmental management systems and adhering to local regulations, our sites have long implemented mitigation actions to manage their most significant impacts on biodiversity proactively. Looking into the future, we intend to provide a comprehensive group overview of the existing mitigation actions across sites, strategically aimed at reducing the pressure of our direct operations into the natural ecosystem and managing our contributions to the direct drivers of biodiversity loss (e.g., water and air emissions). This approach will then lay the foundation for subsequent actions, specifically addressing nature-related dependencies based on their local potential impacts.

E7 Energy

7.1 Energy, by business group

terajoules	Catalysis	Energy & Surface Technologies	Recycling	Umicore Group
Energy consumption	1,350	3,530	2,574	7,462

Indirect energy consumption: energy from purchased electricity, steam, compressed air and heat. Direct energy consumption: energy from fuel, gas oil, natural gas, LPG, coal, cokes, pet cokes etc.

The definition of renewable energy in the Greenhouse Gas Protocol Scope 2 Guidance (2015 amendment) has guided us in defining the Scope of this indicator. Only the following energy sources are considered in the scope for this KPI: wind energy; solar energy; energy from biomass (including bio- and other naturally produced gas); hydropower (including marine hydro); and geothermal energy.

Energy intensity is calculated as the total absolute energy consumption (terajoules) over revenues excluding metals (in millions of Euros).

E8 Greenhouse gases

8.1 scope 1 & scope 2 emissions, group data

tonnes CO ₂ e	2019	2020	2021	2022	2023
Total	791,815	732,545	846,437	698,649	631,942¹

¹ Restatement made in 2023 for 2022 figures.

8.2 scope 1 + 2 emissions, by business group

tonnes	Catalysis	Energy & Surface Technologies	Recycling	Umicore Group
CO ₂ e emissions (scope1+2) - Market based	113,876	247,779	234,878	631,942
CO ₂ e emissions (scope1+2) - Location based	136,317	280,689	243,079	695,554

Umicore reports its absolute CO₂e emissions as per the Scope of sites outlined in E1. The absolute CO₂e emission volumes are calculated using the Greenhouse Gas Protocol definition and reporting methodology for Scopes 1 and 2 (WBCSD and WRI 2004 and amendment for Scope 2 of 2015).

Scope 2 for Umicore includes not only purchased electricity but also steam, compressed air and heat purchased from third parties (from industrial parks or utility companies). CO₂e includes the greenhouse gases CO₂, CH₄ and N₂O for Scope 1 and major process emissions. Except electricity, the Scope 2 emissions account for only CO₂.

The calculation of Scope 2 emissions for each site is done in two ways: once using market-based CO₂ emission factors and once using location-based CO₂ emission factors. The market-based emission factors allow for the calculation of the CO₂ emissions based on the specific contracts that sites have in place with their energy suppliers, considering the relevant energy mix for these contracts (including green energy attributes, where applicable). The location-based CO₂ emission factors facilitate calculating the CO₂ emissions based on grid average emission factors in a country/region where these data are available. The total CO₂ emissions for the Group are then presented as two separate values based on this differentiation, and the metrics are abbreviated as: CO₂e market-based and CO₂e location-based. Data for CO₂ calculation come from the IEA (2023), the Association of Issuing Bodies (AIB) and/or supplier specific information. AR6 IPCC conversion factors are used to convert CH₄ and N₂O emissions to CO₂e and for fuels used in stationary/mobile combustion.

Biogenic CO₂ from stationary and mobile combustion (Scope 1) is calculated using energy from biogenic fuels and IPCC standard emission factors for biofuels (solid & liquid) and gaseous biomass. For scope

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2 related biogenic CO₂ emissions, we used supplier-specific information on the share of biomass for purchased steam and thermal energy. Biogenic CO₂ emissions associated with purchased electricity from the grid is calculated using the biomass grid mix share and an emission factor (biogenic CO₂/MWh) from EcoInvent 3.10. The calculation is performed following a market-based approach.

The WBCSD Chemical Sector Working Group on GHG Measurement and Reporting established additional guidance to cope with observed anomalies in GHG reporting. Umicore has implemented these guidelines since the 2012 reporting. The sector guidelines are published on the WBCSD website.

GHG emissions intensity is calculated using the total CO₂e market-based emissions (in tonnes) over total revenues excluding metals (in millions of Euros).

8.3 scope 3 emissions - 2019 baseline

	2019	2022	2023
Purchased Goods and Services	6,816,941	7,245,242	6,273,136
Capital Goods	137,760		130,486
Fuel & Energy related activities	119,080		110,931
Upstream distribution	178,180		440,118
Waste generated	22,140		38,978
Business travel	10,159		6,340
Employee commuting	14,828		14,785
Upstream leased assets	12,269		7,824
Downstream distribution	40,157		36,186
Processing of sold products	279,806 ¹		182,617
Use of sold products	-		-
End-of-life treatment of sold products	512,125 ¹		260,967
Downstream leased assets	-		-
Franchises	-		-
Investments	81,387		22,471²
TOTAL	8,224,832		7,524,839

¹ Restatement in 2023 for 2019 figures.

² Excluding 1187 tons biogenic CO₂.

The Scope 3 greenhouse gas (GHG) emissions estimation covers all upstream and downstream Scope 3 categories for the reference year 2019 and 2023.

The applied emission factors come from databases (EcoInvent, DEFRA, EEIOA, etc.) by default. When available, we relied on emission factors from average industry association data (through life cycle assessment exercises). As Umicore aims to improve the emission factors continuously and is working closely with suppliers to incorporate supplier-specific product emission factors in Umicore's Category 3.1

calculations, we could apply supplier-specific product emission factors to a limited number of products in the 3.1 calculation of 2023. Additionally, thanks to Umicore's efforts, the quality of the data gathered improves year after year which could explain fluctuations in the calculated impact. As a result of this improved data quality and process over time, minor corrections have been applied to 2019 "Downstream processing of sold products (Category 3.10)" and "Downstream end-of-life treatment of sold products (Category 3.12)" in the table above. It is important to note that these adjustments are deemed minor and do not constitute material changes.

Calculations for all categories follow the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Below, we provide additional details per category, as well as the main encountered limitations and their related assumptions:

- For purchased goods and services (Category 3.1): The applied emission factors come from EcoInvent (using the latest available version, which was 3.10 for the 2023 inventory), life cycle assessment from metal associations or other literature sources. Proxies have been selected whenever the related products' emission factors were unavailable. The emissions factor for recycled materials is assumed to be equal to 0. For 2023, we used 23 supplier-specific product emission factors of battery materials or precious metals suppliers. Tolling activities are not specifically mentioned in the GHG protocol, and we are waiting for an answer from the GHG protocol for the correct classification of these activities. For 2023, tolling services were added to category 3.1 instead of Category 3.8 previously. For purchased metals, only physical transactions are considered.
- For capital goods (Category 3.2), the emission factors have been selected from the types of investment available in the US Supply Chain Greenhouse Gas Emission Factors version 1.2. The EF has been selected to match the different Capex categories for tangible investments reported by Umicore. The emissions factors represent the number of GHGs emitted for 1 USD 2021 spent, and conversion to 2021 € has been applied. Compared with 2019, the changes include a better matching of the default emission factor to the typical Capex by Umicore and a switch to the most recent version of the file (version 1.0 used for 2019).
- To calculate the Scope 3 emissions for Fuel- & Energy-related activities (Category 3.3), we used the 2023 conversion factors for the Well-To-Tank data to produce and distribute fuels/energy consumed in Scope 1 and market-based Scope 2 from the DEFRA database. Defra no longer publishes the data to calculate the Scope 3 emissions linked to overseas electricity, therefore the 2023 version of the IEA emissions factors have been used.
- For the upstream transportation and distribution (Category 3.4), data has been collected on the destination city and the type of transportation used for most trajectories. In 2019, a conservative approach was used: In the absence of specific data on the destination or starting point in the same country, the same principle as in 2019 has been applied, i.e., the distance traveled by the goods was estimated to be equivalent to a considerable distance between two cities in different parts of the country (e.g., Bruges-Arlon for Belgium). When the transportation mode was not provided, it was assumed to be by sea whenever the trip was intercontinental or shorter by sea, and otherwise by road

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(truck) if on the same continent and shorter by road. When transportation was multimodal, only the longest part of the journey was taken into account (e.g., for goods shipped from Japan to Germany, only the journey by sea was considered and not the port-to-facilities journey by truck). Umicore pays for most transport, which explains the significant impact on emissions in Category 3.4 (upstream transportation and distribution) and the small impact in Category 3.9 (downstream transportation and distribution) (Table 5.7, p.45, the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard).

- For waste treatment (Category 3.5), default emission factors from the Ecoinvent database were used for the four different waste treatments/fates, etc. This represents a change compared to 2019, where EFs from Ademe have been used. The change was motivated by the higher year-to-year differences in the Ademe database.
- For business travel (Category 3.6), a distinction was made for sites within and outside Europe. For business travel within Europe for the reference year 2023, Umicore received GHG emissions data directly from its travel operator. For the sites outside of Europe, a spend-based estimation was made using the US Supply Chain Greenhouse Gas Emission Factors version 1.2 (which replaced the default EF from Ecoinvent 3.8 used in 2019 in combination with a conversion of spending into km using a US data source).
- For employee commuting (Category 3.7), the average modal split per site and the average commuting distance per site were calculated using a company-wide (excl. Belgium) survey, making the data more specific to Umicore employees. For the calculations of Category 3.7 in Belgium, we used the average modal split per site and average commute distance per site based on received data via People & Organization. The survey replaced the data on modal split per country per site (percentage of employees using a particular commuting mode) used in 2019, multiplied by the average trip length and the emission factor per commute mode based on Environmental Protection Agency 2021 data for employee commuting. For Belgium, the 2019 approach remained the same.
- Upstream leased assets (Category 3.8) include the emissions of leased company cars (based on fuel consumption) and emissions linked to new leases, as reported in the financial section. To calculate the emissions linked to the new leases, the US Supply Chain Greenhouse Gas Emission Factors version 1.2 has been used (Category 3.2). In 2019, this category also included the emissions from tolling activities (not taking place on Umicore premises and hence not part of our Scopes 1+2), such as pre-treatment of raw material (e.g., drying) for RBM, corporate & PMR, which were assimilated to leased assets in the absence of clear guidance for tolling activities in the GHG Protocol.
- Downstream transportation and distribution (Category 3.9): the same assumptions are described for Category 3.4 – see above.
- Downstream processing of sold products (Category 3.10): Processing emissions have been considered for products for which the processing is relevant and known. Processing of sold products has been considered and includes processing of cathode powders into batteries, copper into copper tubes and pipes, and lead into lead acid batteries. Emissions have been allocated to Umicore based on the mass ratio of the Umicore product within the final product. These products represent two of Umicore's three main activities and cover two of the three business groups.
- For the Use phase of sold products (Category 3.11), we have not considered any emissions as none of our products are fuels or feedstocks, nor do they directly consume energy in the use phase, contain or form GHGs that are emitted during this phase (Table 5.11, p.56, the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard).
- Downstream end-of-life treatment of products sold (Category 3.12) has been considered for cathode active materials in batteries, lead in acid batteries, copper pipes and tubes, and automotive catalysts (for the volumes not recycled directly by Umicore). These represent Umicore's most significant activities, covering the three business groups: Recycling, Energy and Surface Technologies and Catalysis.
- Downstream leased assets (Category 3.13): not applicable since Umicore's operational assets leased to other entities have been reported under Scopes 1 and 2 following the operational control consolidation approach.
- Franchises (Category 3.14): not applicable since Umicore has no franchises.
- Investments (Category 3.15): In 2019, joint ventures had yet to gather information on their Scopes 1 and 2 emissions. Concrete steps were put in place to ensure that these JVs also incorporate carbon in their future decision-making process, requiring a detailed assessment of emissions. During the SBTi validation, Umicore accepted a nominal 1% added to Scope 3 (category 15) to represent the to-be-finalized category 15 calculations. This nominal percentage was derived from emission information based on the capacity available for the two biggest joint ventures. In 2023, data on the Scopes 1 and 2 emissions of three out of four JVs was available. Data for IEQSA has not been included as Umicore discontinued its participation in 2023, and no data could be obtained that would enable us to include the months during which Umicore still had participation in IEQSA. The emissions from category 3.15 for 2023 are significantly lower than the nominal value included for the year 2019.

Scope 4, avoided emissions

Estimating avoided emissions requires taking assumptions that have an influence on the results. The main assumptions taken in this case are the following:

Cathode active materials for electric mobility

- The solution we provide: Umicore is producing the cathode active material, which plays a crucial role in the battery's overall function. The cathode active material enables the storing and release of energy. It also determines the energy density of the battery.
- The solution to compare: we compared the emissions of a medium passenger car with a rechargeable battery containing our cathode active materials, with the emissions of a medium passenger car containing an internal combustion engine running on diesel or gasoline, considering the European split between diesel and gasoline in 2022 (no data available yet for 2023).
- We considered the NMC (nickel manganese cathode) materials produced in 2023 for electric mobility applications, assuming that the entire volume is used for full electric vehicles. We made our calculations under the assumption that the vehicles are charged using the European average grid mix.

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- The comparison covers the following steps: mining, production of the cathode active materials by Umicore, processing into batteries, use of the batteries in full electric vehicles and recycling of the batteries at end of life. Literature or LCA data from commercial databases have been used for all processes not carried out by Umicore.
- The mileage is assumed to be 200,000km.
- The production of the car and its recycling have not been considered as it has been assumed that it was the same for both the Umicore technology and the solution to compare.

Recycling

- The solution we provide: Umicore is valorizing metals from a large variety of industrial by-products and end-of-life materials. Metal recycling provides an advantage in terms of reduced carbon footprint through reduced energy use compared to virgin metal production.
- We compared Umicore’s secondary production with the primary production of an equivalent tonnage of each metal considered.
- As much as possible, we applied the industry average climate change impact provided by the metal associations for primary production.
- We have considered the recovery of a select number of metals by Umicore in 2023. For these metals, the climate change impact for Scopes 1, 2 and 3 upstream has been considered. The metals included in the comparison are Au, Ag, Pt, Pd, Rh, Cu and Pb.

Fuel cells

- The solution we provide: Umicore is producing the catalyst. The catalysts facilitate the chemical reactions that generate the electricity, reactions that would otherwise occur too slowly to produce usable electricity at a practical rate.
- The solution to compare: we compared the emissions of a fuel cell medium passenger car containing our catalyst material, with the emissions of a medium passenger car containing an internal combustion engine running on diesel or gasoline, considering the European split between diesel and gasoline in 2021 (no data available yet for 2023).
- The mileage is assumed to be 200,000km.
- We considered the fuel cells materials produced by Umicore in 2023.
- The comparison relies on publicly available data for the vehicle production, use phase and end-of-life phase. For the fuel cell vehicle, it includes the production of the catalyst materials, manufacturing of the fuel cell and the battery, manufacture of the H2 tank.

Automotive catalysts

- The solution we provide: Umicore is producing automotive catalysts for both passenger cars and heavy-duty vehicles. The primary function of automotive catalysts is to reduce emissions of harmful pollutants from vehicle exhaust gases, such as nitrogen oxides (NO_x), carbon monoxide (CO), and hydrocarbons (HC). These pollutants are produced during the combustion process in the engine and contribute to air pollution and environmental degradation.

- The solution to compare: we compared the emissions of gasoline and diesel passenger car as well as heavy-duty diesel vehicles equipped with a Umicore euro 6d automotive catalyst in 2023 with the same vehicles equipped with a euro 5 catalyst. The comparison focused on NO_x emissions.
- The comparison covers the following steps: mining, production of the automotive catalyst, use phase of the vehicle and recycling of the catalyst at end of life. Publicly available LCA data have been used for all processes not carried out by Umicore.
- The mileage is assumed to be 160,000km for passenger cars and 700,000 km for heavy duty vehicles.
- The production of the car and its recycling have not been considered as it has been assumed that it was the same for both the Umicore technology and the solution to compare.

Scope 4 avoided emissions

Cathode Materials for electric mobility	7,239,156	tonnes CO ₂ e
Recycling	1,444,804	tonnes CO ₂ e
Fuel Cells	60,351	tonnes CO ₂ e
Automotive Catalysts	2,410,254	tonnes NO _x

E9 Regulatory compliance & management system

The compliance excess rate is the ratio between the total number of excess results and the total number of compliance measurements. An excess result is a monitoring result that violates a limit value defined in a permit, regulation or other relevant regulatory standard.

The total number of measurements is the total number of environmental impact measurements as required by the operational permit, environmental permit, or comparable standard in the region where the reporting entity is operating (this may include higher frequency measurements of permit-related parameters where deemed useful for internal quality reasons). The total number of measurements means the number of measurement events multiplied by the number of parameters per measurement event.

A complaint is a formally registered notification made by an external claimant, authorities excluded, to the entity / site, concerning an EHS-related issue with a perceived negative impact.

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%	2019	2020	2021	2022	2023
Compliance excess rate	0.10	0.15	0.10	0.25	0.18

E10 Environmental Restatements

Restatements are adjustments made to previously reported environmental data to ensure accuracy and transparency. For detailed information about the restatements, please refer to the subject matter section within the [Environmental Statements chapter](#).

Water

Data type	Unit	Old value	New value
2022 Total Water Withdrawal	megaliter	9,616	10,738
2022 Freshwater Withdrawal	megaliter	9,405	9,627
2022 Water Discharge	megaliter	8,095	8,953
2022 Water Consumption	megaliter	1,521	1,785
2022 Freshwater Consumption	megaliter	7,499	7,721
2021 Total Water Withdrawal	megaliter	10,103	11,242
2021 Freshwater Withdrawal	megaliter	9,764	9,977
2021 Water Discharge	megaliter	9,252	10,152
2021 Water Consumption	megaliter	851	1,090
2021 Freshwater Consumption	megaliter	7,081	7,301

Emissions

Data type	Unit	Old value	New value
2022 Metal Emissions to water	Impact units	4.012.119	133,8
2021 Metal Emissions to water	Impact units	4.714.302	157,0
2020 Metal Emissions to water	Impact units	3.686.016	120,7
2019 Metal Emissions to water	Impact units	129.587	0,4

Energy

Data type	Unit	Old value	New value
2022 Energy by source	%	50/50 direct/indirect energy	53/47 direct/indirect energy
2022 Total energy consumption	MWh	7,300	7,471
2022 EU Renewable electricity share	%	55	54
2022 Energy Consumption by business group			
CA		1,290	1,291
RE	TJ	3,501	3,670
EST		2,500	2,500
Group		7,300	7,471

GHG Emissions

Data type	Unit	Old value	New value
2022 Scope 2 market based	Tonnes CO2e	338,554	352,210
2022 Scope 2 Location based	Tonnes CO2e	361,251	372,820
2022 Scope 1+2 market based	Tonnes CO2e	684,993	698,649
2022 Scope 1+2 location based	Tonnes CO2e	707,690	719,259
2022 GHG reduction vs baseline	%	13%	12%
2022 Scope 1+2 market Based by business group			
CA		116,386	116,519
EST	Tonnes CO2e	313,374	324,762
RE		254,815	256,950
Group		684,993	698,649
2022 Scope 1+2 location Based by business group			
CA		131,653	131,830
EST	Tonnes CO2e	304,622	316,015
RE		270,930	270,930
Group		707,690	719,259
2019 Scope 3	Tonnes CO2e	8,210,441	8,224,739

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Consolidated social figures

	unit	2019	2020	2021	2022	2023
Workforce (fully consolidated companies)	N°	11,152	10,859	11,050	11,565	11,948
Temporary contracts	% of workforce	3.31	3.19	3.51	3.02	3.55
Women amongst all employees	% of workforce	20.88	21.68	22.48	23.45	24.35
Women amongst all managers	% of workforce	23.13	23.06	25	26.11	27.19
Women amongst senior management	% of workforce	10.96	10.74	12.42	13.69	17.61
Non-European representation in senior management functions	%	18.49	20.13	21.57	20.83	19.32
Average training hours per employee	hours/employee	48.73	36.33	41.59	46.60	45.72
Employees having a yearly appraisal	% of workforce	94.00	93.42	94.14	96.01	96.02
Voluntary leavers - ratio	% of workforce	5.99	4.20	5.82	6.53	4.68
Employees represented by union or Collective Labour Agreement (CLA)	% of workforce	65.60	66.38	66.94	65.79	66.09
Exposure ratio 'all biomarkers aggregated' ¹	%	1.8	2.0	1.5	1.1	0.7
Number of occupational linked diseases	N°	18	6	10	8	16
People with platinum sensitisation	N°	1	1	0	0	7
Number of officially declared occupational diseases to authorities according to local regulation	N°					9
Fatal accidents	N°	0	1	0	0	0
Fatal accidents for sub-contractors	N°	0	0	0	0	1
Lost Time Accidents (LTA)	N°	90	49	73	96	93
Lost Time Accidents (LTA) for sub-contractors	N°	25	17	20	21	29
LTA frequency rate	LTA/million hours worked	4.6	2.5	3.7	4.87	4.5
LTA severity rate	lost days/thousand hours worked	0.2	0.47	0.1	0.16	0.16

¹ Ratio between the number of monitoring results exceeding the Umicore target value, defined for relevant hazardous substances, and the total number of monitoring results.

Notes to the social figures

S1 Scope of social statements

In total, 85 consolidated sites are included in the P&O related notes of the social reporting (S2 to S3). While the number of sites remain the same as in 2022, changes occurred in reporting: the addition of three sites, Saint-Dié, Weybridge and Loyalist, and three site closures: Moscow, Attleboro and Glens Falls. In the case

of the latter two sites, this was due to a divestiture. The sites report full-year data for the social indicators. The indicators presented are based on data from fully consolidated companies.

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S2 Workforce

2.1 Group data

	unit	2019	2020	2021	2022	2023
Workforce (fully consolidated companies)	N°	11,152	10,859	11,050	11,565	11,948
Workforce from associated companies	N°	2,976	2,460	2,589	2,664	2,109
Employees men	N°	8,823	8,505	8,566	8,853	9,039
Employees women	N°	2,329	2,354	2,484	2,712	2,909
Full-time equivalent	N°	10,956	10,576	10,828	11,339	11,754
Employees < 30 years	N°	2,141	1,893	1,911	1,955	1,988
Employees between 30 and 50 years	N°	6,363	6,339	6,521	6,951	7,319
Employees > 50 years	N°	2,648	2,627	2,618	2,659	2,641
Temporary contracts	% of workforce	3.31	3.19	3.51	3.02	3.55
Women amongst all employees	% of workforce	20.88	21.68	22.48	23.45	24.35
Women amongst all managers	% of workforce	23.13	23.06	25.00	26.11	27.19
Women amongst senior management	% of workforce	10.96	10.74	12.42	13.69	17.61
Non-European representation in senior management positions	%	18.49	20.13	21.57	20.83	19.32

2.2 Regional data

	unit	Europe	N. America	S. America	Asia-Pacific	Africa	Umicore Group
Total workforce	N°	8,116	679	720	3,935	607	14,057
Workforce (fully consolidated companies)	N°	7,134	665	720	3,276	153	11,948
Workforce from associated companies	N°	982	14		659	454	2,109
Employees men	N°	5,462	493	502	2,484	98	9,039
Employees women	N°	1,672	172	218	792	55	2,909
Full-time equivalent	N°	6,947.60	661.50	719.00	3,272.92	153.00	11,754
Temporary contracts	% of workforce	5.17	1.50	1.67	0.95	1.31	3.55

2.3 Business group data

	unit	Catalysis	E&ST	Recycling	Corporate	Umicore Group
Total workforce	N°	3,076	4,932	2,861	3,188	14,057
Workforce (fully consolidated companies)	N°	3,076	4,277	2,861	1,734	11,948
Workforce from associated companies	N°		655		1,454	2,109
Employees men	N°	2,413	3,263	2,365	998	9,039
Employees women	N°	663	1,014	496	736	2,909
Full-time equivalent ¹	N°	3,044.19	4,278.26	2,821.48	1,610.09	11,754
Temporary contracts	% of workforce	4.49	4.12	1.36	4.09	3.55

¹ In the Energy & Surface Technologies Business Group, the number of full-time equivalents (FTE) exceeds the number of employees due to the distribution method used to allocate FTE of employees in commercial profiles to the different Business Units.

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2.4 General overview of sites & employees

	Production sites	R&D Technical centres	Other sites	Employees
Europe				
Austria	1	-	-	165
Belgium	3	1	1 (1)	3547 (9)
Denmark	-	1	-	44
Finland	1	1	-	408
France	3	-	2	254
Germany	4 (1)	3	1	1841 (389)
Ireland	(1)	-	-	(428)
Italy	-	-	2	42
Liechtenstein	1	1	-	87
Luxemburg	-	-	1	11
Netherlands	-	-	1	9
Poland	2	-	1	628
Portugal	-	-	1	6
Spain	-	-	1	7
Sweden	1	-	(1)	38 (1)
United Kingdom	1	(1)	3 (1)	47 (155)
Asia-Pacific				
Australia	-	-	1	8
China	5 (2)	1	5 (1)	1498 (655)
India	1	-	2	117
Japan	2	2	2	160
Philippines	1	-	-	116
South Korea	3	2	1	1,170
Taiwan	1	-	1	44
Thailand	2	-	1	163
United Arab Emirates	-	-	(1)	(4)
North America				
Canada	4	-	-	306
Mexico	-	-	1	8
United States	4	1	4 (1)	351 (14)
South America				
Argentina	1	-	-	81
Brazil	3	1	1	639
Peru	-	-	-	-
Africa				
South Africa	1 (1)	-	1	153 (454)
Total	45 (5)	14 (1)	34 (6)	11,948 (2,109)

Figures in brackets denote “of which associates and joint venture companies”. Where a site has both production facilities and offices (e.g., Hanau, Germany), it is classified as a production site only. Some of our production sites and R&D/technical centers are located on the same site but are counted separately.

S3 Talent management

3.1 Group data

	unit	2019	2020	2021	2022	2023
Employees having a yearly appraisal	% of workforce	94.00	93.42	94.14	96.01	96.02
Average number of training hours per employee	hours/employee	48.73	36.33	41.59	46.6	45.72
Average number of training hours per employee – Men	hours/employee	48.26	37.11	41.21	46.48	43.72
Average number of training hours per employee – Women	hours/employee	50.48	33.49	42.90	46.99	52.01
Average number of training hours per employee – Managers	hours/employee	43.01	26.98	42.40	48.49	58.91
Average number of training hours per employee – Other employee categories	hours/employee	49.51	38.62	41.28	45.61	42.21
Voluntary leavers ratio	% of workforce	5.99	4.2	5.82	6.53	4.68
Voluntary leavers men	N°	521	372	519	570	411
Voluntary leavers women	N°	126	86	123	178	148

3.2 Regional data

	unit	Europe	N. America	S. America	Asia-Pacific	Africa	Umicore Group
Average number of training hours per employee	hours/employee	46.09	38.60	41.05	47.77	39.56	45.72
Employees having a yearly appraisal	% of workforce	97.29	92.13	97.64	93.65	99.35	96.02
Voluntary leavers ratio	% of workforce	3.58	7.72	5.96	6.08	4.55	4.68

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3.3 Business group data

	unit	Catalysis	E&ST	Recycling	Corporate	Umicore Group
Average number of training hours per employee	hours/employee	45.28	50.10	30.78	61.26	45.72
Employees having a yearly appraisal	% of workforce	97.56	89.95	99.48	100.00	96.02
Voluntary leavers ratio	% of workforce	4.84	5.32	4.16	3.68	4.68

S4 Occupational safety

All consolidated industrial sites where Umicore has operational control, are included in the scope of the occupational safety reporting. In 2023, following Umicore's internal reporting procedure 90 consolidated sites, of which 55 are industrial sites, were required to report their occupational safety data. Despite all measures and an open safety culture there is an inherent risk of incomplete accident reporting. Umicore is dependent on information provided by the person (employee and/or contractor) involved in an accident.

4.1 Group data

	unit	2019	2020	2021	2022	2023
Fatal accidents - Staff	N°	0	1	0	0	0
Fatal accidents - Contractors	N°	0	0	0	0	1
Lost Time Accidents (LTA) - Staff	N°	90	49	73	96	93
Lost Time Accidents (LTA) - Contractors	N°	25	17	20	21	29
LTA frequency rate - Staff		4.6	2.5	3.7	4.9	4.5
Calendar days lost - Staff	N°	3,893	9,176	2,328	3,210	3,318
LTA severity rate - Staff		0.2	0.5	0.1	0.16	0.16
Sites ISO 45001 certified	%	52.6	54.4	59.26	63.46	68.52
Process safety events	N°				263	232
Process safety events Rate						8.3
Total recordable injuries (Staff & Contractors)	N°				233	210
Total recordable injury rate (Staff & Contractors)	N°				9.0	7.5

4.2 Regional data

	unit	Europe	North America	South America	Asia-Pacific	Africa	Umicore Group
Lost Time Accidents (LTA) - Staff & Contractors	N°	115	5	2	1	0	123

4.3 Business group data

	unit	Catalysis	Energy & Surface Technologies	Recycling	Corporate	Umicore Group
Fatal accidents - Staff	N°	0	0	0	0	0
Fatal accidents - Contractors	N°	0	0	1	0	1
Lost Time Accidents (LTA) - Staff	N°	7	12	67	7	93
Lost Time Accidents (LTA) - Contractors	N°	4	9	14	2	29
Calendar days lost - Staff	N°	700	242	2,225	151	3,318

S5 Occupational health

All consolidated industrial sites where Umicore has operational control, are included in the scope of the occupational health reporting. In 2023, following Umicore's internal reporting procedure, 54 consolidated sites were required to report their occupational health data. The information in this note only relates to Umicore employees. Data on subcontractors' occupational health are not included. Additional information on Umicore's approach to occupational health can be found in the corresponding section of [Management Approach](#).

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S6 Donations

6.1 Group data

€ thousand	2019	2020	2021	2022	2023
Cash donations	1,432.68	1,346.28	3,958.62	1,915.58	2,151.86
Donations in kind	78.95	159.19	146.72	55.02	41.17
Staff freed time	102.02	11.74	18.65	35.15	49.41
Total donations	1,613.65	1,517.21	4,123.99	2,005.75	2,242.44

6.2 Regional data

€ thousand	Europe	N. America	S. America	Asia-Pacific	Africa	Umicore Group
Total donations	1,653.93	106.69	237.14	175.19	69.49	2,242.44

6.3 Business group data

€ thousand	Catalysis	E&ST	Recycling	Corporate	Umicore Group
Total donations	360.89	306.21	481.61	1,093.73	2,242.44

S7 Analyzing Umicore's SDG contribution

To gain more insights into our contribution to the SDGs, we conducted a detailed analysis in 2021. For the analysis, we assessed the 169 sub-targets of the 17 United Nations' SDGs according to the following dimensions:

- Potential contribution indicates if Umicore's contribution is direct or indirect in achieving an SDG target. A direct contribution is defined as an actual or potential contribution through Umicore's operations, core business, way of doing business, or investments. An indirect contribution is an actual or potential contribution through Umicore's indirect activities throughout the value chain.
- Sense of contribution indicates if Umicore is "enhancing our positive contribution" or "minimizing our negative impact" to achieve an SDG target.
- Level of contribution indicates if Umicore has a low, medium, or high contribution to the world through the SDG target.

Umicore initiated an external review encompassing our operations, strategy, and internal documentation. Utilizing tools like the SDG Compass alongside pertinent industry resources, this assessment aimed to gauge our impact on SDG sub-targets, identifying areas of positive contribution and potential negative implications. Through this thorough evaluation, we gained invaluable insights into our alignment with each SDG, allowing us to pinpoint sub-targets most conducive to our strategy, products, and operations.

Furthermore, our commitment to transparency and accountability extends to undergoing rigorous evaluations by external entities. Notably, MSCI conducted a comprehensive analysis, evaluating our net contribution to SDGs, encompassing both positive and negative aspects.

Additionally, the MSCI evaluation confirmed that Umicore is not (strongly) misaligned on any of the sub-targets, and importantly, the outcomes of this MSCI evaluation align closely with the findings of our initial review. This convergence reinforces the validity and robustness of our assessment processes, ensuring that our efforts are effectively aligned with our sustainability objectives.

In this report, we focus on areas where we have identified a high and direct or indirect impact, and those with a medium and direct impact. Given the launch of our RISE 2030 strategy in 2022 and the evolution of our understanding and activities since this initial analysis, we have added SDG 5, SDG 13, and SDG 17 in scope of this report.

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SDG #	SDG Name	SDG description	SDG sub-target	Potential contribution	Sense of contribution	Level of contribution	Comments
1	End poverty	SDG 1. End poverty in all its forms everywhere	1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	Direct	Enhancing positive contribution	Low	Umicore is positively contributing by giving all employees freedom of association (collective bargaining can have impact on wages) and including compliance with applicable laws (which state minimum wages) in binding contracts with suppliers. Umicore also has a limited negative contribution as it does not engage in artisanal mining, which is an important source of income for the rural poor. However, the positive contribution is estimated to be more significant.
3	Healthy lives	SDG 3. Ensure healthy lives and promote well-being for all at all ages	3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	Direct	Enhancing positive contribution	Low	Umicore is contributing positively to mental health and wellbeing by providing its employees with wellbeing programs focused on preventing burnouts, flexible working arrangements, mental wellbeing trainings etc.
3	Healthy lives	SDG 3. Ensure healthy lives and promote well-being for all at all ages	3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	Direct	Enhancing positive contribution	Low	Umicore is contributing positively by providing its employees with substance abuse programs (targeted at specific sites) for tobacco and alcohol.
3	Healthy lives	SDG 3. Ensure healthy lives and promote well-being for all at all ages	3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	Direct	Enhancing positive contribution	Medium	Umicore is contributing positively by the nature of its business i.e., producing catalysts for cancer treatments and by providing its employees with substantial health coverage. It is also supporting medical aid charities e.g., AZG, Red Cross.
3	Healthy lives	SDG 3. Ensure healthy lives and promote well-being for all at all ages	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	Direct	minimizing negative impact	High	Umicore is reducing its negative contribution by keeping control over the pollution its operations may cause (heavy metals, dioxins) in general and especially in areas surrounding factories e.g., managing of risks associated with lead on metal refiner sites as well as in sourcing areas. It is also contributing by monitoring the health of all employees with a potential workplace exposure to metals.
4	Quality education	SDG 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes	Direct	Enhancing positive contribution	Low	This contribution is related to Umicore's dedicated philanthropy approach (focus on education). As Umicore focusses its sponsorships and donations on international projects with a clear educational component, it is positively contributing through its partnerships to educate and encourage young people to study sciences e.g., That's Brilliant campaign to promote STEM education and its partnership with UNICEF on 2 child-education projects.
4	Quality education	SDG 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	4.4 By 2030, substantially increase the number of youths and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship	Direct	Enhancing positive contribution	Low	This contribution is partially related to Umicore's dedicated philanthropy approach (focus on education). As Umicore focusses its sponsorships and donations on international projects with a clear educational component, it is positively contributing through its partnerships to educate and encourage young people to study sciences e.g., That's Brilliant campaign to promote STEM education. Umicore is also contributing positively by providing its employees with continuous training opportunities.
4	Quality education	SDG 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations	Direct	Enhancing positive contribution	Low	This contribution is related to Umicore's dedicated philanthropy approach (focus on education). Umicore is positively contributing through partnerships to educate and encourage young girls to study sciences e.g., That's Brilliant campaign to promote STEM education, especially among girls.

SDG #	SDG Name	SDG description	SDG sub-target	Potential contribution	Sense of contribution	Level of contribution	Comments
4	Quality education	SDG 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development	Direct	Enhancing positive contribution	Low	Umicore is contributing positively by providing specific training to its employees on topics such as inclusion & diversity, business ethics, sustainable development etc.
5	Gender equality	SDG 5. Achieve gender equality and empower all women and girls	5.1 End all forms of discrimination against all women and girls everywhere	Direct	Enhancing positive contribution	Medium	Umicore is contributing positively by eliminating discrimination within its own organization. Moreover, it is promoting anti-discrimination in its entire supply chain by having its suppliers sign a code of conduct including clauses on anti-discrimination against women.
5	Gender equality	SDG 5. Achieve gender equality and empower all women and girls	5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	Indirect	Enhancing positive contribution	Low	Umicore is contributing by eliminating all forms of violence against women within its own organization but more specifically in its supply chain: it is promoting anti-violence practices by having its suppliers sign a code of conduct including clauses on exploitation of women.
5	Gender equality	SDG 5. Achieve gender equality and empower all women and girls	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	Direct	Enhancing positive contribution	Medium	Umicore is contributing by taking measures within its own organization i.e., equal pay, gender parity in management, providing services for working mothers. Moreover, Umicore is also promoting and enforcing equal opportunities in its supply chain.
6	Clean water and sanitation	SDG 6. Ensure availability and sustainable management of water and sanitation for all	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	Direct	minimizing negative impact	High	Umicore is minimizing its negative impact through its water stewardship program. Umicore is also contributing by controlling the amount of water used for its operations
6	Clean water and sanitation	SDG 6. Ensure availability and sustainable management of water and sanitation for all	6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	Direct	minimizing negative impact	Low	Umicore is minimizing its negative impact by keeping control over the amount and sources of water used for its operations and by treating and reusing water.
6	Clean water and sanitation	SDG 6. Ensure availability and sustainable management of water and sanitation for all	6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	Direct	minimizing negative impact	High	Umicore is minimizing its negative impact by keeping control over the water pollution its operations may cause in general but also specifically in areas surrounding factories as well as in sourcing areas of precious metals.
7	Affordable and clean energy	SDG 7. Ensure access to affordable, reliable, sustainable and modern energy for all	7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	Direct	Enhancing positive contribution	High	Umicore is contributing positively by producing rechargeable battery materials for electrified transportation, portable electronics, energy storage and power tools.
7	Affordable and clean energy	SDG 7. Ensure access to affordable, reliable, sustainable and modern energy for all	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	Direct	Enhancing positive contribution	High	Umicore is contributing positively by the nature of its business activities i.e., producing rechargeable battery materials for storage of renewable energy as well as by increasing the share of renewable energy in its own energy consumption.

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7	Affordable and clean energy	SDG 7. Ensure access to affordable, reliable, sustainable and modern energy for all	7.3 By 2030, double the global rate of improvement in energy efficiency	Direct	Enhancing positive contribution	High	Umicore is contributing positively by producing high quality rechargeable battery materials for efficient storage and release of renewable energy and in making its own operations more energy efficient e.g., by executing energy efficiency projects and implementing systems to monitor energy use.
7	Affordable and clean energy	SDG 7. Ensure access to affordable, reliable, sustainable and modern energy for all	7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	Direct	Enhancing positive contribution	Low	Umicore is contributing positively by participating in REACH, by information sharing on toxicity and handling of substances and fuel business and by Umicore's product stewardship policy including substitution strategy and reduced impact for customers.
8	Work and economic growth	SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value-added and labor-intensive sectors	Direct	Enhancing positive contribution	High	Umicore is contributing positively to technical upgrading and innovation by producing innovative products (e.g., emission control catalysts, rechargeable batteries, and catalyst for fuel applications) and investing in R&D.
8	Work and economic growth	SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	Direct	Enhancing positive contribution	Low	This contribution is related to Umicore's dedicated philanthropy approach (focus on education & technology). Umicore is positively contributing by supporting organizations which encourage entrepreneurship e.g., by being a founding member of Entrepreneurs pour Entrepreneurs/Ondernemers voor Ondernemers which pairs corporate donors with development charities that focus on promoting entrepreneurship in the developing world.
8	Work and economic growth	SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead	Direct	Enhancing positive contribution	High	Umicore is contributing positively by its core activity of recycling and refining of metal bearing materials and by using materials in their processes from end-of life or secondary origin.
8	Work and economic growth	SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	Direct	Enhancing positive contribution	Medium	Umicore is contributing positively by ensuring equal opportunities and inclusiveness within its own organization. Moreover, it is promoting equal opportunities and inclusiveness in its supply chain.
8	Work and economic growth	SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training	Direct	Enhancing positive contribution	Low	Umicore is contributing positively by focusing on recruiting young people (blue collar as well as white collar) e.g., through a young graduate program and by supporting educational programs.

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8	Work and economic growth	SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.7 Take immediate and effective measures to eradicate forced labor, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labor, including recruitment and use of child soldiers, and by 2025 end child labor in all its forms	Direct	Enhancing positive contribution	High	Umicore is contributing positively by ensuring that human is respected within its supply chain i.e., by carrying out extensive due diligence, having suppliers sign the UGSSP, conducting site visits and supplier assessments, and executing targeted controls.
8	Work and economic growth	SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.8 Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	Direct	Enhancing positive contribution	Medium	Umicore is also contributing by supporting NGOs who are working in its sourcing areas e.g., Fund for the Prevention of Child Labor in Mining Communities in DRC.
9	Build resilient infrastructure	SDG 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	Direct	Enhancing positive contribution	Medium	Umicore is contributing positively by ensuring a safe and secure working environment within its own organization e.g., health care programs, social wellbeing programs, safety trainings. Moreover, it is promoted and enforce (through signing of codes of conducts) good working conditions in its supply chain.
9	Build resilient infrastructure	SDG 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries	Direct	Enhancing positive contribution	Low	Umicore is contributing positively by its contribution to the overall development of clean mobility i.e., through rechargeable battery materials and catalysts for reducing emissions.
9	Build resilient infrastructure	SDG 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	Direct	Enhancing positive contribution	High	Umicore is contributing positively by increasing the share of its sustainable business activities in the portfolio and by employing new people, in its own operations as well as in the rest of the supply chain.
9	Build resilient infrastructure	SDG 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending	Direct	Enhancing positive contribution	High	Umicore is contributing positively by its core activity of recycling and refining of metal bearing materials, by using materials in its processes from end-of life or secondary origin. Umicore is also contributing by making its operations more energy efficient and reducing air, water, and soil pollution through the use of new sustainable technologies.
10	Reduce inequality	SDG 10. Reduce inequality within and among countries.	10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	Direct	Enhancing positive contribution	Medium	Umicore is contributing positively by investing in R&D programs to develop sustainable products and technologies e.g., more efficient recycling of materials.

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SDG #	SDG Name	SDG description	SDG sub-target	Potential contribution	Sense of contribution	Level of contribution	Comments
10	Reduce inequality	SDG 10. Reduce inequality within and among countries.	10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality	Direct	Enhancing positive contribution	Medium	Umicore is contributing by ensuring equality and implementing inclusion policies within its own organization. Moreover, it is promoting social inclusion in its supply chain.
11	Sustainable cities	SDG 11. Make cities and human settlements inclusive, safe, resilient and sustainable.	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	Direct	Enhancing positive contribution	Low	Umicore is contributing by implementing policies within its own organization. It is also contributing in developing countries to promote equality and fair remuneration at its suppliers e.g., by signing codes of conduct.
11	Sustainable cities	SDG 11. Make cities and human settlements inclusive, safe, resilient and sustainable.	11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	Indirect	Enhancing positive contribution	Medium	Umicore is contributing positively to sustainable transport by its activities on clean mobility i.e., producing rechargeable battery materials for electrical cars and catalysts to clean exhaust gases.
11	Sustainable cities	SDG 11. Make cities and human settlements inclusive, safe, resilient and sustainable.	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	Direct	minimizing negative impact	High	Umicore is contributing positively by limiting the mining of new metals by recycling metals and thus keeping current landscapes and resources untouched. Umicore is also contributing by reducing harmful emissions through the production of catalysts, therefore reducing impacts such as climate change impacts and acid rain.
12	Sustainable consumption and production	SDG 12.Ensure sustainable consumption and production patterns.	12.2 By 2030, achieve the sustainable management and efficient use of natural resources	Direct	Enhancing positive contribution	High	Umicore is minimizing its negative impact by keeping control over the pollution its operations may cause (heavy metals, dioxins) in cities surrounding factories and mines.
12	Sustainable consumption and production	SDG 12.Ensure sustainable consumption and production patterns.	12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	Direct	minimizing negative impact	High	Umicore is contributing positively by efficient use of resources in its operations e.g., using raw materials from secondary sources, sourcing these resources in an ethical and sustainable way (controlled by sustainable procurement practices) and by the nature of its operations i.e., precious metals refining and recycling.
12	Sustainable consumption and production	SDG 12.Ensure sustainable consumption and production patterns.	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	Direct	Enhancing positive contribution	High	Umicore is minimizing its negative impact by limiting and actively managing the negative impact of its operations in terms of GHG emissions (efficient production, capturing and transforming byproducts), in terms of metal emissions to air, water and soil (process efficiency, filtration) and waste management.
12	Sustainable consumption and production	SDG 12.Ensure sustainable consumption and production patterns.	12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	Direct	Enhancing positive contribution	Medium	Umicore is contributing positively by the nature of its business activities e.g., recovering metals from waste streams such as e-scrap and using materials from secondary sources. Umicore is also minimizing its negative impact by actively controlling and minimizing the waste generated by its own operations.
12	Sustainable consumption and production	SDG 12.Ensure sustainable consumption and production patterns.	12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	Direct	Enhancing positive contribution	Medium	Umicore is contributing positively by adopting sustainable practices e.g., using materials from non-primary sources and by integrating sustainability information into its reporting cycle e.g., in an integrated annual report.

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13	Climate Action	SDG 13. Take urgent action to combat climate change and its impacts	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	Direct	Enhancing positive contribution	High	Umicore is contributing positively by implementing sustainable procurement practices in its supply chain e.g., by signing and having suppliers sign a code of conduct, setting up of sustainable procurement charters, carrying out audits, etc.
13	Climate Action	SDG 13. Take urgent action to combat climate change and its impacts	13.2 Integrate climate change measures into national policies, strategies and planning	Direct	minimizing negative impact	Medium	Umicore is contributing positively by the nature of its business i.e., recycling minerals and metals, by using materials from non-primary sources, by having a clear strategy and target to reduce emissions (validated by SBTi) and by aligning with the TCFD.
13	Climate Action	SDG 13. Take urgent action to combat climate change and its impacts	13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	Indirect	Enhancing positive contribution	Low	Through its operations, Umicore emits GHG. To minimize that negative impact, Umicore has integrated the goal of 'net zero scope 1+2 GHG emissions' by 2035 in its corporate 'Let's go for zero' strategy.
14	Life below water	SDG 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development.	14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	Indirect	minimizing negative impact	Medium	Umicore is contributing positively by undertaking public-private partnerships on climate change mitigation e.g., on clean energy and clean mobility and by creating awareness on how its products is help mitigate climate change e.g., reducing resource consumption by recycling of minerals.
15	Life on land	SDG 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	Indirect	minimizing negative impact	Medium	Umicore is minimizing its negative impact by limiting metal pollution to water.
15	Life on land	SDG 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	Indirect	minimizing negative impact	Low	Umicore is minimizing its negative impact by making sure that the mines from which it sources its materials are developed to mitigate impacts and conserve the natural environment. Umicore is also contributing by using resources from non-primary sources and by limiting the pollution and waste from its own production processes, especially metal pollution to water sources in this case.
15	Life on land	SDG 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	Indirect	minimizing negative impact	Medium	Umicore is minimizing its negative impact by limiting the emissions, pollution, and waste from its own production processes, thus mitigating climate change which is cause droughts and floods. Umicore is also contributing by efficient water use in its own operations and in the supply chain.
16	Peace, justice, institutions	SDG16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	16.1 Significantly reduce all forms of violence and related death rates everywhere	Indirect	Enhancing positive contribution	Low	Umicore is minimizing its negative impact by making sure that the mines from which it sources its materials are developed to mitigate impacts and conserve the natural environment. Umicore is also contributing by using resources from non-primary sources and by limiting the pollution and waste from its own production processes.
16	Peace, justice, institutions	SDG16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children	Indirect	Enhancing positive contribution	Medium	Umicore is contributing positively by setting up responsible sourcing programs for its precious minerals and metals to avoid any use of violence within its supply chain and to avoid that the proceedings from those minerals are misused to finance armed conflict in high-risk areas.

SDG #	SDG Name	SDG description	SDG sub-target	Potential contribution	Sense of contribution	Level of contribution	Comments
16	Peace, justice, institutions	SDG16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime	Indirect	Enhancing positive contribution	Low	Umicore is contributing positively by setting up responsible sourcing programs for its precious minerals and metals as mining is an industry that is sensitive to forced child labor due to the regions in which operations occur. Umicore is also contributing by actively supporting programs/NGOs aimed at preventing child labor.
16	Peace, justice, institutions	SDG16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	16.5 Substantially reduce corruption and bribery in all their forms	Direct	Enhancing positive contribution	Medium	Umicore is contributing positively by continuing and elaborating responsible sourcing programs for its precious minerals and metals as those materials is be misused to finance armed conflict.
16	Peace, justice, institutions	SDG16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels	Direct	Enhancing positive contribution	Low	Umicore is contributing positively by making sure there is no corruption or bribery within its own organization and within its supply chain, especially because the areas in which precious minerals and metals are sourced are sensitive to armed conflict and corruption.
17	Partnerships for the goals	SDG 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development: Finance.	17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries	Indirect	Enhancing positive contribution	High	Umicore is contributing positively by involving both internal and external stakeholders e.g., as part of materiality efforts for strategic company decisions, internal bottom-up business processes, community engagement, and through transparency and disclosure.
17	Partnerships for the goals	SDG 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development: Finance.	17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships	Indirect	Enhancing positive contribution	High	Umicore is contributing positively by engaging in the Global Battery Alliance (GBA), European Battery Alliance (EBA), and Battery European Partnership Association (BEPA), and the World Economic Forum Circular Cars Initiative (CCI) to help shape a circular, responsible, and sustainable battery value chain. Umicore is contributing positively by engaging in consortia and partnerships for impact, e.g., the Global Battery Alliance (GBA), World Economic Forum (WEF) leadership communities, Belgian Alliance for Climate Action (BACA) and through its engagement for STEM education.

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Corporate governance

G1 Corporate governance framework

During the financial year 2023, Umicore (also the “**Company**”) was subject to the Belgian Code on Corporate Governance 2020 (the “**CG Code 2020**”).

The English, Dutch and French versions of the CG Code 2020 can be found on the website of the [Belgian Corporate Governance Committee](#).

The governance structure of the Company and the policies and procedures of the Umicore Group are described in detail the corporate governance charter of Umicore (the “**CG Charter**”), which was last amended on July 27th, 2023. The [CG Charter](#) is available on the Umicore website or may be obtained on request from Umicore’s Group Communications Department.

Umicore has articulated its mission, values and basic organizational philosophy in a document called [The Umicore Way](#). This document spells out how Umicore views its relationship with its customers, shareholders, employees and society. It is supplemented by detailed company codes and policies, the most significant of which is the [Code of Conduct](#).

In its organizational philosophy, Umicore believes in decentralization and in entrusting a large degree of autonomy to each of its business units. The business units in turn are accountable for their contribution to the Group’s value creation and for their adherence to Group strategies, policies, standards and sustainable development approach.

In this context, Umicore is convinced that a sound corporate governance structure is a necessary condition to ensure its long-term success. This implies an effective decision-making process based on a clear allocation of responsibilities. Such approach must ensure an optimal balance between a culture of entrepreneurship at the level of the business units and effective steering and oversight processes. The deals in more detail with the responsibilities of the shareholders, the Supervisory Board, the CEO, the Management Board and the specific role of the Audit Committee, the Nomination & Remuneration Committee, the Sustainability Committee and the Investment Committee. The present statements provide information on governance issues which relate primarily to the financial year 2023.

G2 Corporate structure

The Management Board (“*directieraad*”/“*conseil de direction*”) is entrusted with all matters not specifically reserved to the Supervisory Board (“*raad van toezicht*”/“*conseil de surveillance*”) or the shareholders’ meeting by the Belgian Code of Companies and Associations (the “**BCCA**”) or Umicore’s articles of association.

The Supervisory Board is responsible for the general policy and the strategy of Umicore, as well as for all actions that the BCCA reserves specifically for the board of directors in a one-tier system. It appoints and dismisses the CEO and the other members of the Management Board and it also supervises the Management Board. The Supervisory Board is assisted in its role by an Audit Committee and a Nomination & Remuneration Committee.

The day-to-day management of Umicore has been delegated to the CEO, who also chairs the Management Board. The Management Board, under the leadership of the CEO, is responsible for proposing the overall strategy of Umicore to the Supervisory Board and for Umicore’s operational management. It also approves the strategies of the individual business units and monitors their implementation. The Management Board is furthermore responsible for screening the various risks and opportunities that Umicore may encounter in the short, medium or longer term (see [Risk Management section](#)) and for ensuring that adequate systems are in place to address these. The Management Board is responsible for defining and applying Umicore’s approach to sustainable development.

Umicore is organized in business groups which in turn comprise business units that share common characteristics in terms of products, technologies and end-user markets. To provide a Group-wide support structure, Umicore has regional management platforms in China, North America, Japan and South America. Its corporate headquarters are based in Belgium (Brussels). This center provides a number of corporate and support functions in the areas of legal, finance, people & organization, tax, internal audit, public and investor relations.

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G3 Shareholders

3.1 Issued shares – capital structure

On December 31st, 2023 there were 246,400,000 Umicore shares in issue, representing a capital of € 550,000,000.

The following shareholders have declared a participation of 3% or more (the below mentioned participations are those as mentioned in declarations of the resp. shareholders):

Gérald Frère, Ségolène Gallienne, Stichting Administratiekantoor Frère-Bourgeois, The Desmarais Family Residuary Trust, Groupe Bruxelles Lambert SA/NV, Arthur Capital S.à r.l.	40,623,159 shares (16.49%)
Baillie Gifford & Co and Baillie Gifford Overseas Ltd.	24,420,971 shares (9.91%)
Norges Bank	13,054,028 shares (5.30%)
BlackRock Inc.	14,516,549 shares (5.89%)
APG Asset Management	6,728,778 shares (2.73%)

Also on December 31st 2023, Umicore owned 5,999,083 of its own shares representing 2.43% of its capital. Information concerning the shareholders' authorization for Umicore to purchase and/or sell its own shares and the status of such buy-backs and divestments can be consulted in the [CG Charter and on Umicore's website](#).

During the year, 133,700 own shares were used in the context of the exercise of employee stock options and 24,321 shares were used for share grants, of which 10,321 to the members of the Supervisory Board and 14,000 to Management Board members. 42,237 own shares were used for the variable compensation granted in the form of shares to the former CEO and some members of the Management Board.

3.2 Dividend policy and payment

In 2023, Umicore paid a gross dividend of € 0.80 per share relating to the financial year 2022. This was the same amount as paid in 2022 in respect of the financial year 2021.

In July 2023, the Supervisory Board decided to pay a gross interim dividend of € 0.25 per share, which was paid on August 22nd, 2023.

3.3 Shareholders' meetings in 2023

The annual shareholders' meeting took place on April 27th, 2023. A special shareholders' meeting was also held on the same day. The shareholders' meeting took place physically but could also be viewed via a live (or differed) webcast.

The annual shareholders' meeting approved the resolutions regarding the annual accounts, the appropriation of the results and the discharges to the Supervisory Board members and to the statutory auditor regarding their respective 2022 mandates. At the same meeting, the shareholders appointed Marc Grynberg as new member of the Supervisory Board for a period of three years. Furthermore, the mandate of Mario Armero as member of the Supervisory Board was renewed, also for three years. The annual shareholders' meeting also approved the remuneration report and the remuneration of the Supervisory Board for 2023. Details of the fees paid to the members of the Supervisory Board in 2023 are disclosed in the remuneration report.

The special shareholders' meeting approved two contractual change of control clauses in accordance with article 7:151 of the BCCA.

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G4 Supervisory Board

4.1 Composition

The Supervisory Board, whose members are appointed by the shareholders' meeting resolving by a simple majority of votes without any attendance requirement, is composed of at least six members. The members' term of office may not exceed four years. In practice, Supervisory Board members are elected for a (renewable) period of three years. A member of the Supervisory Board cannot at the same time be member of the Management Board.

Members of the Supervisory Board can be dismissed at any time following a resolution of a shareholders' meeting, deciding by a simple majority of the votes cast. There are no attendance requirements for the dismissal of Supervisory Board members. The BCCA provides for the possibility for the Supervisory Board to appoint members of the Supervisory Board in the event of a vacancy. The next general meeting must decide on the definitive appointment of the above member of the Supervisory Board. The new member completes the term of office of his or her predecessor.

On December 31st, 2023, the Supervisory Board was composed of nine members. On the same date, five Supervisory Board members were independent in accordance with the criteria laid down in article 3.5 of the CG Code 2020.

In terms of gender and cultural diversity, the Supervisory Board counted three women and five different nationalities among its nine members on December 31st, 2023. Diversity also arises from the Supervisory Board members' educational backgrounds which include engineering, law, economics, finance, earth sciences and applied languages. The Supervisory Board's cumulative industry experience is broad, covering automotive, electronics, chemicals, metals, energy, finance and scientific/educational sectors. It also includes people experienced in the public and private sector and members with experience in the different regions in which Umicore is active. Collectively, the Supervisory Board possesses strong experience of managing industrial operations and counts four active or former CEOs in its ranks. The Supervisory Board also has collective experience in disciplines that are specifically relevant to Umicore's non-financial goals such as environmental, social and sustainability governance (ESG), health and safety, talent attraction and retention and supply chain sustainability.

The composition of the Supervisory Board underwent the following changes in 2023:

- The mandate of Ines Kolmsee as independent member of the Supervisory Board ended with effective date April 27th, 2023.
- Eric Meurice resigned as independent member of the Supervisory Board with effective date April 27th, 2023.
- Marc Grynberg was appointed member of the Supervisory Board for a period of three years, at the annual shareholders' meeting held on April 27th, 2023.
- Furthermore, the mandate of Mario Armero as Supervisory Board member was renewed for three years on April 27th, 2023.

4.2 Meetings and topics

The Supervisory Board held ten regular meetings in 2023. Four of these meetings were held by means of a video conference. On one occasion, the Supervisory Board also took decisions by unanimous written consent.

The matters reviewed by the Supervisory Board in 2023 included the following:

- safety performance and governance,
- financial performance of the Umicore Group,
- approval of the annual and half-year financial statements,
- adoption of the statutory and consolidated annual accounts and approval of the statutory and consolidated annual reports (including the remuneration report),
- Group strategy,
- environmental, social and governance (ESG) related topics, including but not limited to climate action, risk and resilience, water and biodiversity, diversity, and disclosures;
- business risk assessment,
- investment and divestment projects,
- reports of the Supervisory Board committees,
- cybersecurity,
- Group funding,
- business and technology reviews and market updates,
- joint venture and partnership projects and updates,
- annual performance review of the CEO and the other members of the Management Board,
- nomination and remuneration matters,
- interim dividend distribution.

The Supervisory Board visited the Rechargeable Battery Materials (RBM) site in Kokkola, Finland.

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4.3 Performance review of the Supervisory Board and its committees

The Supervisory Board undertakes periodical performance reviews which are either conducted by the Chair or externally facilitated. An in-depth, externally facilitated Supervisory Board review, will take place in 2024.

4.4 Audit Committee

The Audit Committee's composition and the qualifications of its members are fully in line with the requirements of article 7:99 of the BCCA and of the CG Code 2020. On December 31st, 2023, the Audit Committee was composed of four members of the Supervisory Board, three of them being independent. It is chaired by Alison Henwood, who took over this position from Ines Kolmsee effective April 27th, 2023.

The composition of the Audit Committee underwent the following changes in 2023:

- Following the end of her mandate as Supervisory Board member, Ines Kolmsee's mandate as Audit Committee member also ended effective April 27th, 2023;
- Mark Garrett was appointed Audit Committee member effective April 27th, 2023.

All members of the Audit Committee have extensive experience in accounting and audit matters as demonstrated by their curriculum.

The committee met five times in 2023, including one videoconference call. Apart from the review of the 2022 full year and the 2023 half year accounts, the Audit Committee reviewed reports and discussed matters related to internal audit, financial reporting, internal controls, external audit mandate renewal, ESG and other audit-related matters. The 2024 internal audit plan was validated. The committee met with the Group's auditor and reviewed and approved provided non-audit services.

4.5 Nomination & Remuneration Committee

The composition of the Nomination & Remuneration Committee is fully in line with the requirements of article 7:100 of the BCCA and of the CG Code 2020.

On December 31st, 2023, the Nomination & Remuneration Committee was composed of five members, all members of the Supervisory Board, three of them being independent. The committee is chaired by the chair of the Supervisory Board. The composition of the Nomination & Remuneration Committee remained unchanged in 2023.

Three Nomination & Remuneration Committee meetings were held in 2023, including two videoconference calls. During the same period the committee discussed the remuneration policy for the Supervisory Board members, the Supervisory Board committee members and Management Board members, and the rules of the stock grant and option plans offered in 2023. The committee also discussed the succession planning at the level of the Supervisory Board and the Management Board.

4.6 Sustainability Committee

This new Supervisory Board Committee was established on February 15th, 2023. Its terms of reference can be found in part VI of the CG Charter. On December 31st, 2023, the Sustainability Committee was composed of four members of the Supervisory Board. It is chaired by Birgit Behrendt.

Three Sustainability Committee meetings were held in 2023, including one videoconference call and one held jointly with the Audit Committee. During the same period the committee discussed *inter alia*:

- Sustainability Committee roles, responsibilities, and ways of working,
- ESG governance, roles and responsibilities within the Group, as well as related policies processes,
- Supervisory Board "ESG readiness" self assessment,
- materiality, market trends, and ESG ratings,
- decarbonization of Scopes 1, 2 and 3,
- ESG regulatory and disclosure landscape.

4.7 Investment Committee

This new Supervisory Board Committee was established on February 15th, 2023. Its terms of reference can be found in part VII of the CG Charter. On December 31st, 2023, the Investment Committee was composed of four members of the Supervisory Board. It is chaired by the chair of the Supervisory Board.

Four Investment Committee meetings were held in 2023, including three videoconference calls. During this period the Committee discussed several capital expenditure and investment proposals, as well as commercial contracts in that respect.

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G5 Management Board

5.1 Composition

The Management Board is composed of at least four members. It is chaired by the CEO. All members of the Management Board, including the CEO, are appointed by the Supervisory Board upon recommendation of the Nomination & Remuneration Committee.

The composition of the Management Board underwent the following changes in 2023:

- Denis Goffaux, Executive Vice-President Recycling, resigned as member of the Management Board effective June 1st, 2023;
- Veerle Slenders was appointed Executive Vice-President Recycling and member of the Management Board effective June 1st, 2023;
- Geert Olbrechts was appointed Chief Technology Officer, Executive Vice-President and member of the Management Board effective August 1st, 2023;
- Ana Fonseca-Nordang was appointed Executive Vice-President People & Organization, and member of the Management Board effective September 1st, 2023.

On December 31st, 2023 the Management Board was composed of nine members, including the CEO.

5.2 Performance review

The Management Board regularly reviews and assesses its own performance. The assessment is also discussed at the Nomination & Remuneration Committee and presented to the Supervisory Board.

The last performance reviews of the CEO and the other members of the Management Board took place on February 15th, 2023.

G6 Relevant information in the event of a takeover bid

6.1 Restrictions on transferring securities

Umicore's articles of association do not impose any restriction on the transfer of shares or other securities.

The Company is furthermore not aware of any restrictions imposed by law except in the context of the market abuse legislation and of the lock-up requirements imposed on some share grants by the BCCA.

The options on Umicore shares as granted to the CEO, to the members of the Management Board and to designated Umicore employees in execution of various Umicore incentive programs may not be transferred *inter vivos*.

6.2 Holders of securities with special control rights

There are no such holders.

6.3 Voting right restrictions

Umicore's articles of association do not contain any restriction on the exercise of voting rights by shareholders, providing the shareholders concerned are admitted to the shareholders' meeting and their rights are not suspended. The admission rules to shareholders' meetings are articulated in article 20 of the articles of association. Pursuant to article 7 of the articles of association, if a share is the subject of concurrent rights, the rights attached to these shares are suspended until one person is designated as owner vis-à-vis the Company.

To the Supervisory Board's best knowledge, none of the voting rights attached to the shares issued by the Company were suspended by law on December 31st, 2023, save for the 5,999,083 shares held by the Company itself on that date (article 7:217 §1 of the BCCA).

6.4 Employee stock plans where the control rights are not exercised directly by the employees

Umicore has not issued any such employee stock plans.

6.5 Shareholders' agreements

To the Supervisory Board's best knowledge, there are no shareholders' agreements which may result in restrictions on the transfer of securities and/or the exercise of voting rights.

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6.6 Amendments to the articles of association

Save for capital increases decided by the Supervisory Board within the limits of the authorized capital, only an extraordinary shareholders' meeting is authorized to amend Umicore's articles of association. A shareholders' meeting may only deliberate on amendments to the articles of association – including capital increases or reductions, mergers, de-mergers and a winding-up – if at least 50% of the subscribed capital is represented. If the above attendance quorum is not reached, a new extraordinary shareholders' meeting must be convened, which will deliberate regardless of the portion of the capital represented. As a general rule, amendments to the articles of association are only adopted if approved by 75% of the votes cast. The BCCA provides for more stringent majority requirements in specific instances, such as the modification of the corporate object or the company form.

The Company's articles of association were not amended in 2023.

6.7 Authorised capital – buy-back of shares

The Company's capital may be increased following a decision of the Supervisory Board within the limits of the authorized capital. The authorization must be granted by an extraordinary shareholders' meeting; it is limited in time and amount and is subject to specific justification and purpose requirements.

Following the resolutions of the extraordinary shareholders' meeting held on April 28th, 2023 (resolutions published on May 10th, 2023), the Supervisory Board is authorized to increase the capital in one or more times by a maximum amount of € 55,000,000. The authorization will lapse on May 9th, 2027 but it can be renewed.

Up until December 31st, 2023, the Supervisory Board had not made use of this authorization.

Following a resolution of the extraordinary shareholders' meeting held on April 28th, 2022, the Company is authorized to acquire own shares on a regulated market within a limit of 10% of the subscribed capital, at a price per share comprised between € 4 and € 120 and until June 30th, 2026 (included). The same authorization was also granted to the Company's direct subsidiaries. The Company did not acquire any own shares in 2023 in implementation of the above and the previous authorization.

6.8 Agreements between the Company and its directors or employees providing for compensation if they resign, or are made redundant without valid reason, or if their employment ceases because of a take-over-bid

For a limited group of employees an individual agreement has been put in place, applicable in the event of a dismissal within 12 months after a change of control over the Company. As far as the members of the Management Board are concerned, reference is made to the remuneration report and policy.

G7 Conflicts of interests (art. 7:115 through 7:117 BCCA)

During 2023, no conflicts of interests or decisions/transactions as defined under articles 7:115 through 7:117 BCA were discerned at the level of the Supervisory Board or the Management Board.

G8 Statutory auditor

At the annual shareholders' meeting held on 29 April 2021, EY Bedrijfsrevisoren BV / EY Réviseurs d'Entreprises SRL was appointed statutory auditor for a renewable period of three years. The statutory auditor is represented by Marnix Van Dooren & C° BV/SRL, itself represented by Marnix Van Dooren, and Eef Naessens BV/SRL, itself represented by Eef Naessens for the exercise of this mandate.

The Umicore policy detailing the independence criteria for the statutory auditor may be requested from Umicore.

G9 Code of Conduct

Umicore has a Code of Conduct for all its employees, representatives, and Supervisor or Management Board members.

The main purpose of Umicore's Code of Conduct is to ensure that all persons acting on behalf of Umicore carry out their activities in an ethical way and in accordance with the laws and regulations and with the standards Umicore sets through its present and future policies, guidelines and rules. The Code of Conduct contains a specific section on complaints and expressions of concern by employees and whistleblower protection.¹

The Code of Conduct is published in Appendix 6 to the CG Charter.

G10 Market manipulation and insider trading

Umicore's policy related to market abuse including insider trading is spelled out in the Umicore Dealing Code, which can be found under Appendix 7 to the CG Charter.

¹ Umicore also adopted an internal global guideline on whistleblowing, in implementation of the EU Directive 2019/137 of the European Parliament and the Council dated October 23rd, 2019 on the protection of persons who report breaches of Union law.

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G11 Compliance with the CG Code 2020

During the financial year 2023, the Company has complied with all the provisions of the CG Code 2020.

G12 Remuneration policy

Umicore's remuneration policy (the "**Policy**") outlines the remuneration principles for the members of Umicore's Supervisory Board and Management Board.

In 2021, Umicore undertook a detailed review of the Policy to ensure the Group's remuneration structure and rewards remain fair, responsible with a clear link to sustainable long-term value creation and in line with current international remuneration trends. The review also took into account the feedback received from our international shareholder base.

The Policy provides targets and remuneration with an increased focus on sustainable, profitable growth, combining financial and sustainability performance in full alignment with our sustainability ambitions.

The Policy, effective as of January 1st, 2022 is available on [Umicore's website](#).

G13 Remuneration report

REMUNERATION OF THE SUPERVISORY BOARD MEMBERS

The remuneration structure of the members of the Supervisory Board is in accordance with the Policy.

In 2023 the annual fixed fee for the Chair of the Supervisory Board was increased from € 60,000 to an all in one fee of € 140,000, while attendance fees no longer apply for him. The remuneration for the newly established Sustainability Committee and Investment Committee is in alignment with the other committees. Other fees remained unchanged.

Supervisory Board

- **Chair:** annual fixed fee: € 140,000 + 2,000 Umicore shares + company car
- **Member:** annual fixed fee: € 30,000 + € 3,000 per meeting attended + € 1,000 per meeting attended in person (for foreign-based members) + 1,000 Umicore shares

Audit Committee – Sustainability Committee

- **Chair:** annual fixed fee: € 10,000 + € 5,000 per meeting attended + € 1,000 per meeting attended in person (for foreign-based Chair)
- **Member:** annual fixed fee: € 5,000 + € 3,000 per meeting attended + € 1,000 per meeting attended in person (for foreign-based members)

Nomination and Remuneration Committee – Investment Committee

- **Chair:** included in the annual fixed fee of Chair of the Supervisory Board
- **Member:** annual fixed fee: € 5,000 + € 3,000 per meeting attended + € 1,000 per meeting attended in person (for foreign-based members)

2023 Remuneration overview of the Supervisory Board members

All components of the remuneration of the Supervisory Board members for the reported year are detailed in the table below.

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13.1 Remuneration overview members of the Supervisory Board

In €									
Name	Mandate	Start date	End date	Fixed fee	Shares ¹	Attendance Fee	Number of meetings attended	Other (Car)	Total
LEYSEN T.	Chair of the supervisory board	19-11-2008		140,000	57,760		10	4,241	202,001
	Chair of the nomination & remuneration committee	19-11-2008					3		
	Chair of the investment committee	27-04-2023					4		
ARMERO M.	Member of the supervisory board	30-04-2020		30,000	28,880	35,000	10		120,277
	Member of the nomination & remuneration committee	09-12-2020		5,000		9,000	3		
	Member of the sustainability committee	27-04-2023		3,397		9,000	3		
BEHRENDT B.	Member of the supervisory board	29-04-2021		30,000	28,880	35,000	10		131,072
	Member of the investment committee	27-04-2023		3,397		12,000	4		
	Chair of the sustainability committee	27-04-2023		6,795		15,000	3		
CHOMBAR F.	Member of the supervisory board	26-04-2016		30,000	28,880	27,000	9		112,277
	Member of the nomination & remuneration committee	26-04-2018		5,000		9,000	3		
	Member of the sustainability committee	27-04-2023		3,397		9,000	3		
DEBACKERE K.	Member of the supervisory board	26-04-2018		30,000	28,880	30,000	10		122,880
	Member of the audit committee	26-04-2018		5,000		15,000	5		
	Member of the nomination & remuneration committee	09-12-2020		5,000		9,000	3		
GARRETT M.	Member of the supervisory board	28-04-2015		30,000	28,880	34,000	10		116,277
	Member of the audit committee	27-04-2023		3,397		6,000	2		
	Member of the nomination & remuneration committee	25-04-2017		5,000		9,000	3		
GRYNBERG M.	Member of the supervisory board	27-04-2023		20,384	19,610	21,000	7		70,390
	Member of the investment committee	27-04-2023		3,397		6,000	2		
HENWOOD A.	Member of the supervisory board	01-09-2023		30,000	28,880	29,000	8		127,675
	Member of the audit committee	01-09-2023	27-04-2023	1,603		9,000	3		
	Chair of the audit committee	27-04-2023		6,795		10,000	2		
	Member of the sustainability committee	27-04-2023		3,397		9,000	3		
KOLMSEE I.	Member of the supervisory board	26-04-2011	27-04-2023	9,616	9,270	8,000	2		45,092
	Chair of the audit committee	28-04-2015	27-04-2023	3,205		15,000	3		
MEURICE E.	Member of the supervisory board	28-05-2015	27-04-2023	9,616	9,270	4,000	1		22,887
RAETS L.	Member of the supervisory board	25-04-2019		30,000	28,880	30,000	10		124,277
	Member of the audit committee	25-04-2019		5,000		15,000	5		
	Member of the investment committee	27-04-2023		3,397		12,000	4		

¹ The share grant relates to the services rendered in the reported year. Shares were granted on 12 May 2023 and were valued at the fair market value of € 28.88 per share, equivalent to either the closing share price on the day before the delivery date or the average closing price of the last 30 calendar days before delivery date, whichever is the lowest.

REMUNERATION OF THE CEO AND OTHER MANAGEMENT BOARD MEMBERS

The value of the CEO's and other Management Board members' remuneration was reviewed by the Supervisory Board on February 15th, 2023. This review was carried out on the basis of recommendations from the Nomination and Remuneration Committee following a comparison survey with BEL20 and European peer companies.

In line with the Policy, remuneration of the CEO and other Management Board members included the following components in 2023: fixed remuneration, variable compensation, share-based compensation, pension plans and other benefits.

Remuneration of the CEO

On proposal of the Nomination and Remuneration Committee, the Supervisory Board of February 15th, 2023 decided to set the annual fixed remuneration of the CEO at € 1,035,000 as of January 1st, 2023 and to increase the annual target for both the short- and long-term variable remuneration to € 620,000 for the reported year. The actual variable remuneration can vary between 0-125% depending on the Group and individual performance.

Adjusted EBITDA came in below 2022 levels due to a Platinum Group Metals (PGM) price and inflation headwind. Together with the impact of the fatal accident in Hoboken at the beginning of 2023 and a lower than female recruitment target, this resulted in an award outcome of 46.8% for Group performance (50% weight). The individual performance (50% weight) was assessed at target level, hence a total award level of 73.4% versus a potential maximum of 125%. The CEO's actual gross annual variable compensation for the year of reference amounts to € 455,080. See Table 13.2 for more details on the 2023 performance award level.

In line with the Policy, a Performance Share Unit Plan (the 2023 PSU Plan) was launched in 2023. The 2023 PSU Plan rewards strategic achievements driving long-term sustainable performance over a period of three years (2023-25). Under this PSU Plan, Mathias Miedreich received 19,639 PSUs, for vesting per March 1st, 2026, provided the vesting conditions are met and subject to the achievement of the PSU performance objectives set in 2023 (as published in the 2022 remuneration report).

As part of the annual Umicore Incentive Stock Option Plan, 81,301 stock options were granted for 2023. On February 15th, 2024, the Supervisory Board also decided to grant 2,000 Umicore shares for services rendered in the reported year. These shares are subject to a three-year lock-up.

The Group also paid for the 2023 tuition fees for his child.

All components of the remuneration earned by Mathias Miedreich for the reported year are detailed in the Table 13.3.

Remuneration of other Management Board members

On proposal of the Nomination & Remuneration Committee, the Supervisory Board decided to increase the fixed remuneration for other Management Board members to € 570,000 as of January 1st, 2023. In addition, the annual target for both the short- and long-term variable remuneration was increased to € 360,000 for the CFO and the members of the Management Board supervising a business group and in mandate per January 1st, 2023, and to € 330,000 for other members of the Management Board.

The actual variable remuneration can vary between 0-125% depending on Group and individual performance. See Table 13.2 for more details on the 2023 performance award level and Table 13.3 for the actual pay-outs.

Other Management Board members also participate in the 2023 PSU Plan. Under this PSU Plan, a number of PSUs were granted, for vesting per March 1st, 2026, provided the vesting conditions are met and subject to achieving the 2023 PSU performance targets (see 2022 Remuneration Report). See Table 13.5 for more details.

As part of the annual Umicore Incentive Stock Option Plan 30,000 stock options per Management Board member in mandate per January 1st, 2023 were offered for 2023. A pro rata for the months in service was applied for Denis Goffaux. On June 1st, 2023, 17,500 stock options were granted to Veerle Slenders, together with the payment of € 500,000 as a sign on fee.

The Supervisory Board decided on February 15th, 2024 to grant 2,000 Umicore shares per person for services rendered in the reported year (pro rata for the members of the Management Board who joined or left in the course of 2023). These shares are subject to a three-year lock-up.

All components of the remuneration earned by the other Management Board members for the reported year are detailed in Table 13.3.

Group and individual performance 2023

The 2023 Group performance results related to the 2023 annual variable remuneration plan, are outlined in Table 13.2. This Table also shows results for individual performance in 2023.

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13.2 Annual variable remuneration plan 2023 – Outcome

Topic	2023 Performance objectives	Weight	Award Min-Max	Threshold	Maximum	Award
Financial	ROCE	15%	0-150%	<p>MIN 7.5% 2023 TARGET 12.5% ACTUAL 13.5% MAX ≥ 17.5%</p>		110%
Financial	Adjusted EBITDA	15%	0-150% < 95% = 0% pay; 95% of target = 50% pay	<p>ACTUAL < Threshold MIN 95% of target 2023 TARGET As defined by the Supervisory Board MAX ≥ 105% of target</p>		0%
Safety	Process Safety Event Frequency Rate: Reduction of 10% (vs 2022) + the absence of process safety events with material env. or health impact	5%	0-100%	<p>MIN 0% 2023 TARGET/MAX ≥ -10% ACTUAL -19.6%</p>		100%
Safety	Total Recordable Injury Rate (TRIR) ¹ : Reduction of 10.5% (vs 2021)	10%	0-100%	<p>MIN -7.37% 2023 TARGET/MAX ≥ -10.5% ACTUAL -21.1%</p>		0% ¹
Diversity & Inclusion	Recruitment of women managers: 35% in 2023	5%	0-100%	<p>MIN 30% ACTUAL 31.9% 2023 TARGET/MAX ≥ 35%</p>		38%
Group	Total Group performance	50%				46.80%
Individual	Individual Performance - CEO	50%	0-120%	Defined yearly	Qualitative assessment	100%
Individual	Individual Performance - EVP (average)	50%	0-120%	Defined yearly	Qualitative assessment	101.54%

¹ The TRIR target was achieved but the award was zero due to the fatal accident in Hoboken at the beginning of 2023.

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13.3 Remuneration overview of the Management Board members

In € Name Position	Mandate Start date End date	Fixed Compensation ¹	Short-term Variable ²	Long-term Variable ³	Shares ⁴	Stock Options ⁵	Pension Plans ⁶	Other ⁷	Total	Ratio fixed ⁸	Ratio variable ⁹
MIEDREICH M. CEO	1-10-2021	1,035,000	455,080	0	41,340	600,001	222,127	36,813	2,390,361	81%	19%
DAUFENBACH D. EVP	6-12-2021	570,000	233,970	0	41,340	221,400	119,016	13,706	1,199,432	80%	20%
FONSECA NORDANG A. EVP	01-09-2023	190,000	80,740	0	13,787	0	39,672	97,882	422,081	81%	19%
KIESSLING R. EVP	01-02-2019	570,000	282,240	200,000	40,828	221,400	119,016	86,460	1,519,944	68%	32%
NOLENS G. EVP	01-07-2015	570,000	250,470	200,000	41,340	221,400	134,544	21,302	1,439,056	69%	31%
OLBRECHTS G. EVP	01-08-2023	237,500	97,488	0	17,239	0	49,590	5,256	407,073	76%	24%
PEFEROEN W. EVP	01-10-2022	570,000	264,240	0	41,340	221,400	119,016	15,566	1,231,562	79%	21%
SAP B. EVP	01-03-2021	570,000	291,240	166,667	41,340	221,400	119,016	13,824	1,423,487	68%	32%
SLENDERS V EVP	01-06-2023	332,500	141,295	0	24,122	97,650	69,426	507,680	1,172,673	88%	12%
GRYNBERG M. CEO (FORMER)	19-11-2008 31-10-2021	0	0	291,667	0	0	0	0	291,667	0%	100%
CSOMA S. EVP (FORMER)	01-11-2012 31-03-2021	0	0	50,000	0	0	0	0	50,000	0%	100%
GOFFAUX D. EVP (FORMER)	01-07-2010 31-05-2023	229,167	87,600	200,000	17,239	92,250	114,668	15,504	756,428	62%	38%
PLATTEEUW F. CEO (FORMER)	01-11-2012 30-09-2022	0	0	200,000	0	0	0	0	200,000	0%	100%
STEEGEN A. EVP (FORMER)	01-10-2018 30-09-2021	0	0	150,000	0	0	0	0	150,000	0%	100%

1 The fixed compensation includes the fixed remuneration from Umicore entities, if any.

2 The annual variable remuneration has been determined in accordance with the Policy and relates to the reported year 2023. The pay-out was made in cash in 2024, except for F. Daufenbach, A. Fonseca Nordang, M. Miedreich, G. Nolens, W. Peferoen and B. Sap, who received the variable partially or fully in the form of shares.

3 The deferred variable, following the previous remuneration policy, relates to the reference year 2021 and takes into account, over the years 2021-2022-2023, an average ROCE of 18.3%, resulting in a pay-out of 100% of the 2021 deferred target, and a compounded average EBIT growth% of 7.9%, below the required 10% threshold for an additional award. The pay-out was made in cash in 2024, except for M. Grynberg and G. Nolens, who received the variable partially or fully in the form of shares.

4 Shares granted relate to services rendered in the reported year 2023 during the mandate of a Management Board member. The shares were granted on February 19th, 2024 and were valued at the fair market value of the share at € 20.67, equivalent to the closing share price on the day before the delivery date or the average closing price of the last 30 calendar days before delivery date, whichever is the lowest. For German tax purposes, the shares were valued at € 20.26 (lowest market quotation of the shares on the delivery date).

5 Stock options granted relate to services rendered in the reported year 2023 during the mandate of a Management Board member. Stock options were granted on February 16th, 2023 and were valued at a notional value of € 7.38 per option according to the Black & Scholes formula. On June 1st, 2023 17,500 stock options were granted to V. Slenders as sign on fee, valued at a notional value of € 5.58 per option.

6 Includes defined contributions (DC) and defined benefits (DB) contributions and the related social contributions.

7 Includes the representation allowance, benefit in kind company car, insurance benefits, additional benefits for R. Kiessling for his frequent and extensive presence in Asia and the tuition fees paid for M. Miedreich's child and the children of A. Fonseca Nordang. It also includes the sign on fee of € 500,000 to V. Slenders.

8 (1)+(4)+(5)-(6)+(7)/Total remuneration.

9 (2)+(3)/Total remuneration.

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COMPARATIVE INFORMATION ON REMUNERATION CHANGES - PAY RATIO

Table 13.4 provides an overview on the annual remuneration changes for the CEO; other Management Board members (in aggregate); mandates within the Supervisory Board and the Committees; the average employee remuneration on a full-time equivalent basis; and company performance. Incomplete years of remuneration due to a start or end of mandate in the course of the reference year, have been adjusted to an annual base. The number of shares in Table 13.4 represents for all years the numbers of shares taking into account the share split of 16 October 2017. Average employee remuneration relates to Umicore (Belgium), in accordance with applicable legal provisions.

13.4 Comparative table on remuneration changes of and company performance over the last five reported financial years

Annual Change		RFY 2019	RFY 2020	RFY 2021	RFY 2022	RFY 2023	Information regarding RFY
		vs RFY 2018	vs RFY 2019	vs RFY 2020	vs RFY 2021 ¹	vs RFY 2022	
Remuneration management board							
	Fixed	0.0%	2.9%	0.0%	38.9%	3.5%	
	Variable	-5.6%	37.9%	57.7%	-22.3%	-27.5%	
CEO (Mathias Miedreich) Mandate as of 01/10/2021	Number of shares	-3.8%	0.0%	0.0%	-80.0%	0.0%	
	Number of options	-6.7%	0.0%	-31.4%	-2.8%	-12.9%	
	Pension + other	8.2%	13.0%	6.7%	-7.8%	-2.1%	
	Fixed	0.4%	4.5%	0.0%	25.0%	3.4%	
Members of the management board (excl. CEO)	Variable	18.3%	10.6%	58.2%	45.2%	-24.4%	
	Number of shares	-5.4%	0.0%	-0.9%	-71.2%	0.0%	
	Number of options	-14.3%	5.6%	0.0%	0.0%	0.0%	
	Pension + other	1.9%	13.8%	-6.1%	3.3%	7.2%	²
	Fixed	0.0%	0.0%	0.0%	0.0%	233.3%	³
Remuneration supervisory board							
Chair supervisory board	Attendance fee/meeting	0.0%	0.0%	0.0%	0.0%	-100.0%	³
	Number of shares	0.0%	0.0%	0.0%	0.0%	0.0%	
	Fixed	-	-	-	+ 10,000 €	-100.0%	³
Chair nomination & remuneration committee investment committee (as of 2023)							

Annual Change		RFY 2019	RFY 2020	RFY 2021	RFY 2022	RFY 2023	Information regarding RFY
		vs RFY 2018	vs RFY 2019	vs RFY 2020	vs RFY 2021 ¹	vs RFY 2022	
	Attendance fee/meeting	0.0%	0.0%	0.0%	0.0%	-100.0%	³
	Number of shares	-	-	-	-	-	
	Fixed	0.0%	0.0%	0.0%	0.0%	0.0%	⁴
Chair audit committee sustainability committee (as of 2023)	Attendance fee/meeting	0.0%	0.0%	0.0%	0.0%	0.0%	⁴
	Number of shares	-	-	-	-	-	
	Fixed	0.0%	0.0%	0.0%	11.1%	0.0%	
Member supervisory board	Attendance fee/meeting	0.0%	0.0%	0.0%	20.0%	0.0%	
	Number of shares	0.0%	0.0%	0.0%	0.0%	0.0%	
	Fixed	0.0%	0.0%	0.0%	0.0%	0.0%	⁴
Member audit committee sustainability committee (as of 2023)	Attendance fee/meeting	0.0%	0.0%	0.0%	0.0%	0.0%	⁴
	Number of shares	-	-	-	-	-	
	Fixed	-	-	-	+ 5,000 €	0.0%	
Member nomination & remuneration committee investment committee (as of 2023)	Attendance fee/meeting	0.0%	0.0%	0.0%	0.0%	0.0%	
	Number of shares	-	-	-	-	-	

Average employee remuneration on a full time equivalent basis					
% change versus previous year	3.7%	2.7%	7.5%	5.6%	10.2%

Company's Performance					
	2019	2020	2021	2022	2023
ROCE	12.6%	12.1%	22.2%	19.2%	13.5%
EBIT M€	509	536	971	865	674
% ROCE change versus previous year	-18.2%	-4.0%	83.5%	-13.5%	-29.7%
% EBIT change versus previous year	-1.0%	5.4%	81.1%	-11.0%	-22.0%

¹ The Remuneration Policy was reviewed in 2021 and is effective as of January 1st, 2022.

² The percentage is excluding the sign on fee paid to V. Slenders in the reported year.

³ The fixed fee for the Chair of the Supervisory Board has been replaced by an all in one fee.

Fixed fees for his mandate as Chair of the nomination & remuneration committee and the investment committee and attendance fees therefore no longer apply for him.

⁴ The remuneration for the newly established sustainability committee and investment committee is in alignment with the other committees.

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The pay ratio 2023 between the highest and lowest pay level at Umicore (Belgium) was equal to 41.

SHARE BASED PLANS AND TRANSACTIONS 2023

Management Board PSU Plans

As of performance year 2022, a Performance Share Unit Plan (PSU Plan) was introduced, replacing the deferred cash variable program that was in place until performance year 2021. Under this PSU Plan, PSUs are granted conditionally to the members of the Management Board. The PSUs vest after three years, depending on the achievement of pre-set performance goals and provided continued service on the date of vesting. The objectives are defined by the Supervisory Board upon proposal of the Nomination & Remuneration Committee and include measurable financial and sustainability targets. (See the 2021 and the 2022 remuneration report respectively for the 2022 and 2023 PSU performance targets).

Table 13.5 provides an overview of the number of PSUs granted in 2023 and the main provisions of the PSU Plan. The number of PSUs granted conditionally was determined by dividing the target PSU grant value by the Umicore share price on Euronext Brussels, being equivalent to either the closing share price on the day before the grant date or the average closing price of the last 30 calendar days before the grant date, whichever is lowest.

13.5 Management Board PSU plans

Name Position	Number of PSUs received in 2023
Miedreich M., CEO	19,639
Daufenbach F., EVP	10,453
Fonseca Nordang A., EVP	4,496
Kiessling R., EVP	11,404
Nolens G., EVP	10,453
Olbrechts G., EVP	5,133
Peferoen W., CFO	11,404
Sap B., EVP	11,404
Slenders V., EVP	7,404
Goffaux D., EVP (former) ¹	11,404

¹ The number of months in mandate in 2023 will be taken into account upon vesting of the plan.

Main provisions of the outstanding PSU plans

PSU Plan	Grant Date	Vesting Date	Performance window Start End
2022	01/03/2022	01/03/2025	01/01/2022 - 31/12/2024
2022 (Peferoen W.)	01/10/2022	01/03/2025	01/01/2022 - 31/12/2024
2023	01/03/2023	01/03/2026	01/01/2023 - 31/12/2025
2023 (Slenders V.)	01/06/2023	01/03/2026	01/01/2023 - 31/12/2025
2023 (Olbrechts G.)	01/08/2023	01/03/2026	01/01/2023 - 31/12/2025
2023 (Fonseca Nordang A.)	01/09/2023	01/03/2026	01/01/2023 - 31/12/2025

Vesting PSUs is subject to:

(1) a continued mandate as Management Board member, to the extent applicable under the PSU Plan. This condition is not applicable for members of the Management Board appointed before April 1st, 2021 (unless in the event of termination for serious cause); and

(2) achievement of PSU performance objectives as defined by the Supervisory Board (see the 2021 and 2022 remuneration reports). If and when vesting takes place, the vesting of the PSUs is proportionate to the total weighted achieved award percentage, which can vary between 0-125%, pro rata of the number of months served by a Management Board member in the related performance year.

Management Board share option transactions in 2023

Table 13.6 provides an overview of the number of stock options granted for the services rendered in 2023 in the mandate of member of the Management Board, the number of stock options exercised and expired in the course of the reported year, as well as the main provisions of the outstanding stock option plans.

Contrary to other countries, under Belgian Law, taxes on stock options are due at the time they are granted. Therefore and in alignment with other Belgian companies, the Umicore Incentive Stock Option Plans do not include performance conditions.

Details of all options exercised, and other share-related transactions can be found on the Financial Services and Markets Authority (FSMA) website.

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13.6 Management Board share option transactions

Transactions in the reported year 2023

Name Position	Options Granted		Options Exercised	Options Expired
Miedreich M. CEO	ISOP 2023	81,301	0	0
Daufenbach F. EVP	ISOP 2023	30,000	0	0
Kiessling R. EVP	ISOP 2023	30,000	0	0
Nolens G. EVP	ISOP 2023	30,000	0	0
Peferoen W. CFO	ISOP 2023	30,000	0	0
Sap B. EVP	ISOP 2023	30,000	0	0
Slenders V. EVP	ISOP 2023	17,500	0	0
Goffaux D. EVP (former)	ISOP 2023	12,500	0	0

Main provisions of the outstanding stock option plans

ISOP Plan	Grant Date	Exercise Price ¹	Exercise window Start End
2023 (Slenders V.)	01/06/2023	26.00	01/06/2026 - 31/05/2030
2023	16/02/2023	32.69	16/02/2026 - 15/02/2030
2022	16/02/2022	33.22	16/02/2025 - 15/02/2029
2021	11/02/2021	47.08	11/02/2024 - 10/02/2028
2020	10/02/2020	42.05	10/02/2023 - 09/02/2027
2019	11/02/2019	34.08	01/03/2022 - 10/02/2026
2018	09/02/2018	40.90	01/03/2021 - 08/02/2025
2017	13/02/2017	25.50	01/03/2020 - 12/02/2024

¹ Exercise prices take into account the share split of 16 October 2017.

Management Board share grant in 2023

Table 13.7 provides an overview of shares granted in 2023 for services rendered in 2022 during a Management Board member's mandate. Shares were granted on February 16th, 2023 and were valued at the fair market value of € 32.69 per share, equivalent to either the closing share price on the day before the delivery date or the average closing share price of the last 30 calendar days before delivery date, whichever is the lowest. For German tax purposes, shares were valued at € 31.18. Shares are subject to a three-year lock-up until February 15th, 2026.

As per the Policy, within five years from the date of appointment, the CEO is required to set aside a minimum of 30,000 Umicore shares, which he must retain throughout his tenure. This requirement also applies to other Management Board members in respect of a minimum of 15,000 shares.

On December 31st, 2023, R. Kiessling, G. Nolens and B. Sap reached this minimum shareholder requirement. The CEO and other members of the Management Board are still within the five-year time-frame to build up the required minimum.

Management Board members held collectively a total of 142,631 shares on December 31st, 2023.

13.7 Management Board share grant

Name Position	Number of shares received in 2023 for RFY 2022
Miedreich M., CEO	2,000
Daufenbach F., EVP	2,000
Kiessling R., EVP	2,000
Nolens G., EVP	2,000
Peferoen W., CFO	500
Sap B., EVP	2,000
Goffaux D., EVP (former)	2,000
Platteeuw F., CFO (former)	1,500

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Supervisory Board share grant in 2023

Table 13.8 provides an overview of shares granted in 2023 to Supervisory Board members for services rendered in 2023. Shares were granted on May 12th, 2023 and were valued at the fair market value of the share at € 28.88, equivalent either to the closing share price on the day before the delivery date or the average closing price of the last 30 calendar days before delivery date, whichever is lowest. Shares must be held until at least one year after the member leaves the Supervisory Board and until at least three years after the delivery date.

Supervisory Board members held collectively a total of 1,889,006 shares on December 31st, 2023.

13.8 Supervisory Board share grant

		Number of shares received in 2023	Comment
Leysen T.	Chair	2,000	
Armero M.	Member	1,000	
Behrendt B.	Member	1,000	
Chombar F.	Member	1,000	
Debackere K.	Member	1,000	
Garrett M.	Member	1,000	
Grynberg M.	Member ¹	679	Pro rata the services in 2023
Henwood A.	Member	1,000	
Kolmsee I.	Member ²	321	Pro rata the services in 2023
Meurice E.	Member ²	321	Pro rata the services in 2023
Raets L.	Member	1,000	

¹ As of 27/04/2023

² Until 27/04/2023

APPROVAL OF THE 2022 REMUNERATION REPORT

The 2022 remuneration report received 90.74% of shareholder votes (disregarding the abstention votes, as provided under Belgian Company Law), compared with 63.51% of the previous year.

The 2022 remuneration report showed both the revised financial targets and also the sustainability/ESG targets. These targets are in alignment with Umicore's "Let's Go for Zero" ambitions embedded within the Umicore 2030 RISE Strategy to enhance sustainable long-term value creation. Umicore will continue to include stretched and achievable targets, disclosing these targets upfront. See Table 13.9 for the 2024 performance objectives.

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13.9 Overview of the 2024 performance objectives and weighting

Annual Variable compensation plan (1y performance)	Weight	2024 Target Award %	Threshold Award %	Maximum Award %
ROCE	15%	12.5% 100% award	7.5% 0% award	≥17.5% 150% award
Adjusted EBITDA	15%	Defined by the supervisory board ¹ Reduction of 20.6% by 2024 versus 2022 + the absence of process safety events with material environmental or health impact	95% 50% award (Below 95%, 0% award)	≥105% 150% award
Process Safety Event Frequency Rate	5%		Reduction of 19.6% 50% award (<19.6%, 0% award)	≥27.5% 150% award ²
Total Recordable Injury Rate (TRIR)	10%	Reduction of 23.7% by 2024 versus 2021	Reduction of 21.1% 50% award (<21.1%, 0% award)	≥26.3% 150% award ²
Recruitment of women managers	5%	35% recruited	30% recruited 0% award	≥37% recruited 150% award ²
Individual performance	50%	Defined yearly	0% award	120% award
Performance Share Unit Plan (3y performance)				
ROCE (average 2024-2025-2026)	25%	12.5% 100% award	7.5% 0% award	≥17.5% 150% award
Total Shareholder Return (TSR)	25%	Ranked in top 50% of 12 peers ³	Sixth place 25% award (Ranked outside the Top 50%, 0% award)	First place 150% award
GHG emissions - Scope 1+2	25%	Scope 1+2: Reduction of 20.7% by 2026 versus 2019	Reduction of 18.86% 0% award	≥20.7% 100% award
GHG emissions - Scope 3	12.5%	Suppliers engaged covering 30% of the SBTi-submitted scope 3 category 1 emissions	25% 0% award	≥30% 100% award
Diversity of thought index	12.5%	Increase of 25.5% by 2026 versus 2021	Increase of 20.5% 0% award	≥25.5% 100% award

¹ Umicore does not disclose the adjusted EBITDA target, which is commercially sensitive information.

² The maximum award on total ESG level amounts to 100%, in line with the Remuneration Policy. A zero award on Process Safety Event Frequency Rate or on TRIR as a result of a fatal accident or other serious incident cannot be compensated by overachievement of other ESG KPIs.

³ The Supervisory Board of February 15th, 2024 decided to adjust the TSR peer group following the split of Solvay and to ensure a better fit with the Umicore activities. The TSR comparison over the financial years 2024-2025-2026 consists of the following 12 companies: Albemarle, Aurubis, BASF, Boliden, Clariant, Croda, EcoPro BM, Johnson Matthey, LG Energy Solution, Posco Future M, Samsung SDI and Syensqo.

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Colleagues at our battery materials production site in Nysa, Poland

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About this report

Our integrated annual report for the 2023 business year combines our new 2030 RISE Strategy, our progress in sustainability performance, our leadership and governance, and full financial, environmental, social and governance statements.

An integrated approach

This Umicore 2023 annual integrated report is published in English and in Dutch on March 22, 2024 and is aligned with the corporate reporting requirements set out in article 3:32, §2 of the Belgian Companies' and Associations' Code. This report offers a comprehensive view of our new integrated 2030 RISE Strategy, our progress through economic and sustainability/ESG performance reporting, our leadership and governance, and is followed by the full financial, environmental, social and governance statements and notes.

This report is structured using the “six capitals” approach to integrated reporting defined by the International <IR> Framework and prepared in accordance to Global Reporting Initiative (GRI) Standards. The annual integrated report also serves as a progress report on the implementation of the United Nations Global Compact's ten principles, provides information on how we contribute to the UN Sustainable Development Goals (SDGs). This report also discloses in line with the requirements of the EU Taxonomy and reflects how the recommendations of Task Force on Climate-Related Financial Disclosures (TCFD) are implemented.

All elements of the Annual Report can be consulted in English and in Dutch by browsing the dedicated website annualreport.umicore.com or downloading the report from that address. Definitions for the terms used throughout this report can be found in the [Glossary](#) for the report. Please see the back cover for contact information regarding this report and its contents.

Reporting scope & data

This report covers our operations for the 2023 calendar year, which is also the Umicore fiscal year. The scope of all objectives and a brief description of the methodology behind all performance indicators are included in each of the financial, environmental, social and governance statements and notes.

The financial scope of this report covers all fully consolidated operations and the financial contributions of all associate and joint venture companies. The financial data are collected through our financial management and consolidation process. The environmental and social scope is limited to all fully consolidated operations – any divergence from this scope is explained in the relevant chapter or note in the report. The environmental and social data are collected through environmental and social data management systems and integrated into a central reporting tool, along with the financial data. Where data are available, the performance indicators in the document are reported with a comparison base referring back by 5 years.

Assurance

This report has been independently verified by Ernst & Young (EY). EY's audit of financial information is based on the full set of IFRS consolidated financial statements on which it has expressed an unqualified opinion. This full set of IFRS consolidated financial statements and the auditor's report thereon, can be found in the [Financial Statements \(p. 197\)](#) and in the [Assurance Reports \(p. 321\)](#). The social and environmental information included in this report has been prepared on the basis of the same recognition and measurement principles that have been used to prepare the [Environmental Statements \(p. 272\)](#) and the [Social Statements \(p. 282\)](#). EY's report on the social and environmental statements can be found in the [Assurance Reports \(p. 321\)](#).

Presentation & feedback

Umicore seeks to improve its reporting through a continuous process of stakeholder engagement and dialogue. The key social elements of the report are presented to the international trade unions, while the entire document is presented to shareholders at the Annual General Meeting in April.

Umicore also commits to consider all improvement points recommended by the independent auditor (EY) in its subsequent reporting cycles. General reader feedback is encouraged on both the online pdf and web versions of the report. Feedback received on our previous reports has been considered in the preparation of this report. To share your feedback on this report, visit: umicore.com/ar-feedback.

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Statement of use	Umicore has reported in accordance with the GRI Standards for the 2023 calendar year.
GRI 1 used	GRI 1: Foundation 2021
Applicable GRI Sector Standard(s)	None applicable

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION		
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION
General disclosures					
	2-1 Organizational details	Front cover, Back cover, Social statements; Financial Statements F5			
	2-2 Entities included in the organization's sustainability reporting	About us; Umicore at a glance; Governance Statements; Financial statements: F5, F17; Environmental Statements; Social Statements			
	2-3 Reporting period, frequency and contact point	Front cover; Inside front cover; About this report			
	2-4 Restatements of information	Performance: Financial; Financial Statements; Environmental Statements			
	2-5 External assurance	Assurance reports, Governance Statements: G8; Strategy;  Supervision and compliance			
	2-6 Activities, value chain and other business relationships	Strategy			
	2-7 Employees	S2 Workforce; Glossary	b.ii, b.v.	Information unavailable/incomplete	Data collection processes will be adapted to meet future disclosure requirements.
	2-8 Workers who are not employees	Omitted	a., b., c.	Information unavailable/incomplete	Data collection processes will be adapted to meet future disclosure requirements.
	2-9 Governance structure and composition	Leadership			
	2-10 Nomination and selection of the highest governance body	Leadership; Governance Statements;  Umicore's corporate governance charter			
	2-11 Chair of the highest governance body	Supervisory Board			
	2-12 Role of the highest governance body in overseeing the management of impacts	Leadership; Governance Statements			
	2-13 Delegation of responsibility for managing impacts	Leadership; Governance Statements			
	2-14 Role of the highest governance body in sustainability reporting	Leadership; Governance Statements			
	2-15 Conflicts of interest	G7 Conflicts of interests; Risks & Opportunities;  Code of conduct			
	2-16 Communication of critical concerns	 Corporate governance charter;  code of conduct; corporate governance statements: G2, G3, G9, G10			
	2-17 Collective knowledge of the highest governance body	Leadership; Governance Statements			

GRI 2: General Disclosures 2021

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2-18 Evaluation of the performance of the highest governance body	Governance Statements: G4		
2-19 Remuneration policies	Remuneration Report; Governance Statements G12;  Corporate governance charter;  code of conduct		
2-20 Process to determine remuneration	Remuneration Report;  Corporate governance charter;  code of conduct		
2-21 Annual total compensation ratio	Governance Statements:G13 Remuneration report	b	Information unavailable/incomplete Considering Umicore's global footprint, this compensation indicator is not a meaningful measure of the equity of compensation frameworks and current data processes do not centrally track such indicators at this time.
2-22 Statement on sustainable development strategy	At a Glance; Strategy; Performance; Leadership;		
2-23 Policy commitments	Management Approach; Risks & Opportunities;  The Umicore Way;  Code of conduct;  IndustriALL Global framework Agreement on Sustainable Development		
2-24 Embedding policy commitments	Performance: Innovation, Workforce, Society; Leadership; Strategy; Performance: Environment, Society; Management Approach;Risks & Opportunities;  Code of Conduct;		
2-25 Processes to remediate negative impacts	 Umicore Integrity Line		
2-26 Mechanisms for seeking advice and raising concerns	 Code of Conduct;  Umicore Integrity Line; Performance: Employees;		
2-27 Compliance with laws and regulations	Risks & Opportunities; Financial Statements		
2-28 Membership associations	Performance: Society		
2-29 Approach to stakeholder engagement	At a Glance: Rising up for Impact		
2-30 Collective bargaining agreements	Performance: Employees;  IndustriALL Global framework Agreement on Sustainable Development		
Material topics			
3-1 Process to determine material topics	At a Glance: Rising up for Impact		
GRI 3: Material Topics 2021	3-2 List of material topics	At a Glance: Rising up for Impact	
	3-3 Management of material topics	At a Glance: Rising up for Impact; Strategy; Performance; Leadership	
Economic performance			
201-1 Direct economic value generated and distributed	At a glance; Society key figures; Financial statements: F8, F9, F39; Key figures		
GRI 201: Economic Performance 2016	201-2 Financial implications and other risks and opportunities due to climate change	Management Approach; Risk & Opportunities; Financial Statements F2.23	
	201-3 Defined benefit plan obligations and other retirement plans	Financial statements: F2.16, F21,F27	
	201-4 Financial assistance received from government	Consolidated statement of cash flow	
Indirect economic impacts			

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GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	Rising up for impact; Performance: Operations; Environment; Society;			
	203-2 Significant indirect economic impacts	Rising up for impact; Performance: Operations; Environment; Society; Social Statements: 57			
Anti-corruption					
GRI 205: Anti-corruption 2016	205-1 Operations assessed for risks related to corruption	Risks & Opportunities			
	205-2 Communication and training about anti-corruption policies and procedures	 Code of Conduct;  Umicore Integrity Line			
	205-3 Confirmed incidents of corruption and actions taken	omitted	all	Not applicable	
Anti-competitive behavior					
GRI 206: Anti-competitive Behavior 2016	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Financial Statements: F36			
Materials					
GRI 301: Materials 2016	301-1 Materials used by weight or volume	omitted	all	Confidentiality constraints	Commercially sensitive information
	301-2 Recycled input materials used	Performance: Environment, Society			
	301-3 Reclaimed products and their packaging materials	omitted	all	Not applicable	
Energy					
GRI 302: Energy 2016	302-1 Energy consumption within the organization	Performance: Environment; Environmental statements: E6	d	Not applicable	
	302-2 Energy consumption outside of the organization	Performance: Environment, Society; Environmental statements: E6			
	302-3 Energy intensity	Performance: Environment, Glossary			
	302-4 Reduction of energy consumption	Performance: Environment			
Water and effluents					
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	Strategy; Performance: Environment, Risks & Opportunities, Environmental Statements E4			
	303-2 Management of water discharge-related impacts	Performance: Environment, Risks & Opportunities, Environmental Statements E4			
	303-3 Water withdrawal	Performance: Environment; Environmental statements: E4			
	303-4 Water discharge	Performance: Environment; Environmental statements: E4			
	303-5 Water consumption	Performance: Environment; Environmental statements: E4			
Emissions					
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	Strategy; Performance: Environment, Risks & Opportunities, Environmental Statements E7			
	305-2 Energy indirect (Scope 2) GHG emissions	Strategy; Performance: Environment, Risks & Opportunities, Environmental Statements E7			
	305-3 Other indirect (Scope 3) GHG emissions	Strategy; Performance: Environment, Risks & Opportunities, Environmental Statements E7			
	305-4 GHG emissions intensity	Performance: Environment, Glossary			
	305-5 Reduction of GHG emissions	Strategy; Performance: Environment, Risks & Opportunities, Environmental Statements E7			
	305-6 Emissions of ozone-depleting substances (ODS)	omitted	all	Not applicable	
	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Strategy; Performance: Environment, Risks & Opportunities, Environmental Statements E5			
Waste					
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	Rising Up for Impact; Performance: Operations, Environment, Society			

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306-2 Management of significant waste-related impacts	Rising up for impact; Performance: Operations, Environment, Society; Management approach; Risk & Opportunities: Sustainable and ethical supply, Climate and Environment; Environmental Statements E3
306-3 Waste generated	Performance: Environment; Environmental Statements E3; Glossary
306-4 Waste diverted from disposal	Performance: Environment; Environmental Statements E3; Glossary

Supplier environmental assessment

308-1 New suppliers that were screened using environmental criteria	omitted; Performance: Society	a	Information unavailable/incomplete	Umicore has a robust process and policy in place to prevent and mitigate risks of environmental impacts in our supply chain. This is described in our Umicore Global Sustainable Sourcing Policy, including a list of criteria for our suppliers in order to do business together. We aim to provide more explicit disclosure in the future.
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GRI 308: Supplier Environmental Assessment 2016

308-2 Negative environmental impacts in the supply chain and actions taken	Performance: Society; Risks & Opportunities: Sustainable and Ethical supply; EcoVadis CSR Scorecard; Due diligence Compliance Report Cobalt Procurement	a, b., d., e.,	Information unavailable/incomplete	Umicore has a robust process and policy in place to prevent and mitigate risks of environmental impacts in our supply chain. This is described in our Umicore Global Sustainable Sourcing Policy, including a list of criteria for our suppliers in order to do business together. Where relevant, we disclose flag indications/incidents and actions taken in the Due diligence Compliance Report Cobalt Procurement.
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Employment

GRI 401: Employment 2016	401-1 New employee hires and employee turnover	Performance: Employees; Social Statements: S2
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Occupational health and safety

403-1 Occupational health and safety management system	Performance: Employees; Management approach; Risks & Opportunities; Social Statements S4, S5; IndustriALL Global framework Agreement on Sustainable Development; EcoVadis CSR Scorecard	
403-2 Hazard identification, risk assessment, and incident investigation	Performance: Employees; Risks and opportunities; Management approach; Umicore Integrity Line ; Umicore occupational health and safety	
GRI 403: Occupational Health and Safety 2018	403-3 Occupational health services	Performance: Employees; Management approach; Umicore occupational health and safety; Social Statements: S5
403-4 Worker participation, consultation, and communication on occupational health and safety	Performance: Employees; Management approach; Umicore occupational health and safety	
403-5 Worker training on occupational health and safety	Performance: Employees; Management approach	
403-6 Promotion of worker health	Performance: Employees; Management approach	
403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Performance: Employees; Management approach	

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	403-8 Workers covered by an occupational health and safety management system	Performance: Employees; Management approach; Social Statements S4, S5; IndustriALL Global framework Agreement on Sustainable Development		
	403-9 Work-related injuries	Performance: Employees; Social statements S4, S5		
	403-10 Work-related ill health	Performance: Employees; Social statements S4, S5		
Training and education				
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	Performance: Employees; Social statements S3;		
	404-2 Programs for upgrading employee skills and transition assistance programs	Performance: Employees; Social statements S3;		
	404-3 Percentage of employees receiving regular performance and career development reviews	Performance: Employees; Social statements S3		
Diversity and equal opportunity				
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	Performance: Employees; Leadership; Governance Statements G4; Social Statements S2		
	405-2 Ratio of basic salary and remuneration of women to men	Performance: Employees		
Child labor				
GRI 408: Child Labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	Performance: Society; Risks and opportunities: Sustainable & ethical supply; Umicore Global Sustainable Sourcing Policy		
Forced or compulsory labor				
GRI 409: Forced or Compulsory Labor 2016	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	Performance: Society; Risks and opportunities: Sustainable & ethical supply; Umicore Global Sustainable Sourcing Policy		
Local communities				
GRI 413: Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	Omitted; Giving Back To Society; Rising up for impact; Risks & Opportunities ; Blood lead levels reach lowest average ever in children near Umicore site in Hoboken; Continuous improvement in Hoboken	a.	Information unavailable/incomplete
	413-2 Operations with significant actual and potential negative impacts on local communities	Risks & Opportunities; Blood lead levels reach lowest average ever in children near Umicore site in Hoboken Continuous improvement in Hoboken		
Supplier social assessment				
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	omitted	a	Information unavailable/incomplete

Each Umicore site is responsible to engage locally. We disclose information about engagements with the local communities through local websites, and in some case through our disclosure, including around our site in Hoboken, Belgium.

Umicore has a robust process and policy in place to prevent and mitigate risks of social impacts in our supply chain. This is described in our Umicore Global Sustainable Sourcing Policy, including a list of criteria for our suppliers in order to do business together. We aim to provide more explicit disclosure in the future.

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	414-2 Negative social impacts in the supply chain and actions taken	Rising up for impact; Performance: Society; Risks & Opportunities: Sustainable and Ethical supply; Social statements: S7;  EcoVadis CSR Scorecard	
Customer health and safety			
GRI 416: Customer Health and Safety 2016	416-1 Assessment of the health and safety impacts of product and service categories	Performance: Society (Sustainable Products & services)	
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	omitted	Not applicable
Other material topics reported			
	Criticality of raw materials	To complement the reporting on GRI 308: Supplier Environmental Assessment and GRI 414: Supplier Social Assessment. See Society ; Managing risks effectively: sustainable & ethical supply	
	Sustainable products and services	To complement reporting on GRI 301: Materials. See Society ; Sustainable Products & Services	
	Process safety	To complement reporting on GRI 403: Occupational Health and Safety. See Employees ; Statements S4	
	Metal emissions to air and water	To complement reporting on GRI 305: Emissions. See Environment ; Environmental statements: E5	
SASB RT-CH-110a.2	Discussion of long-term and short-term strategy or plan to manage scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Strategy ; Performance: Environment ;  Climate Transition Plan	
	Air emissions of the following pollutants: NOX (excluding N2O), SOX, volatile organic compounds (VOCs) and hazardous air pollutants (HAPs)	Performance: Environment ; Environmental statements: E5	
SASB RT-CH-130a.1	Total energy consumed, percentage grid electricity, percentage renewable, total self-generated energy	Performance: Environment ; Environmental statements: E6	
	Total water withdrawn, total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress (https://www.wri.org/initiatives/aqueduct)	Limited disclosure: Performance: Environment ; Risks & Opportunities ; Environmental statements: E4	
SASB RT-CH-150a.1	Amount of hazardous waste generated, percentage recycled	Performance: Environment ; Environmental statements: E3	
	Discussion of engagement processes to manage risk and opportunities associated with community interests	Risks & Opportunities ; Performance: Environment ; Society ; TCFD index	
SASB RT-CH-320a.1	(1) Total recordable incident rate (TRIR) and (2) fatality rate for direct employees and contract employees	Employees ; Social statements S4	
	Description of efforts to assess, monitor and reduce exposure of employees and contract workers to long-term (chronic) health risks	Employees ; Social statements S5 ; Management Approach	
SASB RT-CH-410a.1	Revenue from products designed for use-phase resource efficiency	Performance: Finance ; EU Taxonomy ; Environment ; Sustainable Products & Services	
	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	Performance: Society ; Management approach ; Risk & Opportunities	
SASB RT-CH-540a.1	Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR) and Process Safety Incident Severity Rate (PSISR)	Limited disclosure: Performance: Employees ; Social statements S4	

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TOPIC	DISCLOSURE	PAGE REFERENCE IN ANNUAL REPORT 2023
Governance	Describe the board's oversight of climate-related risks and opportunities.	General management;  Climate Transition Plan
	Describe management's role in assessing and managing climate-related risks and opportunities.	Operational management; Sustainability/ESG management; Risks & Opportunities; CEO&Chair Review;  Climate Transition Plan
Strategy	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	Risks & Opportunities;  Climate Transition Plan
	Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	Risks & Opportunities;  Climate Transition Plan
	Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Risks & Opportunities;  Climate Transition Plan
Risk Management	Describe the organization's processes for identifying and assessing climate-related risks.	Risks & Opportunities;  Climate Transition Plan
	Describe the organization's processes for managing climate-related risks.	Risks & Opportunities;  Climate Transition Plan
	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	Risks & Opportunities;  Climate Transition Plan
Metrics and Targets	Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	Environment; Risks & Opportunities;  Climate Transition Plan
	Disclose scope 1, scope 2, and, if appropriate, scope 3 greenhouse gas (GHG) emissions, and the related risks.	Environment;  Climate Transition Plan
	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	 Climate Transition Plan; Performance: Environment; Strategy

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Independent auditor's report to the general meeting of Umicore NV for the year ended 31 December 2023

In the context of the statutory audit of the Consolidated Financial Statements of Umicore NV (the "Company") and its subsidiaries (together the "Group"), we report to you as statutory auditor. This report includes our opinion on the consolidated balance sheet as at 31 December 2023, the consolidated income statement, the consolidated statement of comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flow for the year ended 31 December 2023 and the disclosures including material accounting policy information (all elements together the "Consolidated Financial Statements") as well as our report on other legal and regulatory requirements. These two reports are considered one report and are inseparable.

We have been appointed as statutory auditor by the shareholders' meeting of 29 April 2021, in accordance with the proposition by the Supervisory Board following recommendation of the Audit Committee and following recommendation of the workers' council. Our mandate expires at the shareholders' meeting that will deliberate on the Consolidated Financial Statements for the year ending 31 December 2023. We performed the audit of the Consolidated Financial Statements of the Group during 3 consecutive years.

Report on the audit of the Consolidated Financial Statements Unqualified opinion

We have audited the Consolidated Financial Statements of Umicore NV, that comprise of the consolidated balance sheet on 31 December 2023, the consolidated income statement, the consolidated statement of comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flow of the year and the disclosures, including material accounting policy information, which show a consolidated balance sheet total of € 9.965.670 thousands and of which the consolidated income statement shows a profit for the year of € 377.103 thousands.

In our opinion, the Consolidated Financial Statements give a true and fair view of the consolidated net equity and financial position as at 31 December 2023, and of its consolidated results for the year then ended, prepared in accordance with the International Financial Reporting Standards as adopted by the European Union ("IFRS") and with applicable legal and regulatory requirements in Belgium.

Basis for the unqualified opinion

We conducted our audit in accordance with International Standards on Auditing ("ISA's") applicable in Belgium. In addition, we have applied the ISA's approved by the International Auditing and Assurance Standards Board ("IAASB") that apply at the current year-end date and have not yet been approved at national level. Our responsibilities under those standards are further described in the "Our responsibilities for the audit of the Consolidated Financial Statements" section of our report.

We have complied with all ethical requirements that are relevant to our audit of the Consolidated Financial Statements in Belgium, including those with respect to independence.

We have obtained from the Supervisory Board and the officials of the Company the explanations and information necessary for the performance of our audit and we believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key audit matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the Consolidated Financial Statements of the current reporting period.

These matters were addressed in the context of our audit of the Consolidated Financial Statements as a whole and in forming our opinion thereon, and consequently we do not provide a separate opinion on these matters.

Accounting treatment of hedge transactions and derivatives

Description of the key audit matter

Umicore uses a number of different derivative financial instruments to hedge against currency, energy and commodity price risks associated with its ordinary business activities. Management's hedging policy is documented in corresponding internal guidelines and serves as the basis for these transactions. These price risks arise primarily from revenue, sales and procurement transactions, in particular metals.

The Group applies cash flow hedging, fair value hedging, and economical hedging (i.e. derivatives that are not in a formal hedge relationship, but are not speculative). Each of these three types is outlined in more detail in the following paragraphs.

The cash flow hedges, also labelled as "strategic hedges" in the Group's annual report, meet the criteria for hedge accounting under IFRS 9. Consequently, the effective portion of the changes in fair value of the underlying derivative financial instruments are recognized directly in equity until the underlying hedged cash flows materialize. As of the balance sheet date, € 37.8 million (positive) were recognized in the fair value reserves in equity as disclosed in note F 33.1.

A part of the fair value hedges, also labelled as "transactional hedges" in the Group's annual report, meet the criteria for fair value hedge accounting under IFRS 9 as disclosed in the accounting policies under note F 2.22.1. These consist mainly of the currency hedges and the commodity hedges for base metals (lead, copper and nickel). The hedged items and the hedging instruments are both recognized at fair value through the income statement. As of the balance sheet date, € 65.5 million (positive) respectively € 42.7 million (negative) were recognized as fair value of the hedging instruments as disclosed in note F 32 and F 33.2.

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There is a part of the transactional hedging for commodities for which under IFRS 9 no fair value hedge accounting can be applied because the criteria are not met. These are labelled as “economical hedges” in the Group’s annual report. In addition, for some metals, in the absence of market-based derivatives, the hedging consists of physical back-to-back hedging set-ups without any derivative financial instruments involved. As of the balance sheet date, € 40.6 million (positive) respectively € 2.4 million (negative) were recognized as fair value of the derivatives as disclosed in note F 32 and F 33.2. Although the hedging criteria under IFRS 9 are not met, management does not consider these as speculative instruments.

We believe that these matters are significant in our audit due to their high complexity, the number of transactions as well as the extensive accounting, documentation and reporting requirements under IFRS 9.

Summary of the procedures performed

- Assessment of the design and operating effectiveness of the Group’s key internal controls with regard to derivative financial instruments, including its activities to monitor compliance with the hedging policies.
- We obtained bank and broker confirmations in order to support the existence, completeness and fair values of the recorded hedging transactions. We have recalculated the impact on the income statement and have verified the contractual and financial terms for a representative sample of derivatives.
- We used market data to confirm the method applied to measure the fair value of the financial instruments and recalculated the fair value for a sample of derivatives with the use of our internal experts.
- We have inspected the existing hedge accounting documentation and the prospective effectiveness tests to evaluate their compliance with IFRS 9. In particular for the fair value hedges, we assessed the net position approach for the metal hedges. For the cash flow hedges we verified the probability of the expected future cash flows. For the part of the transactional hedging on which no fair value hedge accounting can be applied (in the absence of meeting the IFRS 9 criteria or in the absence of market-based derivatives), we verified whether the accounting treatment was in accordance with IAS 2 “Inventories” and IAS 37 “Provisions, Contingent Liabilities and Contingent Assets”.
- We have assessed the accounting treatment, including the effects on equity and profit or loss, of the various hedging transactions and the reconciliation with the statement of financial position and disclosures.
- We evaluated whether the hedged items and hedging instruments were appropriately disclosed in notes F 33.1 and F33.2 of the financial statements.

Responsibilities of the Supervisory Board for the preparation of the Consolidated Financial Statements

The Supervisory Board is responsible for the preparation of the Consolidated Financial Statements that give a true and fair view in accordance with IFRS and with applicable legal and regulatory requirements

in Belgium and for such internal controls relevant to the preparation of the Consolidated Financial Statements that are free from material misstatement, whether due to fraud or error.

As part of the preparation of Consolidated Financial Statements, the Supervisory Board is responsible for assessing the Company’s ability to continue as a going concern, and provide, if applicable, information on matters impacting going concern, The Supervisory Board should prepare the financial statements using the going concern basis of accounting, unless the Supervisory Board either intends to liquidate the Company or to cease business operations, or has no realistic alternative but to do so.

Our responsibilities for the audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance whether the Consolidated Financial Statements are free from material misstatement, whether due to fraud or error, and to express an opinion on these Consolidated Financial Statements based on our audit. Reasonable assurance is a high level of assurance, but not a guarantee that an audit conducted in accordance with the ISA’s will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these Consolidated Financial Statements.

In performing our audit, we comply with the legal, regulatory and normative framework that applies to the audit of the Consolidated Financial Statements in Belgium. However, a statutory audit does not provide assurance about the future viability of the Company and the Group, nor about the efficiency or effectiveness with which the Supervisory Board has taken or will undertake the Company’s and the Group’s business operations. Our responsibilities with regards to the going concern assumption used by the Supervisory Board are described below.

As part of an audit in accordance with ISA’s, we exercise professional judgment and we maintain professional skepticism throughout the audit. We also perform the following tasks:

- identification and assessment of the risks of material misstatement of the Consolidated Financial Statements, whether due to fraud or error, the planning and execution of audit procedures to respond to these risks and obtain audit evidence which is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting material misstatements resulting from fraud is higher than when such misstatements result from errors, since fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtaining insight in the system of internal controls that are relevant for the audit and with the objective to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control;

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- evaluating the selected and applied accounting policies, and evaluating the reasonability of the accounting estimates and related disclosures made by the Supervisory Board as well as the underlying information given by the Supervisory Board;
- conclude on the appropriateness of the Supervisory Board' use of the going-concern basis of accounting, and based on the audit evidence obtained, whether or not a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's or Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the Consolidated Financial Statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on audit evidence obtained up to the date of the auditor's report. However, future events or conditions may cause the Company to cease to continue as a going-concern;
- evaluating the overall presentation, structure and content of the Consolidated Financial Statements, and evaluating whether the Consolidated Financial Statements reflect a true and fair view of the underlying transactions and events.

We communicate with the Audit Committee within the Supervisory Board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Because we are ultimately responsible for the opinion, we are also responsible for directing, supervising and performing the audits of the subsidiaries. In this respect we have determined the nature and extent of the audit procedures to be carried out for group entities.

We provide the Audit Committee within the Supervisory Board with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the Audit Committee within the Supervisory Board, we determine those matters that were of most significance in the audit of the Consolidated Financial Statements of the current period and are therefore the key audit matters. We describe these matters in our report, unless the law or regulations prohibit this.

Report on other legal and regulatory requirements

Responsibilities of the Supervisory Board

The Supervisory Board is responsible for the preparation and the content of the Supervisory Board report on the Consolidated Financial Statements, and other information included in the annual report.

Responsibilities of the auditor

In the context of our mandate and in accordance with the additional standard to the ISA's applicable in

Belgium, it is our responsibility to verify, in all material respects, the Supervisory Board report on the Consolidated Financial Statements, and other information included in the annual report, as well as to report on these matters.

Aspects relating to Supervisory Board report and other information included in the annual report

In our opinion, after carrying out specific procedures on the Supervisory Board report, the Supervisory Board report is consistent with the Consolidated Financial Statements and has been prepared in accordance with article 3:32 of the Code of companies and associations.

In the context of our audit of the Consolidated Financial Statements, we are also responsible to consider whether, based on the information that we became aware of during the performance of our audit, the Supervisory Board report and other information included in the annual report, being:

- Key performance figures related to 'Economic performance' (page 42)
- Parent company separate summarized financial statements (page 271 and following)

contain any material inconsistencies or contain information that is inaccurate or otherwise misleading. In light of the work performed, there are no material inconsistencies to be reported.

The non-financial information required by article 3:32, § 2, of the Code of companies and associations has been included in the annual report. The Company has prepared this non-financial information based on the reporting guidelines of the Global Reporting Initiative standards ("GRI"). However, in accordance with article 3:80 § 1, 5° of the Code of companies and associations, we do not express any opinion on the question whether this non-financial information has been established in accordance with the GRI framework.

As requested by the Company, we have issued a separate limited assurance report on a selection of sustainability Key Performance Indicators ("KPI's") in accordance with the International Standard on Assurance Engagements ISAE 3000. We do not express any assurance on the KPI's not covered by our separate limited assurance report.

Independence matters

Our audit firm and our network have not performed any services that are not compatible with the audit of the Consolidated Financial Statements and have remained independent of the Company during the course of our mandate.

The fees related to additional services which are compatible with the audit of the Consolidated Financial Statements as referred to in article 3:65 of the Code of companies and associations were duly itemized and valued in the notes to the Consolidated Financial Statements.

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European single electronic format (“ESEF”)

In accordance with the standard on the audit of the conformity of the financial statements with the European single electronic format (hereinafter “ESEF”), we have carried out the audit of the compliance of the ESEF format with the regulatory technical standards set by the European Delegated Regulation No 2019/815 of 17 December 2018 (hereinafter: “Delegated Regulation”).

The Supervisory Board is responsible for the preparation, in accordance with the ESEF requirements, of the consolidated financial statements in the form of an electronic file in ESEF format (hereinafter ‘the digital consolidated financial statements’) included in the annual financial report available on the portal of the [portal of the FSMA](#).

It is our responsibility to obtain sufficient and appropriate supporting evidence to conclude that the format and markup language of the digital consolidated financial statements comply in all material respects with the ESEF requirements under the Delegated Regulation.

Based on the work performed by us, we conclude that the format and tagging of information in the digital consolidated financial statements of the Company per 31 December 2023 included in the annual financial report available on the portal of the [FSMA](#) are, in all material respects, in accordance with the ESEF requirements under the Delegated Regulation.

Other communications

- This report is consistent with our supplementary declaration to the Audit Committee as specified in article 11 of the regulation (EU) nr. 537/2014.

Diegem, 21 March 2024

EY Bedrijfsrevisoren BV

Statutory auditor

Represented by

Marnix Van Dooren *

Partner

*Acting on behalf of a BV/SRL

Eef Naessens *

Partner

*Acting on behalf of a BV/SRL

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Report of the Independent Auditor

TO THE GENERAL SHAREHOLDERS' MEETING OF THE COMPANY UMICORE

Scope

We have been engaged by Umicore NV (the "Company") to perform a limited assurance engagement in accordance with the International Standard on Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ("ISAE 3000 revised"), hereafter referred to as "the Engagement", to report on certain sustainability indicators of the Company as listed in Appendix 1 (the "Subject Matter") and as included in the consolidated annual report of Umicore NV (the "Report") for the period from 1 January 2023 to 31 December 2023.

Other than the scope of our engagement as described in the preceding paragraph, we did not perform assurance procedures on the remaining sustainability indicators included in the Report, and accordingly, we do not express a conclusion on this information.

Criteria applied by Umicore

In preparing the sustainability indicators as listed in Appendix 1 (the Subject Matter) and included in the Report, the Company applied the reporting standards of the Global Reporting Initiative (GRI), the Greenhouse Gas Protocol (GHG), and the Sustainability Accounting Standards Board (SASB), as well as a set of own reporting criteria as disclosed in the Report (all together referred to as the "Criteria" in this Report).

Umicore responsibilities

Umicore's management is responsible for selecting the Criteria, and for presenting the Subject Matter in accordance with those Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the Subject Matter, such that it is free from material misstatement, whether due to fraud or error.

EY's responsibilities

Our responsibility is to express a limited assurance conclusion on the Subject Matter, based on the evidence we have obtained. We conducted our limited assurance engagement in accordance with the International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ("ISAE 3000 revised"), issued by the International Auditing and Assurance Standards Board.

A limited assurance engagement undertaken in accordance with ISAE 3000 revised involves assessing the suitability of the Company's use of the Criteria as the basis for the preparation of the Subject Matter, assessing the risks of material misstatement whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the Subject Matter.

A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

A limited assurance engagement consists of making inquiries, primarily of persons responsible for preparing the Subject Matter and related information, and applying analytical and other appropriate procedures. A higher level of assurance, i.e. reasonable assurance, would have required more extensive procedures.

Our Independence and Quality Control

We have maintained our independence and confirm that we have met the requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, and have the required competencies and experience to conduct this assurance engagement.

Our firm applies International Standard on Quality Management 1, which requires us to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Description of procedures performed

Procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the Subject Matter and related information, and applying analytical and other appropriate procedures.

Our procedures included amongst others:

- Performing an analytical review of the data and trends in the Subject Matter at consolidated level as well, when deemed appropriate in the circumstances, at a disaggregated level;
- Performing limited tests of details and tracing the input information to supporting invoices or other evidence;
- Determining the nature and extent of the audit procedures for the locations contributing to the Subject Matter. Based on our site scoping, three sites were visited to evaluate the design and implementation of data reporting processes related to the Subject Matter, the sites being Suzhou (China), Nysa (Poland) and Jiangmen (China);
- Evaluating the overall presentation of the Subject Matter in the Report.

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We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusion.

Conclusion

Based on our limited assurance engagement, nothing has come to our attention that makes us believe that the Subject matter as listed in Appendix 1 (the “Subject Matter”) and included in the consolidated annual report of Umicore NV (the “Report”) for the period from 1 January 2023 to 31 December 2023 was not prepared, in all material respects, in accordance with the Criteria.

Diegem, 21 March 2024

EY Bedrijfsrevisoren BV

Represented by

Marnix Van Dooren *

Partner

*Acting on behalf of a BV

Eef Naessens *

Partner

*Acting on behalf of a BV

Appendix

Annex 1: List of sustainability KPIs in scope of the assurance engagement

ENVIRONMENT

- Greenhouse gases
 - CO2e emissions scope 1
 - CO2e emissions scope 2 - Market based
 - CO2e emissions scope 2 - Location based
 - CO2e emissions (scope 1+2) - Location based (per business group)
 - CO2e emissions (scope 1+2) - Market based (per business group)
 - CO2e emissions scope 3 - All categories
 - CO2e emissions – avoided emissions (“scope 4”)
- Energy
 - Number of energy efficiency projects
 - Energy consumption (per business group and per energy source: indirect and direct)
 - Renewable electricity
- Emissions
 - Metal emissions to water (load)
 - Metal emissions to water (impact units)
 - Metal emissions to air (load)
 - Metal emissions to air (impact units)
 - Diffuse metal emissions
 - SOx emissions
 - NOx emissions
- Water
 - Water withdrawal (per business group)
 - Fresh water withdrawal (per business group)
 - Water discharge (per business group)
 - Fresh water discharge (per business group)
 - Water consumption (per business group)
 - Fresh water consumption (per business group)
- Resource efficiency
 - Primary raw materials
 - Secondary raw materials
 - Ratio post-consumer in secondary
- Waste
 - Total waste produced
 - Hazardous waste

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- Hazardous waste of which recycled
- Non-hazardous waste
- Non-hazardous waste of which recycled
- Regulatory compliance & management system
 - Environmental complaints
 - Sites ISO 14001 certified

SOCIAL

- Workforce
 - Workforce fully consolidated companies (per region, per business group)
 - Workforce from associated companies (per region, per business group)
 - Total workforce (per business group)
 - Employees men (per region, per business group)
 - Employees women (per region, per business group)
 - Full-time equivalent (per region, per business group)
 - Employees (< 30 yrs, 30-50 yrs, >50 yrs)
- Temporary contracts (per region, per business group)
- Diversity
 - Women amongst all employees
 - Women amongst all managers
 - Women amongst senior management
 - Non-European representation in senior management functions
 - % women of total new managerial hires
- Average training hours per employee (per region, per business group)
 - Average number of training hours per employee - Men
 - Average number of training hours per employee - Women
 - Average training hours per employee - Managers
 - Average number of training hours per employee - Other categories
- Employees having a yearly appraisal (per region, per business group)
- Voluntary leavers - ratio (per region, per business group)
 - Voluntary leavers men & women
- Pay equality & pay gap (descriptive only)
- Retention rate
- Number of nationalities
- Overview within each country # of production sites, R&D/Technical centres, other sites and # of employees per country
- Employees represented by union or Collective Labour Agreement (CLA) (per region, per business group)
- Violation against the Code of conduct
- % of manager in managers workforce who followed e-learning on unconscious bias
- Health campaigns at the site (per region, BU)
- Physical well-being
- Exposure ratio 'all biomarkers aggregated'
 - Exposure ratio lead (blood)

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- Exposure ratio arsenic (urine)
 - Exposure ratio cobalt (urine)
 - Exposure ratio cadmium (urine)
 - Exposure ratio nickel (urine)
 - Exposure ratio indium (blood)
 - People with platinum salts sensitization
- Number of occupational linked diseases
- People with noise induced hearing loss
 - People with contact dermatitis
 - People with occupational asthma other than Ptsalts
 - People with muskuloskeletal ailments
 - Officially declared occupational diseases – as reported to Authorities in line with local regulations
- Fatal accidents (per business group)
 - Fatal accidents - contractors
 - Lost Time Accidents (LTA) - staff (per region and per business group)
 - Lost Time Accidents (LTA) - contractors (per region and per business group)
 - LTA frequency rate
 - LTA severity rate
 - Calendar days lost
 - Total recordable injuries (staff & contractors)
 - Recordable injury rate (staff & contractors)
 - Sites ISO 45001 certified

Process safety events

Value Chain

- Site accreditations responsible mineral sourcing
- Ecovadis rating
- Revenues from clean mobility and recycling
- Percentage of suppliers that have signed the UGSSP
- Supplier maturity chart (company level)
- Product stewardship
 - # new registrations under REACH
 - # registrations updated under REACH
 - # new registrations under K-REACH
 - # new registrations under UK-REACH

- Donations
 - Cash donations
- Donations in kind
- Staff freed time
- Total donations (group, regional, BU)

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(in million € unless stated otherwise)	2019	2020	2021	2022	2023
Economic performance					
Revenues (excluding metal) ¹	3,361	3,239	3,791	4,155	3,876
Adjusted EBITDA	753	804	1,251	1,151	972
Adjusted EBIT	509	536	971	865	674
Return on Capital Employed (ROCE) (in %)	12.6	12.1	22.2	19.2	13.5
R&D expenditure	211	223	245	316	281
Capital expenditure	553	403	389	470	857
Adjusted EPS (in €/share)	1.30	1.34	2.77	2.47	1.86
Gross dividend (in €/share)	0.38	0.75	0.80	0.80	0.80
Social and environmental performance					
Revenues from clean mobility and recycling (in%)	75	79	79	78	73
Total donations, including staff freed time (in thousands of euro)	1,614.00	1517.21	1623.99	2,005.75	2,151.86
CO ₂ e emissions (scope1)	389,101	330,451	372,699	346,439	317,849
CO ₂ e emissions (scope2) - Market based (in tonne)	402,714	402,094	473,738	352,210	314,093
CO ₂ e emissions (scope2) - Location based (in tonne)	426,074	421,089	421,990	372,820	377,705
Energy consumption (in terajoules)	7,476	7,591	8,308	7,471	7,462
Workforce (fully consolidated companies)	11,152	10,859	11,050	11,565	11,948
Lost Time Accidents (LTA)	90	49	73	96	93
LTA frequency rate	4.60	2.50	3.70	4.87	4.50
LTA severity rate	0.20	0.47	0.12	0.16	0.16
Exposure ratio 'all biomarkers aggregated' (in %)	1.8	2.0	1.5	1.1	0.7
Average number of training hours per employee	48.73	36.33	41.59	46.60	45.72
Voluntary leavers ratio	5.99	4.20	5.82	6.53	4.68

¹ Revenues of 2021 and 2022 have been restated to exclude the pass-through value of the purchased lithium and manganese.

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A woman with dark curly hair, wearing a white lab coat, is smiling and standing in a laboratory. She is positioned in front of a piece of scientific equipment. The background is a neutral-colored wall.

**IF MY UNIQUE ABILITIES
AND IDEAS CAN SHAPE OUR
SUSTAINABLE FUTURE**

**IMAGINE
WHAT YOU
COULD DO?**

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The below definitions cover Umicore's Alternative Performance Measures (APMs)

Accidents

Accident frequency rate: Number of lost time accidents per million hours worked. Accidents on the road to and from work are excluded.

Accident severity rate: Number of calendar days lost per thousand hours work. Accidents on the road to and from work are excluded.

Fatal accident: a work-related accident with fatal outcome.

Lost time accident (LTA): a work-related injury resulting in more than one shift being lost from work.

Recordable injury (RI): a work-related injury resulting in more than one first aid treatment or in a modified working program but excluding lost time accidents.

Total Recordable Injury Rate (TRIR): Total number of fatal accidents, lost time accidents and recordable injuries without lost time, per million hours worked, for both Umicore employees and contractors.

Adjusted EBIT

EBIT - EBIT adjustments including total other income, income taxes, depreciation and amortization, and excluding non-recurring, irregular and one-time items.

Adjusted EBIT margin

Adjusted EBIT of fully consolidated companies / revenues excluding metals.

Adjusted EBITDA

Adjusted EBIT + adjusted depreciation and amortization of fully consolidated companies.

Adjusted EBITDA margin

Adjusted EBITDA of fully consolidated companies / revenues excluding metals.

Adjusted EPS (Earnings per share)

Adjusted net earnings, Group share / average number of (issued shares – treasury shares).

Adjusted EPS, basic

Adjusted net earnings, Group share / average number of outstanding shares.

Adjusted EPS, diluted

Adjusted net earnings, Group share / (average number of outstanding shares + number of potential new shares to be issued under the existing stock option plans x dilution impact of the stock option plans).

Assessment of product (and services) sustainability (APS)

This Umicore-specific methodology is used for assessing the sustainability of Umicore's products and services and uses a tool consisting of 58 preformatted questions and answers with scoring and weighting factors, organized around eight themes.

Associate

An entity in which Umicore has a significant influence over the financial and operating policies but no control. Typically, this is evidenced by an ownership of between 20% and 50%. Associates are accounted for using the equity method.

Automotive platform

A shared set of common design, engineering and production efforts as well as major components over a number of outwardly distinct models of vehicles.

Average capital employed

For half years: average of capital employed at start and end of the period; For full year: average of the half year averages.

Average number of shares outstanding

Basic: average number of outstanding shares.

Diluted: average number of outstanding shares + number of potential new shares to be issued under the existing stock option plans x dilution impact of the stock option plans.

Biomarker of exposure

Substance or its metabolite that is measured in biological fluids (e.g. blood) to assess internal body exposure.

Capital employed

Fixed Assets + Working Capital (Inventories + adjusted Trade & Other Receivables – adjusted Trade & Other Payables) – Translation Reserves – Current & Non-Current provisions other than provisions for Employee Benefits.

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Capital expenditure

Capitalized investments in tangible and intangible assets, excluding capitalized R&D costs.

Catalysis/catalyst

Catalysis is a chemical process whereby one of the elements used in the reaction process, the catalyst, makes this chemical reaction possible, or speeds up this process, without being consumed in the reaction process, and therefore can be re-used.

Cathode

The cathode is the positive side in a (rechargeable) battery. In the charging phase ions are released from the cathode and migrate to the anode (negative side), thereby storing electricity. In the discharging phase, the ions move back to the cathode, thereby releasing electricity.

Charitable donation

A donation to a not-for-profit organization that is not for the commercial benefit of Umicore. Donations can be in cash or in kind. Political donations are not permitted.

China 6

Chinese emissions standard for light duty vehicles, similar to Euro 6.

Closed loop

For Umicore a “closed loop” involves taking back secondary materials from customers (e.g. production residues) or End-of-Life materials (e.g. used mobile phones, automotive catalysts). The recovered metals are then fed back into the economic cycle.

CO₂ equivalent (CO₂e)

The universal unit of measurement to indicate the global warming potential (GWP) of each of the six greenhouse gases, expressed in terms of the GWP of one unit of carbon dioxide. It is used to evaluate releasing (or avoiding releasing) different greenhouse gases against a common basis.

Conflict minerals

Minerals mined in conditions of armed conflict or Human Rights abuses, particularly gold, tin, tungsten and tantalum.

Consolidated sites

Sites of fully consolidated companies.

Contractor - see sub-contractor

COSO Framework

The Committee of Sponsoring Organizations of the Treadway Commission (COSO) is a voluntary private-sector organization which has established a common internal control model against which companies and organizations may assess their control systems.

Diffuse emissions

See Emissions

Dodd-Frank Act

Full title: Dodd-Frank Wall Street Reform and Consumer Protection Act. The Dodd Frank Act aims to promote the financial stability of the United States by improving accountability and transparency in the financial system. Includes a requirement that companies using gold, tin, tungsten and tantalum make efforts to determine if those materials came from the Democratic Republic of Congo (DRC) or an adjoining country and, if so, to carry out a “due diligence” review of their supply.

Earnings before interest and taxes (EBIT)

Operating profit (loss) of fully consolidated companies, including income from other financial investments + Group share in net profit (loss) of companies accounted for under equity method.

EBIT adjustments

Includes adjusted items related to restructuring measures, impairment of assets, and other income or expenses arising from events or transactions that are clearly distinct from the ordinary activities of the company. This includes adjustments related to the sale of business activities or environmental provisions related to historic pollution and environmental remediation of closed sites.

Effective adjusted tax rate

Adjusted tax charge / adjusted profit (loss) before income tax of fully consolidated companies.

EHS

Environment, health & safety.

EV - Electrified vehicle

Vehicle (passenger car or other) that runs fully or partially on electricity, rather than on conventional fuel.

Electroplating

Electroplating is a plating process in which metal ions in a solution (electrolyte) are moved by an electric field to coat another material. The process is primarily used for depositing a layer of material to bestow a desired property on that other material.

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Employee

A person belonging to Umicore's total workforce. A Umicore employee can be a full-time, part-time or temporary employee.

Employee turnover

Expressed in terms of voluntary leavers: number of employees leaving of their own will (excluding lay-offs, retirement, and end of fixed-term contract). This number is related to the total workforce.

End-of-life (EOL)

Materials that have ended a first life cycle and will be re-processed through recycling leading to a second, third or more re-use. See Materials.

Energy

Energy consumption: the sum of indirect energy consumption (energy from purchased electricity, steam, compressed air and heat) and direct energy consumption (energy from fuel, gas oil, natural gas, LPG, coal, cokes, pet cokes etc.) at our sites. This includes also self-generated energy, for which only the consumption of fuels is taken into consideration to avoid double-counting. Energy that is sold to third parties is not included.

Indirect energy consumption: energy from purchased electricity, steam, compressed air and heat

Direct energy consumption: energy from fuel, gas oil, natural gas, LPG, coal, cokes, pet cokes etc.

Renewable energy: Wind energy, solar energy, energy from biomass (including bio- and other naturally produced gas), hydropower (including marine hydro) and geothermal energy.

Energy efficiency projects: projects with the aim to improve the efficiency of processes and continuous running of our plants with a view to reduce the energy consumption per production unit, per day etc. by improved automated control of energy supply vs. consumption needs, replacement of inefficient equipment etc. Projects are typically well planned and evaluated before implementation, including an estimate of expected investment, energy and CO₂ savings, as well as rate of return and time of amortisation.

Energy intensity ratio: total absolute energy consumption (in terajoules) over revenues excluding metals (in millions of Euros).

Excess reading

A result of a biological monitoring analysis that exceeds the (internal) target level.

Exposure ratio

The exposure ratio of a specific metal is defined as the ratio between the number of employees with a biological monitoring result exceeding the Umicore target value for that specific metal and the total number of employees identified as exposed to that metal. The Umicore target values are based upon recent peer reviewed scientific data and regularly re-evaluated in the context of new evidence.

Full time equivalent (FTE)

The FTE of a worker is calculated by dividing the actual working regime, hours, shifts by the regime, hours, shifts of a full-time worker at the end of the period in fully consolidated companies.

Fully Consolidated Companies

These are companies over which the Group has control as defined by the IFRS (in general more than 50% of voting rights).

Gearing ratio

Net financial debt / (net financial debt + equity of the Group).

Greenhouse gas (GHG)

GHGs are the six gases listed in the Kyoto Protocol: carbon dioxide (CO₂); methane (CH₄); nitrous oxide (N₂O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF₆). See "Kyoto Protocol".

GHG emissions intensity

Total Scope 1+2 CO₂e market-based emissions (in tonnes) divided by the total revenues excluding metals (in millions of Euros).

Global warming potential (GWP)

A relative measure of how much heat a greenhouse gas traps in the atmosphere.

Heavy duty diesel (HDD)

Large diesel vehicles – either on-road, such as trucks and buses, or non-road such as heavy plant and mining equipment or locomotives and agricultural equipment.

Hours of training per person

Average number of training hours per employee – including internal and external training and training on-the-job. Training on-the-job can include the hours a person is being trained on the shop floor, without being fully productive. The total number of training hours is divided by the average workforce.

Industrial by-products

See raw materials.

ISO 14001

International Standards Organization specification for environmental management systems (ref. ISO).

ISO 45001

An internationally-applied British Standard for occupational health and safety management systems.

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Joint venture (JV)

A contractual arrangement whereby Umicore and another party undertake an economic activity that is subject to joint control. Joint ventures are accounted for using the equity method.

Korean Act on the Registration and Evaluation of Chemicals (K-REACH)

Korean chemicals policy to manage the risks from chemicals and provide substance safety information.

Kyoto Protocol

International treaty of the United Nations Framework Convention on Climate Change (UNFCCC) that requires countries listed in its Annex B (developed nations) to cut emissions to 5% below 1990 levels between 2008 and 2012. In 2012, the protocol was extended to 2020 but in 2015 it was effectively replaced by the Paris Agreement, where UNFCCC signatories agreed to limit global warming to “well below” 2°C.

Light-duty vehicle (LDV)

Primarily passenger cars – using diesel, gasoline or other fuel.

Light-emitting diode (LED)

LEDs are a semiconductor-based light source offering many advantages over traditional incandescent light sources, among which long lifetime and energy efficiency.

Lithium cobaltite (LCO)

Cathode material used in lithium ion rechargeable batteries, particularly suited for portable electronic applications.

Lithium-ion (LI-ION)

Lithium-ion is a technology for rechargeable batteries in which lithium ions move from the positive electrode (the cathode) to the negative electrode (the anode) during the charging phase, thereby storing electricity. In the discharging phase, the lithium ions move back to the cathode, thereby releasing electricity.

Lithium nickel manganese cobalt oxide (NMC)

Relatively new type of cathode material, which is used in the emerging (H)EV market and increasingly in portable electronic applications.

Lost-time accident

See Accidents

Materiality

The identification of the most relevant and significant factors influencing Umicore and Umicore’s most significant economic, social and environmental impacts.

Market capitalization

Closing price x total number of outstanding shares.

Net cash flow before financing

Net operating cash flow – net cash flow generated by (used in) investing activities.

Net financial debt

Non-current financial debt + current financial debt - cash and cash equivalents.

Net debt / LTM adj. EBITDA

Net financial debt divided by adjusted EBITDA of the last 12 months.

Number of occupational linked diseases

The number of occupational linked disease is the sum of people with platinum salt sensitization, noise induced hearing loss, contact dermatitis, occupational asthma other than Pt Salts and musculoskeletal ailments, following the Umicore criteria.

Operational staff - formerly "blue collar workers" - a term now longer used Original Equipment Manufacturer (OEM)

In the automotive industry, refers to car manufacturers.

Outstanding shares

Issued shares– treasury shares.

Platform (automotive)

A combination of chassis and engine type that is used on one or more models of passenger car, sometimes between different manufacturers.

Platinum group metals (PGM)

Platinum, palladium, rhodium, ruthenium, iridium and osmium (in Umicore’s case it refers mainly to the first three).

Power Purchase Agreement (PPA)

Long-term agreement concluded for the purchase of electricity. “Green PPA” refers to a Power Purchase Agreement for green or renewable electricity.

Precursor

Chemical substance that participates in the chemical reaction that produces another compound.

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Predicted no effect concentrations (PNEC)

The concentration of a chemical which has no predicted effect on the environment.

Process emissions

Emissions generated from manufacturing processes, such as the CO₂ that arises from the breakdown of calcium carbonate (CaCO₃).

Process safety

Safety issues related to the use and storage of hazardous chemical substances that may present a hazard to employees, neighborhood residents and the environment.

R&D expenditure

Gross research and development charges, including capitalized costs. The reported R&D figures exclude R&D of associates.

Raw materials

Primary raw material: Material which has never before been subjected to use or processed into any form of end-use product (or part thereof) other than that required for its manufacture. In the absence of information from the supplier on the nature of the raw materials supplied, these raw materials are considered as primary. The collected data are expressed in terms of total tonnage of incoming material.

Secondary raw material: Material that has been used and/or processed before and can be reused or processed again into any form of end-use product (or part thereof). Includes both pre- and post-consumer materials.

Secondary pre-consumer raw material: Material resulting from the industrial processes in the value chain before that material has been processed into a product. Please note that this includes waste materials originating from intermediate manufacturing steps in the value chain using primary raw materials as input. In all cases the material should not be suitable for consumption in the intermediate manufacturing steps from which it originates.

Secondary post-consumer raw material: Material resulting from products ending at least one lifetime. Please note that this includes waste materials originating from intermediate manufacturing steps in the value chain using secondary raw materials (pre- and or post-consumer raw materials) as input. This also includes material recovered from waste generated by industrial facilities in their role as end-users of a finished product. In all cases the material should not be suitable for consumption in the intermediate manufacturing steps from which it originates. This also includes material recovered from waste generated by industrial facilities in their role as end-users of a finished product.

Metal emissions

Metal emissions to water (load): the total amount of metals emitted after treatment to surface water from effluent(s) expressed in kg/year. If sites make use of an external wastewater treatment plant, the efficiency of that treatment is considered if known to the site.

Metal emissions to air (load): the total amount of metals emitted to air, after emissions abatement where applicable, in solid fraction by all point sources expressed in kg/year. For mercury and arsenic, vapor/fume fractions are counted as well.

Metal emissions to air and water (impact): For each of the metals emitted to water and air, an impact factor is applied to account for the different toxicity and ecotoxicity levels of the various metals when they are emitted to the environment.

Diffuse metal emissions: the average concentration of suspended particulate matter (PM10) in air of relevant metals multiplied by the impact factors to air for the respective metals and normalized against the value of 2020.

Registration, Evaluation and Authorisation of Chemicals (REACH)

European chemicals policy to manage the risks from chemicals and provide substance safety information.

Return on capital employed (ROCE)

Adjusted EBIT / average capital employed.

Revenues (excluding metal)

All revenue elements - value of the following purchased metals : Au, Ag, Pt, Pd, Rh, Co, Ni, Pb, Cu, Ge, Li and Mn.

In order to neutralize distortions from fluctuating metal prices and precious metal prices in particular, Umicore uses revenues excluding the value of purchased metals rather than turnover (which include the value of the purchased metals) to track its performance. This is an industry practice followed by direct peers with similar activities.

Retention rate

100%-voluntary leavers rate.

RISE

This acronym is part of Umicore's 2030 RISE Strategy which comprises the following four pillars: Reliable transformation partner, Innovation and technology leader, Sustainability champion and Excellence in execution.

Risk assessment

The evaluation of the risks of existing substances to man, including workers and consumers, and to the environment, in order to ensure better management of those risks.

Science-Based Targets Initiative (SBTi)

Organization that validates greenhouse gas targets. Partnered with CDP, UN Global Compact, World Resources Institute, World Wildlife Fund.

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Scopes 1, 2, 3, 4 CO₂e emissions

Scope 1 CO₂e emissions: A reporting organization’s direct GHG emissions.

Scope 2 CO₂e emissions: A reporting organization’s indirect GHG emissions from the generation of purchased electricity, heating/cooling, compresses air or steam.

Scope 3 CO₂e emissions: A reporting organization’s indirect emissions that occur upstream and downstream in the value chain, including purchased goods and services, business travel, employee commuting, waste disposal, use of sold products, transportation and distribution (up- and downstream), investments and leased assets and franchises

Scope 4 CO₂e emissions: emission reductions which occur outside of a product’s lifecycle or value chain, but as a result of the use of the product. Also referred to as “avoided emissions”.

Secondary (raw) materials

See Raw materials.

Sub-contractor

A person not belonging to Umicore’s total workforce, providing services to Umicore in one of its premises under terms specified in a contract.

Sustainable Development Goals (SDG)

The 17 Sustainable Development Goals adopted by the United Nations on September 25 2015 build on the Millennium Development Goals and aim at ending poverty, protecting the planet, and ensuring prosperity for all as part of a new UN sustainable development agenda. Each goal has specific targets to be achieved by 2030.

Task Force on Climate-related Financial Disclosure (TCFD)

Recommendations launched in 2017 to improve and increase reporting of climate-related financial information. CDP’s disclosure platform provides the mechanism for reporting in line with the TCFD recommendations.

Training hours

Average number of training hours per employee, including all types of training (formal, training on the job, E-learning, etc.) in which the company provides support, and which are relevant to the business unit or the company. The total number of training hours is divided by the averageworkforce of fully consolidated companies.

Temporary contract, or temporary worker

Umicore employees with a temporary contract, included in the workforce of fully consolidated companies.

Voluntary leavers

Number of employees leaving at their own will (excluding lay-offs, retirement, and end of fixed-term contract). This number is related to the total workforce from fully consolidated companies.

Waste

The total volume of generated waste expressed in tonnes/year. The waste recycling rate is the ratio of the waste recovered by third parties (including waste recovered as energy through incineration) to the total waste.

Water

Water use: The use of water associated with our industrial activities in line with the definition of the term in the ISO14046 standard.

Water withdrawal: withdrawn produced water (water/moisture content of incoming raw materials and liquid solutions), groundwater withdrawn for remediation purposes and cooling water withdrawn from and returned to surface water.

Workforce

Number of employees on Umicore payroll at the end of the period in fully consolidated companies. The number includes part-time and temporary employees but excludes employees with a dormant contract, employees on long-term illness and sub-contracted employees. This applies to all hourly paid, monthly paid, managers and interns on Umicore’s payroll at the end of the reported semester including part-time and temporary employees but excludes employees with a dormant contract (career interruption, parental leave, etc.), employees on long-term illness (country specific length of continuous absence) and early retirees.

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Financial calendar¹

25 April 2024

General meeting of shareholders

(financial year 2023)

26 July 2024

Half Year Results

<https://www.unicore.com/en/investors/>

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Languages

This report is available in English and Dutch

Online

Browse the report online or download the report

English

<https://annualreport.unicore.com/en/2023>

Dutch

<https://annualreport.unicore.com/nl/2023>

¹ Dates are subject to change. Please check the Umicore website for updates to the financial calendar - [unicore.com](https://www.unicore.com)

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