Umicore at the Core Event in Poland

Wednesday, 8th November 2023

Practicalities

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Good afternoon and welcome to Umicore's 'At the Core of Umicore's Battery Materials' event.

I'm so happy to see so many familiar faces here all the way in Poland and also to the many people who are following us online: I wish you a very warm welcome.

First things first, you know that our presentations contain forward-looking statements. Please do consult the
disclaimer behind me. It's also available on our website.

Now, our exciting agenda.
We will go deep into the details of technology. Mathias will give you in a moment more information about what you will be experiencing over the coming two days. But first, some practicalities. The people in the room will be able to ask questions and they will get priority. The participants that are following us online, you will also be able to ask us questions through the chat.
The presentations are available on the website at the beginning of every session and the transcript and replay will be made available over the coming days.

May I just remind the people in the room to mute their phones and then what is left is to invite Mathias on stage and for you to enjoy the ride.
Thank you.

Introduction

Mathias Miedreich

CEO

Thank you very much, Caroline. And also a warm welcome from my side. This afternoon to everybody who came here to the beautiful university town of Wrocław, that is just an hour drive away from our battery material gigafactory in Nysa. And also a warm welcome to everybody who is looking online to what is happening here today.

And what is happening here today and tomorrow is all about technology. So this is actually a session that we see as a continuation of a dialogue that we have started with you. And I agree, we have a lot of familiar faces here.

Mid of last year in London with our capital markets day, a day where we have introduced our 2030 RISE strategy that has technology at its heart. So during the next two days, we will go into depth of what that means for us as Umicore and what are the reasons behind why our conviction is so strong.

Before I will give you some more explanations on that, I would say that we jointly look at a little video as an introduction.
Let's start the film, please.

Video playing

So innovation and technology, the next two days are all about that.

And we would like to share with you our conviction. And this conviction has two dimensions.
The first conviction is that cathode active materials is a technology play. It is a market where it is relevant how good you are in innovation and technology. And it's a market where companies can differentiate if they have superior technology.
Our second conviction is that Umicore is a technology leader. Umicore has the ability through its product, through its process, and through its people to differentiate in this extremely booming market. And we will go through the reasons why we have this conviction in very detail. But as I said already today, there are three dimensions.
It's the product itself, it's the cathode chemistries that answer the questions of the market at the best cost possible. It's the process, it's the manufacturing of those, in the most efficient and high quality way.
But probably the most important thing of it are the people behind it.
That's also an opportunity today for everybody who is here with us physically to also get to know better the people and to use the opportunity at the coffee break, at the dinner or tomorrow to ask any further questions that you might have.

And to do so, I wanted to introduce to you who is actually here today from the Umicore team. So we have some members of our management board, and I will not name everybody who is here, but mostly the ones that will present. Some members of our management board, and I will just ask for a short hand raise.

So we have, Wannes Peferoen, our CFO over there.
We have Dr. Ralph Kiessling, who is heading the Umicore Battery Materials Business Group.
We have Frank Daufenbach, our Chief Strategy Officer, and Dr. Geert Olbrechts, our Chief Technology Officer.

So this is the representation of the management board, but more important, are the representatives of Umicore Battery Materials, and we have already introduced Ralph. But I would also invite Olivier Ghyssens, the CFO of Umicore Battery Materials, to raise his hand.
Dr. Katharina Grabrucker, the Head of Strategy. We have Dr. G.S. Son, the Head of R&D. We have Michiel De Jonge, the Chief Operating Officer, who will host us tomorrow, together with Darek Jurzack, who is our General Manager of the Nysa plant. And we should not forget, of course, Stephan Jannis, because he is the Head of Supply, and he is responsible that all the raw materials are available for us in the way we want them.
We also have a representative of our New Business Incubation team that is responsible for the long-term innovation for the next generation cathode materials. And I would like to ask Dr. Stephane Levasseur to raise his hand, who will introduce things like sodium-ion, solid-state, and other batteries to us.

So that is the team that will guide you through the next two days. And I want to repeat the five reasons why we have a strong conviction that Umicore is a technology leader.

The first has to do with our history and our close proximity to the OEMs. We think that we have a very good understanding of the underlying market of electrification, of what

the OEMs, the end customers, want, and even more important, how this can be translated into requirements for battery materials. And that's our strong point that we have developed with over 50 years of working together and building the relationships with the OEMs in our Automotive Catalyst business.

And not only we know, as we think, best what the customers want, and I think we have proven that we can also transform this into solid business over the last two years.
We also think that our approach to R&D and innovation is special. And we will show to you in the presentation of Frank and Geert that our approach is all-encompassing. It's starting with the precursor, design and engineering. It's going to the cathode, and it's also going to the battery level.
So we are not a battery manufacturer, but we are making batteries as we speak. We are making even solid-state batteries, and we do that because we want to test them in the same conditions as our customers so that we speak the same language.
And secondly, our approach to R&D and innovation is a very proactive one. And here we have changed something in the last two or three years to have a more, even I would say aggressive approach on R&D, to bring out solutions, portfolio elements that solve the future problems of our customers, maybe even before our customers know that they have these problems. And that's something that you will experience also today.

The third reason and the third and the fourth reason are very strong reasons. The third reason is that we have a very complete portfolio of what we call short to mid-term chemistries. So there are the chemistries that are needed today or in the next coming years. And we have the portfolio not only addressing all of the different market segments from the entry to the high-end segment. We also have, and **GS** will show this to you, for each of the segments we have distinct competitive advantages while the Umicore battery materials even, and we made this example a couple of times, high-nickel 811 from player A or player B can be completely different in terms of performance. And we will give you more insights why we think this is the case. And we have quite a good proof of concept for that.
You know that we have just a couple of weeks talked about our order book that is very strong, even beyond 2030 and mostly filled with high-nickel chemistries. And we have more than 35 ongoing joint development activities with customers on the more advanced like HLM, like NMX, which is no cobalt and also the mid-nickel and high voltage. So we are very strong on that time horizon.

But also when we go one step further into the future, the more long-term, the next generation chemistries, we have a distinct advantage. And this advantage is on the chemistries that target for the more energy dense solutions like the solid-state batteries, where we are since many years already active with several customers. We have multiple joint development running currently.
We are invested in two solid-state battery companies and that gives us very good access to the requirements again that those companies need. But also we are very proud that as of next year, already solid-state electric vehicle prototypes will drive in the roads with Umicore battery material. And that's something that Stephane will talk about.
But he will also talk about the other side of the coin if you want, the breakthrough chemistries that give significant cost advantage. And we all know about sodium-ion and what sodium-ion could bring.
But we also want to talk about the DRX technology. So that's a technology that can use any transition metal to achieve the function of the current batteries. There's no nickel

and no cobalt at all. And here also we have already a very advanced pool of intellectual property and advancement.
So that's all that the team will show to you.

And then the last point is you can also say going from theory into practice. It's the manufacturing of those chemistries in the quality, in large scale, at cost. And this is something that is very difficult. You will see that tomorrow in our walk through our factory here in Nysa. But we will also explain to you that the manufacturing concept and technologies that we have developed, they are special and they stick out because it's a modular concept that is, (A) very flexible, so we can host all of the technologies that we will talk about in our existing manufacturing footprints with small changes.
It's also (B) flexible in the day-to-day operations over the year. If the market demand changes, the one model is running better than the other. Maybe these models are in different categories that require different battery materials. We are able to change our production planning very quickly.

The second reason is efficiency. So this setup can achieve significantly lower scrap rate than you would have with a traditional all combined line. You have advantages in change over time, in maintenance cost, and dealing with bottlenecks is much easier in that setup.
So what you can see tomorrow is, as we think, the future of a battery, chemistry, or cathode active material manufacturing. And the last benefit that we get out of this is security of our ramp up in two ways.
First of all, it's modular, so we can install 20 GWh increments, but that means we can always have the contracts with our customers first before we spend the money.
And we have been doing that for all of our order book very successfully.
But also, technically speaking, it's de-risking our technical launches, because it's not as simple, and **Michiel** will tell you that, but it's more or less a copy paste.
So what you see in Nysa, we will transfer into Canada, and we will use for the expansion of IONWAY. So we don't have to reinvent the wheel, we have just to duplicate and include all the lessons learned that we have already said.

So these five reasons give us the strong conviction that we are in a very high_tech market, a technology leader, and we have distinct proof points that we want to share with you today.
So I stop now because I want you really to see all the details. I thank you very much for your attention, for being here. And I hand now over to **Katharina** and **Ralph** to start with the first presentation of the market.

Thank you very much.