

Integrated Annual Report 2021

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Front cover image: Operators working at Umicore in Nysa, Poland

The Umicore integrated annual report offers a comprehensive and integrated view of our economic, financial, environmental, value chain and social performance for 2021. This report is produced in accordance with the GRI Standards: Core option. For more, please see About. Definitions for the terms used throughout this report can be found in the Glossary for the report, online.

Access all items in this report, in English and in Dutch, online, at:
ANNUALREPORT.UMICORE.COM

Umicore at a glance

INPUT

Financial

Cashflows over **€ 1b**

Market Cap **€ 8.7b** (at 2021 FYR results announcement 16/02/2022 closing)

Net debt / LTM adj. EBITDA **0.77**

Operations

Global footprint close to our customers

Production sites **46**

Sales, marketing & other sites **33**

CAPEX **€ 389m**

Innovation

Innovation at the heart of our sustainable products & services

R&D **€ 245m**

R&D sites **15**

Environment

Input mix **54%** secondary materials

Energy **8,308 TJ** of which **17%** **from renewable electricity**

Water withdrawn **10,103** megaliters

Employees

Group employees **11,050**

of which, **22.5%** **women**

Nationalities **75**

Society

€ 22.7b paid to **18,000** suppliers in **87** countries

Customers **12,500** in **101** countries

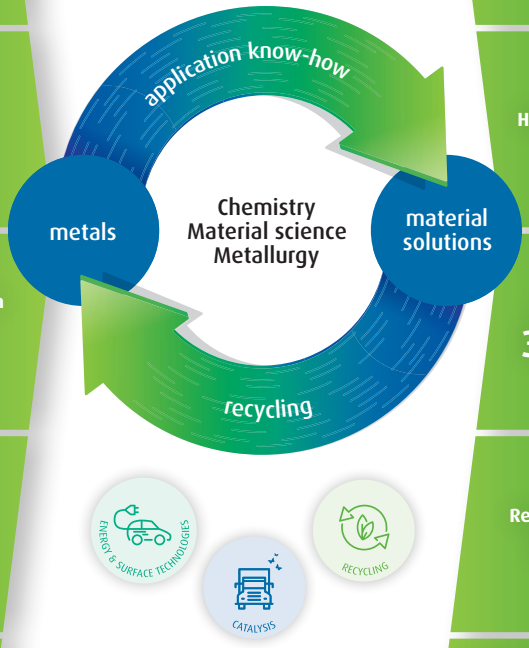
Platinum ecovadis sustainability rating **Top 1%**

BUSINESS MODEL

We are a global materials technology & recycling group...

...With a closed loop business model delivering

materials for a better life



OUTPUT

Financial

Revenues **€ 4b**

79% **revenues from clean mobility & recycling**

Adjusted EBITDA **€ 1.25b**

Operations

ROCE **22.2%**

Closing the metals loop **28** metals recovered across all recycling activities

Nysa site Carbon neutral as of start of production with **100%** green power supply

Innovation

High performance fuel cells

Technologies enabling industry leading purity, consistency & quality of cathode materials

New patent families registered **69**

Environment

Scope 1 GHG emissions **372,699 t** CO_2e

Scope 2 GHG emissions **473,738 t** market-based CO_2e

Diffuse metal emissions **-35%** vs 2020 in Hoboken

Employees

Retention rate **94%**

Metal exposure ratio **1.5%** (all biomarkers aggregated)

Lost time accidents **73**

Society

Certified ethical origin of our rechargeable battery materials, LBMA certifications, RMI conformant refiners & RJC certification

Taxes **€ 202m** paid

Avoided emissions **35m t** CO_2e from our e-mobility products & recycling services (2016 through 2020)

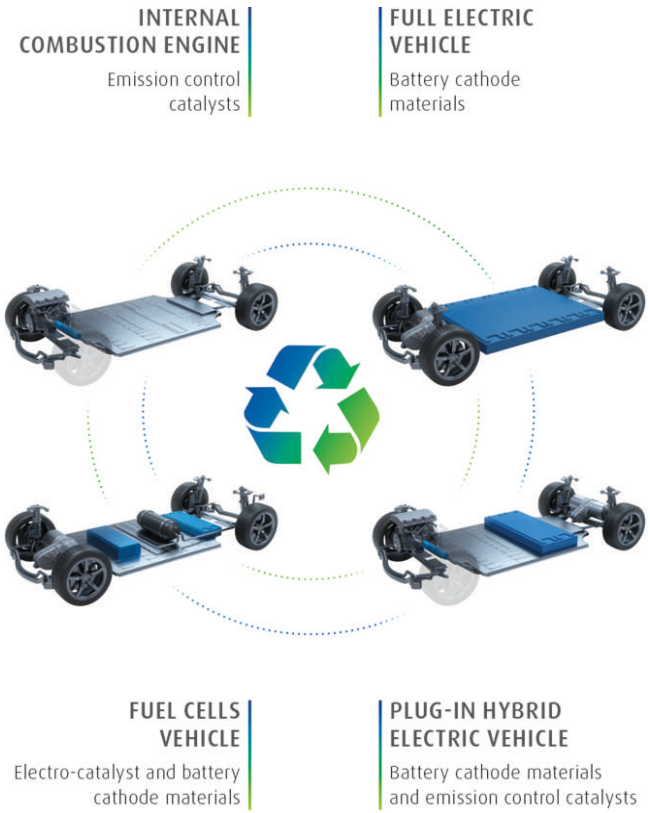
IMPACT ON SDGs

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About us

The global materials technology & recycling group providing tomorrow's sustainable solutions for clean mobility and recycling



Umicore has a unique position in clean mobility materials and recycling

Using our metallurgy, chemistry and materials science expertise, we provide clean mobility solutions for four automotive platform types and we recycle the materials at the end of their lifespan. This closed-loop business model is our differentiator and continues to define how we run our business and build our strategy.

Our automotive catalysts clean the exhaust gases from internal combustion engines for all types of light- and heavy-duty vehicles and our rechargeable battery materials and automotive catalysts power hybrid, plug-in hybrid and full electric vehicles. We produce catalysts for fuel cells and for static or industrial applications.

Umicore operates one of the world's most sophisticated precious metals recycling facilities and our plants can recover 28 precious and non-ferrous metals from feed including industrial residues, electronic scrap, batteries, automotive and industrial catalysts and fuel cells. Recovered materials are transformed into pure metals or new products. We also provide recycling services to help maximize customers' efficiency.

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

Our success depends on balancing the economic, environmental and social impact of our operations.

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.

Umicore's positive impact enhances quality of life through products and services, reduces harmful vehicle emissions, gives new life to used metals and powers the cars of the future.

Our mission: Materials for a better life

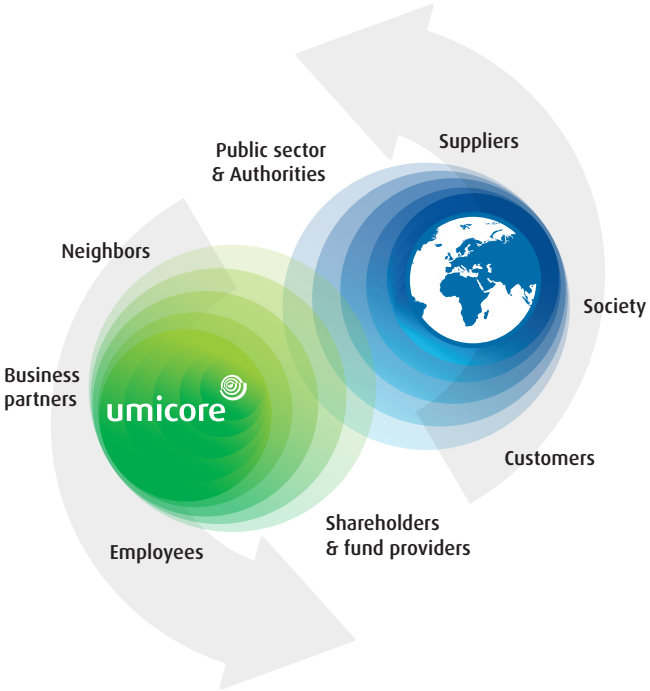
We believe that the materials at the core of today's life are a key element in furthering the progress of mankind and will continue to be enablers for future value creation. We believe that the efficient and infinite recyclability of metal-related materials makes them vital for sustainable products and services. We want Umicore to be a leader in providing and creating material-based solutions which contribute to fundamentally improving quality of life.

OUR VALUES



Aiming for impact

Setting the course with our stakeholders



Umicore strives to plan for the best possible future by remaining in a healthy and competitive position whilst addressing society's most pressing challenges. We consider global economic, social and environmental megatrends through continuous dialogue with our main stakeholders. As a publicly listed company, we interact with many parties who have an interest in the way we conduct business. The relationship that we foster with these stakeholders has a direct influence on our success and our impact on society.

Stakeholder engagement at Umicore is based on a localized approach: all sites are required to 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 primarily managed by the business units themselves, in line with our decentralized approach to unit management. The management board receives feedback from stakeholders in several ways, ranging from direct feedback from visits to customers, suppliers, employees and investors, to information provided by the business units, departments or workers' representatives during their regular briefings to senior management. Other forms of input include periodic employee survey results.

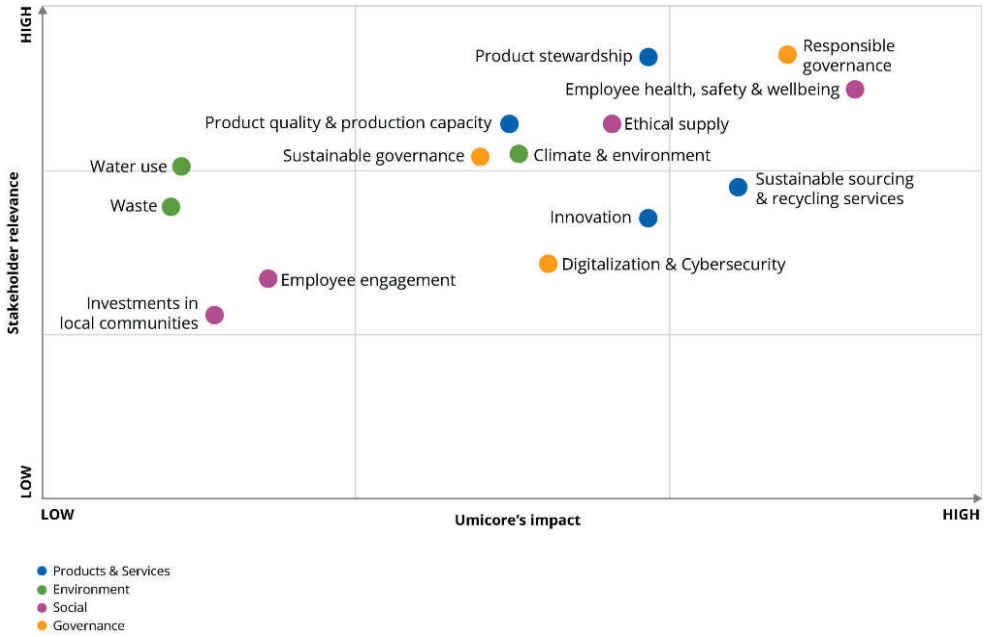
Materiality assessment

In 2020 as part of the lead-up to the **Let's Go For Zero** sustainability strategy, we conducted a materiality assessment in cooperation with the external expert Sustainalize. The assessment identified which topics are important to our business and our stakeholders by applying the double materiality perspective. This allowed us to incorporate stakeholder expectations when developing our strategy. Umicore's material topics include issues that have a financial impact on our business and issues that have an impact on people and the environment. We developed an overview of issues relevant to Umicore's business environment. The long list of relevant topics is based on company-specific information such as Umicore's risks and opportunities and on sector information such as sector-specific international sustainability frameworks. Umicore reviewed GRI (Global Reporting Initiative), IIRF (International Integrated Reporting Framework), SASB (Sustainability Accounting Standards Board), WBCSD (World Business Council for Sustainable Development), Stakeholder Capitalism metrics of the WEF (World Economic Forum), TCFD (Task Force on Climate-related Financial Disclosures) as well as peer reviews and performance in sustainability rating benchmarks.

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 influence the topics have on their decisions towards Umicore. Customer and supply representatives, employees around the world and across all functions from the shop floor to senior management, shareholders and fund providers were consulted through online surveys, workshops and interviews. The survey and interview results were complemented with desk research. Based on the ranking of topics in both the external and internal consultations, a preliminary materiality matrix was developed, showing the relative importance of topics from the viewpoint of Umicore. In an interactive internal session, we analyzed the maturity of the material topics. In addition, we assessed each material topic as to whether they are risk or opportunity driven. Risk-driven topics are those that would pose a significant business risk if Umicore did not address them – linked to our 'license to operate'. Opportunity-driven topics are those that could create opportunities in the market – linked to our 'license to grow'. Mapping the material topics as risk or opportunity driven and according to their maturity enabled us to visualize the topics in terms of urgency and strategic focus.

COVID-19 had an impact on the level of materiality of topics related to employee wellbeing and business resilience. In 2021, the matrix was updated to reflect stakeholder feedback on the increased level of materiality of two topics: water and waste. These topics have been incorporated in our strategic thinking.

2021 MATERIALITY MAP

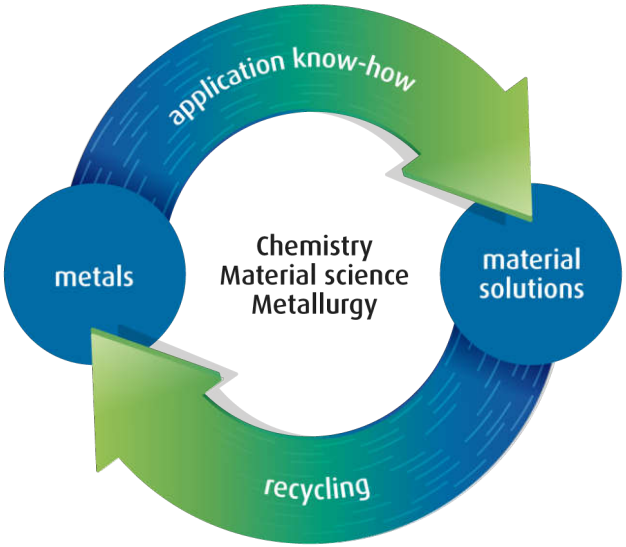


Umicore Topic	Umicore Definition
Climate & environment	The impact that Umicore operations, sourcing, transportation of raw materials and finished products have on the environment, biodiversity, climate change, mobility and the health of local communities.
Digitalization & Cybersecurity	The impact that digitalization, robust ICT systems and secure data management have on business continuity and trust.
Employee engagement	The impact that Umicore's job creation, inclusiveness, occupational and professional opportunities (e.g. training) and employee wellbeing have on employee attraction, retention and/or employability.
Employee health, safety & wellbeing	The impact that materials use and transformation (e.g. WEE scraps) and occupational safety within Umicore's own operations have on the health and wellbeing of Umicore's workforce.
Ethical supply	The impact that Umicore's commitment to securing materials from ethically managed sources, including anti-corruption, anti-fraud, anti-money laundering and Human Rights safeguards, has on local communities.
Innovation	The impact that a strategic focus on innovative solutions has on business continuity, sustainability performance, availability of clean technologies and the transition to a low-carbon economy.
Investment in local communities	The impact that Umicore's job creation, initiatives and activities, beyond their business operations, have on the development and wellbeing of communities impacted by operations.
Product quality & production capacity	The impact that the quality (innovative) of metal containing products and capacity volumes (meeting demand) have on the availability and accessibility of low-carbon and clean technologies.
Product stewardship	The impact that product design (functionality, quality, durability, safety, sustainability) has on society
Responsible Governance	The impact that responsible governance (e.g. anti-corruption, anti-fraud, anti-money laundering, anti-discrimination, anti-harassment) and respected human rights (e.g. related to child labor, bonded labor, safety hazards) have on business continuity and trust.
Sustainability Governance	The impact that Umicore's sustainability governance and ESG risk and opportunity management approach has on business resilience.
Sustainable sourcing & Recycling services	The impact that sustainable sourcing practices, the use of secondary materials, and the quality of Umicore recycling services and closed loop offering have on biodiversity, the scarcity of resources, the circular economy and business reslience.
Waste	The impact that the waste generated by Umicore has on resource efficiency and environment.
Water	The impact that the water used by Umicore has on resource efficiency and environment.

Umicore Themes	Umicore Topic	RISK AND OPPORTUNITY: Regulatory & legal context	Sustainable & ethical supply	Technology & substitution	Information & data protection	Market	Metal price	Talent attraction & retention	Climate & environment	STRATEGY: Net Zero	Zero Harm	Zero Inequalities	Best in class governance	Clean Mobility & Recycling	SDGs
PRODUCTS & SERVICES	Product stewardship	✓		✓										✓	3, 9, 12, 13
	Product quality & production capacity			✓		✓								✓	3, 7, 9, 11, 12, 13
	Sustainable sourcing & Recycling services		✓				✓							✓	9, 12
	Innovation			✓		✓			✓					✓	6, 7, 9, 12, 13
ENVIRONMENT	Climate & environment		✓						✓	✓	✓				3, 6, 11, 12, 13
	Waste								✓		✓				12
	Water								✓		✓				6
SOCIAL	Ethical supply	✓	✓								✓				8
	Employee health, safety & wellbeing							✓			✓				3, 5, 8
	Employee engagement							✓				✓			3, 5, 8
	Investment in local communities										✓				8, 11, 13
GOVERNANCE	Responsible Governance	✓											✓		8
	Digitalization & Cybersecurity	✓			✓								✓		3, 8, 13
	Sustainability Governance	✓	✓			✓		✓	✓				✓		3, 5, 6, 7, 8, 9, 11, 12, 13

Ongoing stakeholder dialogue is essential in developing Umicore's strategy and business model. This overview presents how the identified material topics are linked to our strategy, risks and opportunities as well as how they address the Sustainable Development Goals.

Our business



Our purpose at Umicore is to help the world transition to cleaner mobility by providing hi-tech materials, including emission control and fuel cell catalysts and a wide spectrum of rechargeable battery materials, and by closing the materials loop.

Our mission is to provide clean mobility solutions for all automotive platform types and to recycle these materials when they reach the end of their useful life. Using our metallurgy, chemistry and materials science expertise and know-how, our closed-loop business model is a powerful differentiator and the basis for our business and our long-term strategy.

Our work in clean mobility is multifaceted. We develop automotive catalysts to clean the exhaust gases from internal combustion engines for light-duty and heavy-duty vehicles of all fuel types. We also develop the rechargeable battery materials that power hybrid, plug-in hybrid and full electric vehicles. Additionally, we produce high-performance catalysts for vehicles powered by fuel cells.

At the same time, Umicore is one of the world's most sophisticated recyclers of precious and other valuable metals. Our state-of-the-art facilities can recover 28 precious and non-ferrous metals from sources including industrial residues, used electronic scrap, batteries, automotive and industrial catalysts, fuel cells.

As a leader in automotive catalysts and a pioneer in EV battery materials, we aim to stay ahead of the curve. Our innovation strategy couples Umicore's extensive internal expertise with a collaborative network of universities and start-ups, allowing us to respond quickly to fast-moving trends in clean mobility and recycling. More about how we innovate to develop tailor-made technology for our customers can be read in Innovation.

Global trends

Reducing air pollution is key to achieving global climate targets and supported by increasingly stringent automotive emission legislation and public advocacy for clean air regulation. In Europe and Asia, legislators are developing clean mobility policies to further reduce SOx, NOx and other harmful emissions and are strengthening emission standards to encourage the design of ever-more innovative emission control systems.

The transport sector is the fastest growing source of global greenhouse gases, with the largest share from road transport. **Electrified transport** is essential to deliver on targets **for low carbon mobility** by combining energy-efficient systems with renewable energy sources. Incentives favoring electric vehicles are increasing globally.

Developing new technologies such as increasingly high performance automotive catalyst technologies and powerful rechargeable batteries intensifies the demand for a wide range of metals. However, mining metals such as lithium, nickel and cobalt from primary sources has significant environmental impacts, including a high carbon footprint and disruption to nature and local communities. Easy-to-mine deposits are increasingly scarce and ore bodies contain fewer valuable minerals. Umicore's recycling services are a solution to help mitigate this challenging trend of **resource scarcity**.

The **green economy** is rapidly expanding to meet the urgent demands of **climate change**. Umicore's clean mobility materials and recycling services are key contributions to a sustainability-driven world, and we have clear targets for progress over the coming years.

Clean mobility

Umicore's approach to achieving clean mobility is two-pronged. Our work in battery materials and recycling supports the global shift to electromobility, while in the short- to mid- term, we continue to focus on catalysis technologies to improve air quality.

Catalysts

The road to achieving clean modes of transport begins with catalytic converters, which reduce the emissions of harmful pollutants from internal combustion engines. Our advanced precious metal solutions are vital, providing highly efficient catalysts to remove harmful gases such as nitrogen oxides (NOx). As clean air legislation becomes ever more stringent at a time when internal combustion engines are still predominant, Umicore can help ensure that the final years of fossil fuel transportation are less damaging to the environment.

Batteries

Electric vehicles are increasingly part of our daily lives. Umicore provides state-of-the art battery materials to power electric vehicles, in collaboration with key players in the market. The automotive industry is facing huge challenges, including competitive cost/performance ratios, fast charging times and the highest safety standards. Today, Umicore offers its customers the best product portfolio to meet these needs. Our key offering is a wide portfolio of active cathode materials, the single most valuable component of rechargeable lithium-ion batteries, providing longer driving ranges and better performance to electric vehicles. While the battery pack represents approximately 30% of the electric car's value, the active cathode material is worth approximately 30% of the pack's value, meaning Umicore provides around 10% of the overall value to electric vehicles. This significant percentage bears witness to our pioneering role in furthering electro-mobility.

Fuel Cells

Umicore has 30 years' experience of manufacturing fuel-cell catalysts for hydrogen vehicles. We have proven know-how in developing catalysts and scaling up to industrial-scale production, as demonstrated by Umicore solutions that have been on the road for many years. Fuel cell-powered vehicles combine the advantages of long driving ranges, short refueling times and zero emissions, making fuel cell-powered automotive particularly attractive for long-distance or high energy haulage applications.

Recycling

Developing clean mobility solutions is only the first step. At Umicore, we understand that the positive environmental impact of our innovations would be diminished if the spent materials were eventually discarded. For this reason, more than two decades ago we created our unique **closed-loop business model**, in which we recover the metals and reintroduce them into the production cycle to produce new materials.

Metals are an outstanding ingredient for sustainable materials production because they can be recycled infinitely without losing any of their chemical or physical properties. This allows us to use **metals produced from recycled sources**, such as production scrap, residues from customers, other industries and our own operations, as well as post-consumer materials.

We have the expertise and know-how to determine and extract the platinum, palladium and rhodium content in end-of-life catalytic converters from internal combustion engines. Once recycled, these metals can be used to produce new catalytic converters for next generation vehicles, thus closing the materials loop. More than half of our metal needs have been covered in this way, consistently over the past several years.

Similarly, we have capitalized on our long track record in **battery recycling** to be an early entrant in the EV battery recycling market. Sourcing the accelerating surge for battery materials will be a sizeable challenge across the entire value chain and we are confident that our long-standing experience in recycling will be of benefit.

We purchase the remainder of our metal needs from **sustainably and ethically vetted primary sources**, under the conditions defined in Umicore's Global Sustainable Sourcing Policy, Umicore's Sustainable Procurement Framework for Cobalt and Umicore's guidance for responsible global supply chain of minerals from conflict-affected and high-risk areas.

Sustainability



Let's go for zero

Net Zero GHG. Zero regrets.
Endless possibilities.

The launch of Umicore's **Let's Go for Zero strategy** in June 2021 was an important milestone in our long sustainability journey. This strategy is the product of Umicore's Supervisory and Management Boards' commitment to drive positive impact and the result of ESG integration into both strategic thinking and disclosure. Let's Go for Zero builds on our long-standing leadership in clean mobility materials and recycling and reaffirms our commitment to use our technological know-how, scientific expertise and corporate reach to be an industry leader in sustainability. Our sustainability strategy has been defined as a caring strategy: caring about talent, about health, about safety, about the planet and about creating value for society.

Net zero Greenhouse Gas (GHG) emissions by 2035

Climate change requires action now and Umicore has chosen to act decisively with an ambitious objective and timeline to reach net-zero scope 1+2 GHG emissions by 2035, with intermediate milestones of a 20% reduction by 2025 and a 50% reduction by 2030 (vs. 2019 baseline). Umicore will continue to improve energy and process efficiency and switch to renewables as fast as possible. Umicore's new cathode material production facility in Europe, for example, will be carbon neutral right from the start of operations.

Because **meaningful impact on climate change** means mobilizing our value chain, Umicore will work with suppliers to reduce scope 3 GHG emissions and will define a target in the course of 2022, aligned with the objectives of the Paris Agreement. Umicore has formally committed to the SBTi process as the external validation tool for our decarbonization targets.

Zero harm

The **wellbeing and safety** of our people is the focus of the Zero Harm ambition. Establishing and promoting a global caring safety culture is the most meaningful way to ensure health and safety for all our employees worldwide. Efforts to eliminate occupational-related health risks will be pursued, with the goal of leading the industry by setting voluntary, science-based targets for potentially hazardous exposure to metals.

Our Zero Harm ambition is also 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 reliable supply of raw materials that is also environmentally and socially responsible. Umicore will further build on its long track record and due diligence in the sourcing of critical raw materials.

Minimizing **environmental impact** is also an important part of our Zero Harm ambition. Building on the significant achievements in the last five years, Umicore will continue efforts to minimize emissions to air and water and commits to reduce diffuse metal emissions by 25% by 2025 compared to 2020. In the course of 2022, Umicore will also define a target on water.

Zero inequality

Umicore firmly believes that diversity of thought leads to more innovation, ultimately benefiting its business and sustainability strategy. The Group aims to further promote **diversity and inclusion** by seeking broader cultural representation in its management teams and an increased number of women in management, reaching **gender parity** in management, with an intermediate milestone of at least 35% women in management by 2030.

Best in class governance

Umicore has implemented a new ESG organization (see Management approach) to steer progress towards our ambitions and will propose to shareholders a new executive remuneration policy tied to the Let's Go For Zero strategy.

Umicore is also aiming for full disclosure on impact, with increased reporting (e.g., emissions and water), as well as expanded reporting framework use (see GRI/SASB index and WEF index). We know and understand the importance of climate resilience, which are overseen at both Management Bard and Supervisory Board levels, and we will begin reporting using the recommendation of the Task Force on Climate-related Financial Disclosures (TCFD, see TCFD index). Our new integrated annual report structure and contents are designed to provide additional visibility and clarity on the impact and value Umicore contributes to society (see Umicore at a glance , Society, Sustainable Products & Services and our reporting on the Sustainable Development Goals in Maximizing positive impact).

Finally, as a key player in the transition to a low carbon economy, Umicore will favor sustainable funding instruments.

Three complementary Business Groups

Our business enables a more sustainable world, combining cutting-edge technologies & recycling to give new life to used metals

Catalysis

Reducing harmful emissions

AUTOMOTIVE CATALYSTS

We are one of the leading producers 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

We are a leading player in emissions control catalysis for industrial plants and shipping, and supply state-of-the-art fuel cell catalysts for zero emission mobility and green hydrogen production.

PRECIOUS METALS CHEMISTRY

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

Energy & Surface Technologies

Powering the future

COBALT & SPECIALTY MATERIALS

We are experts in sourcing, production and distribution of cobalt and nickel products. Our materials are at the heart of everyday products such as rechargeable batteries, tools, paints and tyres. Our recycling and refining processes, including our proprietary lithium-ion rechargeable battery recycling technology, give new life to cobalt and other metals.

ELECTRO-OPTIC MATERIALS

We are a leading supplier of material solutions for the space, optics and electronics sectors, including products for thermal imaging, wafers for space solar cells, high brightness LEDs and chemicals for fiber optics.

METAL DEPOSITION SOLUTIONS

We are one of the world's leading suppliers of products for (precious) metal-based electroplating and PVD coating of surfaces in the nano and micrometre range. Our solutions for the highest demands are used in many products of daily use or enable their production in the first place.

RECHARGEABLE BATTERY MATERIALS

We are a pioneer in battery materials and a leading cathode material supplier for rechargeable lithium-ion batteries, giving added range and performance to electric vehicles, and longer battery life for portable electronics.

Recycling

Giving new life to used metals

BATTERY RECYCLING SOLUTIONS

Our leading technology closes the loop for rechargeable 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

We are 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

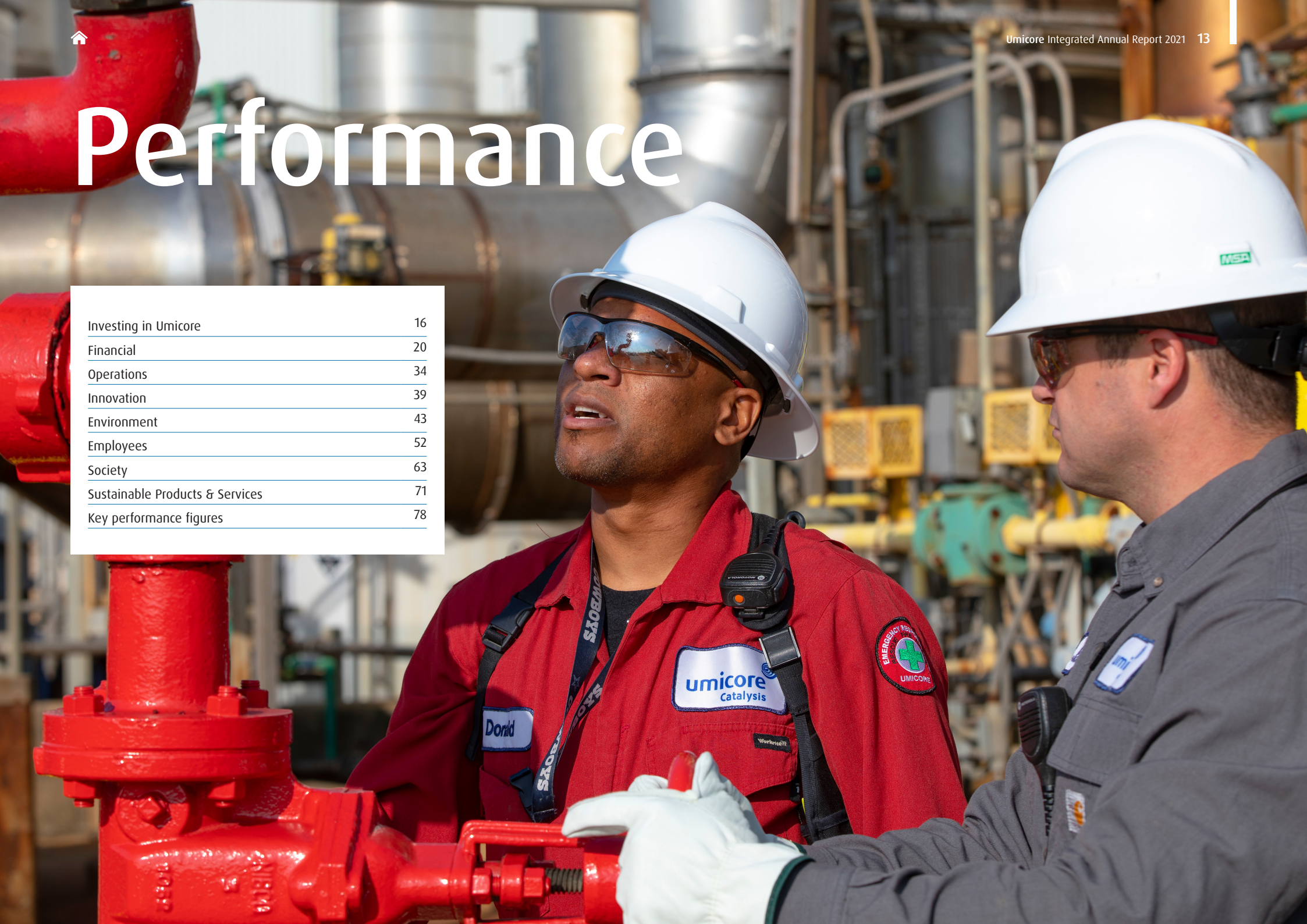
We supply and handle all precious metals, ensuring physical delivery by using both the output of our precious metals refineries and our network of industrial partners and banks. We offer our customers tailor-made solutions for delivering, hedging and trading precious metals.

PRECIOUS METALS REFINING

We operate the world's most sophisticated precious metals recycling facility and we are experts in treating the most complex materials. Our refining and recycling technology gives used metals a new lease of life. Our processes help bring value to the circular economy.

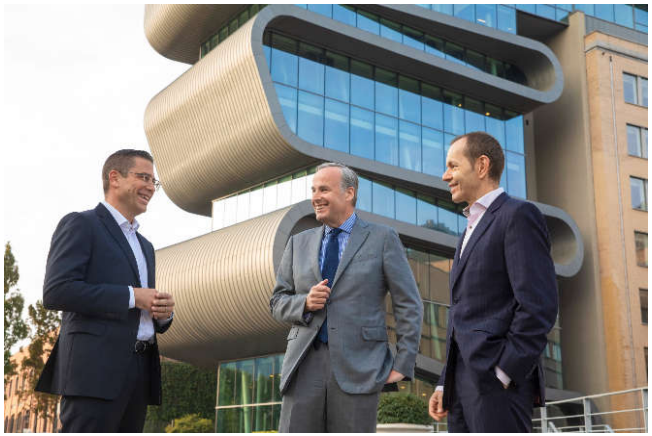
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Chairman & CEO review

MATHIAS MIEDREICH CEO
& THOMAS LEYSEN CHAIRMAN



Mathias Miedreich, Thomas Leysen and former CEO Marc Grynberg at Umicore's site in Hoboken, Belgium

As we reflect on yet another year that was challenging for so many, we see the mark of Umicore's resilience, and the agility, creativity and commitment of Umicore colleagues globally, by posting impressive results.

In the first half of 2021, Umicore benefited from a sharp recovery of demand for its clean mobility materials from the automotive industry after the severe downturn caused by the COVID-19 pandemic in 2020, as well as a strong boost from record precious metal prices. Despite the disruption in global car production in the second half of the year as a result of the semiconductor shortage, Umicore posted record revenues and earnings for the full year. This achievement reflects strong underlying growth and operational performance across business groups.

Revenues increased by more than 20% in 2021, while profitability nearly doubled. Excluding the year-on-year precious metal price effect, our 2021 operating profit increased byabout € 160 million compared to 2020, 30% growth achieved through operational business performance and volume growth. This meant that margins increased substantially for our three Business Groups.

Revenues in Catalysis strongly outperformed the car market as a result of market share gains in the European and Chinese light-duty gasoline markets, a favorable platform mix and strong demand for Umicore's heavy-duty diesel and fuel cell catalysts. Revenues in Energy & Surface Technologies increased, reflecting higher sales volumes of cathode materials for EVs in Rechargeable Battery Materials, an exceptionally strong demand in Cobalt & Specialty Materials and in Metal Deposition Solutions. Recycling posted record revenues and earnings, significantly above the previous record levels of 2020, driven by robust operational performance in the various business units, strong contribution from the trading activities and peaking precious metals prices.

Our operations generated cashflows of over € 1.4 billion, up from € 603 million in 2020. Our free cash flow from operations grew to close to €1 billion. This allowed us to reduce our net debt and our gearing ratio. Our balance sheet is strong with net financial debt of € 960 million, down from around € 1.4 billion at the end of 2020, corresponding to a 0.77 net debt/LTM adj. EBITDA ratio.

Strategic growth projects continued in 2021 and Energy & Surface Technologies accounted for close to 60 % of Group capital expenditures, driven by Rechargeable Battery Materials' European expansion investments.

In December, Umicore and Volkswagen AG announced their intention to create a joint venture for the production of precursor and cathode materials in Europe to supply Volkswagen AG's European battery cell production. This partnership will further diversify Umicore's customer base and will support VW in their ambitious electrification strategy. The JV will be a contributor to the ambitions of the European Green Deal, including the establishment of a European sustainable battery supply chain.

The launch of our Let's Go For Zero strategy (Zero GHG emissions, Zero Harm, Zero Inequality) in the course of 2021 was an important milestone in our long sustainability journey. We unveiled our new ambitions and announced explicit targets for 2030 and beyond. Since then, we have implemented a new ESG governance organization that will allow us to steer the progress in achieving our ESG targets. This year's integrated annual report structure and contents are designed to provide additional visibility and clarity on the impact and value Umicore contributes to society.

In terms of climate action, Umicore has set a target for Net Zero scope 1+2 GHG emissions by 2035, with intermediate milestones of a 20% reduction by 2025 and a 50% reduction by 2030. Umicore also committed to setting a scope 3 target in 2022. In 2021, Umicore concluded a long-term power purchase agreement to supply our greenfield plant in Nysa, Poland with renewable electricity – making it the first cathode materials production plant in Europe to be carbon neutral as of start of production. Since April 2021, Umicore has been

supporting the Task Force on Climate-Related Financial disclosure (TCFD) and since then, we have defined key milestones for our TCFD implementation and conducted a qualitative scenario analysis. Umicore committed to the Science Based Targets initiative (SBTi) in October 2021.

The wellbeing and safety of our people is the focus of the Zero Harm ambition we announced. In light of the ongoing COVID-19 pandemic, strict health and safety precautionary measures remained implemented at all Umicore sites in 2021. Unfortunately, our 2021 safety performance was disappointing with 73 lost time accidents compared to 49 in 2020. Over the course of the year, Umicore continued with the roll-out of programs aimed at creating a more prominent safety culture with a focus on growing the safety mindset and lowering the risk tolerance level. We are also further reinforcing processes and safety standards, in particular in those business units and sites where the safety performance was unsatisfactory. Umicore is committed to ensuring the highest level of occupational safety in all its facilities.

Our Zero Harm ambition is also linked to our continued commitment to sustainably and ethically sourced raw materials. Beyond our long-standing approach to ethical cobalt sourcing, and in light of the accelerating transition to electromobility, it is crucial to secure reliable supply of raw materials that is also environmentally and socially responsible. We signed long-term sustainable lithium supply agreements in October 2021. Umicore maintained its Platinum EcoVadis rating in 2021, placing us among the top 1% of our industry peers in the EcoVadis global network of over 65,000 rated companies. The growing added value of our sustainable business is demonstrated by over 54% of secondary and end-of-life materials in our input mix. Future sourcing for catalysts, fuel cells and batteries alike will only be possible by sustainably closing the loop and recovering the scarce metals used in these products when they reach end of life.

Finally, minimizing environmental impact is also an important part of our Zero Harm ambition. Umicore committed to minimizing all emissions with a target of -25% diffuse emissions by 2025. As a result, we accelerated investments in the Hoboken plant: taking additional actions to further reduce diffuse emissions and to create a green zone to increase the distance between the residential area and our operations. Umicore also committed to defining a target on water use in 2022.

The Zero Inequality ambition we announced confirms our firm belief that diversity of thought leads to more innovation. We will further promote diversity and inclusion, by seeking broader cultural representation in management teams and increasing the number of women in management. Umicore has set a target of gender parity in management with an intermediate milestone of at least 35% women in management by 2030. In 2021, the number of Umicore employees in the fully consolidated companies rose to 11,050 from 10,859 in 2020. The most significant increase relates to the further development of the cathode materials production site in Poland. In 2021, the share of women recruited into management positions increased to 45%, up from 30% in 2020.

Technology and innovation remain central to our strategy, and consequently R&D expenditure has been increased by 10% vs. 2020 to € 245 million. This increase is related to new product and process technologies for next generation Lithium Ion Battery Materials, Solid State Batteries and Fuel Cell Catalysts, increased effort on Battery Recycling and advanced technology development related to decarbonization and emission reduction programs to meet our ambitious sustainability targets. Umicore also increased efforts in corporate mid- to long-term technology development and open innovation collaboration programs. The R&D spend represented 6% of Umicore's 2021 revenues and capitalized development costs accounted for € 28 million of the total.

We are proud of our performance and results in 2021 and again expect a strong underlying performance in 2022 across all Business Groups, despite cost inflation and provided that geopolitical developments, the pandemic or supply-chain constraints do not result in additional material disruptions to the economy or to Umicore's operations.

At the time of writing this, a bitter war is raging in Ukraine. Together with Umicore colleagues, we are engaging in humanitarian support initiatives in response to the human tragedy unfolding in Europe. It is too early to assess the medium and long term impacts on Umicore's business. It is clear, however, that Umicore's products and services will be needed more than ever.

On June 22, 2022 we will host a Capital Markets Day to set out Umicore's strategic roadmap, with mid- to long-term considerations for our businesses, that build on our leadership positions in clean mobility materials, in recycling, and in sustainability.

As we close this review, we would again like to express our thanks to all our stakeholders for their contribution to our record-breaking performance in 2021, most especially to the Umicore colleagues. A special word of thanks goes to Marc Grynberg, who led Umicore as CEO for almost 13 years and brought the company to its present level of success. It is his legacy on which we will further build. We are looking forward to further progress in 2022 and we firmly believe that Umicore is in a strong position to creating value for all our stakeholders.

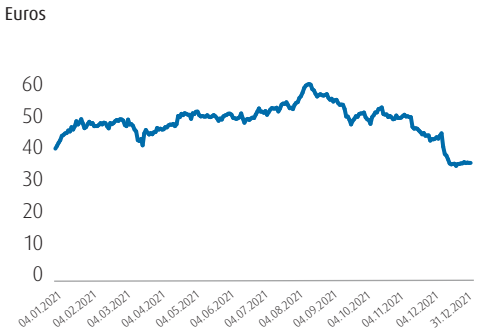
Finally, we are closely monitoring the crisis in Ukraine. Umicore strongly condemns all acts of war and violence. Together with Umicore colleagues, we are engaging in humanitarian support initiatives in response to the human tragedy unfolding in Europe.

MATHIAS MIEDREICH, CEO
& THOMAS LEYSEN, CHAIRMAN

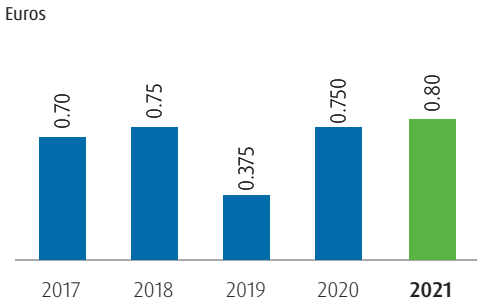
Investing in Umicore



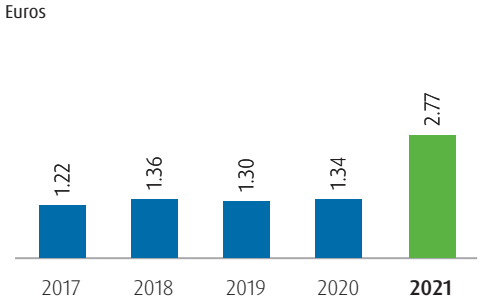
SHARE PRICE



GROSS DIVIDEND



BASIC ADJUSTED EPS



€ 2.77

EARNINGS PER SHARE

Investing in Umicore is an investment in Materials for a Better Life – our mission – supporting our growth and sustainability strategy.

Sustainability at Umicore is not only about minimizing the impact of our industrial operations, but also, first and foremost, about creating a positive impact on society. We will continue to harness all our capabilities and provide solutions to some of the most pressing societal challenges, including the need for cleaner mobility, the need for a circular economy or the need to address climate change with speed and decisiveness.

Our Let's go for Zero strategy encompasses bold new ambitions and a strong corporate purpose and is supported by increased transparency and disclosure as well as best-in-class governance.

Our healthy capital structure provides funding headroom to execute our growth strategy while remaining equivalent to an investment grade credit status. Sustainable instruments are henceforth being favored in funding for Umicore and we recently concluded our first sustainability-linked loan, which for the first time ties our funding costs to our sustainability performance. This loan successfully refinances an existing € 300 million syndicated credit facility.

The Umicore share

Umicore shares are listed on the Euronext 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 1,692,190 of its treasury shares in the context of the exercise of stock options and 110,500 for shares granted. In the course of 2021, Umicore bought back 1,270,000 of its own shares. On 31 December 2021, Umicore owned 5,200,995 of its own shares representing 2.11% of the total number of shares issued as at that date.

For the majority of 2021 the Umicore share price was subject to volatility, mainly driven by the market.

The share price started the year at € 40.15 and peaked at a historic level of € 60.00 on 13 August after a strong rally in July fueled by positive news flow on electric vehicles. Our record first half results were published at the end of July, driven by a strong underlying performance and high precious metal prices.

In a context of semiconductor supply shortages impacting the automotive industry and the related limited visibility, declining PGM prices, and continued uncertainty about the COVID pandemic, the share price gradually decreased from mid-August to reach levels in the mid- €40s by early December.

Our guidance release indicating significant earnings recalibration with respect to market expectations for the business group Energy & Surface Technologies over the 2022-2023 period triggered a sharp share price reaction in December, finishing the year at € 35.75. Changing perceptions of the cathode materials market by part of the financial community had also generated an overall critical backdrop.

Shareholder returns

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 2021. This compares to a full dividend of € 0.75 per share paid out for the financial year 2020. Taking into account the interim dividend of € 0.25 per share paid out on 24 August 2021 and subject to shareholder approval, a gross amount of € 0.55 per share will be paid out on 4 May 2022.

Engagement with shareholders and investors

Umicore has a high free float with a broad base of international shareholders which at the end of 2021 were primarily situated in Europe and North America. The overview of shareholders holding voting rights equal to 3% or more and analyst research and consensus information can be found on our website under Share Information. 22 brokerage firms cover and publish equity research notes on Umicore, reflecting strong and global interest from the financial market in Umicore's equity story and growth opportunities.

Umicore strives to provide timely and accurate information on its strategy, performance and prospects to its shareholders. Umicore will be further increasing transparency and disclosure and the first effects of this decision were visible in the announcement of the Full Year results for 2021. The Let's go for Zero strategy also calls for more disclosure on ESG topics, which has been integrated into this Annual Report and will be expanded in reports for the coming years. A new chapter on EU Taxonomy [hyperlink to EU Taxonomy] reports on the Umicore business activities that contributed to the two EU Taxonomy objectives of Climate Change mitigation and Climate Change adaptation. Umicore is also aligning with TCFD recommendations to improve and increase reporting of climate-related risks and opportunities.

The Let's Go for Zero strategy creation process was based on a materiality analysis in which players from the financial community were included. We continued to receive feedback from investors through interviews and ongoing dialogue, which strongly impacted the new strategic thinking on targets, disclosure and governance. In particular, a new remuneration policy will be submitted to the shareholders at the Annual General Meeting on 28 April 2022, explicitly integrating ESG targets in management's remuneration and providing more disclosure on performance and weighting, with specific numerical targets.

2021 was another unusual year. Following the COVID-induced downturn in 2020, the first half of 2021 saw a strong recovery in demand in most of Umicore's end-markets and a peak in precious metal prices. However, precious metals prices declined in the second half and severe disruption to the automotive industry was caused by the chip shortage. At the same time, Umicore was exposed to a less favorable platform and customer mix in its battery materials business. Despite these factors, 2021 was another record year in terms of revenues and earnings, after the records achieved in 2020. The 2021 results reflect the convergence of a strong operational performance in almost all our business units, with margins growing sustainably. A further strong external tailwind was provided in the form of record precious metal prices. These combined factors far outweighed headwinds such as higher raw material costs, higher fixed costs related to our growth projects and additional R&D spending.

The main topics discussed with investors in 2021 included the factors mentioned above, together with commercial announcements, the launch of our Let's go for zero strategy, the transition to our new CEO in October and other changes in the management board, including the appointment of a Chief Strategy Officer in December.

In addition to the publication of press releases and the Annual Report, Umicore's management and Investor Relations team communicated in 2021 with investors during virtual roadshows in North America, Europe and Asia, as well as through virtual investor conferences, webcasts (on 2 June an on-line capital markets day on our Let's Go for Zero strategy), conference calls (such as on Umicore's position in the hydrogen economy) and the Annual General Meeting of shareholders. Umicore's disclosure covers both financial and Environmental, Social and Governance (ESG) performance and we regularly engage with our investors on those topics.

On 22 June 2022 Umicore plans a Capital Markets Day where the Management Board will set out our strategic roadmap to further build on our leadership positions in clean mobility materials and recycling and our pioneering approach to sustainability. Topics that will be addressed include:

- the growth prospects in our key markets, in particular the expected drive train transitions in the automotive and transport industry
- our ambition and capabilities to capture in full the anticipated exponential growth in demand for Rechargeable Battery Materials to power EVs, while delivering sustainable returns
- the value creation potential over the next decade of Umicore's Automotive Catalysts activities in a context of declining internal combustion engines volumes
- the resilience and strong underlying performance of the Umicore businesses, including Precious Metals Refining, in less favorable metal price conditions
- our ambition and plan to capture growth from the next wave of sustainability-driven markets, such as fuel-cell catalysts and battery recycling
- our initiatives to secure our position as an industry leader in sustainability, technology and operational excellence.

For more, visit: UMICORE.COM/INVESTORS

Denominator elements

	2021
Total shares issued as at 31 December	**246,400,000**
of which treasury shares	5,733,685
of which shares outstanding	240,666,315
Weighted average number of outstanding shares	**240,589,550**
Potential dilution due to stock option plans	1,183,525
Adjusted weighted average number of outstanding shares	241,773,075

Key figures per share

(In €/share)

	Note	2017	2018	2019	2020	**2021**
Basic adjusted EPS	F39	1.22	1.36	1.30	1.34	**2.77**
EPS – basic	F39	0.97	1.33	1.20	0.54	**2.57**
EPS – diluted	F39	0.96	1.31	1.19	0.54	**2.56**
Gross annual dividend for the year		0.70	0.75	0.375	0,75	**0.80**
Net cash flow before financing, basic	F34	(1.74)	(2.53)	(1.13)	0,41	**3.27**
Total assets, end of period		23.31	25.11	29.17	34.66	**37.50**
Group shareholders' equity, end of period		8.21	10.83	10.77	10.63	**12.91**
Shareprice						
High		39.88	53.14	43.85	47.49	**60.08**
Low		24.28	34.17	25.11	29.76	**34.13**
Average		31.45	45.01	34.24	39.02	**48.60**
Close		39.46	34.86	43.36	39.29	**35.76**

Financial

Link to strategic topics

Clean Mobility & Recycling
Sustainability

Link to key risks & opportunities

Climate & environment, Information security & data protection, Market, Metal price, Regulatory & legal context, Sustainable & ethical supply, Talent attraction & retention, Technology & substitution

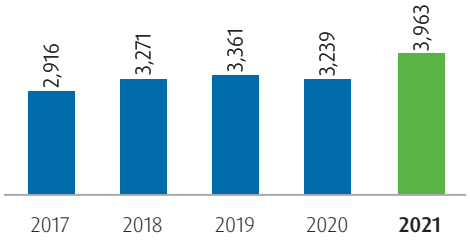
Link to Sustainable Development Goals



Group

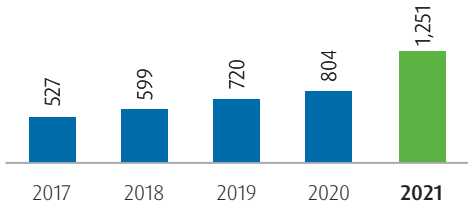
GROUP REVENUES (EXCLUDING METAL)

Millions of Euros



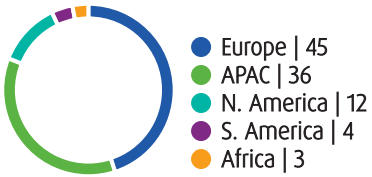
GROUP ADJUSTED EBITDA

Millions of Euros

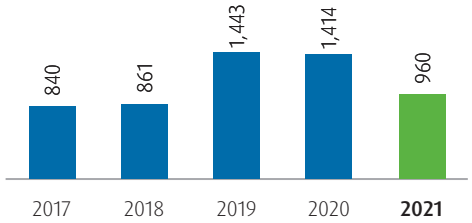


GROUP REVENUES BY GEOGRAPHY (EXCLUDING METALS)

%

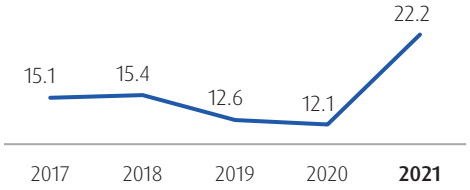


GROUP NET DEBT

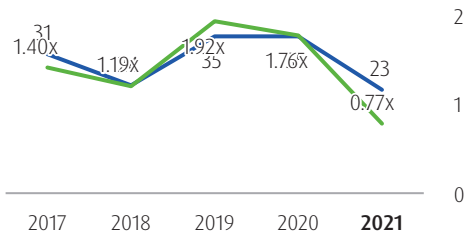


GROUP RETURN ON CAPITAL EMPLOYED (ROCE)

%



GEARING RATIO AND NET DEBT / LTM ADJUSTED EBITDA



Substantial growth in revenues and earnings driven by strong underlying operational performance in all business groups, further supported by an exceptional precious metal price environment.

Umicore posted all-time record revenues and earnings in 2021, despite the severe disruption in global car production in the second half of the year as a result of the semiconductor shortage. This outstanding achievement reflects a substantial outperformance of the automotive market and high operational efficiency in Catalysis, a sharp demand recovery in key end-markets and higher sales volumes of EV cathode materials in Energy & Surface Technologies as well as a robust operational performance and optimized input mix in Recycling. The exceptional precious metal price environment provided an additional tailwind to this strong underlying growth and operational performance, contributing approximately € 270 million to adjusted EBIT compared to 2020.

Revenues for the full year grew by 22% to € 4.0 billion and adjusted EBIT increased 81% to € 971 million. Excluding the approximate € 270 million precious metal price impact, adjusted EBIT increased 30% to reach approximately € 700 million. Adjusted net profit of the Group more than doubled to € 667 million. Cash conversion came in at record levels with adjusted EBITDA growing 56 % to € 1,251 million, net working capital decreasing by € 167 million and capital expenditure stabilizing at € 389 million. Net financial debt was reduced by € 454 million to € 960 million or 0.77 times LTM adjusted EBITDA. Umicore recently signed its inaugural sustainability-linked loan.

Revenues in **Catalysis** reached record levels with strong growth across business units. Automotive Catalysts outperformed the global car market. This was enabled by market share gains and a favorable platform mix in the European and Chinese light-duty gasoline markets, particularly strong demand for Umicore's China V heavy-duty diesel catalysts in the first half. Sales volumes of fuel cell catalysts were also well up. This strong operational performance was

further supported by efficiency improvements and high PGM prices and resulted in a record adjusted EBIT of € 326 million.

Revenues and earnings in **Energy & Surface Technologies** increased, reflecting higher sales volumes of EV cathode materials in Rechargeable Battery Materials and an extraordinarily strong contribution of the Cobalt & Specialty Materials and – to a lesser extent - Metal Deposition Solutions business units. Adjusted EBIT increased to € 139 million, despite higher fixed costs related to recent and ongoing expansions and higher R&D spending in battery materials.

Recycling posted record revenues and earnings, significantly above the previous record levels of 2020, driven by a robust operational performance in the various business units, a strong contribution from the trading activities and an exceptional precious metals price environment.

Strong operational business performance improvement and significant precious metal price effects

Strong operational performance drove approximately an € 160 million year-on-year increase in adjusted EBIT. This corresponds to some 30% adjusted EBIT growth compared to the 2020 adjusted EBIT of € 536 million and reflects a significant and sustainable performance uplift, growing adjusted EBIT over-proportionally to the underlying revenues and thus improving EBIT margin.

On top of this, it is estimated that the year-on-year price impact of the exceptional precious metal price context on Umicore's 2021 adjusted EBIT amounted to approximately € 270 million, including the effect of strategic hedges and the price benefit on higher volumes. More than 75% of this tailwind was in Recycling and was linked to the higher rhodium price.

PGM prices, in particular rhodium and palladium, have increased substantially since 2019, reflecting a tighter market, driven by growing demand from the automotive industry as a result of more stringent emission norms. Both metals reached their historical peak price in the first half of 2021, followed by a price correction in the second half of 2021 due to the impact of the semiconductor shortage on global car production which in turn impacted PGM demand for automotive catalysts. Despite ending the year below the price levels at the start of 2021, the average prices for these metals for the full year 2021 remained well above the average price levels of 2020. Other precious metal prices such as gold and silver also traded at prices well above historic averages in 2021.

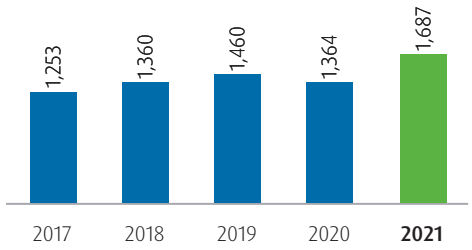
Due to significant existing strategic hedges, Umicore was less exposed to the fluctuation in gold and palladium prices. It was, however, fully exposed to the fluctuation in rhodium price. See financial review section for more details on Umicore's current strategic metal hedges.

Group key figures

	2017	2018	2019	2020	**2021**
Total turnover	12,277	13,717	17,485	20,710	**24,054**
Total revenues (excluding metal)	2,916	3,271	3,361	3,239	**3,963**
Adjusted EBITDA	599	720	753	804	**1,251**
Adjusted EBIT	410	514	509	536	**971**
of which associates	30	5	11	8	**21**
EBIT adjustments	(46)	(14)	(30)	(237)	**(75)**
Total EBIT	343	500	479	299	**896**
Adjusted EBIT margin	13.1	15.5	14.8	16.3	**24.0**
Return on Capital Employed (ROCE) (in %)	15.1	15.4	12.6	12.1	**22.2**
Effective adjusted tax rate (in %)	25.7	24.4	24.7	24.2	**23.1**
Adjusted net profit, Group share	267	326	312	322	**667**
Net profit, Group share	212	317	288	131	**619**
R&D expenditure	175	196	211	223	**245**
Capital expenditure	365	478	553	403	**389**
Net Cash flow before financing	(381)	(604)	(271)	99	**787**
Total assets, end of period	5,116	6,053	7,023	8,341	**9,045**
Group shareholders' equity, end of period	1,803	2,609	2,593	2,557	**3,113**
Consolidated net financial debt, end of period	840	861	1,443	1,414	**960**
Gearing ratio, end of period	31.1	24.4	35.2	35.0	**23.3**
Net debt / LTM adjusted EBITDA	1.40x	1.19x	1.92x	1.76x	**0.77x**
Capital employed, end of period	3,003	3,802	4,442	4,457	**4,377**
Capital employed, average	2710	3,344	4,048	4,451	**4,384**

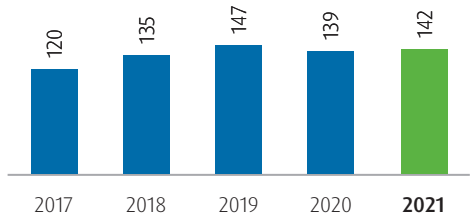
CATALYSIS REVENUES (EXCLUDING METAL)

Millions of Euros



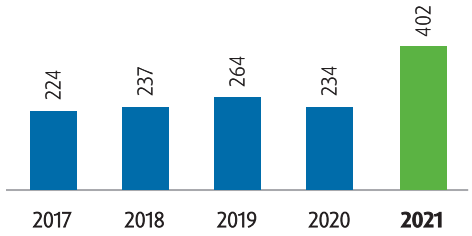
CATALYSIS R&D EXPENDITURE

Millions of Euros



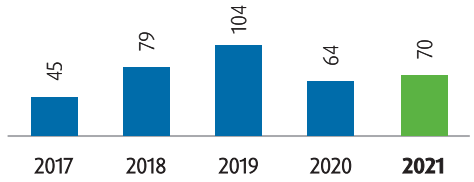
CATALYSIS ADJUSTED EBITDA

Millions of Euros



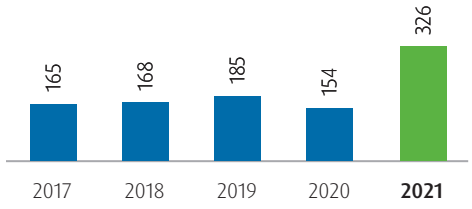
CATALYSIS CAPITAL EXPENDITURE

Millions of Euros



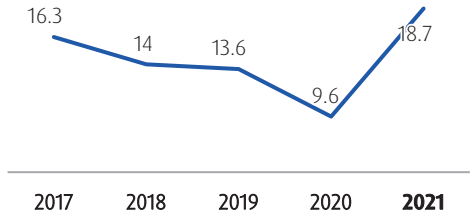
CATALYSIS ADJUSTED EBIT

Millions of Euros



CATALYSIS RETURN ON CAPITAL EMPLOYED (ROCE)

%



The **Catalysis** business group delivered a record performance in 2021, posting an increase in **revenues** of 24% to reach € 1,687 million with strong growth across business units.

Automotive Catalysts outperformed the global car market, which was severely impacted by the semiconductor shortage and contracted by 1.7% year on year for ICE (internal combustion engine) vehicles, including HEV/PHEVs. This outstanding performance was driven by further market share gains and a favorable platform mix in light-duty gasoline applications in Europe and China as well as strong demand for China V heavy-duty diesel catalyst technologies in the first half of 2021 - ahead of the nationwide adoption of China VI. The business group also benefited from a substantial increase in sales volumes in the **Fuel Cell Catalysts** activity, reflecting a successful expansion of its customer portfolio in China, as well as higher revenues in the **Precious Metals Chemistry** business unit.

Adjusted EBIT and adjusted EBITDA, which amounted to € 326 million and € 402 million respectively, also reached record levels, reflecting a strong operating leverage effect from the combination of substantially higher revenues with structural cost reductions resulting from production footprint adjustments as well as strict manufacturing and SG&A cost management. The favorable PGM metal price environment provided an additional uplift in earnings. This record performance was particularly driven by a strong first half of the year, as the release of pent-up demand, high plant productivity, the strong demand for China V heavy-duty diesel technologies and record PGM prices converged into peak margins. Margins in the second half normalized well above historic levels on the back of lower volumes due to the semiconductor shortage, some cost inflation towards the end of the year and lower PGM prices.

2021 turned out to be another challenging year for the automotive industry, after a difficult 2020 in which global car production was profoundly impacted by the COVID-19 pandemic. While the start of 2021 showed promising signs for a recovery of the automotive industry, with a 27% year-on-year increase in the first half of 2021, car production plummeted in the second half as a result of a severe shortage in semiconductor supply, which caused car OEMs to reduce production or even completely stop assembly lines. As a result of this decline in the second half, global ICE car production for the full year 2021 contracted by 1.7%.

Against this challenging backdrop, Umicore's **Automotive Catalysts** delivered record results, outperforming the global ICE car market both in volumes and revenues (+18.5% year on year). This growth, although more weighted in the first half as a result of the specific market context, reflected a favorable platform mix and market share gains in light-duty gasoline technologies, particularly in Europe and China, as well as strong demand for Umicore's China V compliant catalysts for heavy-duty diesel applications. The increase in adjusted EBIT was even more pronounced, supported by cost savings resulting from previously implemented footprint adjustments and operational excellence initiatives in manufacturing and SG&A. Umicore's light-duty and heavy-duty catalyst production capacity expansions in China were successfully commissioned and start of production is expected in Q1 2022.

The **light-duty vehicle** segment represented 81% of Automotive Catalysts revenues in 2021, of which 78% for gasoline technologies.

The Chinese ICE car market, which represented 28% of Umicore's global light-duty catalyst volumes, decreased by -5.4% over the full year, reflecting a profound impact of the semiconductor supply shortage in the second half of the year. While Umicore's sales volumes were not immune to this downward trend in the second half, it outperformed the Chinese market for the full year both in volumes and revenues (+13.2%), benefitting from its favorable customer and platform exposure.

In Europe, which represented 30% of Umicore's light-duty catalyst volumes, Umicore substantially outperformed ICE car production, which declined by -5.9% over the year, both in volumes and revenues (+16%). This performance was driven by further market share gains in the gasoline segment and confirms Umicore's strong position in gasoline catalyst technologies.

Umicore also outperformed both the North American and South American car markets, which combined represent 25% of Umicore's light-duty catalyst volumes, reflecting a favorable platform mix in both regions.

In Asia, Umicore benefited in particular from the ramp-up of new platforms in India, Japan and Korea and outperformed the car market both in volumes and revenues.

The **heavy-duty diesel** segment represented 19% of the business unit's revenues in 2021.

Umicore's heavy-duty diesel catalyst activity has been growing steadily in the past years and the business unit established a strong position, particularly in the Chinese and European heavy-duty diesel markets with each region representing respectively 58% and 30% of Umicore's global heavy-duty sales volumes. In Europe, Umicore's revenues (+31.9%) strongly outperformed the market (+15.2%), reflecting the ramp-up of new platforms. In China, Umicore benefited in particular from strong demand for its China V catalyst technologies in the first half, ahead of the nationwide implementation of China VI emission norms. Umicore's revenues (+33.6%) therefore significantly outperformed the Chinese HDD market (-17%).

The supply chain constraints caused by semiconductor shortage also affected the heavy-duty diesel market in the second half of the year, in particular in Europe. In China, its impact was less material as heavy-duty diesel production in the region declined significantly after the strong China V buying in the first half.

Revenues for **Precious Metals Chemistry** were well up year on year driven by peak demand levels for homogenous catalysts from the high-end pharmaceutical and fine chemicals industries as a result of strong post-COVID-19 recovery. Following the severe downturn in the automotive industry in 2020, demand for inorganic chemicals also benefited from a strong recovery at the start of the year while the impact of the global semiconductor shortage on car production dampened second half volumes.

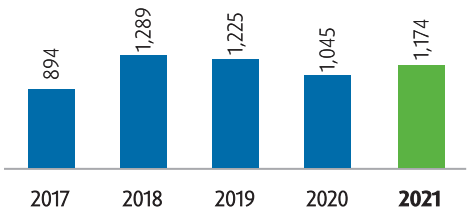
Revenues for **Fuel Cells & Stationary Catalysts** were also strongly up compared to 2020, driven by high growth in the fuel cell catalyst business, while revenues in stationary catalysts remained stable. Volumes in 2021 for proton-exchange-membrane (PEM) fuel cell catalysts used in hydrogen powered transportation almost doubled compared to 2020, positioning Umicore now at 40% global market share in the mobility segment. This is a result of strong demand from both existing customers in Korea and China and market share gains in China, where Umicore contracted several new customers throughout the year. This positive development fuels a growing contribution of the Fuel Cell Catalyst segment to the business group's earnings. In stationary catalysts, demand from the power, refinery and chemicals end-markets is project-driven in nature and felt in 2021 the repercussions of project postponements in the COVID-19 context. The last months of the year showed early signs of recovery with order book levels gradually increasing.

Catalysis key figures

	2017	2018	2019	2020	**2021**
Total turnover	3,091	3,311	4,539	5,917	**8,155**
Total revenues (excluding metal)	1,253	1,360	1,460	1,364	**1,687**
Adjusted EBITDA	224	237	264	234	**402**
Adjusted EBIT	165	168	185	154	**326**
of which associates	0.4	0	0	0	**0**
Total EBIT	161	162	185	96	**308**
Adjusted EBIT margin	13.2	12.4	12.7	11.3	**19.3**
R&D expenditure	120	135	147	139	**142**
Capital expenditure	45	79	104	64	**70**
Capital employed, end of period	1,150	1,265	1,537	1,727	**1,551**
Capital employed, average	1,014	1,200	1,358	1,596	**1,743**
Return on Capital Employed (ROCE) (in %)	16.3	14	13.6	9.6	**18.7**
Workforce, end of period (fully consolidated)	2,952	3,070	3,190	3,073	**3,007**
Workforce, end of period (associates)	-	-	-	-	**-**

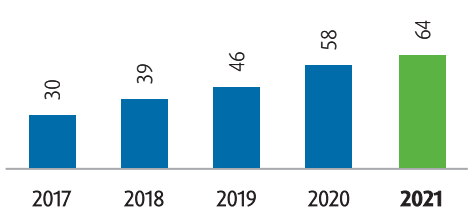
E&ST REVENUES (EXCLUDING METAL)

Millions of Euros



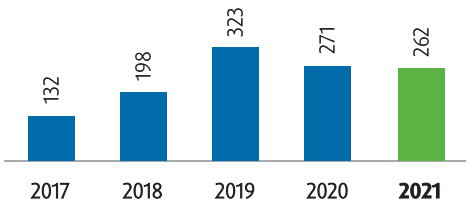
E&ST R&D EXPENDITURE

Millions of Euros



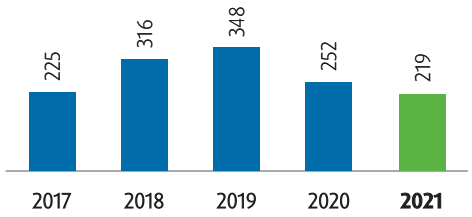
E&ST ADJUSTED EBITDA

Millions of Euros



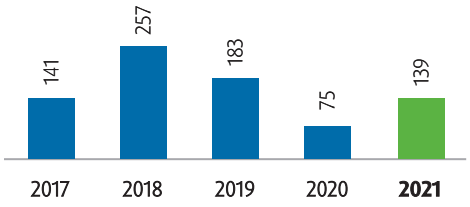
E&ST CAPITAL EXPENDITURE

Millions of Euros



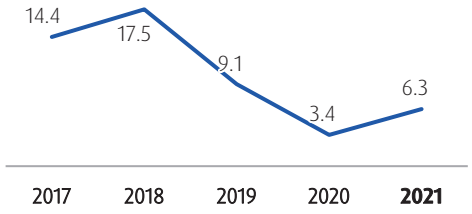
E&ST ADJUSTED EBIT

Millions of Euros



E&ST RETURN ON CAPITAL EMPLOYED (ROCE)

%



Revenues in Energy & Surface Technologies amounted to € 1,174 million in 2021, up 12% compared to the previous year, with all business units contributing to that growth.

In Rechargeable Battery Materials, sales volumes of cathode materials for EVs were well up, particularly in the first half of the year, with high demand for Umicore's NMC cathode materials for the European EV market. Revenues in Cobalt & Specialty Materials and Metals Deposition Solutions increased substantially, boosted by a sharp post-COVID-19 recovery in demand in key end-markets as well as a supportive price environment. Revenues in Electro-Optic Materials benefited from a recovery in demand and new customer wins.

Adjusted EBIT and adjusted EBITDA in Energy & Surface Technologies were up 85% and 41% respectively, reaching € 139 million and € 262 million respectively. This significant increase in earnings was primarily driven by an extraordinary contribution from the Cobalt & Specialty Materials business unit.

Revenues in **Rechargeable Battery Materials** were up year on year reflecting primarily higher sales volumes of EV NMC cathode materials. This increase was driven by strong demand from the European market, particularly in the first half of the year, whereas in China, Umicore's NMC volumes reflected an unfavorable customer and platform mix. Shipments of NMC cathode materials used in energy storage benefited from a pick-up in demand in Korea, while sales volumes of high energy LCO cathode materials used in portable electronics were below the level of previous year.

Despite the adverse impact of the semiconductor supply shortage on the automotive industry, global sales of EVs in 2021 more than doubled versus 2020, while demand for EV NMC materials increased 74% year on year. Growth of Umicore's sales volumes did, however, not match the global growth in NMC battery materials. After a strong first half, growth of Umicore's sales volumes slowed down in the second half, affected by production schedule adjustments of

qualified platforms and an unfavorable customer and platform mix in China.

Over the course of 2021, Umicore successfully entered into advanced customer qualifications for new high-nickel EV platforms in Europe and China with different battery manufacturers and car OEMs. It is currently expected that upon successful qualifications, the first sizable portion of these platforms will start commercial production in the course of the second half of 2023.

EV sales in Europe increased substantially compared to the previous year, supported by stringent CO2 targets and subsidy schemes in most European countries. Umicore's sales of NMC cathode material grew in line with the market demand for battery materials, which was up by 48%, reflecting its strong position in the region.

Sales of EVs in China recorded significant growth in 2021. While the semiconductor supply constraints weighed on overall vehicle production, car manufacturers in the region prioritized EV production where possible to meet the Chinese New Energy Vehicle (NEV) credit targets. The growth in China was primarily driven by a substantial increase in sales of short-range LFP-based vehicles, while demand for NMC battery materials increased to a much more modest extent. Umicore's volume growth did not match demand growth due to an unfavorable platform and customer mix. As a result, production in Umicore's Chinese plant remained below capacity.

Revenues for **Cobalt & Specialty Materials** were well up compared to the previous year, reflecting a sharp recovery of customer demand in key end markets, after the particularly severe impact of COVID-19 on its 2020 activity levels. Earnings further benefited from the context of increasing cobalt and nickel prices.

Revenues from the cobalt and nickel chemicals and related distribution activities increased substantially driven by significantly higher volumes at favorable conditions. Order levels for cobalt and nickel chemicals were well up in the first half of 2021, reflecting a sharp post-COVID-19 recovery in demand and related customer restocking behavior. Demand remained at an exceptionally high level in the second half of the year, with increasing cobalt and nickel prices triggering additional inventory build-up.

Revenues from the tool materials activity were also well up driven by a recovery in demand from the construction sector resulting in high order levels for alloyed powders. Revenues from carboxylates increased compared to an already robust 2020, reflecting solid demand from the coating and paint industries as well as higher order levels for naphthenic acid.

Revenues for **Metal Deposition Solutions** were well up compared to the previous year, driven by higher revenues in both the electroplating and thin film product activities. Order levels of decorative applications for the jewelry sector and platinized applications for industrial use benefited from customer restocking after the COVID-19-related slowdown in demand in 2020. Revenues from base metal finishing applications were also higher driven by the successful launch of a new connector application which allowed the business unit to further extend its customer portfolio. Finally, sales in micro-electronics and optics were also up, benefiting from a strong recovery in demand for electronics in the semiconductor industry.

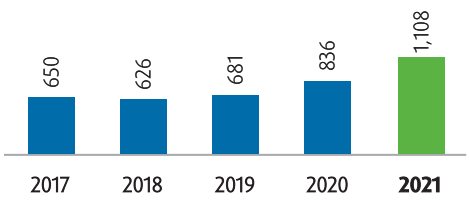
Revenues for **Electro-Optic Materials** were up year on year. The business unit saw a clear recovery in demand for high purity chemicals used in optical fibers with the pick-up of 5G projects worldwide. Volume growth in germanium substrates also accelerated, mainly in the second half of the year, driven by strong demand from the space industry for both traditional geo-satellites and low earth orbit constellations. Through new customers wins, Umicore continued to expand its germanium recycling solutions. Moreover within infrared solutions, new business wins in Europe and North America in the security and surveillance segment compensated for the normalization of demand in 2021 for infrared cameras, which recorded a COVID-19 related spike in the previous year.

Energy & Surface Technologies key figures

	2017	2018	2019	2020	**2021**
Total turnover	2,392	3,650	2,938	2,811	**3,534**
Total revenues (excluding metal)	894	1,289	1,225	1,045	**1,174**
Adjusted EBITDA	198	323	271	186	**262**
Adjusted EBIT	141	257	183	75	**139**
of which associates	10.5	0.9	5	5	**8**
Total EBIT	110	251	154	(36.2)	**141**
Adjusted EBIT margin	14.6	19.8	14.5	6.7	**11.2**
R&D expenditure	30	39	46	58	**64**
Capital expenditure	225	316	348	252	**219**
Capital employed, end of period	1,206	1,769	2,324	2,133	**2,275**
Capital employed, average	978	1,469	2,014	2,209	**2,198**
Return on Capital Employed (ROCE) (in %)	14.4	17.5	9.1	3.4	**6.3**
Workforce, end of period (fully consolidated)	2,716	3,447	3,997	3,761	**3,836**
Workforce, end of period (associates)	917	782	751	727	**792**

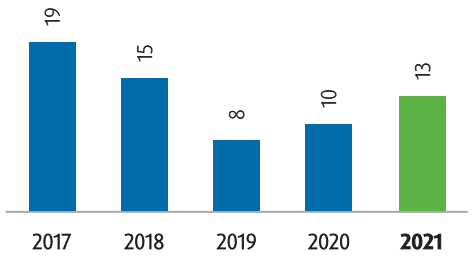
RECYCLING REVENUES (EXCLUDING METAL)

Millions of Euros



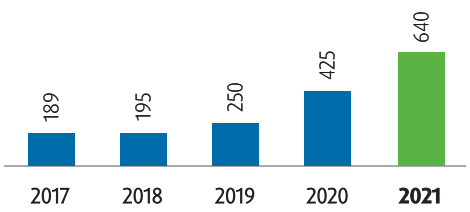
RECYCLING R&D EXPENDITURE

Millions of Euros



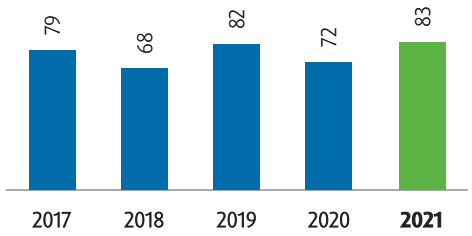
RECYCLING ADJUSTED EBITDA

Millions of Euros



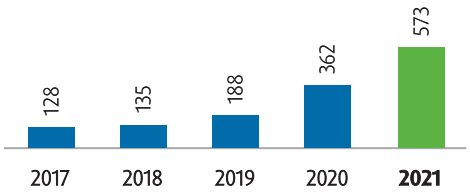
RECYCLING CAPITAL EXPENDITURE

Millions of Euros

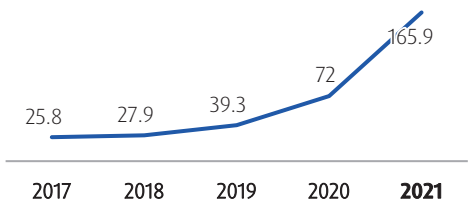


RECYCLING ADJUSTED EBIT

Millions of Euros



RECYCLING RETURN ON CAPITAL EMPLOYED (ROCE)



The Recycling business group set another all-time record performance in 2021, significantly above the previous record result achieved in 2020.

Revenues reached € 1,108 million and adjusted EBIT amounted to € 573 million, representing an increase of 33% and 58% respectively compared to 2020. Adjusted EBITDA amounted to € 640 million, representing an increase of 51%. This exceptional performance was driven by a continued strong operational performance and high activity levels in the various business units, a strong contribution from the trading activities and an exceptionally strong precious metals price environment with peaking PGM prices in the first half. The Precious Metals Refining business unit took full advantage of this exceptional metal price environment by leveraging its unique recycling technology to optimize its intake of complex PGM-rich input materials.

Revenues and earnings for **Precious Metals Refining** increased significantly compared to the previous year reflecting an exceptional precious metals price environment and in particular for PGMs in the first half of the year, as well as an excellent supply environment and robust operations with high processed volumes. The business unit took full benefit from the extraordinary market environment by actively leveraging its unique recycling technology to maximize intake of highly complex PGM materials, which resulted in an absolute record year in terms of revenues and earnings.

Supply of industrial by-products and end-of-life materials remained strong and Umicore managed to maintain total processed volumes in line with the high levels of 2020, despite the challenges induced by COVID-19-induced quarantine rules.

Revenues for **Jewelry & Industrial Metals** were well up compared to the previous year, driven by a strong performance across product lines. Revenues for platinum engineered materials increased substantially reflecting a recovery in demand for high-quality and high-grade glass applications as well as market share gains

in performance catalysts following a successful expansion of its customer portfolio. Demand for precious metal-based investment products remained high, in particular for silver coins and gold bars which are seen as safe haven investments in a context of the economic and geopolitical uncertainty. Sales volumes of jewelry products also increased, driven by a strong recovery in demand from the luxury sector following the pandemic-related slowdown in 2020. The performance of the business unit was further supported by a strong contribution of the refining activities which benefited from the favorable precious metal price environment.

The earnings contribution from **Precious Metals Management** remained broadly in line with the exceptionally strong performance in 2020. This outstanding performance was supported by continued strong demand for gold and silver from the industry and investment end-markets as well as very favorable trading conditions as a result of the high precious metals price volatility.

Recycling key figures

	2017	2018	2019	2020	**2021**
Total turnover	7,327	7,625	11,320	13,904	**15,609**
Total revenues (excluding metal)	650	626	681	836	**1108**
Adjusted EBITDA	189	195	250	425	**640**
Adjusted EBIT	128	135	188	362	**573**
Total EBIT	121	126	190	311	**529**
Adjusted EBIT margin	19.7	21.5	27.6	43.3	**51.7**
R&D expenditure	19	15	8	10	**13**
Capital expenditure	79	68	82	72	**83**
Capital employed, end of period	474	546	405	447	**461**
Capital employed, average	495	483	479	502	**345**
Return on Capital Employed (ROCE) (in %)	25.8	27.9	39.3	72	**165.9**
Workforce, end of period (fully consolidated)	3,092	2,832	2,849	2,769	**2,867**

Corporate & Financial review

In 2021, corporate costs increased, partly offset by a higher contribution from associates. The increase in corporate costs results amongst others from higher R&D and innovation initiatives linked to Umicore's mid- to long-term technology roadmap and additional digitalization initiatives with related information system costs. Corporate costs are expected to continue to increase above inflation in 2022 as Umicore is committed to its longer-term innovation and digitalization and is preparing its systems and organization to accommodate for future expansion.

Financial result and taxation

Adjusted net financial charges totaled € 100 million, compared to € 104 million in the same period last year with lower foreign exchange related costs more than offsetting somewhat higher net interest charges. The latter takes into account the issuance of a convertible bond in June 2020 which in 2021 carried a full year of interest. When excluding these non-cash interest charges on the convertible bond, cash net interest charges for the Group decreased.

The adjusted tax charge for the period amounted to € 196 million, up compared to € 103 million last year as a result of the substantial year-on-year increase in taxable profit combined with a slightly lower adjusted effective group tax rate (23.1% versus 24.2% in the same period last year). Taking into account the tax effects on adjustments, the net tax charge for the Group amounted to € 179 million. The total tax paid in cash over the period amounted to € 175 million and was also well up from € 79 million last year.

Cashflows & Financial Debt

Cashflow generated from operations including changes in net working capital more than doubled to a record level of € 1,405 million, compared to € 603 million last year. After deducting € 416 million of capital expenditures and capitalized development expenses, the resulting free cash flow from operations was € 989 million, compared to € 167 million in the same period last year.

Adjusted EBITDA was € 1,251 million, up 56 % compared to € 804 million generated in 2020. This corresponds to a record adjusted EBITDA margin of 31.0 % for the Group, substantially up versus 24.6 % in the same period last year, driven by higher margins across Business Groups, particularly in Recycling and Catalysis. Some 60 % of adjusted EBITDA was generated in the first half, reflecting in particular the lower PGM prices and global car sales in the second half versus the first half.

Net working capital for the Group decreased by € 167 million since the end of 2020. This is a further reduction of € 137 million compared to end of June 2021 which benefited from some temporary cut-off effects. Working capital came down in all Business Groups, but most so in Catalysis where it reflects lower precious metal prices and softer volumes in the second half. At current metal prices, working capital in 2022 is expected to increase from the levels of end of 2021.

Dividend payments over the period amounted to € 181 million while the net cash outflow related to the exercise of stock options and the purchase of treasury shares to cover stock option plans and share grants amounted to € 22 million. The acquisition of the remaining 8.8 % minority shares in the listed subsidiary Allgemeine Gold- und Silberscheideanstalt AG and its subsequent delisting resulted in a cash out of € 54 million in the second half.

The 2021 record free cash flow drove a reduction in **net financial debt** from € 1,414 million at the end of 2020 to € 960 million at 31 December 2021, corresponding to 0.77 LTM adjusted EBITDA. Equity of the Group was € 3,167 million, corresponding to a net gearing ratio (net debt / net debt + equity) of 23.3%.

Adjustments

Adjustments had a negative impact of - € 75 million on EBIT of which - € 39 million was already accounted for in the first half.

Environmental-related provisions took up € 58 million of this total with additional provisions for the creation of a green zone neighboring the Hoboken plant accounting for the bulk. This reflects the success of the voluntary offer to purchase neighboring houses. The creation of the green zone is a key building block of the site's plan to further reduce the impact on its neighbors. Taking into account the use of the provision over the period, the total provision for the creation of the green zone at December 31 amounted to € 44 million.

EBIT adjustments also include € 34 million of restructuring charges of which € 23 million have been accounted for in the second half and are mainly related to a decision to stop a development program in Precious Metals Chemistry linked to the semiconductor industry. Impairment charges took up € 18 million of the total EBIT adjustments and were close to entirely accounted for in the first half and were mostly linked to the closure of Automotive Catalysts' heavy-duty diesel operations in Frederikssund, Denmark as well as the impairment of certain related IP.

A positive EBIT adjustment of € 40 million was recognized related to a tax credit in Brazil resulting from a landmark ruling by the Brazilian Supreme Court in May 2021 covering multiple years. Including positive adjustments to financial and tax items of € 9 million and € 17 million respectively, the total adjustments to net group earnings over the period corresponded to - € 49 million.

The contribution from Element Six Abrasives – a JV in which Umicore has a 40% stake - to Umicore's adjusted EBIT was strongly up compared to previous year's COVID-19-hit net earnings. This reflects the combination of substantially higher revenues with cost savings and efficiency gains across activities. Sales of carbide-based materials exceeded the already significant order levels recorded in 2020 driven by continued solid demand from the mining, agricultural and road paving end-markets. Revenues from oil & gas drilling equipment were also well up reflecting the gradual recovery of the global drilling industry after its abrupt standstill in 2020 and the related rebuilding of stocks by customers, while precision tooling products benefited from a recovery in demand from the automotive industry.

Hedging

Umicore entered into forward contracts to cover part of its expected structural price exposure to certain precious metals for 2022, 2023 and 2024. For 2022, based on the respective currently expected exposures, the following lock-ins have been secured: close to two thirds for palladium, more than half for gold, somewhat less than half for silver and close to one third for platinum and rhodium. For 2023, the expected lock-in ratios are: close to a third for gold, silver and palladium and a minor portion for platinum and rhodium. For 2024, only a minor portion was locked-in for the expected gold, silver and palladium exposures.

Next to strategic metal hedges, the Group typically manages a portion of its forward energy price risks by entering into energy hedges. Currently, Umicore has hedges in place that cover a minority portion of its expected European electricity, natural gas and fuel needs for 2022 and following years. These hedges particularly cover future energy needs in Belgium, Finland and Poland. While these contracts are expected to mitigate a portion of the energy price inflation effect on next year's earnings, Umicore remains largely exposed to energy market price fluctuations. Hence it expects, based on the current market price outlook, a material energy cost headwind effect in 2022, particularly for its Belgian operations.

Operations

Link to strategic topics

Clean Mobility & Recycling
Net zero GHG emissions
Zero Harm

Link to key risks & opportunities

Climate & environment, Information security & data protection, Market, Sustainable and ethical supply, Talent attraction & retention

Link to Sustainable Development Goals



€ 389m

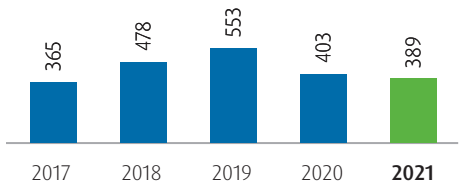
2021 CAPITAL EXPENDITURE

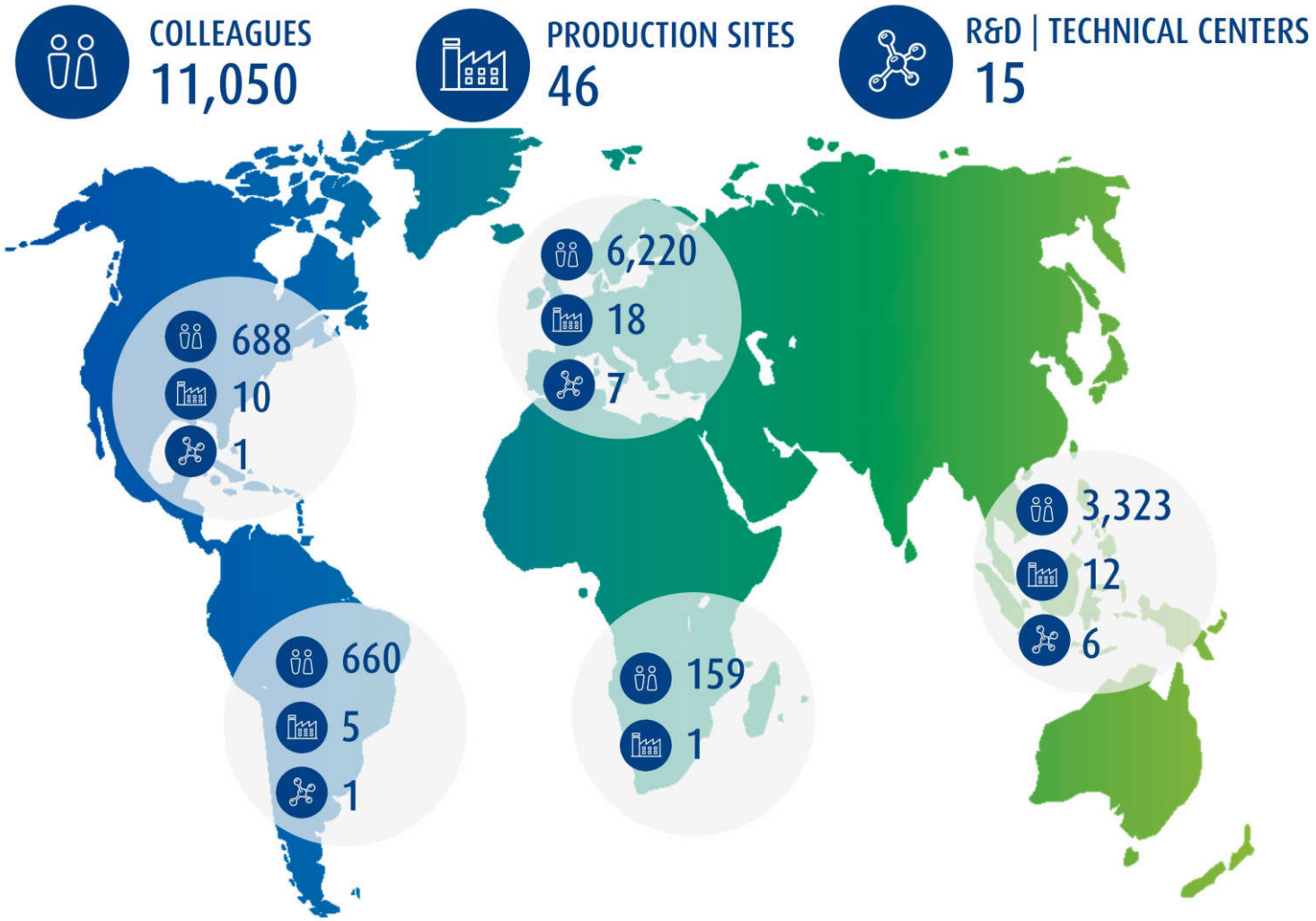
22.2%

RETURN ON CAPITAL EMPLOYED

CAPITAL EXPENDITURE

Millions of Euros





Umicore believes in proximity to our customers and in working closely with our customers' teams as a true industrial partner.

As a **local partner**, we can reduce emissions from the supply chain while offering the best possible tailor-made products and services. Proximity to our customers also allows us to optimize continuity of operations. Our decentralized approach facilitates local operations, 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.

Umicore is a global company creating products and services for a broad range of customers located in 101 countries and supplied from a diverse supplier base in 87 countries. To cater to its international customer base, Umicore is present in growing and established markets in Asia, Europe, North America, South Africa and South America.

With headquarters in Brussels, Belgium, we work from 46 production sites, 15 R&D sites and 33 other sites, including sales and marketing offices. Many sites accommodate a combination of business units, corporate or other activities.

One of our newest multiple activity sites is the Americana site in Brazil, which we see as a blueprint for future industrial sites. Ecological design means the site primarily uses renewable energy, while optimizing energy and resource utilization. Americana was also purpose-built with open spaces to stimulate dialog among the various activities present on the site.

Catalysis

Umicore's Catalysis business group contains our 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 use mainly Platinum Group Metal (PGM) chemistries, in which Umicore has over 50 years of experience.

Umicore **Automotive Catalysts** is one of the world's leading producers of catalysts used in automotive emission systems for light-duty and heavy-duty vehicles. Its catalysts are used in a wide range of powertrains, including gasoline and diesel engines, natural gas, and alternative fuels, and are increasingly important in engines supporting 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 addition, it 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 products to automobile manufacturers in Asia (with sales offices in India, Thailand, Japan and China), Europe (offices in Denmark, Germany, Luxembourg and Italy) and North and South America (USA and Brazil). Activities are driven by the worldwide efforts towards stricter emission standards for all type of combustion engines and hybrids.

Through our **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 including manufacturing, hydrogen production, power and propulsion and the automotive industry. It aims to support its customers in developing clean engines and reaching zero emission mobility and power supply. The business unit benefits from Umicore's established worldwide presence in both business areas and in 2021 added a strong footprint in China, locating its headquarters in Shanghai. Fuel cell drivetrain technology is currently benefiting from a first uptake as an environmentally friendly alternative to internal combustion engines. In 2019, the business unit commissioned a mass fuel cell catalyst production plant in Korea to meet the growing demand of its customers.

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.

In 2021, the vast majority of the energy supply for our catalyst production in Europe (Karlskoga, Bad Säckingen), South America (Americana) and North America (Burlington) was from renewable energy sources, helping our customers meet their sustainability objectives.

Energy & Surface Technologies

Umicore's Energy & Surface Technologies (E&ST) business group contains our Cobalt & Specialty Materials, Rechargeable Battery Materials, Metal Deposition Solutions and Electro-Optic Materials business units. The business group aims to power the future. Our innovative materials enable the transition to electromobility and are also used in applications including portable electronics, energy storage and power tools. One in five lithium-ion batteries ever produced contains Umicore technology. We offer Cobalt & Specialty Materials as well as Rechargeable Battery Materials for rechargeable lithium-ion batteries and we supply products for metal-based electroplating and PVD coating from our Metal Deposition Solutions business unit and material solutions for the space, optics and electronics sectors from our Electro-Optic Materials business unit. Our operations for E&ST are mainly in Asia and Europe and we sell our products to customers worldwide. The business group's products are largely based on cobalt, nickel and germanium.

Umicore **Rechargeable Battery Materials** is a leading supplier of active cathode materials for lithium-ion batteries. These batteries are the main battery technology for the new generation of hybrid and full electric vehicles and are used in a large portion of today's portable electronic equipment. Over recent years Umicore has been expanding capacity for its cathode materials to cater for growing customer demand, in particular from the electric vehicle segment. Today Umicore is supplying its customers from its sites in China and Korea and soon we will start production from our greenfield plant in **Nysa,** Poland, the first industrial scale cathode materials plant in Europe, making Umicore the only cathode player to produce industrial cathode materials on two continents and to supply cathode materials to global customers with identical quality and performance from different plants across different regions.

Umicore is currently serving the European EV market out of its Korean plant awaiting the start of commercial production at the plant in Poland. The new plant was successfully commissioned in 2021 and the qualification of its flexible production lines, with high- and mid-nickel capabilities, is ongoing with production expected to start mid-2022. Based on the growing demand from customers in Europe, Umicore is further expanding the Nysa plant with additional production lines, which are set to come on stream by the end of 2023, as previously announced. On finalization of this expansion, the Nysa plant will have a total production capacity of 20 GWh. The Nysa site can accommodate a potential capacity of more than 200 GWh, and we currently plan around 40 GWh at the end of 2024 as an interim step.

The manufacturing process in Nysa reflects the latest developments in Umicore's proprietary cathode materials production system and process. This Gigafactory will be industry-leading in terms of purity, quality and consistency, and represents a very important asset for Umicore. Nysa will be supplied with 100% green electricity from the start of production, adding a sustainability dimension in favor of our product offer.

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.

Recycling

In our Recycling business group we give new life to used metals. The business group 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 of jewelry materials (including recycling services). This segment also offers products for various applications including chemical, electric, electronic, automotive and special glass applications. It consists of three business units, with at the center its flagship Precious Metals Refining plant in Hoboken, Belgium, unique in its kind.

Umicore **Precious Metals Refining** operates as one of the world's largest precious metals recycling facilities and is the world market leader in recycling complex waste streams containing precious and other non-ferrous metals, serving customers worldwide. In 2021, the Hoboken plant benefited from previously implemented innovations and debottlenecking investments in its PGM refinery and achieved record earnings and revenues. The recent innovations allowed Umicore to maximize input of highly complex PGM materials, such as spent automotive and industrial catalysts. The regular maintenance shutdown in the second half of the year was completed as scheduled and operations restarted smoothly. As described in title story, the production plant in Hoboken is continuously investing to minimize its environmental impact.

Umicore **Precious Metals Management** is a global leader for the supply and handling of all precious metals. The business unit acts as a link between the recycling activities and producers in need of precious metals (internal as well as external). We guarantee 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 as well as semi-finished products and alloys for industrial soldering products and tradable precious metals. It also offers its precious metal recycling services to its clients for their jewelry and production scrap. In addition to the highly sophisticated precious metals recycling facility in Hoboken, Belgium, we have precious metals recycling operations in Australia, Austria, the Netherlands, Brazil, France, Canada, USA, Germany, Japan, Thailand and the UK. Our products and services are marketed in all these regions.

In 2021 Umicore was proud to establish its newest business unit, **Battery Recycling Solutions (BRS)**. Battery recycling is an essential part of our contribution to the sustainable electrification of the automotive industry as it enables us to close the loop in battery manufacturing. More details of the creation of this business unit can be found in the section Innovation. Please also see see the ACC press release.

Investments & Divestments

In 2021, capital expenditure totaled € 389 million, compared with € 403 million the previous year, with € 166 million spent in the first half.

Energy & Surface Technologies accounted for close to 60 % of Group capital expenditure, driven by European expansion investments for Rechargeable Battery Materials. This resulted in a temporary slow-down in the capital expenditure of Energy & Surface Technologies compared to 2020 and is expected to result in some spill-over of capital expenditure into 2022.

In Catalysis and Recycling, capital expenditure only slightly increased compared to the low spending levels of 2020. In Catalysis, Automotive Catalysts continued to focus on investments to optimize production footprint and targeted capacity expansions. In Recycling, the increase in capital expenditure was earmarked for environmental and safety-related investments in Precious Metals Refining.

Capitalized development expenses amounted to € 28 million, slightly down compared with 2020. Umicore's accelerated growth investments in Rechargeable Battery Materials - including the spill-over effect mentioned above - are expected to result in higher Group capital expenditure in 2022 compared with the previous year.

Associate & joint venture companies

Umicore has investments in various business activities over which it does not exercise full management control. Associate companies are those where Umicore has significant influence over financial and operating policies, but no control. Typically, this is evidenced by ownership of between 20% and 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.

Where 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. Although we cannot impose our own policies and procedures on any associate or on any joint venture where we do not possess majority voting rights, our expectations that the operations be 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.

Umicore and Volkswagen AG to create European EV battery materials Joint Venture

Umicore and Volkswagen AG announced in December 2021 their intention to create a joint venture for the production of precursor and cathode materials in Europe to supply Volkswagen AG's European battery cell production. It is anticipated that this partnership, the first of its kind in Europe, will start with an initial annual production of 20 GWh in 2025 for supply to Volkswagen AG's plant in Salzgitter, Germany, with the ambition to grow to an annual production capacity of up to 160 GWh by the end of the decade.

The partnership will provide Umicore with secured access to a significant part of the European demand for EV cathode materials while providing Volkswagen AG access to Umicore's advanced precursor and cathode materials, proven production capabilities and upstream expertise. The partnership is expected to unlock significant economies of scale and will allow investment requirements to be shared between the partners while protecting critical IP and know-how for Umicore.

In the context of the joint venture, Umicore and Volkswagen AG will also collaborate on the sustainable and responsible sourcing of raw materials, which is a strong area of expertise at Umicore. At a later stage, both parties aim to include battery recycling and elements of refining in the scope of the JV. The planned JV is subject to final agreements and customary conditions, including regulatory approvals.

Volkswagen AG has chosen Umicore as a partner not only because the two companies share the same sustainability ambitions, but also because Volkswagen sees Umicore as a leading player in this industry, uniquely combining state-of-the-art product and process technologies with a proven and well-established track record in mass scaling at highest quality levels, and strong capabilities in the ethical supply of raw materials.

For more, please see the Umicore and Volkswagen JV announcement.

Innovation

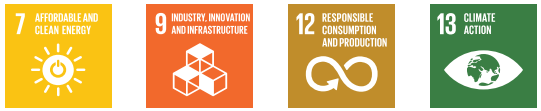
Link to strategic topics

Clean Mobility & Recycling
Net zero GHG emissions

Link to key risks & opportunities

Climate & Environment, Market, Regulatory & legal context, Sustainable & ethical supply, Talent attraction & retention, Technology & substitution

Link to Sustainable Development Goals



15

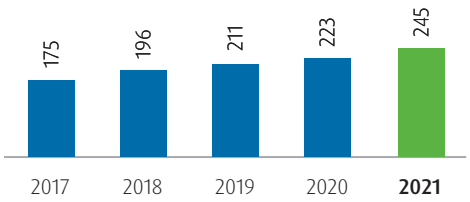
R&D SITES

€ 245m

2021 R&D SPEND

R&D EXPENDITURE

Millions of Euros



Technology, innovation, research and development are at the heart of everything we do, are core to our strategic and sustainability decisions and are a true differentiator for Umicore. 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.

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 is forging partnerships and developing technologies in collaboration with leading industrial or academic partners, through market intelligence, open innovation and investment in start-ups.

To push the boundaries of clean mobility and recycling, and to contribute to a sustainability-driven world and the green economy, Umicore's innovation activity is embedded in the core of our business and our strategy - adding value across the organization and supporting our long-term growth. Our Corporate R&D organization is a cornerstone of our technology development, connecting the R&D departments in our business units and ensuring that all parts of the business 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 and 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 materials to power the EVs of today and tomorrow. For recycling, we are an undisputed champion in precious metal recycling and a pioneer in the fast-growing sector of EV battery recycling.

R&D expenditure in fully consolidated companies amounted to € 245 million, 10% higher than the € 223 million last year. The increase results from higher R&D costs related to new product and process technologies in Rechargeable Battery Materials and Fuel Cell Catalysts, an increased effort in battery recycling, and advanced technology development related to decarbonization and emission reduction programs to meet our ambitious sustainability objectives. Umicore also increased its efforts in its mid- to long-term corporate technology development and open innovation collaboration programs.

The R&D spend represented 6% of Umicore's 2021 revenues and capitalized development costs accounted for € 28 million of the total.

New Business Incubation (NBI)

To further strengthen our innovation capabilities in a way that supports robust business growth for years to come, Umicore has created the New Business Incubation (NBI) unit. Formally established in 2020, NBI works in a startup-based environment that benefits from the support and scale of Umicore's global organization. At an early stage, NBI identifies winning technologies with the potential to become mature businesses over a horizon of 5 to 15 years. The innovation pipeline is focused on sustainable product and process technologies that enable continued long-term business growth and secure our pioneering leadership in the areas of clean mobility materials, recycling and green hydrogen.

NBI manages all aspects of business development, exploring, identifying and developing future business opportunities in adjacent and new markets. This allows Umicore to selectively expand in these markets in line with its strategy and strengths.

New incubators are set up within NBI as standalone businesses comparable to start-ups, where the technology is deployed, pilot lines are built and commercial sales portfolios are 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 2021 the NBI activities included solid state and silicon anode battery materials, battery recycling and exploration of opportunities related to hydrogen generation and storage. In early 2022, these battery recycling activities became one of the first ventures of NBI to graduate into a standalone business unit within Umicore, designated Battery Recycling Solutions (see Battery Recycling for more information).

NBI also houses key competencies that play a critical role in Umicore's innovation strategy. For example, NBI's Open Innovation team supports projects in collaboration with universities and start-ups worldwide. An example of a startup which Umicore co-created is Re|Source, a blockchain solution to trace responsibly produced cobalt from the mine to the electric car. The IP team is crucial for generating and protecting high quality IP.

NBI has also put together the Strategic Insights and Analysis team. This team contributes to better understanding of market dynamics and industry roadmaps, using corporate forecasting methods and artificial intelligence to provide strategic input to our steering committees and innovation boards. The Umicore Technical and Digital Academy provides learning opportunities to our employees in areas such as technology, digitalization and innovation as described in the UTDA story.

Clean Mobility & Recycling Innovation

The transportation sector is a major contributor to global CO_2 emissions, producing approximately 7.3 billion tonnes of CO_2 in 2020[1]. Passenger cars are responsible for a large part of this pollution, accounting for 41% of global transportation emissions in 2020. 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 strength 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 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 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 and catalysis materials is therefore crucial.

European regulation is setting ever stricter requirements and it is expected that Euro 7 emissions standards will be implemented in 2025, mandating unprecedented levels of cleanliness for ICE vehicles. Looking further ahead, we also anticipate more stringent emission standards in the United States for passenger cars (LEV IV and Tier 4 criteria in 2026) as well as significantly more stringent emissions standards for heavy-duty diesel (EPA and CARB in 2027). Current China 6 emission norms are one of the most stringent emissions standards in the world, and it is expected that China will implement even tougher China 7 emission standards for passenger cars and heavy-duty diesel transportation as of 2027. Furthermore, from January 2027, it is also expected that automotive batteries will have to declare quantities of recycled content, and by January 2030, minimum levels of recycled content will be required, with higher minima enforced from 2035.

Catalysis

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 CO_2 footprints.

Internal combustion engine catalysts

Legislation increasingly requires gasoline vehicles to be equipped with particulate filters. Our work focuses on innovative and efficient catalyst technologies, optimizing the distribution of the catalytic material in the pores of the filter to enable an optimal balance of backpressure, filtration efficiency and chemical reactivity.

An example of our innovation in this area during 2021 is a new collaboration between Umicore and the truck manufacturer, Scania, to develop clean engine technology for the transportation services market. The sector faces increasingly stringent emission standards for NOx (nitrogen oxides, a key component of smog) and particulates for heavy-duty road engines. This requires state-of-the-art engine technology and innovative catalytic emission control systems.

Together, Umicore and Scania have developed a next generation Exhaust Aftertreatment System (EATS) using a twin Selective Catalytic Reduction (Twin-SCR) approach that allows the EATS to remove NOx with very high efficiency at a significantly broader range of temperatures. The system uses the latest Vanadium SCR catalysts

[1] https://www.statista.com/statistics/1185535/transport-carbon-dioxide-emissions-breakdown/

(V-SCR), capable of meeting the performance and durability targets required by current and expected future emissions legislations, as well as complying with applicable regulations globally. This future-proof performance makes the newly developed engine and exhaust treatment system a truly global platform for Scania's parent company, Traton.

Fuel cell catalysts

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, scale-up and industrial scale production.

To complement the development of fuel-cell catalysts, in 2021, Umicore set up a portfolio of projects to explore opportunities in the generation and storage of hydrogen. One example is the development of PGM-based catalysts for liquid organic hydrogen carrier (LOHC) applications in FCEVs and other mobile applications. This technology has the potential to transform the way hydrogen can be stored and used to power FCEVs. LOHC technologies provide an effective alternative to compressed hydrogen, as they allow hydrogen to be chemically bonded to a stable liquid organic carrier, aiming at making the storage and transportation of hydrogen safer, more practical and cost-efficient. As a result, LOHC technology may help to overcome some of the existing logistics and infrastructure challenges associated with the use of hydrogen as a fuel for clean mobility. Umicore will conduct this research with support from Anglo American's PGM market development program and in cooperation with Prof. Peter Wasserscheid at the University of Erlangen, co-founder of the company Hydrogenous LOHC Technologies.

Battery materials

Umicore is a leading producer of cathode materials for lithium-ion batteries used in electric vehicles and is committed to developing materials that deliver higher energy density, faster charging times and higher cycle life at a competitive cost, while always meeting the strictest safety standards. Our technology roadmap spans short-, mid- and long-term research horizons for lithium-ion battery materials

High-nickel cathode chemistries are currently 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 chemistries. This was a major factor in setting up the intended joint venture with Volkswagen for precursor and cathode material production capacities in Europe to supply Volkswagen's European battery cell production.

Silicone-based anodes can also boost the energy density in lithium-ion batteries, thanks to their higher capacity. This is early stage project within our NBI unit.

Solid state batteries are another area of our innovation focus. Solid-state batteries are expected to substantially increase the energy density compared to commercially available lithium-ion batteries today, 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. Alongside several leading car manufacturers and cell makers, Umicore has invested in Solid Power, a U.S. developer of solid-state battery technology, demonstrating our commitment to furthering solid state battery technology together with partners.

Alongside its own research programs, Umicore promotes open innovation and supports the development of promising technologies for breakthrough battery materials. In 2021, Umicore's dedicated Open Innovation team was involved in over 140 open innovation collaborations focused on battery material development.

Battery recycling

Umicore is the world's leading recycler of 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 plant in Hoboken, Belgium, has an annual input capacity of 7,000 tons of lithium-ion batteries and battery production scrap, the equivalent of 35,000 electrified vehicle (xEV) batteries.

As demand for electrified vehicles (xEVs) 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. To this end, we have been investing to grow our battery recycling business and established 'Battery Recycling Solutions' (BRS) as a new business unit in 2021, after two years of intensive business incubation in NBI.

The creation of a dedicated organization underlines our commitment to make battery recycling and our closed loop offering an essential part of our contribution to the sustainable electrification of the automotive industry. After intensive research and piloting activities, our latest generation and proprietary recycling technology is ready to come on stream. This process is a significant step-up in recycling performance, with increased extraction efficiency of cobalt, nickel and copper to reach over 95% yield 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. A recent customer to sign up with BRS was Automotive Cells Company (ACC), using the technology for its pilot plant in Nersac, France.

Environment

Link to strategic topics

Clean Mobility & Recycling
Net Zero GHG emissions
Zero Harm

Link to key risks & opportunities

Climate & environment, Market, Regulatory & legal context, Sustainable & ethical supply, Technology & substitution

Link to Sustainable Development Goals



54%

SECONDARY MATERIALS IN INPUT MIX

-35%

DIFFUSE METAL EMISSIONS VS 2020 BASELINE IN HOBOKEN, BELGIUM

17%

RENEWABLE ENERGIES IN PURCHASED ELECTRICITY MIX

Minimizing the impact of our operations on climate and the environment are key elements of our sustainability strategy.

The Umicore Way and our mission of Materials for a Better Life are the drivers behind our commitment to sustainability. As a materials technology company, we aim to increase the efficient use of metals, energy and other inputs in our operations to balance environmental and economic factors and work to increase closed-loop relationships with our customers. Our success is measured in our ability to make sustainability a competitive advantage.

The launch of Umicore's **Let's Go For Zero strategy** in June 2021 was an important milestone in our long sustainability journey. Let's Go for Zero builds on our long-standing leadership in clean mobility materials and recycling and reaffirms our commitment to leverage our technological know-how, scientific expertise and corporate reach to be an industry leader in sustainability.

Minimizing the **environmental impact** of our operations is an important part of our Zero Harm ambition. Building on significant achievements over the last five years, Umicore will continue efforts to maximize the efficient use of resources, **minimize emissions to air and water** and commits to **reduce diffuse metal emissions by 25% by 2025** compared to 2020. In the course of 2022, Umicore will also define a target for water use.

Because **Climate change** requires immediate and decisive action, we defined our ambition for **Net zero Greenhouse Gas (GHG) emissions by 2035**, with intermediate milestones of a 20% reduction by 2025 and a 50% reduction by 2030 (vs. 2019 baseline). Umicore will continue to **improve energy and process efficiency** and switch to renewables as fast as possible.

As **meaningful impact on climate change** means mobilizing our value chain, Umicore will work with suppliers to reduce scope 3 GHG emissions and in the course of 2022 will define a target aligned with the objectives of the Paris Agreement.

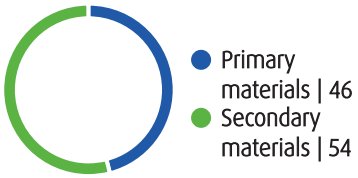
In 2021, Umicore stated its support for the Taskforce on Climate related Financial Disclosures (TCFD), joined the Belgian Alliance for Climate Action (BACA) and formally committed to the Science Based Targets initiative (SBTi) process for validation of our decarbonization targets.

For more on risks related to environmental impact, see the Climate & Environment risks section.

Resource Efficiency

INPUT MATERIALS MIX

%



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 the eco-efficient recycling and refining of precious, special, secondary and base metals-bearing materials. Our eco-efficient 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 re-use of materials.

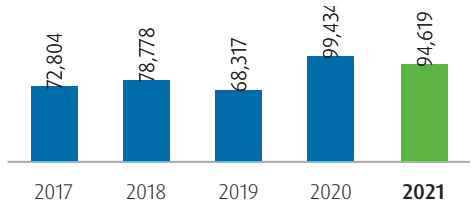
In 2021, 54% of the materials were from secondary origin and 46% were of primary origin. Umicore revised the definitions of primary and secondary raw material in 2021. A comparison with previous years is therefore not fully applicable (see environmental statements). In 2021, post-consumer raw materials represented approximately 37% of total secondary raw materials for the Group. As part of the annual third-party assurance of our Cobalt Framework, the share of cobalt from recycled origin is already reviewed. The share of cobalt from recycled origin was also reviewed as part of the assurance process and increased to 8%, up from 4% in 2020.

Over time, factors impacting secondary materials availability for Umicore's input mix could be the rapid growth in demand for clean-mobility materials, linked to society's shift to decarbonization, combined with long lead times between bringing material to the market and having material available for recycling.

Waste

TOTAL WASTE[1]

tonnes



1 Data from previous years is for indicative purposes only.

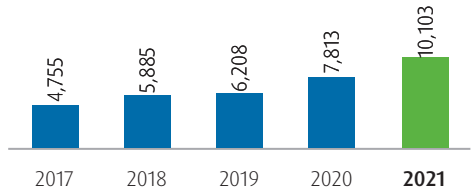
Umicore's commitment to resource efficiency is at the heart of our closed loop business model. We maximize the use and reuse of the materials in our flows. Similarly, we monitor and seek to minimize the waste generated by our operations. In 2021, a more precise application of internal definitions impacted all waste KPIs andmainly the recycling percentage in hazardous waste. The corresponding data for previous years could not be retroactively restated. Therefore, a comparison of 2021 results with previous years is indicative, but not precise.

In 2021, a total of 94,619 tonnes of waste was generated of which 21,065 tonnesof non-hazardous waste and 73.554 tonnes of hazardous waste. The recycling rate of non-hazardous waste was 71% in 2021 and of hazardous waste 8%.

Water

TOTAL WATER WITHDRAWAL[1]

megaliters



1 The data from 2017-2020 is 'water use' with a slightly different definition, see Environmental Statements

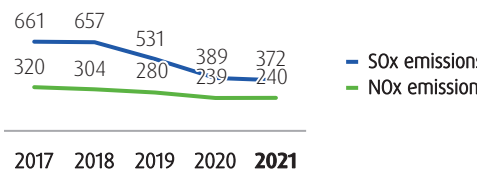
Umicore has tracked water withdrawal – until 2020 termed 'water use' – on Group level for many years. In 2021, we aspired to align with GRI definitions and to track water discharge and thus report water consumption as the balance between discharge and withdrawal. During analysis of the data reported for 2021, notable uncertainties were encountered in the water discharge figures reported at three of our industrial sites. These uncertainties could not be resolved due to data availability limitations and prevented us from presenting water discharge and consumption data in this report. Efforts are underway to improve the underlying data and arrive at audit-quality calculations of the water discharge and water consumption at the sites, which is expected to yield a dataset that is well aligned with GRI standards for 2022 and thereafter. This will form the basis of a future water objective as part of Let's Go for Zero.

For 2021, we present the total water withdrawal to allow a rough comparison with the 'water use' reporting from previous years. **Total water withdrawal** in 2021 was 10,103 megaliters and total fresh water withdrawal was 9,764 megaliters. When discounting the withdrawn produced water, the groundwater withdrawn for remediation purposes and the cooling water withdrawn and returned to surface water from the total withdrawal, the result for 2021 is 8,369 megaliters. This 2021 figure is a 7% increase from the 7,813 megaliters of 'water use' reported in 2020, linked to increased activity in our Recycling and Energy & Surface Technology business groups.

Emissions

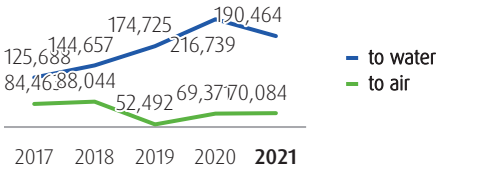
SOX & NOX EMISSIONS

Tonnes



METAL EMISSIONS TO AIR & WATER[1]

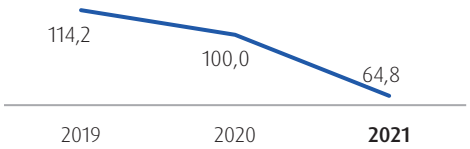
Impact units



1 A different set of impact factors was used for the data from 2017-2019, see Environmental Statements

DIFFUSE METAL EMISSIONS - HOBOKEN SITE[1]

% impact of the 2020 baseline



1 Relative impact of diffuse emissions (Pb,As and Cd), averaged over 3 measuring posts and over full year.

Umicore has been systematically tracking metals emissions to water and air from point sources since 2011. Ambitious reduction targets have been achieved since then, and we strive to continuously reduce the impact that our metals emissions have on the environment. We focus on emissions that are relevant to the environment in terms of impact and that are affected by the metals present in Umicore's material flow. We monitor and take steps to reduce the impact of emissions on the environment – to air, water and on the soil.

Different metals each have different and specific potential toxicity levels for the environment and human health. For this reason, we focus on reducing the impact of our emissions by applying an impact factor. In 2021, we reviewed the scientific basis behind this approach and revised the impact factor of several metals. This revision has been applied to 2021 reporting and to recalculate 2020 values for comparability.

The **SOx** emissions for the Group reduced by 4% from 389 tonnes in 2020 to 372 tonnes in 2021. The **NOx** emissions remained at similar levels, with 240 tonnes in 2021 compared to 239 tonnes in 2020.

Metal emissions to air in 2021 were 70,084 impact units, up by 1% from 69,371 in 2020. The corresponding loads of metals to air also increased by 1% year-on year, from 984 kg in 2020 to 994 kg in 2021. **Metal emissions to water** in 2021 decreased 12% to 190,464 impact units, from 216,739 in 2020. This can be mainly attributed to a decrease in production activities at Cobalt and Specialty Materials at our site in Olen (Belgium). The corresponding load of metals to water for the Group increased by 28% year-on year, from 2,695 kg in 2020 to 3,440 kg in 2021. This means that the bulk of the increase in load occurred for metals with a low environmental impact, and that we managed to further decrease the load of metals with a high impact on the environment.

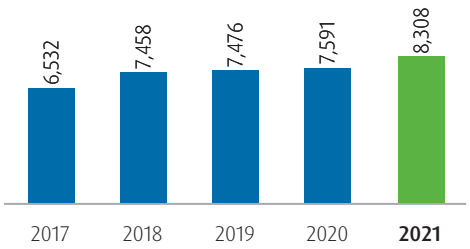
Building on robust operation of the wastewater treatment plant and stepwise improvement of air emissions abatement systems, Umicore's site in Olen (Belgium) reached record low outputs of metals to water and air. Improvement to treatment at the milling step of raw materials for the Nickel plant in Olen was one of the impactful improvements in 2021.

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. Achieving our Group-wide target of a 25% reduction from the 2020 baseline will mean defining targets for each site identified as contributing to Umicore's impact in terms of diffuse metal emissions. While this screening is ongoing, in 2021, we are reporting our performance of diffuse metal emissions reduction from our production site in Hoboken (Belgium) where this ambition was translated into the operations at the end of 2020. As a result, compared to the site's 2020 baseline, diffuse metal emissions at the end of 2021 were reduced by 35.2%. More on how the Hoboken site is managing its diffuse emissions performance can be read here.

Energy

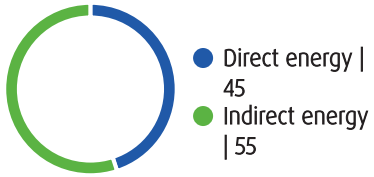
ENERGY CONSUMPTION (ABSOLUTE)

Terajoules



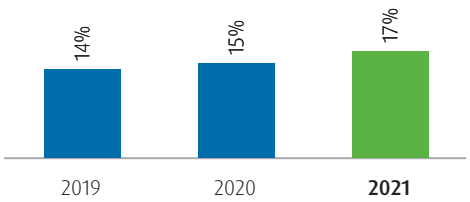
ENERGY BY SOURCE

%



RENEWABLE ENERGY IN PURCHASED ELECTRICITY

%



Umicore has a long history of prioritizing **energy and process efficiency** across its operations. In the context of our Let's Go for Zero strategy, efficiency remains a priority to help us achieve our ambitions of net zero GHG emissions by 2035. Energy consumption continues to be monitored and reported at all sites, including energy efficiency projects. Several Umicore sites have implemented the ISO 50001 energy efficiency standard, and the 2 largest sites in Belgium have been part of the energy efficiency covenant with the Flemish government since 2004.

In 2021, 26 sites accounted for more than 95% of the Group's energy consumption with a total of 35 energy efficiency projects implemented over the course of the year. This year, we are sharing 2 energy efficiency project outcomes from 2 different locations and business units, both operating out of Korea:

- In 2021, our Rechargeable Battery Material sites in Cheonan, which together form an important part of our production of cathode materials for rechargeable batteries, sought to minimize energy loss from compressor air as part of their energy efficiency projects. Leak points were identified using an ultrasonic scanner, and immediate actions could be taken to reduce air loss, and subsequently, leakage points were eliminated during regular maintenance activities. This project at the 2 Cheonan sites saved approximately 723 MWh in the first 12 months after implementation.

- Our Automotive Catalysts site in Songdo , which produces catalytic converters for the automotive market in Asia, identified water pumps, an integral element of their cooling water system, as a main energy consumer at the site. The site team discovered that there were significant pump control inefficiencies. A smarter way of operating the pumps was developed and implemented, which led to savings of almost 661 MWh in the first 12 months after implementation.

Total energy consumption in 2021 was 8,308 TJ compared with 7,591 TJ in 2020, an increase of 9%. This increase in energy consumption can be mainly attributed to an increase in activity in our Recycling and Energy & Surface Technology business groups. In 2021, direct energy consumption was 3,782 TJ, or 45% of the total energy consumption for the Group, and indirect energy consumption for industrial sites and office buildings was 4,526 TJ, or 55% of the total energy consumption for the Group.

In recent years, as part of our commitment to sustainable operations, we began examining the share of **renewable energy** in our purchased energy mix. 2019 marked the first year we systematically collected information from our sites and could report the result. Since then, our ambition to reach net zero GHG by 2035 has increased our focus on decarbonizing the energy we use. Decarbonizing energy used to fuel our processes will require innovations in process and technology.

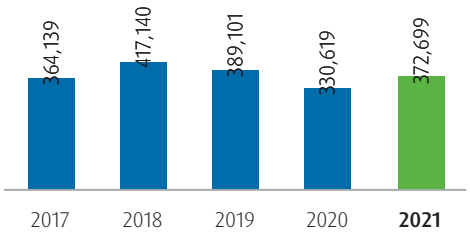
While choosing the share of renewables in our purchased energy mix is a challenge in some of the regions where we are most active, Umicore is actively pursuing an increase in the share of renewables in our purchased energy mix. In 2021, the share of renewable energies for purchased electricity was 17%, up from 15% in 2020. For more on our efforts to secure long-term renewable energy contracts, see our PPA announcements.

In 2021, Umicore also completed additional on-site renewable electricity installations, including solar installations at our sites in Americana (Brazil), Jiangmen (China) and Brussels (Belgium).

Greenhouse Gas Emissions

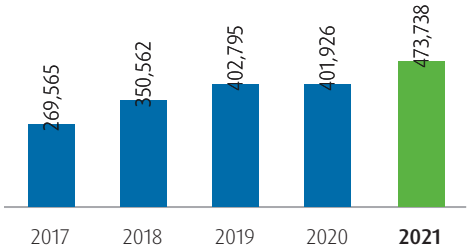
SCOPE 1 EMISSIONS

Tonnes CO_2e



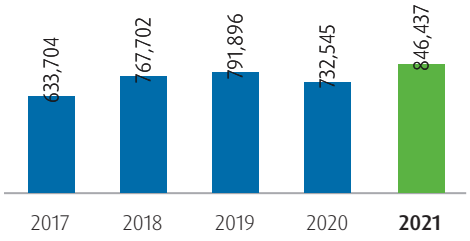
SCOPE 2 EMISSIONS - MARKET BASED

Tonnes CO_2e



SCOPE 1+2 GHG EMISSIONS - MARKET BASED

Tonnes CO_2e



Umicore has set a target for **net zero Greenhouse Gas (GHG) emissions 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: 791,896 tonnes CO_2e total scope 1 + 2 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.

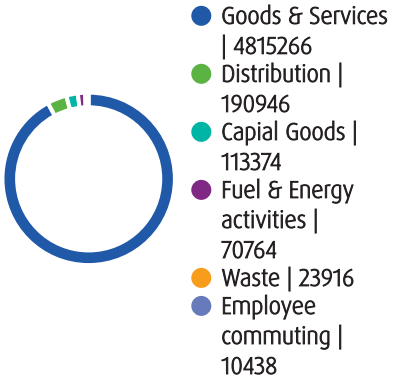
Total market-based emissions in 2021 increased 16% to 846,437 tonnes CO_2e , from 732,545 tonnes CO_2e in 2020, due to an increase in activity in our Recycling and Energy & Surface Technology business groups. Despite this increase in activity and absolute emissions, our commitment to process efficiency is reflected in the decrease in **Umicore's GHG intensity** in 2021, with a ratio of .000213, compared to the 2020 GHG intensity ratio of .000226.

Total location-based emissions were 791,687 tonnes CO_2e. The difference between the location- and market-based total indicates that on aggregate for all countries where we operate industrial installations, the average grid mixes in the countries/regions lead to lower CO_2e emissions than the specific electricity contracts that we have in place. Umicore is working with energy suppliers to conclude power purchase agreements (PPA) to significantly reduce the market-based CO_2-emissions by increasing the share of purchased carbon-free and low-carbon electricity. For more on our efforts to secure long-term renewable energy contracts, see our PPA announcements.

In 2021, **scope 1** emissions were 372,699 tonnes CO_2e, while market-based **scope 2** emissions were 473,738 tonnes CO_2e, a 44/56%-split between scope 1 and scope 2 (market based) emissions. scope 1 emissions increased by 13% year-on-year, compared with 330,619 tonnes CO_2e in 2020. scope 2 emissions increased by 18% year-on-year, compared with 401,926 tonnes CO_2e in 2020.

UPSTREAM SCOPE 3, BY TYPE[1]

Tonnes CO_2e



1 From a preliminary 2018 study, see Environmental statements

Umicore conducted a preliminary study on our 2018 upstream **scope 3** footprint, specifically considering purchased goods and services, capital goods, fuel and energy related activities, upstream distribution, waste generated and employee commuting. The resulting scope 3 amounted to 5.2 million tonnes CO_2e, a footprint multiple times larger than Umicore's scope 1 and 2 combined, and 87% of the total scope 1+2+3 upstream emissions for 2018. The vast majority of the scope 3 emissions (more than 90%) are related to the upstream emissions linked to purchased goods. In our case, a high share of the impacts comes from the metals linked to clean mobility applications, in particular platinum, palladium, and rhodium for automotive catalysts. The second largest contributing category is upstream distribution.

As part of our commitment to the Science Based Target initiative , Umicore is updating its scope 3 inventory for the year 2019. The running update includes all the relevant categories upstream and downstream.

For **avoided emissions**, also referred to as "**scope 4**", see Sustainable Products & Services and the Environmental statements.

Regulatory compliance & management system

In 2021, some 58,000 environmental measurements were carried out at all Umicore's industrial sites, compared to some54,000 the year before. The number of measurements that did not meet the regulatory or permit requirements is very low at 0.10% for the Group, compared to 0.15% in 2020.

Of the 54 consolidated industrial sites, 51 have put in place an environmental management system certified against ISO 14001. Two of the remaining 3 sites are acquisitions/new sites that joined Umicore reporting in 2018 and 2021, these sites are planning the implementation of an environmental management system during 2022. The other remaining site closed down at the end of 2021 and did not undergo recertification in 2021.

In total, 104 environmental complaints were received in 2021, the large majority of which was related to noise and odor. 73 of the complaints are ongoing.

Managing impact from historical activities

In the mid-1990s, Umicore began divesting any mining rights remaining from its historical predecessor companies. Mine closures and restitution of concessions to state authorities are 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.

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 progress made in the main ongoing programs during 2021.

Belgium

Our oldest predecessor company, Vieille Montagne, was granted a mining concession by Emperor Napoleon Bonaparte in 1805, with five more concessions added over time. Mining activities ceased in the 1950s, and extensive rehabilitation work was carried out in close consultation with the competent authorities. Four concessions were officially retroceded to the Government, 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 concluded a voluntary Covenant with the Flemish Region to deal with this historical contamination, signing an addendum in 2004 with the regional waste authorities (OVAM) and the Flemish Regional Minister of the Environment. We committed to spend € 62 million over 15 years for historical pollution remediation on four sites, including two sites in Balen and Overpelt which were divested by Umicore in 2007 and now belong to Nyrstar. OVAM and Umicore also joined forces to remediate historic pollution in the 9km perimeter surrounding the industrial sites, over 10 years, both contributing €15 million to a new remediation fund. Remedial efforts on Umicore sites will continue as necessary.

The precious metals recycling plant in Hoboken was originally a lead and silver refinery. Over the years, Umicore has replaced heavily contaminated topsoil and remediated historical contamination in the adjacent residential area. In 2022 a next phase in the groundwater remediation will be initiated.

In Olen, pollution in and around the site results from historical production activities of mainly copper and cobalt. An on-site groundwater remediation program started in 2007 is ongoing. In 2020, contaminated soil and buried waste were further excavated at various locations where infrastructure work was needed.

Between 1922 and 1980, radium and uranium were also produced in Olen, including radium used in experiments by Marie Curie. The radium production plant was demolished during the 1970s and the production waste was confined to a temporary but long-term aboveground storage facility, according to contemporary standards. In 2020, the Federal Agency for Nuclear Control issued guiding principles for the permanent remediation and storage of this legacy radioactive material. Joint working groups, including government agencies such as NIRAS/ONDRAF, OVAM, FANC and Umicore, are describing the steps towards a permanent storage solution. Developing and implementing this detailed roadmap is expected to take several years. Meanwhile Umicore continues risk monitoring.

Brazil

During an environmental assessment following the acquisition in 2003 by Umicore of industrial units in Americana (SP), Guarulhos (SP) and Manaus (AM) in Brazil, pre-existing groundwater pollution was detected at the Guarulhos site. Umicore installed a hydraulic barrier in 2011 to stop the spread of this contamination. Targeted extraction systems were put in place on site to speed up the remediation. Closure and the partial demolition of the industrial buildings in Guarulhos, with the industrial activities having moved to Americana during 2020 and 2021, will enable improved treatment of the core contamination. State-of-the art remedial techniques were evaluated during 2021, for implementation which is expected to start in 2022.

France

Umicore's predecessor companies operated mines in the south of France from the mid-1800s. The last mining activities were terminated by the early 1970s and extensive rehabilitation work was carried out during the 1990s. All former mining concessions in France have been returned to the French government, with the last confirmed by ministerial decree in 2005.

Zinc mining in Saint-Félix-de-Pallières began in the 19th century. The concession was closed in 1971 in full compliance with legislation and was waived in 2004 by the French authorities. Umicore remains in the area and regularly monitors a landfill containing flotation residues, which remains Umicore's property. To guarantee its long-term safety and stability, Umicore carried out and completed extensive refurbishment work in 2021, including remodeling the land surface, installing engineered stability layers, planting vegetation and improving the drainage system.

In Viviez, pollution in and around the site results from historical zinc production activities started in 1855. Umicore invested € 40 million in

a large-scale remediation program from 2011 to the end of 2016 and has transferred post-remedial obligations 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 were collected in 2017 and 2018 and measures were defined by a dedicated expert panel established by the competent authorities. Umicore is currently preparing for execution of the work, and a detailed roadmap is being finalised.

USA

In 1980, Umicore's predecessor company acquired an abandoned silver-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. In the 1990s a water treatment plant was installed, which was replaced by a new modern facility in 2018 with a view to further decreasing metal concentration in the discharge and the volume of solid waste. A proposal received by Umicore/Union Gold in 2019 for a new effluent permit was immediately contested by Union Gold, arguing against the technical feasibility of the very stringent limits for arsenic to be attained in 2024. The competent authorities accepted these arguments and recommended applying for a less stringent permit modification. Meanwhile, Union Gold tested additional treatment steps in the wastewater treatment plant. Continuous improvement work on the water treatment plant at the site has been undertaken throughout 2021 and will continue in the coming years.

At the cobalt-producing facility operated by Umicore in Maxton, North Carolina from 1980 to 2010, soil and groundwater contamination were identified after closure and demolition of the plant. Umicore entered a voluntary program with the authorities and has put in place comprehensive groundwater remediation to address the issue fully by 2033. In 2021, the land owned by Umicore was divested. The forecast groundwater remediation plan over the coming years has been refined with a view to further improving the long-term management of the groundwater resource.

Environmental key figures

	unit	notes	2017	2018	2019	2020	**2021**
CO_2e emissions (scope1)	tonne	E7	364,139	417,140	389,101	330,619	**372,699**
CO_2e emissions (scope2) - Market based	tonne	E7	269,565	350,562	402,795	401,926	**473,738**
CO_2e emissions (scope2) - Location based[1]	tonne	E7	299,168	368,649	426,074	417,346	**418,989**
Energy consumption	terajoules	E6	6,532	7,458	7,476	7,591	**8,308**
Renewable electricity	%	E6	-	-	14	15	**17**
Metal emissions to water (load)	kg	E5	1,437	1,861	2,052	2,695	**3,440**
Metal emissions to water$_1$	impact units	E5	125,688	144,657	174,725	216,739	**190,464**
Metal emissions to air (load)	kg	E5	1,829	1,564	864	984	**994**
Metal emissions to air$_1$	impact units	E5	84,463	88,044	52,492	69,371	**70,084**
Diffuse metal emissions	%	E5			114.20	100.00	**64.80**
SOx emissions	tonne	E5	661	657	531	389	**372**
NOx emissions	tonne	E5	320	304	280	239	**240**
Water withdrawal	thousand m3	E4	4,755	5,885	6,208	7,813	**10,103**
Fresh water withdrawal	thousand m3	E4					**9,764**
Total waste produced	tonne	E3	72,804	78,778	68,317	99,434	**94,619**
Hazardous waste$_1$	tonne	E3	55,442	58,759	47,589	78,055	**73,551**
of which recycled$_1$	%	E3	4.3	5.3	7.9	5.0	**8.0**
Non hazardous waste$_1$	tonne	E3	17,373	20,018	20,728	21,379	**21,065**
of which recycled$_1$	%	E3	58.2	62.2	59.4	64.7	**71.4**
Compliance excess rate	%	E8	0.10	0.14	0.10	0.15	**0.10**
Environmental complaints	N°	E8	34	29	33	80	**104**
Sites ISO 14001 certified	%	E8	92	91	95	96	**94**

1 Some definitions of KPIs 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.

Employees

Link to strategic topics

Zero Harm
Zero Inequality

Link to key risks & opportunities

Talent attraction & retention

Link to Sustainable Development Goals



11,050

Group employees

22.5%

Women in our workforce

94%

Retention rate

Our long-term success depends on being a safe workplace where employees feel engaged and take care of each other.

The Umicore Way, and our values of openness, innovation, respect, teamwork and commitment, are the cornerstone of everything we do at Umicore.

Our employees are key to our success, and as a result, we invest significant resources in ensuring we are an employer of choice in all the regions where we operate. We support our employees and we support their right to collective bargaining.

We engage in constructive dialogue with our employees and their representatives. Umicore renewed the **Sustainable Development Agreement** with the international union IndustriALL in 2019. The agreement covers the global implementation of a number of policies including Human Rights, equal opportunities, labor conditions, ethical conduct, environmental protection and the participation of trade unions in the pursuit of these objectives. See the full text of the agreement here.

2021 was the year of the launch of the Let's go for Zero strategy, including a comprehensive people strategy. Engage@work is an extension of our Umicore values, in which we focus on caring for all our colleagues. **Engage@Work** has four pillars:

- Diversity & Inclusion - the way we think
- Agile way of working - the way we lead
- Learning & Growth - the way we learn
- Wellbeing - the way we care

Umicore believes in entrusting a large degree of autonomy to each of its business units. Following the strategy announcement in June 2021, corporate HR engaged with the business units to translate Group-level ambitions collaboratively into objectives tailored to the individual contexts of each business unit and the sites and regions in which they operate. In the second half of 2021, implementation focused on the Diversity & Inclusion and Wellbeing pillars.

We believe in equal opportunities, fairness, inclusion, and diversity. 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. Diversity of thought can only improve innovation and ultimately performance at Umicore.

As a global company, Umicore is diverse by nature. As we continue to build opportunities for diversity, we will also now direct our efforts toward building even more inclusion.

Umicore strives to be a preferred employer of both current and prospective employees, and we are committed to their wellbeing and to ensuring that Umicore is a healthy place to work. Umicore promotes and safeguards physical, mental, social and occupational health in the workplace, because wellbeing is fundamental for a thriving workforce. Reducing stress and understanding local work cultures are key elements of our Wellbeing@work programs.

We do not compromise on safety and seek to create an accident-free working environment for all. We are committed to further developing our safety standards and to setting up a safety culture across all sites. Care is the basis to lead Umicore to zero work related injuries which is the target set in our Let's go for Zero strategy.

Umicore is committed to providing competitive salaries and working conditions to our employees and to providing occupational and professional training opportunities. We empower all Umicore employees to contribute to Umicore's success. Performance is appraised regularly and rewarded equitably. 2021 was a year of record performance thanks to all Umicore colleagues, who stayed safe and kept operations running despite another year of COVID-19. Our caring culture reinforces the sense of belonging at Umicore, which is also reflected in the fact that we maintain a strong retention rate.

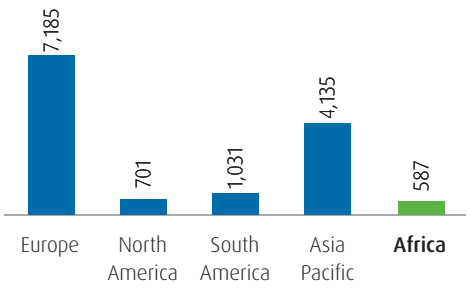
Workforce

11,050

TOTAL EMPLOYEES

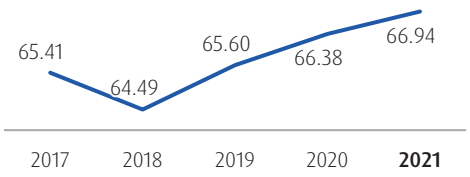
WORKFORCE, BY REGION

Number of employees



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

%



Our employees are key to our success, and as a result, we invest significant resources in ensuring we are an employer of choice in all the regions where we operate. We support our employees and we support their right to collective bargaining.

In 2021, the **total workforce** increased by 320 employees to a total of 13,639. The number of employees in the fully consolidated companies increased from 10,859 at the end of 2020 to 11,050 at the end of 2021, mainly due to growth in the Asia-Pacific, Europe and South America regions. The most significant increase relates to the further development of the cathode materials production site in Poland. Amongst the associated companies there was an increase of 129 employees in 2021. While all the associated companies saw an increase, Element Six Abrasives had the biggest increase despite the divestment of the Wuxi plant.

Most Umicore employees work on a full-time basis, as illustrated by the full time equivalent (FTE) of 10,828 (consolidated), which is very close to the reported headcount of 11,050 employees.

Umicore has had a systematic Group-wide internal reporting on **Code of Conduct** matters since 2011. In 2021, a total of 25 cases were reported, involving a total of 33 employees. The majority of these cases were about personal misconduct. The type of action taken varies from a warning letter to dismissal.

Implementation of the **Sustainable Development Agreement** with IndustriAll is overseen by a joint monitoring committee. All Umicore sites are screened internally each year. In 2021, this screening showed that none of Umicore's sites demonstrated a particular risk of infringement of any of the principles of the agreement.

Umicore supports the right to organize collective bargaining agreements. 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 2021, the highest representation was in South America and Europe and the lowest in North America. With a slight increase from 66.38% in 2020, 66.94% of Umicore employees belong to **a trade union** organization and/or the level of their wages were negotiated through **a collective bargaining agreement in 2021**.

Umicore is committed to upholding the right to adequate remuneration for all employees and the principle of equal remuneration for men and women workers for work of equal value. Remuneration and all other benefits are based on the principle of fairness and are defined on the basis of **whichever is highest** among the following criteria:

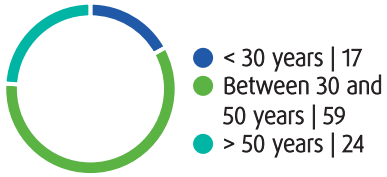
- national legal standards, or
- standards of the national branches, or
- collective labor agreements

As part of the Let's Go for Zero strategy announced in June 2021, Umicore will start measuring and disclosing more formally how we apply the principle of pay equality.

Diversity

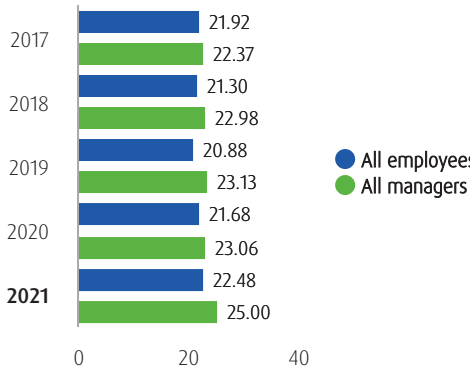
WORKFORCE AGE SPLIT

% of employees



WOMEN AT UMICORE

% of employee category



An inclusive work culture is essential for every employee to feel well at work and to be prepared for success.

In the context of the Let's Go for zero strategy and in the spirit of leading by example, senior management has received training about inclusion and how to activate it. An e-learning on unconscious bias is offered to all hiring managers as part of the recruitment process and on a local level, many diversity & inclusion training sessionsare conducted.

I'm fascinated to learn that everybody has unconscious biases and that we can learn to change these biases in a positive way.

Besides training, Umicore has installed several networks and employee resource groups (ERGs), including the Focus on Women network and a regional LGBTQ+ network .These are voluntary, employee-led groups that share a common interest, identity, experience or common bond. The groups provide a safe space for employees to support one another, focus on career development, and support the organization. ERGs also encourage a culture of inclusiveness and belonging. For more, see Finding your voice.

We also build strong ties across different generations within the Group: one example is in the R&D team at the Automotive Catalyst business unit. A sounding board of young colleagues was put into place to share ideas and thoughts with more senior colleagues. Every six weeks, they debate on strategic topics for the business unit and offer their suggestions to senior management for potential further development.

Umicore is a global company headquartered in Brussels, Belgium. As our global footprint continues to grow, we seek to increase the diversity of experiences and cultures across the Group, and in particular in senior management. A better balance in this regard will enable us to make business decisions that are strongly aligned with the markets we serve.

One way to measure this is by looking at the diversity of nationalities: in 2021 our employees covered 75 nationalities. The share of non-European representation in senior management positions increased to 21.57% in 2021 from 20.13% in 2020, as a result of increasing awareness of business needs and closer follow-up of talent to broaden the pipeline of candidates.

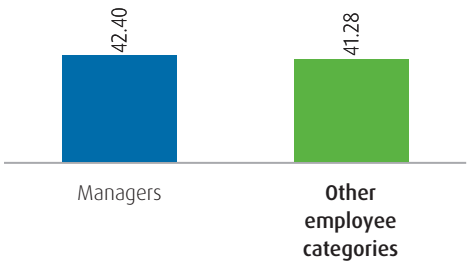
We set ourselves the Let's go for zero target of **gender parity as soon as possible**, with an intermediate goal of 35% of women in management by 2030. In 2021, 22.48% of Umicore employees were women, which is only a slight increase from 21.68% in 2020. This incremental rise is attributed to the nature of industrial operations, where candidates are usually men. Despite this, women in management roles have increased from 23.06% in 2020 to 25% in 2021.

Umicore recruits on the basis of competency and throughout the organization there is a firm belief that increasing diversity of thought is beneficial to our capacity to innovate. To meet our gender diversity goals, our overall focus continues to be on recruiting and developing female managers and in 2021, 45% of managers recruited were women, up from 30% in 2020. Several actions were taken to reach this number, including the implementation of gender-neutral job descriptions, communication campaigns featuring female colleagues and increased usage of job platforms with a specific focus on a diverse inflow of candidates. The type of management position and location of the role were also factors in increasing the diversity of the candidate pool. The high inflow of women into management positions in 2021 does not mean that there are no hurdles: the nature of the jobs in the technology sector, the reality that in some geographies graduates for certain positions are mainly men, and the ongoing war for talent remain challenges. The Women in Business Program shows how Umicore is tackling some of these challenges.

Talent management

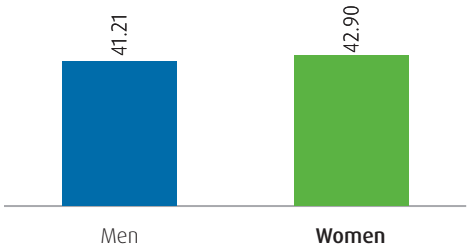
TRAINING TIME, BY EMPLOYEE CATEGORY

Average hours of training per employee



TRAINING TIME, GENDER SPLIT

Average hours of training per employee



To anticipate and seize opportunities in the market and to respond quickly to customer needs, Umicore is adopting **an agile way of working**. Agility is our ability to anticipate, adapt and respond quickly to change. Agility means we engage in building a collaborative workplace where employees take the initiative, challenge the status quo and propose new solutions, across business units, functions and regions. All employees are encouraged to take ownership and to lead from wherever they stand.

In 2021, we introduced our unique leadership model – the Leadership Compass – which has three pillars: win from within, engage with impact and go beyond borders. It combines a winning approach, an entrepreneurial attitude and engagement with teams and colleagues: our leaders instill their passion and drive, care for their colleagues, engage with their teams for a common goal and calculate risks by looking beyond their own horizon. We have clarified the expectations of senior management and integrated these behaviors into our way of recruiting, our assessment tools, training, talent review, succession planning and our project management.

Employee mobility is a way to bolster an agile way of working: working in more than one country, business unit or job family stimulates employees to adapt and to respond quickly to change.

My expat experience means getting out of my comfort zone, adapting to new environments, being open to new ideas and appreciating different ways of working ... all these competencies are key for the agile, dynamic organization Umicore is striving to be!

At Umicore we engage in creating a culture of continuous **learning** where employees take ownership of their personal and professional **growth**. Our prime focus is developing future-oriented skills and behaviors in our workforce. Umicore promotes career development using an internal online vacancies tool and we operate a Group-wide learning management platform called "My Campus". Specifically to strengthen our digital competencies, Umicore has introduced the Umicore Technical & Digital Academy to strengthen technology skills and share learning. We prepare for future transformations and seek to acquire the right skills that will contribute to Umicore's success.

Especially due to COVID-19, training at Umicore is increasingly in a blended learning format. Digital transformation requires reskilling and upskilling. The Digital Heroes program stands as an example of Umicore embracing peer-to-peer learning. The 300-strong community of employee volunteers has dedicated itself to learning the latest digital workplace tools for efficiency and effectiveness in their jobs. They share knowledge with each other and find answers to each other's questions via Umicore's enterprise social network so that they can pass on that knowledge to their colleagues. The result is a self-learning workforce based on a global network.

Umicore also offers programs for emerging talent, middle and senior managers. The Junior Management Program (JUMP) is offered to a selected group of junior managers using a "twin-coaching" format, bringing together two participants from different regions and business units, to develop international thinking, shadow best practices and provide exposure to other business units. Leading for Excellence (L4E) is offered to a selected group of managers in the Asia Pacific region to drive performance in the region by fostering collaboration and engagement across sites and sharpening leadership skills. Entrepreneurs for Tomorrow (E4T) is a program for a selected group of middle to senior managers to develop corporate culture with highly competent managers and promote cross-functional integration within Umicore. Due to COVID-19 these programs were either on hold or conducted digitally in 2021.

In 2021, the average training time per employee reached 42 hours, higher than 36 hours in 2020. This was partly attributed to the increased offering of online training, coupled with face-to-face training where possible while still respecting the COVID-19 measures prevailing at the time. In 2021, managers training hours (42 hours) were slightly higher than for other employees (41 hours) and women training hours (43 hours) were slightly higher than for men (41 hours). We noticed the average training hours for the gender and managers and other employee categories splits are reaching close to similar values, which we see as a positive trend.

In 2021, 94.14% of all employees from fully consolidated companies had an appraisal interview to discuss their development at least once during the year.

Employee engagement

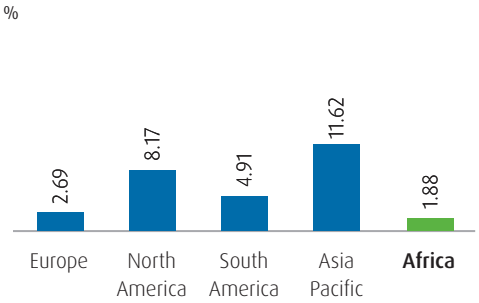
94%

RETENTION RATE

80%

PARTICIPATION IN EMPLOYEE SURVEY

VOLUNTARY LEAVERS RATE BY REGION



In 2021, we conducted the 8th edition of our **People Survey** – Umicore's employee opinion survey that is organized every three years. It provides insights on how we perform as an organization and - more importantly - how we can continue to grow and make progress. There was an overall participation rate of 80%, which shows a remarkable level of engagement. For the second time in succession our overall average is above the Chemical Industry norm[1] and approaching the High Performing norm[2], with significant progress made in several areas since our last survey in 2018.

Collaboration and care for each other came out as clear strengths for Umicore and underline the true spirit of the #UmicoreFamily.

Care is key to avoid work-related injuries and reach Zero Harm, one of the pillars of our Let's go for zero strategy. However, today we have yet to achieve this ambition. The first key steps in achieving our Zero Harm objective include encouraging everyone to become safety leaders and safety coaches. The survey highlighted that the engagement and vitality of our management population is very high. Gender inclusion is also very high, which is a proxy for total inclusion. Women in Umicore feel at home. Men and women have a similar scoring on questions such as collaboration, meaning that they have the same voice in the company.

The results of the People Survey also demonstrate that we still have room to become more agile as an organization in today's fast-moving context. We will continue to drive more entrepreneurship, encourage colleagues to take initiative across business units, sites and regions and foster accountability. Therefore, employees are invited to lead from where they stand according to our Leadership Compass.

Applying and embracing the Compass and its three pillars – win from within, engage with impact and go beyond borders - will help us become more agile and stay ahead of the pack. The People Survey results have been shared with the business units, sites and regions to be translated into local action plans that build on our strengths or address areas of improvement.

Our employees are key to our success and the driver for reaching our desired business growth. As a result, we aim to ensure Umicore's status as an employer of choice in all the regions where we operate. In 2021, Umicore received the **Top Employer** certification in Belgium for the 16th successive year.

In 2021, our overall **retention rate** decreased to 94%, from 96% in 2020. In 2021 the voluntary leavers rate increased to 5.82% from 4.20% in 2020. Significant regional differences in retention rates continue, with Asia-Pacific reporting the highest voluntary leaver rate at 11.62%. The higher voluntary leaver rate in Asia-Pacific is not unique to Umicore and can be explained by a highly competitive and fluid labor market in that region. Except for Korea, Umicore's voluntary leaver rate is lower than the market in most Asian countries including China, Japan, India and Thailand. In general, the war for talent is also experienced in the other regions. Of the voluntary leavers worldwide, 19.16% were women, slightly up from 18.78% in 2020.

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.

top EMPLOYER BELGIË BELGIQUE BELGIUM 2022
CERTIFIED EXCELLENCE IN EMPLOYEE CONDITIONS

[1] The Chemicals Industry Norm is the average score of companies in the chemical sector collected by our external supplier Korn Ferry (KF).
[2] The High Performing Companies Norm is based on companies' financial performance and engagement and enablement scores, with financial performance weighted more heavily. To be included, companies must exceed industry averages on the majority of financial indicators. Companies must also score above the average of engagement and enablement within KF Listen's survey database.

Wellbeing



At Umicore, we aim to create a healthy workplace where employees can grow, thrive and take care of each other.

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 strategy focuses on the Wellbeing@Work program with care as a cornerstone.

Wellbeing is essential to the overall health of our employees and therefore crucial to the professional performance and success of Umicore. It stimulates personal performance and engagement and thus improves productivity, safety and retention. It is also crucial to enable Umicore to attract young talent and to create a greater sense of belonging. Umicore is working on four areas of wellbeing: we promote and safeguard physical, mental, social and occupational health in the workplace, adapted to individual and regional circumstances. We find ways to connect with each other and with the communities in which we operate.

We want to improve knowledge and raise awareness on critical aspects of **mental wellbeing**. Mental health is a growing concern and the real issue of digital fatigue was accelerated by the pandemic. For all managers and supervisors, enabling tools such as training and burnout prevention are being developed and made available. This overall program is supplemented with regional initiatives, for example Umicore Brazil organized a 'Pink October Campaign & Mental Health' event. A physician and an employee discussed the importance of preventive exams for breast cancer and the benefits of meditation for mental health.

To ensure **physical wellbeing**, voluntary preventive health checks to all employees are offered and across the Group local health plans are under development to intensify individual health promotion and counseling on critical topics such as nutrition, weight, smoking prevention, cardiovascular risks, substance abuse, etc. This work is supported by local campaigns on health topics. See some initiatives our Polish teams took for their mental and physical health here.

In terms of **social wellbeing**, it is imperative to strengthen the sense of belonging among colleagues, teams and with supervisors and neighbors. Our People Survey – as described in employee engagement – confirms that people feel proud to work for Umicore and we want to maintain this engagement through ongoing dialogue with our employees.

Offering safe and healthy workplaces is crucial to ensure **occupational wellbeing** and in the following chapters, we describe our 2021 performance in occupational health and safety.

To promote Wellbeing@Work, Umicore emphasizes **prevention for excessive stress at work and burn-out** on three levels. First of all, it is important for the organization to create and maintain a working environment where people feel safe and can grow and thrive. Giving people the necessary autonomy in their job, balancing authority with competences, ensuring a proper work-life balance, open communication and digital hygiene are a few examples of how Umicore is seeking to achieve this healthy working environment. Recognizing and monitoring early symptoms is secondary prevention and finally, coaching and support are essential in case of problems.

The COVID-19 pandemic has stressed even more how important it is to maintain the wellbeing and vitality of our employees. Many regional initiatives contribute to this goal:

- In 2021, operators from our production site in Shirwal in India stayed in a hotel for weeks as they were asked to stay in quarantine between working hours. Individual counseling via a hotline was available to them 24/7 to provide support in case they experienced difficulties.

- In Umicore South America, external experts called all employees working from home to identify any mental, physical or logistical challenges. The management team was successful in resolving some of the identified issues and the vast majority of the employees were proud of Umicore's actions and support, or very satisfied with them, during the pandemic.

See more on how Umicore cares for its people here.

Due to the continued COVID-19 pandemic in 2021, Umicore introduced a new Group-wide teleworking policy: if the role and the nature of the tasks allow it, employees can be allowed to work from home. A better work-life balance and a continued sense of belonging were the inspiration for this policy – aiming to contribute to more Wellbeing@Work.

The baseline to measure Umicore's performance in wellbeing will be established in 2022.

Occupational safety

81%

REPORTING SITES WITHOUT LTA

73

LOST TIME ACCIDENTS

LOST TIME ACCIDENTS, BY BUSINESS GROUP

Number of LTAs



The safety of our people is a key priority.

Umicore is committed to ensuring the highest level of safety in all its facilities, with our Let's go for Zero ambition to achieve zero work-related injuries. In 2021, our overall safety results were again disappointing despite 81.3% of the reporting sites operating without any lost time accident and 59.3% of those sites being ISO 45001 certified. Umicore recorded 73 lost time accidents in 2021 compared to 49 in 2020. 62 lost time accidents, representing 85% of the total, occurred in Europe and of these, 51 lost time accidents occurred on Belgian sites and 9 on German sites. The Asia-Pacific sites accounted for 7 accidents. 3 lost time accidents occurred on North American sites and 1 on a South American site. In total 2,328 calendar days were lost due to lost time accidents, a decrease compared to 9,176 in 2020. 20 lost time accidents were registered for contractors compared to 17 in 2020. The lost time accident frequency rate was 3.70, an increase from 2.52 in 2020 and the severity rate was 0.12, a decrease from 0.47 in 2020. There were 104 reported recordable injuries, down from 119 in 2020. The recordable injury frequency rate for 2021 was 5.28 compared to 6.13 in 2020.

In 2021, the **Catalysis** business group recorded 6 lost time accidents compared to 7 in 2020. The business group has implemented a new safety organization with a steering committee of senior managers defining the priorities and strategy and ensuring that the necessary resources are available. Focus areas are safety leadership programs, risk competency, engagement of the entire staff and organizational learning. All Automotive Catalysts production plants are required to be certified against the ISO 45001 management system. At year-end, the sites in Port Elizabeth (South-Africa), Himeji (Japan) and Rayong (Thailand), had operated over 5 years without any lost time accident or recordable injury to Umicore staff and no lost time accident to contractors on site. The sites in Auburn Hills (USA), Karlskoga (Sweden) and Tokoname (Japan) had operated more than 3 years without a lost time accident or recordable injury to Umicore staff and no lost time accident to contractors.

The **Energy & Surface Technologies** business group recorded 11 lost time accidents, compared to 8 in 2020. The sites further deployed their safety actions around 3 main pillars: 'men', 'machines' and 'methods'. At year end, the sites in Dundee (UK) and Tsukuba (Japan) were recognized for their excellent and sustained safety performance, recording over 10 years without any lost time accident or recordable injury to Umicore staff and no lost time accident to contractors. Balzers (Liechtenstein) operated more than 5 years without any lost time accident or recordable injury to Umicore staff and no lost time accidents to contractors. The site in Hsinchu Hsien (Taiwan) operated more than 3 years without any lost time accident or recordable injury to Umicore staff and no lost time accidents to contractors.

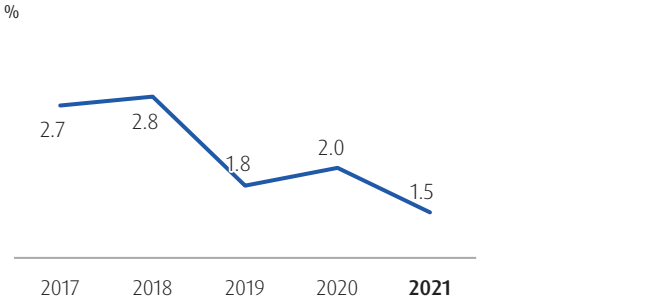
The **Recycling** business group had 49 lost time accidents compared to 34 in 2020. The site in Hoboken (Belgium, Recycling) reported 43 lost time accidents compared to 27 in 2020. The site is deploying a comprehensive safety program based on cultural change including a thorough safety leadership program and continued investment in technical safety. To support these programs, organizational changes were made, including hiring new head of the safety department and setting up a professional fire department. At year end, the UMS site in Bangkok (Thailand) operated 3 years without any lost time accident or recordable injury to Umicore staff and no lost time accident to contractors.

The general services and corporate offices, including Corporate Research & Development counted 7 lost time accidents.

Umicore continues its internal HAZOP leader training program to increase and secure process safety knowledge. In 2021, process safety activities focused on executing process risk assessment studies. At year end, over 81% of the production processes had received specific process hazard and risk assessments compliant with Umicore standards. A detailed timeline for completion of the remaining studies over the coming years prioritizes processes with high risk profiles. The Group is also further reinforcing standards on critical process safety aspects. Over the course of the year, Umicore continued with the roll-out of programs aimed at creating a more prominent caring safety culture with a focus on growing a coaching mindset and lowering the level of risk tolerance. Umicore's commitment to safety is unwavering. Tackling cultural change in terms of safety is the only right path to creating a safe and great place to work. To that end, following the newly implemented Let's Go for Zero strategy, Umicore is implementing a 'Coaching4Safety' leadership program and a mandatory risk competency program for all sites, to support evolving to a caring safety culture. To further develop and deploy Umicore's safety vision and strategy, Umicore is hiring a Group Safety Director.

Occupational health

EXPOSURE RATIO, ALL BIOMARKERS AGGREGATED[1]



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.

Umicore makes continuous efforts to eliminate occupational-related health issues and to promote wellbeing in the workplace. The main occupational health risks are related to exposure to hazardous substances and physical hazards (mainly noise).

Umicore is leading the industry by setting voluntary, science-based targets for potentially hazardous exposure that are more stringent than legal requirements, where they exist. All employees with a potential workplace exposure to any of the target metals (arsenic, cadmium, cobalt, indium, nickel, lead and platinum salts) or other metals are monitored by an occupational health surveillance program. The Let's Go for Zero target for occupational exposure is to reduce to zero the number of individual readings that indicate exposure for an employee that is higher than the internal target levels. While these excess readings do not necessarily indicate a risk for the person concerned, they are important indicators of recent or lifetime exposure and are used as the basis for further improvements on specific sites. We aim to have no exceedance of 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 in urine
- **Indium:** 1 microgram per liter of plasma
- **Lead:** 25 micrograms per 100 ml of blood
- **Nickel**: 30 micrograms per gram of creatinine in urine
- **Platinum salts:** no new cases of platinum salt sensitization

In 2021, a total of 7,228 biological samples were collected from employees with occupational exposure to at least one of the metals mentioned above (platinum salts excluded). 106 readings showed a result in excess of the internal target value, bringing the total excess rate to 1.5 %, down from 2.0%[1] in 2020. All occupationally exposed employees are regularly monitored by an occupational health physician in line with regulatory requirements and Umicore's occupational health guidance.

Arsenic

Occupational exposure to arsenic is possible in the business groups Energy & Surface Technologies and Recycling. In total, 12 employees or 1.3% of the 906 occupationally exposed workers had an excess reading during 2021, slightly more compared to the 0.8% excess rate in 2020. This increase is mainly due to 3 excess readings at the Hanau site (Germany, Catalysis) of operators cleaning a contaminated container. All workers occupationally exposed to arsenic are submitted to a medical surveillance program to closely monitor their health condition.

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 2021, a total of 426 employees had an occupational exposure to cadmium. Only 1 employee recorded a cadmium in urine reading in excess of the target value. This resulted in an excess rate of 0.2%, the same as in 2020.

Cobalt

In total, 2,041 employees are occupationally exposed to cobalt, mainly in the business group Energy & Surface Technologies. The number of employees exceeding the target value was further reduced to 45, resulting in an excess rate of 2.2%, down from 2.7% in 2020. In the business unit Rechargeable Battery Materials we noted an excess rate of 0.9% in 2021, a slight decrease from the 1.2% excess rate in 2020. The excess readings in the business unit Cobalt & Specialty Materials were at 10.6%, comparable to the performance in 2020. The sites in Cheonan (Korea, Rechargeable Battery Materials) and Jiangmen (China, Rechargeable Battery Materials) continued and maintained 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 and improved maintenance of critical equipment. The business unit Cobalt & Specialty Materials intensified its dust reduction program with the focus on technical improvements, encapsulation of equipment, enhanced ventilation systems and strict application of personal protective equipment procedures including respiratory mask fit testing for each exposed employee. While over the past years progress has been made, the sites in Olen (Belgium, Energy & Surface Technologies), Fort Saskatchewan (Canada, Energy & Surface Technologies) and Grenoble (France, Energy & Surface Technologies) continue to report the highest excess rates. 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. In 2021, the biological monitoring program as well as the annual occupational health surveillance check at the site in Balzers (Liechtenstein, Energy & Surface Technologies) had to be postponed due to the COVID-19 pandemic. The checks are now scheduled for the 1st quarter in 2022, so we cannot report the 2021 performance in this annual report.

Lead

Occupational lead exposure represents a potential health risk, mainly in the business group Recycling. In 2021, Umicore lowered its internal

1 The value for 2020 has been restated from 1.6% to 2.0%. This change is the result of Umicore lowering its internal target value for lead as described below.

target value for lead from 30 µg/deciliter blood to 25 µg/dl blood. In total, 1.4% of the 1,271 occupationally exposed employees exceeded the target value of 25µg/100ml down from 2.5% in 2020 (restated excess rate for 2020 following the lowered target value). The decrease in excess readings is the result of continued improved workplace hygiene measures mainly at the lead refinery at the Hoboken site (Belgium, Recycling). The site continues to implement improved engineering controls while ensuring timely training for newly hired staff. Strict attention is paid to personal protective equipment compliance. Because of the lowered target level for lead in blood, the occupational health department has intensified its biological monitoring program to follow up more closely on employees with higher lead in blood values.

Nickel

The business groups Energy & Surface Technologies and Recycling have occupational exposure to nickel. In 2021, a total of 2,405 employees were exposed to nickel. In 2021, 30 of the exposed workers exceeded the target level resulting in an excess level of 1.2% compared to 2.0% in 2020. The business unit Rechargeable Battery Materials saw a significant decrease in excess readings from 2.4% in 2020 down to 0.5%% in 2021, mainly related to reduced exposure at the site in Jiangmen (China, Energy & Surface Technologies). 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 an increased excess rate of 20.2% compared to 10.7% in 2020, mainly due to increased production volumes. The site is deploying a comprehensive dust reduction program.

Platinum salts

The business groups Catalysis and Recycling have workplaces with exposure to platinum salts. In 2021, there were no newly diagnosed cases of platinum salt sensitization.

Other occupational related diseases

The number of occupational diseases is the number of employees with a newly diagnosed occupational disease during the reporting year.

In 2021, 8 employees developed a musculoskeletal disorder due to their occupation. All the people concerned are being followed up by an occupational health physician. The production site in Kokkola (Finland, Energy & Surface Technologies) was not able to report its numbers.

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. During lock-down periods of the pandemic, many office employees had to work from their home office and often for longer periods, and as a result Umicore rolled out awareness campaigns to help prevent and fight against digital fatigue. Measures to ensure the wellbeing of employees included regular virtual contacts among team members, leaflets on the company's intranet with tips and tricks to organize teleworking, online social events, and more.

Wellbeing@work is an important program under the Let's Go for Zero strategy. Both regional and Group programs are being put in place.

Social key figures

	unit	Notes	2017	2018	2019	2020	**2021**
Workforce (fully consolidated companies)	No.	S2	9,769	10,420	11,152	10,859	**11,050**
Temporary contracts	% of workforce	S2	3.86	3.13	3.31	3.19	**3.51**
Women amongst all employees	% of workforce	S2	21.92	21.30	20.88	21.68	**22.48**
Women amongst all managers	% of workforce	S2	22.37	22.98	23.13	23.06	**25**
Women amongst senior management	% of workforce	S2	6.77	9.70	10.96	10.74	**12.42**
Non-European representation in senior management functions	%	S2	18.05	17.91	18.49	20.13	**21.57**
Average training hours per employee	hours/employee	S3	45.33	43.10	48.73	36.33	**41.59**
Employees having a yearly appraisal	% of workforce	S3	98.29	96.15	94.00	93.42	**94.14**
Voluntary leavers - ratio	% of workforce	S3	5.03	7.18	5.99	4.20	**5.82**
Employees represented by union or Collective Labour Agreement (CLA)	% of workforce	S2	65.41	64.49	65.60	66.38	**66.94**
Exposure ratio 'all biomarkers aggregated'[1]	%	S5	2.7	2.8	1.8	2.0	**1.5**
Exposure ratio lead (blood)[2]	%	S5	0.5	2.0	0.9	2.5	**1.4**
Exposure ratio arsenic (urine)[2]	%	S5	1.0	1.2	0.8	0.8	**1.3**
Exposure ratio cobalt (urine)[2]	%	S5	6.0	5.0	3.4	2.7	**2.2**
Exposure ratio cadmium (urine)[2]	%	S5	0.7	0.5	0.2	0.2	**0.2**
Exposure ratio nickel (urine)[2]	%	S5	1.4	2.6	1.8	2.0	**1.2**
Exposure ratio indium (blood)[2]	%	S5	14.2	2.8	1.9	1.6	**0**
People with platinum salts sensitisation	No.	S5	1	3	1	1	**0**
People with noise-induced hearing loss	No.	S5	0	0	5	3	**0**
People with contact dermatitis	No.	S5	2	3	4	0	**0**
People with occupational asthma other than Pt-salts	No.	S5	0	0	0	1	**2**
People with muskulo-skeletal ailments	No.	S5	8	6	8	1	**8**
Fatal accidents	No.	S4	0	0	0	1	**0**
Fatal accidents sub-contractors	No.	S4	0	1	0	0	**0**
Lost Time Accidents (LTA)	No.	S4	51	61	90	49	**73**
Lost Time Accidents (LTA) sub-contractors	No.	S4	22	21	25	17	**20**
LTA frequency rate		S4	3.01	3.36	4.6	2.5	**3.7**
Calendar days lost	No.	S4	1,590	1,830	3,893	9,176	**2,328**
LTA severity rate		S4	0.09	0.10	0.2	0.5	**0.1**

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.

2 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 are the total number of employees 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.

Society

Link to strategic topics

Clean Mobility & Recycling
Zero Harm
Zero Inequality

Link to key risks & opportunities

Information security & data protection, Regulatory & legal context, Sustainable & ethical supply

Link to Sustainable Development Goals







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. Our Sustainable Products & Services focus on supporting the global transition towards reducing climate impact and on supporting a better understanding and faster implementation of circular economy models related to our activities.

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.

To boost our efforts, Umicore participates in many partnerships and knowledge-sharing platforms. We regularly enter scientific partnerships with public institutions such as universities, with the primary aim of furthering research projects or providing expert advice on technology directions. Partnerships and research grants are occasionally contracted with public organizations.

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.

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 participates in the generation of wealth in the areas where it operates. We strive to be top employer wherever 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.

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.

Umicore paid € 202 million in taxes on our 2021 operations and with our employees contributed € 109 million in social security payments.

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.

We share our knowledge and collaborate with many partners to advance the global transition towards a green and circular economy.

In 2021, the World Economic Forum's Global Battery Alliance (GBA) evolved into an independent association and Umicore chairs the Executive Board. NGOs, academic players, authorities and industrial members are collaborating to establish a **battery passport** with a QR code that on a global scale will transparently show the source of the raw materials in the battery and provide a carbon footprint of the battery. In 2021, important progress has been made on developing a CO2 footprint methodology and a Child Labor Index, both to be integrated in the battery passport. The technology to actively follow an element reported in the passport is being developed in the market, for example in the Re|Source startup, described in Innovation.

In addition, Umicore contributes to the WEF Circular Cars working group. This initiative is focused making the **car industry more circular** and creating the same functionality with fewer resources. This work explores the impact of a second life battery market, material passports and design-for-recycling concepts in the future automotive and transportation business models.

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) which is the public-

private entity that supports the European Commission in defining the technology roadmaps and the research and innovation priorities to be funded in the 2021-2027 timeframe (under the Horizon Europe program). Umicore is a co-chair of this association.

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, Waterstofnet and the European Raw Materials Alliance. In these platforms, Umicore highlights the key role that advanced materials such as electrocatalysts 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.

Umicore collaborates with the European Commission to **define minimum compulsory due diligence** requirements for the entire value chain with all materials in scope and plays a pivotal role by supporting strong ambitions in the trade committee of Eurometaux. Through the collaboration in Eurometaux, Umicore contributed to the development of the new European waste shipment regulation in 2021 to stimulate the circular economy. The new regulation will allow more efficient processing of hazardous waste without conceding on stringency.

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 increase awareness about the role of advanced materials in everyday life and in the European economy, and advocates for stronger EU-level support for innovation.

Umicore regularly **enters scientific partnerships with public institutions** such as universities with the primary aim of furthering research projects or providing expert advice on technology directions. Partnerships and research grants are occasionally contracted with public organizations. In 2021, these partnerships included IMEC, the Queensland University Australia and CIRAIG.

CIRAIG is an internationally recognized life cycle center of expertise located in Montreal (Canada) with close to 15 years of applied experience rooted in solid science. The main research unit, the International Life Cycle Chair (ILC Chair), conducts leading-edge, interdisciplinary life cycle research and develops results-oriented tools to resolve complex and critical sustainability issues in collaboration with its partners. Its scientific research program resolutely considers environmental and social life cycle assessments (LCAs) as strategic decision-making support tools for value creation. Umicore has been a partner of the International Life Cycle Chair since 2012 and we have developed several LCAs in close collaboration with the CIRAIG. In 2021, CIRAIG supported Umicore in **estimating avoided emissions** arising downstream through the use of cathode materials for EV applications and through our recycling services. For more, see Sustainable Products & Services.

KEY MEMBERSHIPS

A3M (L'Alliance des Minerais, Minéraux et Métaux); Agoria (Belgian multi-sector federation for the technology industry); American European Community Association (AECA); Belgian Alliance for Climate Action (BACA); Belgo Indian Chamber of Commerce and Industry (BICC&I); Belgian industrial Research and Development (BiR&D); Belgium-Japan Association & Chamber of Commerce (BJA); Eurometaux (European Non-Ferrous Metals Association); European Industrial Research Management Association (EIRMA); European Round Table of Industrialists (ERT); ETION; 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); TransAtlantic Business Council (TABC); Verbond van Belgische Ondernemingen (VBO); World Economic Forum (WEF); The Shift; UN Global Compact.

Associacao dos Fabricantes de Equipamentos para Controle de Emissoes 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); European Precious Metals Association (EPMF); Hydrogen Council; Hydrogen Europe; Manufacturers of Emission Controls Association (MECA); Verband der Automobilindustrie (VDA); Verband der Chemischen Industrie e.V. (VCI).

Battery Europe Partnerhip Association (BEPA); Cobalt Institute; Cobalt REACH consortium; Deutsche Gesellschaft für Galvano- und Oberflaechentechnik (DGO); Energy Materials Industrial Research Initiative (EMIRI); Essencia; European Association for Battery, Hybrid and Fuel Cell Electric Vehicles (AVERE); Nickel Institute; Nickel REACH consortium.

European Battery Recycling Association (EBRA); European Electronics Recyclers Association (EERA); European Precious Metals Federation; Fachvereinigung Edelmetalle (German Precious Metals Association); Global Battery Alliance (GBA); 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); European Precious Metals Federation (EPMF), International Lithium Association (ILA).

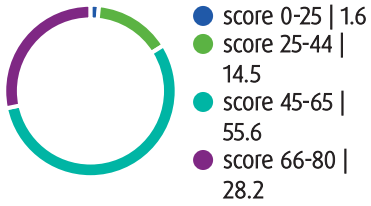
Pioneering approach in our supply chain

€22.7b

Paid to suppliers worldwide

DISTRIBUTION OF SUPPLIERS' ECOVADIS SCORES[1]

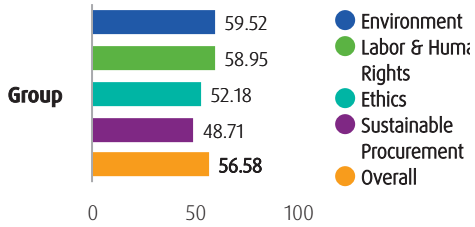
%



1 0-25: unsufficient progress on sustainability, 25-44: some basic steps made on sustainability issues, 45-65: appropriate sustainability management issues, 66-80: advanced practices on sustainability, 81-100: outstanding sustainability management systems

DISTRIBUTION OF SUPPLIERS' SCORES BY ECOVADIS TOPIC[1]

%



1 The overall score is a weighted average of the 4 theme scores

We leverage our sustainability approach in the value chain, both upstream with our suppliers and downstream with our customers.

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 a key driver in our Let's Go for Zero strategy to cause zero harm in our supply chain.

Our approach is shaped by our new Umicore Global Sustainable Sourcing Policy - an update of our Sustainable Procurement Charter - and aims to mitigate supply chain risks, through both direct and indirect procurement. The policy defines our expectations from 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.

We expect our suppliers to be committed to business integrity, to promote the principles of sustainable procurement in their supply chain, to be compliant with local laws, to ensure health & safety, to minimize the impact on climate and the environment, and to respect international Human Rights law on their own sites and from their own suppliers, including abolishing child and forced labor and eliminating discrimination. This policy is complemented on a risk-based approach by specific frameworks for some critical raw materials.

Indirect procurement

Umicore's worldwide purchasing and transportation teams procure the energy and other goods and services referred to as **indirect procurement**. In 2021 the indirect procurement spend remained stable compared to the previous year. The main indirect procurement spend is to be found in Belgium, Germany, Poland, Finland, China & Korea[1].

Since 2017, in most regions, new suppliers have been systematically assessed through a quick scan based on criteria such as size, geographical location and type of product or service provided. Based on the risk assessment from the quick scan, subsequent actions are determined, such as adherence to our sourcing framework or in case of higher risk, the tool may determine the need for an EcoVadis assessment. In 2021, 519 quick scans were initiated. The goal is to further roll out the quick scan to more teams worldwide in the future.

If the quick scan analysis determines a need for further investigation, sustainability performance of specific suppliers is then assessed by EcoVadis across four themes: environment; labor and Human Rights; ethics; and sustainable procurement. 124 assessment scores were made available to our teams in 2021, including the requests from the procurement team in Brazil. 440 scores have been received since the start of our collaboration with EcoVadis. This represents the number of unique suppliers that have been assessed and does not consider the regular re-assessments of suppliers.

In 2021, 83.9% of the assessed suppliers reached a score of 45 or higher (EcoVadis rating of bronze medal or higher), meaning they actively engage in Corporate Social Responsibility. The score is a weighted average of the 4 theme scores. Only two of the scores received in 2021 indicates a "high risk" and mitigation actions were put in place.

1 The indicators presented are based on 2021 data from our Procurement & Transportation teams in Belgium and Germany, Poland and Finland. EcoVadis, a well-known collaborative platform providing Supplier Sustainability Ratings, is also used by the local procurement team in Brazil.

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 and follows the basic steps of the Sustainable Procurement Framework for Cobalt. For over a century Umicore has been a world leader in cobalt products, used in many applications, from tooling to rechargeable batteries for electric cars. Some reserves of cobalt ore are in conflict-affected regions or areas with a high(er) risk for unethical practices such as forced labor, poor health and safety conditions, child labor and corruption. Umicore is aware of the sustainability risks that are linked to the sourcing of cobalt, particularly in the Democratic Republic of Congo. 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 its supply chain due to its high risks. Today, Umicore still does not source any ASM materials, however, we support several initiatives that look into improving conditions of ASM to attain sufficiently high sustainability standards, as well as schooling for children and alternative livelihoods.

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. To source cobalt, in 2012 we implemented a pioneering Sustainable Procurement Framework for Cobalt and in 2016, were the first to obtain external validation for our ethical procurement and due diligence approach in this area through an annual third-party audit (reported in our annual compliance report). The Framework is aligned with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, but extends beyond the risks described in Annex II to cover aspects including environmental impact and health & safety.

To ensure the **traceability of materials** in our supply chain, we carry out a detailed risk assessment of our suppliers, which could include questionnaires, background screening, onsite visits, and if required, enhanced engagement and developing mitigation programs with the suppliers. A dedicated cobalt 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 member of the Umicore management board and the senior management of Sustainability and Supply. For more on Umicore's efforts to support the development of traceability projects across the industry, see Battery Passport and Re|Source.

Umicore's due diligence practices in terms of our cobalt supply chain are also reported against the Cobalt Industry Responsible Assessment Framework (CIRAF), a management framework for risk assessment and mitigation, aiming at ensuring responsible cobalt production and sourcing and launched by the Cobalt Institute in 2019. Umicore follows the recommendations of level three of CIRAF, meaning Umicore has identified material risks in its cobalt supply chain, has a policy and due diligence management system to address human right risks and all other material risks for its cobalt supply chain, and that Umicore also reports on efforts to address those risks. According to CIRAF, the following risk areas are material for Umicore's cobalt supply: (1) Air-water-soil pollution & energy efficiency; (2) Occupational Health & Safety and working conditions; (3) Conflict & financial crime; (4) Human Rights abuses; (5) Worst forms of child labor; (6) Biodiversity; (7) Artisanal Mining; (8) Livelihoods; (9) Resettlement. Umicore has due diligence management systems for all risk areas through its Sustainable Procurement Framework for cobalt, which means that the policies and performance of all suppliers are screened and reviewed.

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 its supply chain, Umicore has adopted a Responsible global supply chain of minerals 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).

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.

On 1 January 2021, the Conflict Minerals Regulation came into force across the EU, with similar scope to the US Dodd Frank Act of 2012. The new law aims to regulate the trade of conflict minerals by ensuring that international responsible sourcing standards are met. Umicore supply risk management is fully in line with the requirements of both the Conflict Minerals Regulation and the US Dodd Frank Act.

Responsible Operations

In addition to our policies on responsible sourcing and related due diligence approaches, 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. The Umicore internal "Metals and Minerals" working group streamlines and optimizes the efforts required for this increasing customer demand through sharing of best practices.

Umicore sites undergo audit and certification for the London Bullion Market Association (LBMA), the Responsible Jewelry Council (RJC) and the Responsible Minerals Initiative (RMI).

In 2021, Umicore participated in the review process of the LBMA Responsible Gold Guidance (version 9) which will be applicable from 1 January 2022. This review further expands the risk assessment for Environmental, Social and Governance (ESG) issues for all the relevant materials. In 2021 Umicore concluded its gap analysis to demonstrate compliance with the reviewed responsible sourcing requirements for LBMA Good Delivery List refiners.

Gold & silver

The London Bullion Market Association (LBMA) manages the accreditation process for all Good Delivery listed refiners for gold and silver. 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 2021, 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 2020 and will be audited for 2021 later in 2022. The LBMA also provides certification for responsible silver and the sites of Hoboken, Pforzheim and Bangkok are accredited refiners by the LBMA for 2020 and will be audited for 2021 later in 2022. 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, Vienna and Bangkok are on the RMI Conformant Gold Refiners list.

Our customers are increasingly requesting such guarantees and we provide them with the necessary documentation to attest the conflict-free status of our products.

Platinum, palladium & rhodium

Since 2020, Umicore is being reviewed by the LBMA multi-metal audit for compliance against the responsible gold and silver guidance (see above) and responsible platinum and palladium guidance. In 2021 the Hoboken site received a Platinum and Palladium Sponge Accreditation Certificate covering the year 2020. The Jewelry & Industrial Metals operations in Pforzheim, Vienna and Bangkok are certified as part of the RJC Chain of Custody program for recycled platinum, palladium and/or rhodium.

Cobalt

In May 2019, Umicore Olen was approved as the first Responsible Minerals Initiative-conformant cobalt refinery worldwide. Umicore's cobalt operations in Kokkola (Finland) were the second recognized refinery. The refineries must undergo a yearly certification process. Given the COVID-19 context in 2020-2021, the audits have had to be postponed but the certification process is ongoing and expected to be completed in Q1 2022. Both sites remain on the list of RMI compliant refiners.

	LBMA Gold[1]	LBMA Silver[2]	LPPM Platinum sponge[3]	LPPM Palladium sponge[4]	RJC Chain of Custody Recycled gold, silver, platinum, palladium and/or rhodium[5]	RMI-Conformant Cobalt Refiners[6]	RMI-Conformant Gold refiners[7]
Bangkok		X			X		X
Hoboken	X	X	X	X			X
Kokkola						X	
Olen						X	
Pforzheim	X	X			X		X
Vienna					X		X

1 lbma.org.uk/good-delivery-list-refiners-gold-current
2 lbma.org.uk/good-delivery-list-refiners-silver-current
3 https://www.lppm.com/sponge-accreditation/sponge-platinum-list/
4 https://www.lppm.com/sponge-accreditation/sponge-palladium-list/
5 responsiblejewellery.com
6 responsiblemineralsinitiative.org/responsible-minerals-assurance-process/smelter-refiner-lists/cobalt-refiners-list/conformant-cobalt-refiners
7 responsiblemineralsinitiative.org/gold-refiners-list

Giving Back To Society



Umicore seeks to contribute to the well-being of the communities in which it operates and to be a responsible corporation and good corporate neighbor.

We believe that empowering Umicore sites for local sponsorship and donation initiatives will make a positive difference in the communities in which we operate. Umicore's support may include contributions in kind and releasing staff to work on community-related projects.

While sites determine the specific focus of their own initiatives, the general focus is on supporting and promoting a strong social fabric in the community around the site, with priority given to educational initiatives. The causes we support at site level are often dear to our staff members. In 2021, colleagues from our site in Hoboken (Belgium) together raised € 5,000 to De Warmste Week, a yearly Belgian solidarity event in the lead-up to Christmas, while our colleagues in Korea provided medical support and lunchboxes for children and the elderly.

At corporate level, the emphasis is on projects with an international scope. Priority is given to initiatives with a clear educational component which link with sustainable development (social, environmental and/or technological).

Knowledge is the key to building a better world

Educational initiatives are particularly relevant for Umicore as a technology-oriented business and we have been working with UNICEF to reach those children who are in most need. 2021 marked the 10th anniversary of that partnership. We celebrated this milestone by supporting two new projects:

1. UNICEF Upshift empowers young people in India by developing the skills they need to enter a labor market characterized by high unemployment rates
2. In Indonesia, we support a project organizing bootcamps and skill sessions around STEM education for girls. STEM – science, technology, engineering and mathematics – are important skills for employment and empowerment.

For more, see UNICEF x Umicore | Umicore

Entrepreneurship as a force for good

Umicore is 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. Over the years, Umicore and Entrepreneurs for Entrepreneurs have supported work in countries including Bolivia, Cambodia, Congo, Ecuador, Haiti, Mali and Togo. In 2021, we extended our support to projects in The Philippines, DR Congo and Madagascar.

Disaster relief

As a global company, natural disasters are never far from our doorstep wherever they strike around the world. In our efforts to provide relief to local communities, we mainly support Doctors Without Borders. In 2021, we also made donations to:

- the Belgian and German Red Cross following the summer floods;
- projects in Haiti, following the earthquake in August;
- projects in Congo, following the volcano eruption in the area of Goma;
- projects in India and Brazil, as COVID hit communities particularly hard in these countries.

Planting trees

For the internal launch of our Let's Go for Zero strategy, we promised to plant a tree for every attendant. In total Umicore employees contributed to planting 7,500 trees as part of the Great Green Wall Initiative in Ghana and Mali.

European Hackathon for Youth

In 2021, we supported a hackathon for Youth, focused on the theme of diversity and inclusion. In addition, 5 young graduates employed at Umicore joined the hackathon. They learned new skills and helped NGOs. For Umicore, supporting a hackathon means offering our young talents a unique learning experience, while contributing to our global donation ambitions to give back to society and go for zero inequality. For more, see Students and Umicore join forces to help a charity | Umicore

In 2021, Umicore contributed a total of € 1.6 million in donations.

Society key figures

Millions of Euros	2017	2018	2019	2020	**2021**
Raw materials cost (excluding water, gas & electricity)	10324	11,759	15,539	18,720	**21,500**
Water, gas & electricity cost	83.3	96	100	100	**144**
Depreciation & impairments	203	227	307	363	**339**
Other costs (net)	470	516	434	533	**532**
Total taxes	95	133	117	79	**202**
Creditors	20	33	41	58	**52**
Minority Shareholders	1	11	11	5	**8**
Shareholders (dividends only)	154	181	180	60	**181**
Charitable donations	1.2	1.4	1.5	1.5	**1.6**
Employee compensation & benefits	701	731	776	799	**853**

Sustainable Products & Services



79%

OF REVENUES FROM CLEAN MOBILITY & RECYCLING

12,500

CUSTOMERS IN 101 COUNTRIES



Our primary focus is on activities that provide solutions for clean mobility and resource scarcity

Catalysis

Reducing harmful emissions

Energy & Surface Technologies

Powering the future

Recycling

Giving new life to used metals

Umicore's performance culminates in the products and services and the integrated value we offer society: delivering solutions for a cleaner environment, increasing the competencies of our employees, raising the standards in our supply chain and creating financial value for our shareholders as well as sustainable value for our stakeholders.

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 a resource. 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 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/INDUSTRIES

Measuring Impact

To support our ambition to turn sustainability into a greater competitive advantage, 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 business units work with corporate EHS on life cycle assessments (LCAs) to identify the environmental impact of their 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 have started engaging with suppliers to reduce the upstream footprint of our products.

[1] https://www.iso.org/standard/38498.html#:~:text=ISO%2014044%3A2006%20specifies%20requirements,and%20critical%20review%20of%20the

Among the impact categories calculated in an LCA, the impact of greenhouse gas emissions to climate change, expressed in CO_2equivalent, is prioritized because of the urgent need to tackle global warming. Until Umicore reaches the Net Zero greenhouse gas emissions target, our industrial operations will continue to emit. However, our products and recycling services have a positive impact in terms of greenhouse gas 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.

In terms of **avoided emissions** (sometimes referred to as 'scope 4'), Umicore examined in 2021 the activities linked to cathode materials for electric mobility and to recycling key raw materials. Based on those activities, we have estimated total avoided emissions from 2016 through 2020. 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. Based on these assumptions, calculations, and a limited set of activities, Umicore's electric mobility products and recycling services avoided an estimated 35 million tonnes CO_2equivalent from 2016 through 2020.

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 from 2016 through 2020. Approximately 24 million tonnes of greenhouse gas emissions were avoided over 5 years - taking into account the production of the cathode materials, their processing into batteries, the use of the batteries in full electric vehicles and end-of-life recycling.

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 11 million tonnes of greenhouse emissions from 2016 through 2020.

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 in close collaboration with our customers as part of our commitment to develop a target for our scope 3 emissions.

Product Stewardship

Worldwide, Umicore ensures regulatory compliance for the products it puts on the market. Our business might be impacted by changes to existing product-related legislation and by the introduction of new legislation. In terms of REACH legislation and newly proposed concepts such as the Chemical Strategy on Sustainability in the EU, Umicore closely monitors all changes in regulations, such as the ongoing revision of REACH and CLP, since this may affect its REACH implementation strategy. Umicore actively supported the engagement of the metals sector with the European Chemicals Agency (ECHA) in the metals/inorganics sectorial approach (MISA) which officially terminated at the end of 2021.

In 2021, we submitted 16 additional substances for registration under REACH due to new business developments. As part of regular maintenance, we updated 96 REACH dossiers for reasons including changing the tonnage band, replying to ECHA requests and including new information. In Korea, Umicore successfully achieved the first Korea REACH (K-REACH) registration deadline at the end of 2021 with the registration of 11 substances including Lead Registrant roles. Umicore is preparing for the implementation of international chemicals regulations such as upcoming notifications and registrations for India. Umicore has successfully submitted the Downstream User Import Notifications (DUINs) for UK REACH and is preparing for the next steps of inquiries.

Beyond compliance, Umicore has a systematic approach to the hazard assessment of its portfolio of 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. For more, see Umicore's Product stewardship approach, here.

Sustainable Value Chain

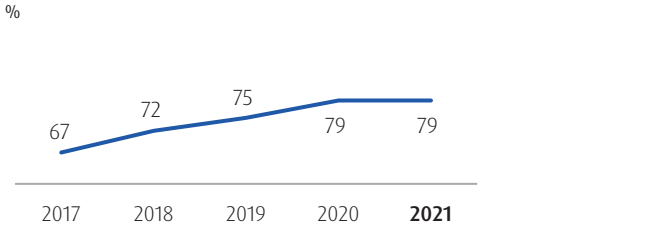
To be a **preferred sustainable supplier**, we work directly with our customers to meet their environmental requirements and disclose our own performance and ambitions. This involves collaborating with our customers to develop, produce and recycle metal-related materials for material-based solutions 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.

In recent years, some customers have opted for a third-party sustainable supplier assessment. For these customers, Umicore discloses to the CDP.

For the second time, Umicore received the Platinum Medal in Corporate Social Responsibility from EcoVadis in 2021. EcoVadis is a provider of business sustainability ratings, intelligence and collaborative performance improvement tools for global supply chains. It places us among the top 1% of our industry peers in the EcoVadis global network of over 65,000 rated companies. The Umicore Group was re-evaluated by EcoVadis and was awarded aPlatinum Medal in Corporate Social Responsibility (CSR), with a score of 75%, compared to 73% in 2020, demonstrating Umicore's continued commitment and efforts for an improved performance in all four sustainability themes (environment, labor and Human Rights, ethics and sustainability procurement). Umicore has been assessed by EcoVadis since 2013. To see Umicore's EcoVadis CSR scorecard, see: ECOVADIS SCORECARD.

Revenues from clean mobility & recycling

CLEAN MOBILITY & RECYCLING REVENUES



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.

In 2021, 78,8% 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 the same level as in 2020[1]and have increased significantly from 65% in 2016, when we began tracking revenues in this way.

Many of the materials and services making up the remaining 21% 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).

EU taxonomy

The European Union created an action plan on the financing of sustainable growth, aimed to redirect 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 establishing a list of economic activities qualifying as sustainable. Umicore has assessed the compliance of its products and services with Taxonomy Regulation (EU) 2020/852. For 2021, we are reporting on the eligibility of our products and services to two of the six environmental objectives: **Climate Change mitigation** and **Climate Change adaptation**. The remaining four environmental objectives are yet to be published by the European Union in 2022 and therefore this year's reporting reflects only a piece of Umicore's eligibility.

Assessment results

Based on the defined activities in the Taxonomy Regulation, we reviewed which Umicore products and services contribute to the EU Taxonomy objectives of **Climate Change mitigation** and **Climate Change adaptation**. In this review, we took into account our products and services, not our overall industrial activities. Umicore's two eligible activities "Manufacturing of rechargeable batteries" and "Manufacturing of equipment for the production and use of hydrogen" contribute to the EU Taxonomy objective of Climate Change Mitigation and not Climate Change Adaptation. We have not yet assessed the alignment of our eligible activities, but we will include this in next year's integrated annual report.

Manufacturing of rechargeable batteries

Umicore has activities that match the EU definition of the activity: 'Manufacturing of rechargeable 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 lithium-ion rechargeable batteries used in electric vehicles, energy storage systems and portable electronics. This is an enabling activity for battery manufacturing. The manufacturing of battery materials for the portable electronics market has not been considered as an eligible activity, only the cathode materials used for electric vehicles and energy storage systems have been considered in the eligibility assessment.

Umicore also recycles, refines, transforms and sells cobalt and nickel specialty chemicals. This is an activity for a wide range of applications, but only the cobalt and nickel products sales flowing into the battery value chain for electric vehicles have been taken into account in the eligibility assessment. We excluded any internal sales of cobalt and nickel between Umicore business units.

Umicore's activity contributes to the Climate Change Mitigation objective because batteries for electric vehicles and energy storage systems are an alternative to technologies emitting greenhouse gases.

Manufacturing of equipment for the production and use of hydrogen

Umicore has activities that are eligible for the EU taxonomy defined activity: 'Manufacture of equipment for the production and use of hydrogen'.

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

[1] This indicator is an aggregate number and due to an oversight, we underestimated in 2020. As a resut, 79% of our revenues were from clean mobility and recycling, not 77% as previously stated in 2020.

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. For this purpose, we only took the fuel cells business line into account and disaggregated this from the stationary catalysts business line. This activity contributes to Climate Change Mitigation because fuel cell catalysts reduce dependency on fossil fuels.

EU TAXONOMY-ELIGIBLE ACTIVITIES

	Turnover[1]	CAPEX[2]	OPEX[3]
EU Taxonomy "Climate Change Mitigation"-eligible activities total (in thousand EUR)[4]	1,200,634	212,150	55,217
EU Taxonomy "Climate Change Mitigation"-eligible economic activities (in %) [4]	4.99%	48.00%	17.49%
EU Taxonomy non-eligible activities total (in thousand EUR)[4]	22,853,805	229,849	260,465
EU Taxonomy "Climate Change Mitigation" non-eligible economic activities (in %) [4]	95.01%	52.00%	82.51%

1 Umicore's turnover includes metal prices which 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 than 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.

Assessment process

For the assessment of Umicore's EU Taxonomy compliance, 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 activities are eligible for the EU Taxonomy's Climate Change Mitigation and Climate Change Adaptation objectives. A key focus of the assessment was to avoid double counting, which we mitigated in two ways. On the one hand, we excluded all intercompany transactions from the exercise and we only took the external figure for a specific business unit or business line into account. On the other hand, some Umicore activities could be eligible for several environmental objectives of the EU Taxonomy. We anticipate that our business activities in Catalysis and Recycling will be most relevant for the four additional environmental objectives to be published by the EU in 2022.

The main purpose of our Catalysis activities is to reduce toxic pollution in the air rather than the reduction of greenhouse gas emissions. As we assume that the contribution of our Catalysis activities will be most relevant to the EU Taxonomy objective of Prevention of Pollution, we have chosen not to put it forward for the Climate Change Mitigation objective in 2021.

Umicore's Recycling business supports the transition of the use of primary resources towards recycling, which is less carbon intensive. As we assume that the contribution of our Recycling business will be most relevant to the objective of Transition to a Circular Economy, we have chosen not to put it forward for the Climate Change Mitigation objective in 2021.

Accounting policy

The IFRS imposes the reporting of **turnover** in the segment information (note F7 of the financial statements) [hyperlink]. Turnover can be 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 purpose. To avoid double counting, only external turnover has been considered for the EU Taxonomy exercise.

For the KPI related to **capital expenditures (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. Therefore, capitalized R&D costs, new capitalized leases and the business combinations 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.

Umicore is not yet disclosing for 2021 a capital expenditure investment plan (capex Plan) to obtain alignment of eligible activities, because the screening for alignment has not been finalized. Umicore intends to disclose its investment plan in the annual report for 2022.

For the KPI related to **operating expenditures (OPEX)**, the EU Taxonomy required inclusion of a limited number of items compared with the number of items included in the total operating expenditures disclosed by Umicore in its financial statements (see 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 expenditures 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.

Finally note that the allocation to the numerator for the three required EU taxonomy KPIs was based on Umicore's internal financial reporting that identifies these KPIs per business line or per specific market. The respective business unit controllers have agreed upon the eligibility of their activities and reported the data centrally.

Maximizing positive impact



Umicore supports the United Nations Sustainable Development Goals (SDGs) through innovative products and practices that minimize negative impacts, protect the environment, promote social progress and support economic growth.

Umicore also supports the ten Principles of the United Nations Global Compact on Human Rights, labor, environment and anti-corruption. We are committed to integrating these principles in the strategy, culture and day-to-day operations of our company - and to engaging in collaborative projects which advance the Sustainable Development Goals.

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 raw 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 own industrial operations.

Umicore **builds resilient infrastructure, promotes inclusive and sustainable industrialization and fosters innovation (SDG9)**. Our strategic focus tackles society’s resource scarcity and environmental concerns. Our closed-loop business model supports the circular economy and our clean mobility solutions enable our customers to reduce negative impacts on the environment. We are a leading producer of catalysts and catalytic filters used in emission abatement systems for light- and heavy-duty vehicles, on road and off road. Our catalysts and particulate filters convert pollutant emissions into harmless gases and trap the particulate matter, enabling our customers to meet present and future environmental standards. Umicore’s products have prevented hundreds of millions of tonnes of harmful pollutants from being emitted into the air. Our continued investment in R&D advances technological capabilities. Umicore remains committed to open innovation; a dedicated team facilitates collaboration with dozens of research institutes, start-ups and universities worldwide.

Through our electromobility technologies, Umicore is contributing to **ensure access to affordable, reliable, sustainable and modern energy for all (SDG7).** We are a leading producer of cathode materials for lithium-ion batteries, which are key in determining the power and energy density of rechargeable batteries, in order to maximize driving distance of electrified vehicles. This improves efficiency for downstream customers who manufacture the electrified vehicles as well as for users of cars and heavy-duty vehicles. Our hydrogen cell technologies are used as a new chemical carrier for energy, which could become the major energy carrier in the future and can be used for the decarbonization of industry.

We play an important role in the energy transition with our products and continuously work to improve energy efficiency and increase renewable energy use in our own processes.

As mentioned in our contribution to SDGs 7 and 9, many of our products help to reduce greenhouse gas emissions and contribute as such to **combat climate change (SDG13)**. Our electromobility solutions support the reduction of reliance on fossil fuels. The nature of our closed-loop business model avoids greenhouse gas emissions by using materials from non-primary sources. Through its operations, Umicore emits greenhouse gases. To minimize that negative impact, we have integrated the goal of net zero GHG emissions by 2035 in our Let's Go for Zero strategy and are pursuing SBTi validation for these targets. Furthermore, Umicore is also engaging in public-private partnerships to improve education and awareness about climate change mitigation, for example concerning clean energy and mobility.

The Zero harm pillar of our 'Let's go for zero' strategy is a significant challenge for an industrial player, but Umicore is prioritizing the wellbeing and safety of our employees and neighbors and is minimizing the negative impact of its operations. Intensified efforts in favor of occupational health and safety and overall wellbeing of our employees promote **well-being and healthy lives (SDG3)** as does safeguarding the safety of our products. Our catalysts also contribute to SDG3 by preventing harmful pollution and contributing to cleaner air for people to breathe.

To **ensure availability and sustainable management of water (SDG6)**, we are actively preventing water pollution from our production sites and are continuously reducing our water usage in our operations. Umicore recognizes that our operations can have a negative impact on the wellbeing of the communities in which we operate. We work actively and on a daily basis to minimize the negative environmental impact our operations may cause and to maximize job creation with the goal to **make communities as inclusive, safe, resilient and sustainable as possible (SDG11).**

Decent work and economic growth (SDG8) are an important focus for Umicore. Through job creation and thanks to our innovative and resource-efficient business model, Umicore contributes to the global transition. 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.

To **ensure gender equality (SDG5)** and cultivate diversity of thought within the company, Umicore strives to build an inclusive culture and to increase the number of women among our employees and our management. Beyond the borders of our company, we promote anti-discrimination against women and enforce equal opportunities in our supply chain, by asking suppliers to adhere to our Global Sustainable Sourcing Policy.

For more information on how Umicore's impact on the Sustainable Development Goals was evaluated, see the Social Statements

Overview of the impact of Umicore's strategy, objectives, products and services on key SDGs

Wellbeing at work for all	Zero inequality and wellbeing at work for all		Clean mobility solutions	Zero inequality, zero harm and closed loop business model	Closed loop business model and clean mobility solutions	Closed loop business model and clean mobility solutions	Zero Harm, closed loop business model and clean mobility solutions	Closed loop business model and clean mobility solutions
↑	↑		↑	↑	↑	↑	↑	↑
MAXIMIZING POSITIVE IMPACT TO SOCIETY								
3 GOOD HEALTH AND WELL-BEING	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION
MINIMIZING OPERATIONAL IMPACTS								
↓		↓				↓	↓	↓
Minimizing all emissions, 25% diffuse emissions reduction by 2025 and safeguarding employee safety		Minimizing all emissions and defining a water use target				Minimizing all emissions, 25% diffuse emissions reduction by 2025	Net Zero GHG emissions, minimizing all emissions, 25% diffuse emissions reduction by 2025	Net Zero GHG emissions, minimizing all emissions, 25% diffuse emissions reduction by 2025

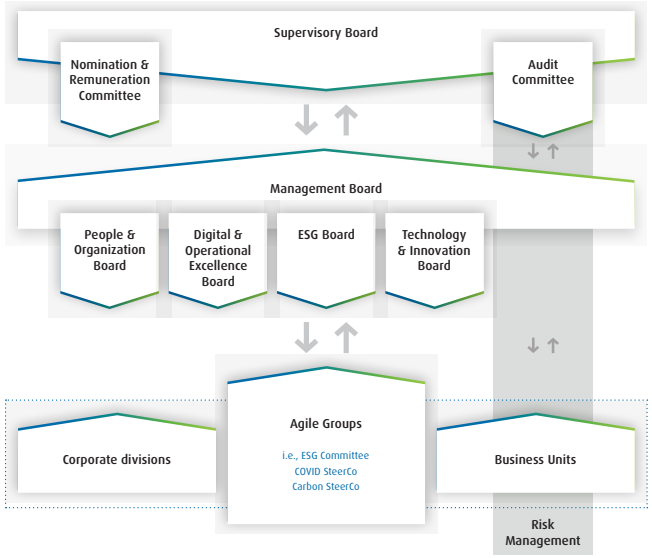
Key performance figures

(in million € unless stated otherwise)	2017	2018	2019	2020	**2021**
Economic performance					
Revenues (excluding metal)	2,915.6	3,271	3,361	3,239	**3,963**
Adjusted EBIT	410.3	514	509	536	**971**
Return on Capital Employed (ROCE) (in %)	15.1	15.4	12.6	12.1	**22.2**
R&D expenditure	175.2	196	211	223	**245**
Capital expenditure	365.3	478	553	403	**389**
Adjusted EPS (in €/share)	1.22	1.36	1.30	1.34	**2.77**
Gross dividend (in €/share)	0.70	0.75	0.375	0.75	**0.80**
Social and environmental performance					
Revenues from clean mobility and recycling (in%)	67	72	75	79	**79**
Total donations, including staff freed time (in thousands of euro)	1,299	1,432	1,614	1517.21	**1623.99**
CO_2e emissions (scope1)	364,139	417,140	389,101	330,619	**372,699**
CO_2e emissions (scope2) - Market based (in tonne)	269,565	350,562	402,795	401,926	**473,738**
CO_2e emissions (scope2) - Location based (in tonne)	299,168	368,649	426,074	417,346	**418,989**
Energy consumption (in terajoules)	6,532	7,458	7,476	7,591	**8,308**
Workforce (fully consolidated companies)	9,769	10,420	11,152	10,859	**11,050**
Lost Time Accidents (LTA)	51	61	90	49	**73**
LTA frequency rate	3.01	3.36	4.60	2.50	**3.7**
LTA severity rate	0.09	0.10	0.20	0.47	**0.12**
Exposure ratio 'all biomarkers aggregated' (in %)	2.7	2.8	1.8	2.0	**1.5**
Average number of training hours per employee	45.33	43.10	48.73	36.33	**41.59**
Voluntary leavers ratio	5.03	7.18	5.99	4.20	**5.82**

Leadership

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Governance



The **supervisory board** is responsible for Umicore's general policy and strategy. It supervises the management board and is also vested with specific, reserved powers, such as establishing the annual accounts, drafting the annual report and paying an interim dividend. The supervisory board is assisted in its role by an audit committee and a nomination & remuneration committee. In light of the above, 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. The members' biographies provide an overview of the experience and diversity in the supervisory board.

The **management board** - led by the 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. 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.

An overview of the composition and experience of the management board can be found in their biographies.

The management board has set up **four tactical boards** that develop part of the corporate strategy and monitor its implementation. They are each led by a member of the management board, with representatives from each business group, and managed by an internal expert:

- People & Organization Board (managed by the SVP Human Resources)
- Digital & Operational Excellence Board (managed by the SVP Digitalization)
- ESG Board (managed by the ESG Director)
- Technology & Innovation Board (managed by the SVP Corporate R&D)

Each tactical board can be supported by internal agile groups (e.g. the ESG committee) to coordinate efforts, maximize efficiency and mobilize expertise. For more information see Management Approach.

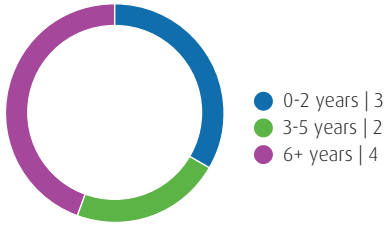
Supervisory Board



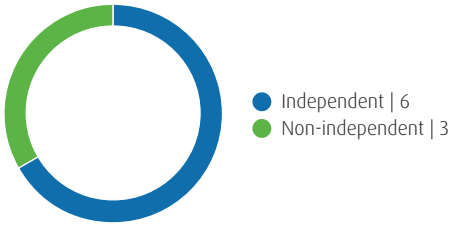
From left to right: Géraldine Nolens, Mark Garrett, Mario Armero, Françoise Chombar, Koenraad Debackere, Ines Kolmsee, Thomas Leysen, Birgit Behrendt, Laurent Raets, Eric Meurice

Board diversity

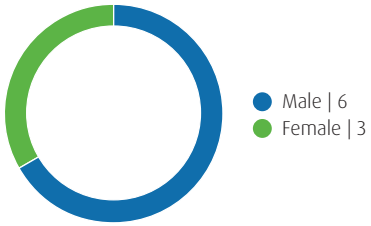
TENURE



INDEPENDENCE



GENDER



NATIONALITIES


Australia | 1


Belgium | 4


France | 1


Germany | 2


Spain | 1


Switzerland | 1

Thomas Leysen

Chairman

Belgian, 61

Date appointed to board
10 May 2000 (date appointment Chair: 19 November 2008)

Education
Law – KU Leuven, Belgium

Experience
Thomas Leysen became Chairman of Umicore in November 2008 after serving as Chief Executive Officer of Umicore since 2000. During this 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 - Chair, Royal DSM

Expiration of mandate
Annual General Meeting of 2024

Chairman since
19 November 2008

Chairman of the Nomination & Remuneration Committee since
19 November 2008

Mario Armero

Member

Spanish, 63

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 to 1999 he served as Secretary General at General Electric Plastics Spain, a position which he held until 2001, when he was appointed Chairman and CEO of General Electric Spain and Portugal, being the ultimate responsible 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 Chairman. From 2012 until 2020, Mario Armero has been the Executive Vice President of ANFAC, the Spanish Car manufacturers association.

External appointments
Advisor of Global Infrastructure Partners - Chairman of ENSO - Independent Board member of Bankinter Consumer Finance - Vice-Chairman 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 2023

Françoise Chombar

Independent member

Belgian, 59

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 Chairwoman of the Board of Directors of Melexis, a producer of smart sensor and driver semiconductors for automotive, industrial, durable consumer and health applications, where she served as Chief Executive Officer from 2003 until August 2021. She officiated previously as planning manager at Elmos GmbH and operations manager and director at several companies within the Elex group. Françoise was a mentor in the Belgian women's network Sofia for 17 years and 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 by the VUB, University of Brussels and in 2021 the first Medal of Honor, awarded by the Science and Technology Group of KU Leuven.

External appointments
Chairwoman of the Board of Directors, Melexis NV, Belgium - Chairwoman, Flemish STEM Platform, an independent advisory group to the government of Flanders - Independent Director, Soitec S.A., France - Chairwoman of the Board of Directors, BioRICS NV, Belgium

Expiration of mandate
Annual General Meeting of 2022

Member of the Nomination & Remuneration Committee since
26 April 2018

Koenraad Debackere

Independent member

Belgian, 60

Date appointed to board
26 April 2018

Education
Engineering – Ghent University, Belgium; Management – Ghent University, Belgium; Management – MIT Sloan School of Management, USA

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 through September 2020 he was the general manager of KU Leuven and also a member of the Board of KU Leuven.

External appointments
Chairman & independent director, chairman of Nomination Committee, chairman 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, 59

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 has been Chief Executive Officer at Marquard & Bahls AG, a Hamburg-based holding company investing in new energies, gas, chemicals and materials, since August 2018.

Before joining Marquard & Bahls AG, he served as Chief Executive Officer at Borealis AG, Austria, a position he had held since 2007. Prior to that, he built an extensive career in the chemical industry working with companies such as Ciba-Geigy and DuPont.

External appointments
CEO, Chairman of the Executive Board, Marquard & Bahls AG, Germany, Non-executive Chairman, Board of Directors, OMV AG

Expiration of mandate
Annual General Meeting of 2024

Member of the Nomination & Remuneration Committee since
29 July 2017

Ines Kolmsee

Independent member

German, 51

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 was Chief Executive Officer of Services & Solutions at Aperam from October 2017 through September 2020. 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.

External appointments
Independent non-executive director, Prysmian S.p.A., Italy

Expiration of mandate
Annual General Meeting of 2023

Member of the Audit Committee since
26 April 2011

Chairman of the Audit Committee since
28 April 2015

Birgit Behrendt

Independent member

German, 62

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 through 2019, she was vice president Joint Ventures, Alliances & Commercial Affairs. She is currently a Senior Advisor and Venture Partner at AP Ventures LLP, London.

External appointments
Member Supervisory Boards: Thyssenkrupp AG, KION Group AG and Ford Werke GmbH, Member of the Board of Directors, Infinium Holdings, Inc., Member of the Administrative Board, Stulz Verwaltungs GmbH, Member of the Advisory Council, Hydrogenious LOHC Technologies GmbH.

Expiration of mandate
Annual General Meeting of 2024

Eric Meurice

Independent member

French, 65

Date appointed to board
28 April 2015

Education
Economics – Sorbonne, France Mechanical Engineering – École Centrale Paris, France Business Administration – Stanford Graduate School of Business, USA

Experience
Eric Meurice was formerly President and Chief Executive Officer 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.

EXTERNAL APPOINTMENTS
Non-Executive Director, Global Blue Group S.A., Switzerland, Non-Executive Director, IPG Photonics Corp, USA, Non-Executive Chairman, Board of Directors, Soitec S.A., France

Expiration of mandate
Annual General Meeting of 2024

Laurent Raets

Member

Belgian, 42

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 partner in 2021. He began his career in 2002 as an M&A consultant at Deloitte Corporate Finance, where he was involved in buy and sell mandates, due diligence and valuation assignments.

External appointments
Censor of the Board of Directors of Imerys S.A., France

Expiration of mandate
Annual General Meeting of 2022

Member of the Audit Committee since
25 April 2019

Liat Ben-Zur

Independent member

American, 45

Date appointed to board
25 April 2017

Education
Electrical engineering – UC Davis, USA Business Administration – UCLA Anderson, USA

Experience
Liat Ben-Zur has been Corporate Vice President for Modern Life and Devices Product Marketing Management at Microsoft since September 2018.

Prior to joining Microsoft, she was SVP and Digital Technology Leader at Royal Philips where she was responsible for driving the connectivity and digital strategy, since 2014. She served previously in several leadership positions at Qualcomm, a US wireless telecommunications company, and was cofounder and Chairwoman of the AllSeen Alliance, a consortium for an open source, common language for the Internet of Things.

Expiration of mandate
Annual General Meeting of 2023

Ms Ben-Zur reisgned as Supervisory Board member on 29 April 2021

Marc Van Sande

Former board advisor, Formerly EVP Energy & Surface Technologies

Belgian, 70

Education
Physics – University of Antwerp, Belgium; Business Administration – Antwerp Management School, Belgium

Experience
Marc Van Sande was appointed Executive Vice-President Energy & Surface Technologies in June 2010, after serving as CTO from 2005 to 2010 and as EVP Advanced Materials from 1999 to 2005. Marc joined Umicore in 1980, and held several positions in research, marketing and production. He was also responsible for the Energy & Surface Technologies business group and China.

Marc Van Sande retired on 31 March 2021.

Géraldine Nolens

Board secretary,
Belgian, 50
(see Management Board)

Karel Vinck

Honorary Chairman

About the Supervisory board

The Supervisory board's cumulative industry experience is broad, covering automotive, electronics, chemicals, metals, energy and finance sectors in addition to the fields of academia and science.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 8 active or former CEOs in its ranks.The board also has collective experience in disciplines that are specifically relevant to Umicore's non-financial Horizon 2020 goals such as health and safety, talent attraction and retention and supply chain sustainability.

READ MORE ABOUT CORPORATE GOVERNANCE

Management Board



From left to right: Ralph Kiessling, Bart Sap, Géraldine Nolens, Denis Goffaux, Filip Platteeuw, Mathias Miedreich, Marc Grynberg (former CEO), Frank Daufenbach

Mathias Miedreich

Chief Executive Officer

German, 46

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 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.

Filip Platteeuw

Chief Financial Officer

Belgian, 49

Education
Applied Economics – Ghent University, Belgium
Financial Management – Vlerick Management School, Belgium

Experience
Filip Platteeuw was appointed Chief Financial Officer in November 2012. He joined Umicore in 2004 and served as VP Corporate Development from 2010 to 2012 and was instrumental in streamlining the business portfolio, including the divestment of the copper and zinc smelting operations.

Prior to Umicore, Filip worked for KBC Bank, taking up positions in corporate banking, equity market research and investment banking.

Géraldine Nolens

Chief Legal Counsel, Executive Vice-President

Belgian, 50

Education
Master of Laws – University of Chicago Law School, USA
European Economic Law – Julius Maximilians Universität Würzburg, Germany
Law – KU Leuven, Belgium

Experience
Géraldine Nolens was appointed Chief 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 the US, Germany, Italy and Belgium.

Denis Goffaux

Executive Vice-President, Recycling

Belgian, 54

Education
Mining Engineering – Université de Liège, Belgium

Experience
Denis Goffaux 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 to September 2018 and EVP for Precious Metals Refining from 2015 to 2018.

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.

Ralph Kiessling

Executive Vice-President, Energy Surface Technologies

German, 56

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 since 1 February 2019, after serving as Senior Vice President Operations for Automotive Catalysts since 2015.

He previously occupied successive management functions in process technology, production and business controlling, including 5 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 from 1995.

Bart Sap

Executive Vice-President, Catalysis

Belgian, 43

Education
Commercial Science – Vlekho 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, 43

Education
Management - HEC Paris, France

Experience
Frank Daufenbach joined Umicore's Management Board as Chief Strategy Officer in December 2021. In this newly created role, Frank will support the Management Board in their strategic choices, both within and across Business Groups, as they are preparing Umicore's next growth phase as a leader in clean mobility materials and recycling.

Frank brings strong international and automotive experience in various strategy and operational roles, especially in clean mobility. 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.

Marc Grynberg

Former Chief Executive Officer

Marc Grynberg was appointed Chief Executive Officer in November 2008 after heading the Automotive Catalysts business unit from 2006 to 2008, and serving as CFO of Umicore from 2000 until 2006.

He joined Umicore in 1996 as Group Controller. Prior to joining Umicore, Marc worked for DuPont de Nemours in Brussels and Geneva.

Marc Grynberg's mandate was terminated in mutual agreement with effect on 1 November 2021.

An Steegen

Former Chief Technology Officer

An Steegen joined Umicore and was appointed Chief Technology Officer in October 2018, after serving as Executive Vice President Semiconductor Technology and System R&D at imec, a leading research center with a focus on nanoelectronics and digital technology innovation.

Prior to joining imec in 2010, An worked at IBM's Semiconductor Research & Development center in Fishkill, NY and in the last several years of service at IBM, was in charge of the bulk CMOS technology development.

An Steegen resigned on 1 October 2021.

Leadership overview

As of time of publication



Mathias Miedreich

Chief Executive Officer

- Corporate R&D
- Human Resources
- Group Communications & Investor Relations
- Lead Technology & Innovation Board
- Lead People & Organization Board
- South America



Carsten Gerleman
SVP Umicore South America



Céline van Haute
SVP Human Resources



Evelien Goovaerts
VP Group Communications & Investor Relations



Yves Van Rompaey
SVP Corporate Research & Developoment



Filip Platteeuw

Chief Financial Officer

- Finance
- Corporate Development
- Information Systems
- Lead Digital & Operational Excellence Board



Frank Daufenbach

Chief Strategy Officer

- Government Affairs
- New Business Incubation & Digitalization
- Lead Digital & Operational Excellence Board



Géraldine Nolens

Chief Legal Counsel
Executive Vice-President

- Legal
- Environment, Health & Safety
- Internal Audit
- Procurement & Transportation
- Corporate Security
- Lead ESG Board
- North America



Bart Sap

Executive Vice-President
Catalysis

- Automotive Catalysis
- Precious Metals Chemistry
- Fuel Cell & Stationary Catalysis



Ralph Kiessling

Executive Vice-President
Energy & Surface Technologies

- Rechargeable Battery Materials
- Cobalt & Specialty Materials
- China



Denis Goffaux

Executive Vice-President
Recycling

- Precious Metals Refining
- Jewelry & Industrial Metals
- Battery Recycling Solutions
- Precious Metals Management
- Metal Deposition Solutions
- Electro-Optic Materials
- Umicore Marketing Services
- Japan

Filip Platteeuw



Alain Byl
VP Group Treasurer until 31/3/22



Benoît Stevens
VP Group Accounting & Controlling



Flavia Leone
VP Group Tax



Olivier Ghyssens
VP Corporate Development



Patrick Vermeulen
SVP Information Systems



Pierre Hautfenne
VP Group Treasurer as of 1/4/22

Frank Daufenbach



Kurt Vandeputte
SVP Goverment Affairs



Thomas Jansseune
SVP New Business Incubation & Digitalization

Géraldine Nolens



Bart Smets
Head of Insurance



Geert Bens
VP Strategic Projects



Jens Blechschmidt
Head of Internal Audit



Kristl Matton
Head of Corporate Security



Mark Caffarey
President Umicore USA



Natalia Agüeros-Macario
ESG Director



Pierre van de Bruaene
SVP Environment, Health & Safety



Sybolt Brouwer
VP Procurement & Transport



Tom Vandebosch
VP Legal

Bart Sap



Enrico Cisco
VP Control & IT



Geert Olbrechts
SVP Research & Technology and Supply, AC



Jensen Verhelle
SVP Precious Metals Chemistry



Joakim Reimer Thøgersen
SVP Fuel Cells & Stationary Catalysis



Lawrence Li
VP AC China



Lothar Mussmann
SVP Product Management, AC



Masa Muramatsu
Managing Director AC Japan



Stephanie Dam
SVP AC Operations



Wilfried Müller
SVP Global Sales & Marketing

Ralph Kiessling



Ben Gilliams
VP Operations & Technology Refining



Bernard Tonnon
VP RBM Process Technology & Engineering



David Fong
SVP Umicore Greater China



Dong-joon Ihm
Executive Chairman Umicore Korea



Erik Brijs
VP Control & IT



Frank Streignart
SVP RBM Operations



Geon-Seog Son
VP RBM Research & Development



Ignace de Ruijter
SVP CSM



Jörg von Roden
SVP Sales & Business Development, RBM



Jundong Lu
SVP Asia for RBM



Stephan Janis
VP Supply & Refining

Denis Goffaux



Atsuya Hanazawa
President Umicore Japan



Bernhard Fuchs
SVP Precious Metals Management & UMS



Franz-Josef Kron
SVP Jewelry & Industrial Metals



Johan Ramharter
SVP Precious Metals Refining



Kurt Vandeputte
SVP Battery Recycling Services



Thomas Engert
SVP Metal Deposition Solutions



Wannes Peferoen
SVP Electro-Optic Materials

Management approach

General management

The Umicore Way is the cornerstone of everything we do at Umicore and is also 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, Training & Development and Donations & Sponsorship.

Our business model is designed to deliver positive impact for society in parallel with economic value creation. We offer solutions to sustainability challenges that are linked to megatrends and create value for all our stakeholders. Our Clean Mobility & Recycling strategy and Let's Go for Zero strategy are our compass to ensure integrated value creation.

Performance evaluation

Economic, social and environmental performance is measured annually against a set of KPIs reported through a group data management system. The data are collected and reported at the relevant entity level: site, region, business unit or business group. The corporate divisions EHS, HR, ESG and Finance aggregate the performance data from all parts of the Group to evaluate Umicore's overall progress for review by the appropriate tactical and/or full management board.

Both financial and non-financial performance indicators are included in overall general management performance measurement as described in our remuneration policy. A new remuneration policy which integrates climate, emissions, diversity and safety performance metrics for members of the management board will be submitted to the shareholders' approval at the annual general meeting in 2022. Performance data linked to the ESG strategy will be monitored using an internal ESG dashboard.

Umicore uses an assurance provider to check its financial, social and environmental 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. As part of the new Let's go for zero strategy, Umicore has committed to increased disclosure, which is ongoing and will spread over several reporting cycles as part of a continuous improvement process.

Performance responsibilities

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 to the sustainable development approach. Business units are clustered in business groups according to strategic business development topics. In addition, each business group is a member of the ESG board to ensure ESG integration into those strategies.

This implies an effective decision-making process based on clear allocation of responsibilities as described in Governance. This must ensure optimal balance between a culture of entrepreneurship at the level of the business units and effective steering and oversight processes centrally.

The four tactical boards are key contributors to the corporate strategy and monitor its implementation. Day-to-day responsibility for the economic, social and environmental performance lies with the Executive Vice-President, business unit managers and site managers. To assist the business units and sites, corporate divisions have developed detailed 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.

Financial management

Approach and goals

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 a strong track record of delivering a solid performance against the strategic objectives. We seek to grow our existing businesses while maintaining or establishing strong leadership positions on the back of innovative technologies. Shareholder returns depend on the valuation of the Umicore stock and are supported by the payment of dividends.

Umicore aims to safeguard the business through sound financial management and by maintaining a strong balance sheet. While we have no fixed target regarding debt levels, we aim to maintain investment grade status at all times. 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 the company's approach to specific financial aspects including: dividends, financing and funding, transfer pricing, credit management and hedging.

Performance responsibilities

Accountability for the overall financial performance of Umicore lies with the CEO, while each Executive Vice-President is responsible for the financial performance of his/her business group or corporate department(s). 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, diversity and safety-related projects as they contribute to reaching our Let's go for Zero objectives.

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.

Operational management

Approach & goals

Umicore seeks to generate economic value through our existing businesses and any acquisitions or organic growth initiatives that we undertake. 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 world's debt and equity markets. ROCE is one of the most important key performance indicators for steering Umicore.

We deal with precious and other rare metals and we therefore have relatively 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.

Umicore seeks to maintain market leadership positions in recycling and clean mobility materials. The nature of our business, which consists of products for highly specific applications, means that we do not have a presence in any country or region which makes up a significant part of that country or region's economy. Our business is global in nature with 50 production sites in 33 countries.

When designing growth projects, we carefully consider overall contribution to our Let's go for Zero ambitions.

Understanding the increasing importance of climate resilience, we are supporting the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) and are enhancing the mitigation of our climate-related risks and opportunities. Managing these risks and opportunities is closely linked to our business model, our global operations and environmental impact on society.

To deliver operational excellence, Umicore focuses on 3 pillars: people, competencies and values.

People need to be equipped and digitalization roles filled, which is the task of the Umicore Technical and Digital Academy as described above. Competencies are developed in centers of expertise, such as the cloud center of expertise, the computational science center, the data management center and the robotics center. Values are developed in roadmaps and project managers guide business units to set up projects.

KPIs on operational excellence and digitalization have been set up and some business units have been given objectives from the management board, for example to improve EBIT due to digitalization.

Policies

Specific internal policies and guidelines have been developed to frame the Company's approach to specific operational aspects including ROCE calculation methodologies, ROCE targets and Mergers & Acquisitions.

Performance responsibilities

In the management board, the Chief Financial Officer and the Chief Strategy Officer are responsible for operational management and are the leads for the Digital & Operational Excellence Board. This tactical board - managed by the SVP Digitalization - was launched at the end of 2021 and is being developed further in Q1 of 2022.

Mergers and acquisitions are assessed by the Corporate Development department, which is supervised by the Chief Financial Officer.

The Business Group Executive Vice-Presidents are each responsible for the overall operational performance of their business group. 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. Implementation and performance against environmental and social KPIs are monitored as part of the ESG Board.

Innovation management

Approach & goals

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 greenhouse gases in 2035 for scope 1 and 2. We invest consistently between 5 and 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 spanning 15+ years and translate this into a product and service roadmap, which in turn translates into 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.

Performance responsibilities

R&D at Umicore consists of a hybrid R&D organization, with business-specific R&D complemented with corporate R&D and a new business incubator, each with specific roles and responsibilities. These R&D departments come together in an innovation excellence board, reviewing how R&D can analyze, measure and improve effectiveness and efficiency. The innovation excellence board also evaluates cross-activity synergies and common topics including R&D talent development, digitalization of R&D, and advises the CEO on innovation management.

The management board reviews the complete portfolio of technology and innovation on a quarterly basis, covering all program milestones, competences and innovation value and performance KPIs. This is managed by the CEO and coordinated by corporate R&D through a central project management office, which connects to various project management offices across Umicore for alignment.

Business units are responsible for the setup, delivery and evaluation of their project portfolio in line with customer and market expectations.

Environmental management

Approach & goals

Our approach to environmental management derives from the vision, values and organizational principles found in The Umicore Way. With our Let's Go for Zero strategy, we commit to minimizing our environmental impact. While Umicore's Let's go for zero strategy focuses on greenhouse gas and other emissions, we continuously monitor, control and report the performance of our organization in relation to other environmental aspects. A detailed overview of our environmental performance indicators can be found in Environment and in the Environmental Statements.

Policies

An internal Group EHS Guidance Note details the approach to measuring and reporting on each relevant environmental indicator. In addition, a specific internal policy on energy efficiency created a high level of awareness and commitment at sites and within business units to strive for continual energy efficiency improvement. Umicore also encourages all business unit initiatives that increase recycling potential. On a global scale, metals recycling reduces the environmental impact related to the sourcing and transformation of metals into products.

Performance responsibilities

In the management board, the Executive Vice-President for Corporate Security, Environment, Health & Safety, Internal Audit, Legal and Procurement & Transportation is responsible for all environmental matters and leads the ESG Board. Implementation and performance against Environmental KPIs are monitored as part of the ESG Board.

The Business Group Executive Vice-Presidents are each responsible for the overall environmental performance of their business group. At business unit level, the head of the business unit is responsible for the overall environmental performance. The general manager of each site has a similar responsibility at site level.

Workforce management

Approach & goals

Our approach to workforce management derives from the vision, values and organizational principles found in 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.

With our Let's go for zero strategy, we commit to zero inequality and zero harm. While Umicore's Let's go for zero targets determine a special focus, we believe it is equally important to continuously monitor, control and report our social performance in other areas. A detailed overview of our workforce performance indicators can be found in Employees and in the Social Statements.

Policies

An internal Group Social Reporting Guidance Note provides detailed guidance on measuring and reporting on social performance. Specific 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 Group EHS Guidance Note (hereafter 'EHS Guidance Note') is Umicore's central EHS management system. It describes the groupwide environmental, health and safety requirements and expectations and provides a framework for the business units and sites consistent with, and explicitly referencing, the ISO 14001 management system. This guidance spans the full range of EHS topics including Occupational 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 universal core safety principles

that can be translated by each business unit to their specific environment to take actions according to their specific risks.

Performance responsibilities

In the management board, the CEO has oversight responsibilities for Umicore's Human Resources and leads the tactical People & Organization Board, which is managed by the Senior Vice President Human Resources. For all health and safety matters, the Executive Vice-President for Corporate Security, Environment, Health & Safety, Internal Audit, Legal and Procurement & Transportation is responsible and the health and safety KPIs are monitored by the ESG Board. The Executive Vice-Presidents are responsible for the social aspects of their business group. At business unit level, the head of the business unit is responsible for the overall social performance. The general manager of each site has a similar responsibility at site level. A regional Human Resources organization exists to manage social aspects at regional and country level, and to provide structural support to the business units in all aspects of human resources and health and safety management. 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.

Managing impact on society

Approach & goals

Umicore's main goal is to maximize our positive impact on society, both in our value chain and with our products and services. Our approach to managing our impact on society derives from the vision, values and organizational principles found in The Umicore Way and in our closed-loop business model. The relationship with our stakeholders, customers and suppliers is essential to building financial and economic value and plays a key role in the promotion of social and environmental best practices. As a signatory of the UN Global Compact, Umicore is looking through the lens of the Sustainable Development Goals to maximize its contribution to society.

In our Let's Go for Zero strategy, we commit to zero harm. Upstream, we specifically act to eliminate any social or environmental harm in our supply chain. Downstream, we increase the impact of our products and services by working directly with our customers and through our commitment to responsible sourcing choices. A detailed overview of our performance indicators for our impact on society can be found in Society, Sustainable Products and Services and in the Social Statements.

For the approach to donations, Umicore has a two-tier approach. Each business unit is expected to allocate an annual budget that provides sufficient donations and sponsorship support to each site's community engagement program. By way of guidance, this budget should equal an amount corresponding to one third of 1% of the business unit's average annual consolidated adjusted EBIT (i.e., excluding associates) for the 3 previous years. Most of the donations from the business units go to charities close to their sites, in support of the local community. Group donations focus on projects with an international scope, with priority given to initiatives that have a clear link with sustainable development and that have an educational component. A part of Group donations also goes to disaster relief.

As a matter of policy, Umicore does not make donations to political parties or organizations.

Policies

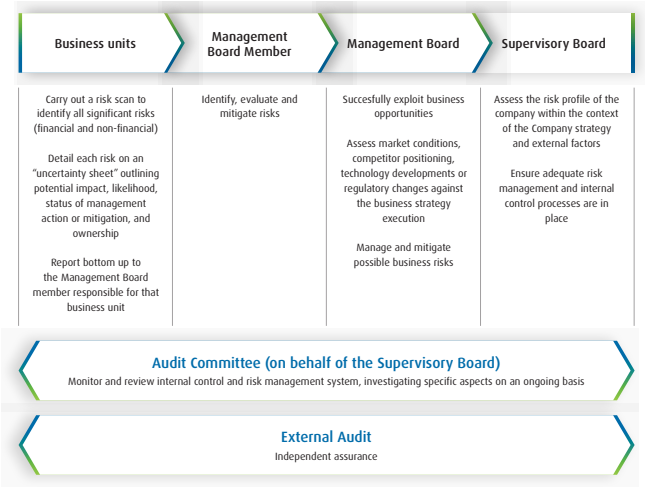
Specific charters/policies have been developed to frame specific elements of our approach to responsible sourcing, including the Umicore Global Sustainable Sourcing Policy, the Sustainable Procurement Framework for Cobalt and the Responsible global supply chain of minerals from conflict-affected and high risk areas Policy.

For donations, Umicore has a Group Policy on donations and sponsorships with general guidelines on the thematic focus of donations and on budget allocation.

Performance responsibilities

Our presence and impact both upstream and downstream is based on a business-specific approach whereby all business units are required to identify and engage with their respective suppliers, customers and stakeholders. For all responsible sourcing matters, the Executive Vice-President for Environment, Health & Safety, Corporate Security, Procurement & Transportation, Legal and Internal Audit is responsible. The Executive Vice-Presidents are responsible for the responsible sourcing aspects of their business group. At business unit level, the head of the business unit is responsible and the general manager of each site has a similar responsibility at site level. In addition, a team comprising members of various departments – the ESG committee - meets regularly to map overall stakeholder expectations and to convene, whenever necessary, internal or external stakeholder dialogue sessions. 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.

Managing risk effectively



Each business unit operates in an environment that carries specific growth expectations and differing degrees of market and technological uncertainty that could impact strategic objectives. As such, the primary source of risk and opportunity identification lies within the business units and each business unit is responsible for the mitigation of its own risks. Mitigating actions are systematically reported corresponding to the respective strategic objectives and identified risks.

Under the auspices of the Management Board, specific corporate departments are also tasked with managing and mitigating certain risks and with ensuring that adequate systems are in place to address them. These risks 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, The audit committee of the Supervisory Board reviews all financial and non-financial risks of the company.

Our internal control system

Internal control mechanisms exist throughout Umicore to provide management with reasonable assurance of 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 COSO framework for its enterprise risk management 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 the audit committee.

Out of the 12 control cycles, three cycles (Financial Closing and Reporting, Order to Cash and Treasury Management) were assessed in the course of 2021 by the 99 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. The Internal Audit department reviews the compliance assessments during its missions.

The aim of our risk management system is to enable the company to identify risks in a proactive and dynamic way and manage or mitigate risks to an acceptable level wherever possible.

Risks & Opportunities

We take a balanced approach to managing risk and seize opportunities to deliver on our strategic goals

RISK & OPPORTUNITY	REGULATORY & LEGAL CONTEXT	SUSTAINABLE & ETHICAL SUPPLY	METAL PRICE	MARKET	TECHNOLOGY & SUBSTITUTION	INFORMATION SECURITY & DATA PROTECTION	TALENT ATTRACTION & RETENTION	CLIMATE & ENVIRONMENT
CHANGE IN RISK PROFILE	↑	↑	↑	↑	↑	↑	→	→
CHANGE IN OPPORTUNITY PROFILE	↑	↑	→	↑	↑	→	↑	↑
LINK TO MATERIAL TOPICS	Digitalization & Cybersecurity Ethical Supply Product Stewardship Responsible Governance Sustainability Governance	Climate & Environment Ethical Supply Sustainable Governance Sustainable Sourcing & Recycling Services	Sustainable Sourcing & Recycling Services	Innovation Product Quality & Production Capacity Sustainability Governance	Innovation Product Quality & Production Capacity Product Stewardship	Digitalization & Cybersecurity	Employee Engagement Employee Health, Safety & Wellbeing Sustainability Governance	Climate & Environment Innovation Sustainability Governance Waste Water

1 Regulatory and legal context

LINK TO MATERIAL TOPICS

Digitalization & Cybersecurity
Ethical Supply
Product Stewardship
Responsible Governance
Sustainability Governance

CHANGE IN RISK PROFILE



CHANGE IN OPPORTUNITY PROFILE



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 EHS (environment, health & safety) related laws, regulations and standards. In the **short term**, these present operational challenges for our businesses, resulting in continuous improvements and investments (hence in higher 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 the course of 2021, the Flemish government imposed new and more stringent environmental requirements for Umicore's recycling plant in Hoboken. These new and challenging requirements include annually declining limits for levels of lead in the blood of young 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. As Umicore's recycling activities are concentrated on this one unique site in Hoboken, failing to reach 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.

However, 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. This evolving EHS regulatory framework will ultimately also be beneficial to the environment and society as new and better technologies will have to be developed and implemented, for the emissions of both production facilities and vehicles as well as to cope with resource scarcity. Changes in product content regulation in general and more specifically REACH regulation can in turn drive business options and/or technology choices.

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 rights may, in the short- and **medium-term**, have a negative impact on Umicore's businesses 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 be forced to take legal action against perpetrators to safeguard its intellectual property rights. Likewise, Umicore is also exposed to the risk of having to defend itself against alleged breaches of third-party IP rights, despite efforts to manage its IP portfolio actively.

Geopolitical conditions, trade legislations and restrictions continue to be a factor in Umicore's trans-border activities in the short, medium and **long term**.

The growing trend towards electrification and more stringent emission control should be seen as an opportunity to Umicore's business as described in Market. However, governments might decide to postpone the implementation of 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, this will rather be an **opportunity** for further and increased market development, positively impacting sales and revenues.

Potential product or contractual liabilities remain risk factors to be monitored at all times.

National and international tax regulation is increasing and becoming more complex which increases the Group's tax compliance related risks (particularly in the field of transfer pricing and indirect taxes such as VAT). The uncertainty associated with announced or potential tax reforms is equally increasing (both on a national level such as for example in Brazil or on an international level such as for example the OECD initiatives). These risks might impact the Group's earnings despite Umicore continuing to manage them proactively (e.g. through the recognition of uncertain tax position provisions).

Risk profile

The increased complexity of the global regulatory environment is a clear sign that there is an upward shift in this risk profile, while at the same time, new opportunities will equally rise out of this 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 rights and data protection is increasing as a result of the stricter regulations and the IP landscape which has become more litigious than previously. Despite our active management of patents and IP rights, Umicore cannot exclude that any of our patents will be violated (and we may not always be able to successfully take action to stop or obtain compensation for any such violations) nor that there will not be

any litigation against the company for an 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.

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. For more information, see Environment.

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.

Umicore closely monitors all changes in interpretation as well as guidance documents that might affect its REACH implementation strategy. In 2021 we submitted 16 additional substances for registration under REACH due to new business developments. As part of regular maintenance, we updated 96 REACH dossiers. Umicore has submitted 12 registrations in Korea in 2021 for priority chemical substances.

To mitigate the potential impact of (product) liability claims, Umicore has implemented mechanisms such as contract management and risk transfer using insurance policies, in addition to rigorous quality controls.

Umicore's dedicated Intellectual Property Team sees to it that our products have the freedom to operate and is entrusted with the management of Umicore's IP activities worldwide.

More and more 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 has implemented the necessary governance structures in compliance with these legislations and is closely monitoring any changes or new regulations on this topic.

To safeguard its data and innovative ideas, Umicore is providing 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 was launched in 2021, consisting of several training modules and tools as described in Information security and data protection.

The Umicore Trade Compliance Team closely follows and responds to global trade conditions.

Umicore continues to play an active role in informing legislators of various emission control technologies for both diesel and gasoline powered vehicles, to help legislators make informed decisions about future emission and testing norms. To manage policy risks, Umicore participates in public consultations and is a member of multiple industry associations, including sourcing, climate and business related topics. As described in Engaging For Impact, Umicore is supportive of challenging targets in areas such as battery regulation, as they represent opportunities for us.

Umicore is further enforcing its international tax team and increased its use of third-party advisory services to monitor and manage tax related risks.

2 Sustainable and ethical supply

LINK TO MATERIAL TOPICS

Climate & Environment
Ethical Supply
Sustainable Governance
Sustainable Sourcing & Recycling Services

CHANGE IN RISK PROFILE

↑

CHANGE IN OPPORTUNITY PROFILE

↑

Risk description

In the **short term**, potential disruption in supply chains due to factors including COVID-19 restrictions, changes in trade regulation or geopolitical events and subsequent delays at borders and ports, container transportation shortage and high energy prices remains a real risk. A further source of stress in the supply relates to stricter application of regulations on transboundary movements of waste and/or bans by carriers, ports or countries to accept waste or dangerous goods. Regarding the supply of metals, securing adequate volumes of raw materials is essential in the ongoing viability of our product and service offering and in achieving our growth objectives. Responsible sourcing is a key priority and competitive edge for Umicore: when sourcing materials or through indirect procurement, we check suppliers and conduct due diligence based on a risk assessment 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

or battery nickel units, combined with a lack of alternatives, can impact metal prices as described in Metal price.

In the **medium term**, price volatility and limited availability of supply remain a concern, in particular for battery materials for which demand is expected to soar for certain platinum group metals, the use of which is currently closely linked to internal combustion engine technology. The uncertain grade mix for battery materials may lead to inadequate supplies. Other materials such as germanium face long-term supply challenges due to changing market conditions, where there is a trend for suppliers to move downstream. With regard to sustainability and the impact of Umicore's activities on society, it is crucial we further deploy the Umicore Let's go for Zero strategy, with a supply chain that is fully certified against environment, social and governance criteria and decarbonization targets for scopes 1, 2 and 3.

In the **long term**, regarding supply, 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 is important for the ongoing success and growth of our business.

Risk profile

Regarding battery materials in particular, demand is expected to increase massively in the coming years and decades, as is competition for the sourcing of the required materials. Regarding certain precious metals and platinum group metals in particular, physical supply is currently tight and sensitive to any supply or demand disruption in the short term, while sensitive to the pace of electrification and alternative drive train technologies such as fuel cells in the longer term.

The impact of COVID-19 and measures taken to contain contagion are expected to continue having an impact on the availability of raw materials and in general on the supply chain, but that risk is expected to decrease and stabilize through 2023. Conversely, geopolitical risks are increasing.

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). Requirements for robust due diligence management systems, compliance and reporting will only increase in the coming years for the entire supply chain, both for impact on Human Rights, and for environmental, social and governance (ESG) criteria. 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.

Risk mitigation

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 labor, banning of forced labor, consistent with International Labour Organisation (ILO) standards, as supported through a Global Framework Agreement on Sustainable Development with IndustriALL Global Union.

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 safeguard the environment and to protect Human Rights in our supply chain: Responsible global supply chain of minerals from conflict-affected and high-risk areas and Sustainable Procurement Framework for Cobalt, which are aligned with the OECD 'Due Diligence Guidance for Responsible Supply Chains from Conflict-Affected and High-Risk Areas' for which Umicore receives annual third-party validation.

Both policies include a robust due diligence system, which 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 Cobalt Framework, the identification of 'red flags' or 'orange flags' triggers engagement with the supplier on the related issue and an internal decision-making process involving senior management in appropriate follow-up. Umicore remains the first cathode material producer to offer certified materials from a clean and ethical origin.

Both policies are currently in the final stages of an extensive review, which will include a broadened scope for environmental, social and governance (ESG) criteria and a strengthened risk assessment and risk mitigation approach.

In addition to our continued engagement in sustainable cobalt sourcing, in 2021 Umicore also implemented due diligence in the supply of the other raw materials for batteries, e.g. nickel and lithium. The approach is directly inspired by Umicore's experience with cobalt and follows the basic steps of the Sustainable Procurement Framework for Cobalt.

Furthermore, 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.

Regarding managing risks of critical materials and supply disruption, mitigation actions can vary depending on the materials and the position of the business unit in the market. Beyond responsible sourcing, we ensure that materials can be supplied from several reliable suppliers, we closely monitor developments in other regions and investigate other projects to diversify sourcing and we seek out secondary raw material sources and negotiate long-term contracts.

3 Metal price

LINK TO MATERIAL TOPICS

Sustainable Sourcing & Recycling Services

CHANGE IN RISK PROFILE



CHANGE IN OPPORTUNITY PROFILE



Risk description

Umicore's main risk in the **short term** is related to the volatility of metal prices. Earnings are exposed to risks relating to the prices of the metals which 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"). For more information on the structural risk and on the transactional and inventory risk related to the metal prices, see Statements, note F3.

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 current crisis in Ukraine could have an influence on Umicore's supply of certain metals such as palladium and nickel in view of Russia's position as major global producer. Potential sanctions or other trade disruptions could in particular lead to delay or cessation of supply which could impact global car production and Umicore's Catalysis production levels and earnings. Such events would also fuel metal price volatility.

The availability of metals such as nickel, lithium and cobalt - as described in Sustainable and Ethical Supply - is the main **long-term** risk.

Due to the liquidity of the metal markets for cobalt, rhodium and palladium, Umicore's impact on the metal price is limited.

Risk profile

Prices for precious metals strengthened further in 2021, reaching historically high levels for precious metals and PGMs. The price of rhodium in particular increased significantly in the first half of the year, in a context of tight supply and high demand from the automotive industry. It then decreased back to 2020 levels following the semiconductor supply shortage, which impacted the automotive and many other industries.

The prices of cobalt, nickel and lithium increased over the course of the year 2021. These increases are mainly driven by the growing demand for EV batteries.

As described in the Sustainable and ethical supply risk, metal scarcity is increasing because of tight supply and demand 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.

Over the course of 2021, Umicore entered additional forward contracts securing a substantial portion of its structural price exposure for certain precious metals in 2022, 2023 and 2024, thereby increasing earnings predictability. For 2022, based on the respective currently expected exposures, the following lock-ins have been secured: close to two thirds for palladium, more than half for gold, somewhat less than half for silver and close to one third for platinum and rhodium. For 2023, the expected lock-in ratios are close to a third for gold, silver and palladium and a minor portion for platinum and rhodium. For 2024, only a minor portion has been locked in for the expected gold, silver and palladium exposures. For rhodium in particular, Umicore managed to enter forward contracts locking in a minority of expected exposures, despite the absence of a liquid futures market.

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 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 is continuously increasing 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

LINK TO MATERIAL TOPICS

Innovation
Product Quality & Production Capacity
Sustainability Governance

CHANGE IN RISK PROFILE



CHANGE IN OPPORTUNITY PROFILE



Risk description

The main industries served by Umicore are automotive (clean mobility 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 changes in the automotive industry create the main risks for Umicore today.

In the **short term**, Umicore has limited visibility on automotive demand due to the ongoing semiconductor shortage. The unclear pace of electrification also poses uncertainty in terms of demand of our products. Electrification will reduce the demand for automotive catalysts and boost the demand for rechargeable battery materials. Increased demand for rechargeable battery materials requires more production lines and sites, entailing challenges in hiring and training people, acquiring the right qualifications against the right timelines and available CAPEX. This lack of visibility of demand for rechargeable battery materials is a risk in both the short and **medium term**. Geopolitical conditions can be a factor in market uncertainty in the short and medium terms.

The pace of electrification also has an influence on Umicore's catalysis and recycling activities. Since catalysts are produced with platinum group metals (PGMs), a reduced demand for catalysts has an impact on PGM prices and availability both for Umicore and society. To ensure efficient production of rechargeable battery materials, it is imperative that we have a consistent supply of metals as described in Sustainable and ethical supply.

In the **long term**, the transition to electrification has a positive impact on the production of rechargeable battery materials and a negative impact on the production of automotive catalysts. This changes the competitive environment. Through its current customer portfolio, Umicore is exposed to mid-nickel platforms which are being replaced, much faster than initially anticipated, by high-nickel platforms. Accordingly, customers are scaling back demand projections for mid-nickel cathode material applications; also in the first half of 2021, Umicore's NMC (Nickel Manganese Cobalt) volumes reflected an unfavorable customer and platform mix in China.

Umicore's customers – car manufacturers – concentrate the number of platforms for automotive catalysts. The market for rechargeable battery materials is becoming more crowded as new players enter. At the same time, more and more OEMs (original equipment manufacturers) are starting to produce rechargeable battery materials – in addition to being Umicore's customer, they are becoming Umicore's competitor.

This has an impact on Umicore, but with its positioning, Umicore is also influencing the changing market structure for rechargeable battery materials for the automotive industry. Umicore is uniquely positioned to give the market a closed-loop solution for cathode materials, as we are both producing cathode materials and recycling batteries. Furthermore, Umicore's recycling services are positively impacting society by enabling a shift towards an industrial future with low impact.

Risk profile

As confirmed in the qualitative scenario analysis of our climate related risks and opportunities, the electrification of mobility is increasing Umicore's risk profile for the catalysis business and at the same time is increasing Umicore's **opportunity** profile for the rechargeable battery materials business.

Risk mitigation

Notwithstanding the limited visibility on automotive demand caused by the global semiconductor shortage, Catalysis is expected to continue to benefit from its strong market position in gasoline catalyst applications in Europe and China, which will remain, even in fast electrification scenarios. Umicore works continuously to maintain its excellent cost position with a globally optimized production footprint and a low break-even point, which resulted in market share gains in 2021. We have the right product and technology portfolio with strong demand from our customers, also for the next waves of emission legislation such as EURO 7. These strengths will feed the value creation potential over the next decade of Umicore's Automotive Catalysts activities in a context of declining internal combustion engine volumes.

In Energy & Surface Technologies (E&ST), Umicore is actively diversifying its customer and platform exposure and is currently in advanced qualifications with its high-nickel cathode material technology with various cell and car customers. Upon successful qualification, production for these applications is expected to ramp up to significant volumes during the second half of 2023. Increased intimacy with car OEMs and qualifications for the right platforms are ever more important, which is why we are solidifying our relationships with customers to improve our supplier status. The planned JV with Volkswagen will secure access to a significant part of the European EV market. Umicore's agility in our operations and supply chain equip us to adapt quickly to changes in demand.

The market risk is intimately associated with the metal price risk. As described in the section Metal price above, we hedge a proportion of our forward metal exposure to cover part of the future price risks.

The complementarity of our activities has proven to be a true competitive edge. In E&ST 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 activities, we close our own and our customers' materials loop and offer a unique sustainable and circular approach that will be ever more important in a world of raw materials scarcity.

Umicore will 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.

For more information, see Financial and Operations.

5 Technology and substitution

LINK TO MATERIAL TOPICS

Innovation
Product Quality & Production Capacity
Product Stewardship

CHANGE IN RISK PROFILE



CHANGE IN OPPORTUNITY PROFILE



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.

In the **short term**, the main technology risk is linked to whether and when the European Union will adopt the new EURO 7 emissions standard for gasoline and diesel light duty and heavy-duty vehicles, as this would have important consequences for Umicore's technologies.

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 materials. For example, lithium iron phosphate (LFP) battery chemistry is a mainstream technology in China. This chemistry is not produced by Umicore and there is a risk that LFP could 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.

Umicore's activities have a lasting positive impact on society. Umicore upskills its workforce by offering learning and development opportunities in areas such as digitalization and technology as described in Innovation. We are continuously improving our technologies to minimize the environmental impact from our activities. Umicore's R&D in automotive catalysts, batteries and fuel cells contribute to clean mobility and our recycling developments make industry more sustainable.

Risk profile

Given the pace of change in the market, Umicore's opportunity profile is increasing, but at the same time, the risk profile is also increasing.

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.

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 which 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.

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.

To remain a pioneer in battery recycling we continuously develop and improve our battery recycling technologies taking into account technical, economic and environmental aspects and building on a decade of experience. The newest generation will be introduced in 2022.

For cathode materials, we investigate a range of chemistries and prepare them 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 developing our high lithium manganese (HLM) solution.

Umicore patents disruptive technologies. In 2021, Umicore registered 69 new patent families.

For more information, see Innovation.

6 Information security & data protection

LINK TO MATERIAL TOPICS

Digitalization & Cybersecurity

CHANGE IN RISK PROFILE



CHANGE IN OPPORTUNITY PROFILE



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. 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 to the confidentiality of intellectual property would negatively impact our competitive advantage. Unauthorized modification of financial data would jeopardize accurate reporting to shareholders. 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 would be impacted if any of our main suppliers were to experience a cyber incident. Cyber incidents can be local or global and if Umicore is attacked, this could have consequences for our customers and as an example the automotive industry could be impacted.

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 occur 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 is more important than ever.

In 2021, there was no change in opportunity profile.

Risk mitigation

Umicore protects its data for confidentiality, availability and integrity.

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. In 2021, Umicore launched the 'I stay alert campaign' on eight topics, including general topics such as confidential information and clean desk for all employees as well as topics such as trade secrets, social engineering and HR security for a specific target group of employees. The materials for these awareness campaigns will remain available and a training package is being developed.

Umicore regularly continues to assess and improve its information security, and the state of cyber resilience of its IT landscape, against evolving threats. A security operation center analyzes 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.

A security roadmap is being implemented which includes projects in preparation for an ISO/IEC 27001:2013 certification. We have passed the internal audit and the external audit has been conducted. When Umicore passes that audit, certification would be granted in the first half of 2022.

Third party expert security assessments are conducted, and both the corporate cyber security team and the corporate security department are being 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.

7 Talent attraction and retention

LINK TO MATERIAL TOPICS

Employee Engagement
Employee Health, Safety & Wellbeing
Sustainability Governance

CHANGE IN RISK PROFILE



CHANGE IN OPPORTUNITY PROFILE



Risk description

The attraction and retention of skilled people are important factors in enabling Umicore to fulfil its strategic ambitions and to build further expertise, knowledge and capabilities in the business. This represents Umicore's most important risk, because being unable to do so would compromise our ability to deliver on our goals in the short, medium and long term.

Umicore's main **short term** risk remains linked to keeping our employees healthy during the coronavirus pandemic. On-site COVID-19 infections were kept to a minimum and no production site was closed in 2021. We will also have to recruit new employees due to a big wave 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 the employees, their families and our operations. Employee wellbeing is key to both employee retention and recruitment.

Talent management poses a **medium to long term** risk. In a world of growing digitalization, there is a need to change the mindsets. New competencies need to be acquired as quickly and efficiently as possible and if we cannot offer these, it may be more difficult to engage and retain our employees. Umicore aspires to have an agile workforce, so we can adapt and quickly respond to change – key elements of maintaining a competitive advantage.

Umicore's efforts to strengthen diversity and inclusion are an **opportunity** both for the Group and to increase our impact on society. Umicore goes beyond gender diversity and creates awareness with our focus on diversity of thought. As a growing company, we are looking to recruit more employees and thus create more employment around our production sites.

Risk profile

The risk profile of talent attraction and retention remains unchanged. The war for talent is still very real. At the same time, the short-term risk linked to the coronavirus pandemic has decreased, because there is a slowdown in people leaving the organization looking for stability due to the pandemic.

As Umicore is growing, our opportunity profile is increasing. Recruiting more people generates more opportunities to boost diversity in the company's workforce.

Risk mitigation

Employer branding campaigns, pro-active sourcing and reinforced recruitment teams are some of the initiatives we take to mitigate our main risk of talent attraction and retention. We have reinforced talent management structures, both globally and regionally, to provide sufficient internal mobility opportunities for managers and retention actions for operators. Employee wellbeing is a strategic priority.

In response to the COVID-19 pandemic, all prevention measures were taken. Employees respected distances, CO_2 monitoring devices were installed in workplaces (meeting rooms, offices, control rooms etc.), ventilation systems were checked and where needed improved, working from home was possible and masks were recommended, including when this was not mandatory. The situation is monitored globally by a dedicated CEO-led task force – with a focus on protecting employees' health.

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 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 quality of the implementation.

We are improving the company culture in our production site in Hoboken, to mitigate our safety risk. Active leadership programs are in place to stimulate engagement on all levels and measures endorsed by the shop floor are implemented. Safety programs focus on behavioral aspects, improvement of equipment and processes, administrative measures and include in-service training.

In the chapter Employees, 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

LINK TO MATERIAL TOPICS

Climate & Environment
Innovation
Sustainability Governance
Waste
Water

CHANGE IN RISK PROFILE



CHANGE IN OPPORTUNITY PROFILE



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 residential surroundings – which is in fact 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. 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 represent 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 analyses with the support of external providers ERM and PwC. 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.

In 2021, Umicore 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 market, reputation, policy & legal and technology related.

Based on our qualitative scenario analysis, in a 1.8°C scenario, Umicore has a transition risk in the automotive catalysts business as demand for catalysts will 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. The impact of these scenarios is described in the Market risk.

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, which is an area where Umicore has several production sites, has been declared an area in 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 has increased, because lower carbon footprint products in the clean air, e-mobility and recycling sectors are in high demand from customers. The ongoing transition to a lower carbon economy continues to present Umicore with opportunities to 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 – 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 climate

change, because recycling metals emits less greenhouse gases 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 also manages its historical environmental legacy, ensuring adequate financial provisions are in place, which are reviewed twice a year. For more information, see Environment.

To address the market risk of increasing requirements for the carbon footprint of products and processes, Umicore performs life cycle 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. 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. Our Procurement & Transportation department is purchasing renewable energy worldwide. These opportunities are increasing in all regions where Umicore operates.

Umicore supports the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) and while full alignment with all recommendations will take more than one reporting cycle, we intensified our analysis in the past year. In 2019, we started with an analysis of physical risks and in 2021, we conducted a qualitative transition risk scenario analysis. The results of the TCFD recommended qualitative scenario analysis were discussed with the management board in 2021. Next steps in our TCFD implementation roadmap including quantifying financial impacts from climate risks and integration into our risk management system.

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 the objectives in our 'Let's go for zero' strategy are a few examples of these strategic choices. They are increasingly embedded in our ongoing financial planning and decision making through their integration in the BU budgeting process and the development of the ESG dashboard. In 2021, we conducted an upskilling for members of the management board focusing on TCFD reporting and climate scenario analysis. Further analysis is planned and will be repeated or refined on a recurring basis to identify risks based on current scientific findings.

Statements



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Consolidated income statement

Thousands of Euros	Notes	2020	**2021**
Turnover	F9	20,710,116	**24,054,439**
Other operating income	F9	80,602	**176,919**
Operating income		**20,790,718**	**24,231,358**
Raw materials and consumables	F9	(18,819,323)	**(21,644,346)**
Payroll and related benefits	F10	(798,481)	**(853,140)**
Depreciation and impairments	F9	(362,496)	**(338,777)**
Other operating expenses	F9	(506,587)	**(517,313)**
Operating expenses		**(20,486,887)**	**(23,353,576)**
Income (loss) from other financial assets	F12	761	**1,156**
RESULT FROM OPERATING ACTIVITIES		**304,592**	**878,938**
Financial income	F11	4,044	**13,904**
Financial expenses	F11	(77,802)	**(80,716)**
Foreign exchange gains and losses	F11	(30,445)	**(23,480)**
Share in result of companies accounted for using the equity method	F17	(5,332)	**17,347**
PROFIT (LOSS) BEFORE INCOME TAX		**195,057**	**805,993**
Income taxes	F13	(59,130)	**(179,044)**
PROFIT (LOSS) FROM CONTINUING OPERATIONS		**135,927**	**626,949**
Profit (loss) of the period		135,927	**626,949**
of which minority share		5,397	**7,990**
of which Group share		130,530	**618,959**

(EUR)			
Basic earnings per share from continuing operations	F39	0.54	**2.57**
Diluted earnings per share from continuing operations	F39	0.54	**2.56**
Dividend pay-out per share		0.25	**0.75**

On 30 April 2020 the ordinary shareholders' meeting approved to reduce the dividend for 2019 to € 0.375 per share, which corresponded to the amount of the interim dividend for 2019 which had been already paid out in the second half of 2019. Therefore, there was no dividend payout in the first half of 2020. The Supervisory Board proposed a gross annual dividend for the financial year 2020 of € 0.75 per share at the Annual General Meeting on 29 April 2021. Taking into account the interim dividend of € 0.25 per share paid out on 25 August 2020, a gross amount of € 0.50 per share was paid out on 5 May 2021 after shareholder approval. Taking into account the interim dividend of € 0.25 per share paid out on 24 August 2021 and subject to shareholder approval, a gross amount of € 0.55 per share will be paid out on 4 May 2022.

The notes F1(p. 115) through Parent company separate summarized financial statements(p. 178) are an integral part of these consolidated financial statements.

Consolidated statement of comprehensive income

Thousands of Euros	Notes	2020	**2021**
Profit (loss) of the period from continuing operations		**135,927**	**626,949**
Items in other comprehensive income that will not be reclassified to P&L			
Changes due to remeasurements of post employment benefit obligations		(25,198)	**46,007**
Changes in deferred taxes directly recognized in other comprehensive income		7,258	**(11,838)**
Items in other comprehensive income that may be subsequently reclassified to P&L			
Changes in financial assets at FV through OCI reserves		(4,193)	**43**
Changes in cash flow hedge reserves		17,321	**65,732**
Changes in deferred taxes directly recognized in other comprehensive income		(3,456)	**(19,811)**
Changes in currency translation differences		(122,257)	**86,663**
Other comprehensive income from continuing operations	F23	**(130,525)**	**166,796**
TOTAL COMPREHENSIVE INCOME FOR THE PERIOD		**5,402**	**793,745**
of which Group share		2,952	**784,177**
of which minority share		2,450	**9,568**

The deferred tax impact on the consolidated statement of comprehensive income is due to changes in the cash flow hedge reserves for € -19.8 million and in the employee benefit reserves for € -11.8 million.

The notes F1(p. 115) through Parent company separate summarized financial statements(p. 178) are an integral part of these consolidated financial statements.

Consolidated balance sheet

Thousands of Euros	Notes	31/12/2020	31/12/2021
Non-current assets		**2,895,694**	**3,102,769**
Intangible assets	F14, F15	346,888	**339,848**
Property, plant and equipment	F16	2,163,660	**2,351,133**
Investments accounted for using the equity method	F17	139,839	**155,140**
Financial assets at fair value through Other Comprehensive Income	F18	8,352	**14,120**
Loans granted	F18	3,252	**2,608**
Trade and other receivables	F20	11,765	**20,672**
Deferred tax assets	F21	221,938	**219,248**
Current assets		**5,445,199**	**5,942,472**
Loans granted	F18	80	**169**
Inventories	F19	2,718,092	**2,869,071**
Trade and other receivables	F20	1,677,167	**1,832,033**
Income tax receivables	F21	39,553	**46,762**
Cash and cash equivalents	F22	1,010,307	**1,194,437**
TOTAL ASSETS		**8,340,893**	**9,045,241**

Thousands of Euros	Notes	31/12/2020	31/12/2021
Equity of the Group		**2,621,856**	**3,167,274**
Group shareholders' equity		2,557,182	**3,112,882**
Share capital and premiums		1,384,273	**1,384,273**
Retained earnings		1,749,655	**2,151,292**
Currency translation differences and other reserves	F23	(367,825)	**(196,370)**
Treasury shares		(208,921)	**(226,313)**
Minority interest		64,674	**54,392**
Non-current liabilities		**2,359,901**	**2,398,400**
Provisions for employee benefits	F27	426,356	**387,206**
Financial debt	F24	1,705,154	**1,724,037**
Trade and other payables	F25	23,505	**47,361**
Deferred tax liabilities	F21	22,846	**24,294**
Provisions	F29, F30	182,040	**215,502**
Current liabilities		**3,359,136**	**3,479,567**
Financial debt	F24	719,177	**430,847**
Trade and other payables	F25	2,418,929	**2,807,966**
Income tax payable	F21	160,734	**197,488**
Provisions	F29, F30	60,296	**43,266**
TOTAL EQUITY & LIABILITIES		**8,340,893**	**9,045,241**

The notes F1(p. 115) through Parent company separate summarized financial statements(p. 178) are an integral part of these consolidated financial statements.

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 2020	**1,384,273**	**1,678,348**	**(284,453)**	**(184,701)**	**66,997**	**2,660,464**
Result of the period	-	130,530	-	-	5,397	**135,927**
Other comprehensive income for the period	-	-	(127,578)	-	(2,947)	**(130,525)**
Total comprehensive income for the period	**-**	**130,530**	**(127,578)**	**-**	**2,450**	**5,402**
Changes in share-based payment reserves	-	-	10,108	-	-	**10,108**
Convertible Bond - conversion rights*	-	-	37,743	-	-	**37,743**
Capital increase	-	-	-	-	27	**27**
Dividends	-	(60,141)	-	-	(4,800)	**(64,942)**
Transfers	-	917	(3,645)	2,727	-	**-**
Changes in treasury shares	-	-	-	(26,947)	-	**(26,947)**
Changes in scope	-	-	-	-	-	**-**
BALANCE AT THE END OF 2020	**1,384,273**	**1,749,655**	**(367,825)**	**(208,921)**	**64,674**	**2,621,856**
Result of the period	-	618,959	-	-	7,990	**626,949**
Other comprehensive income for the period	-	-	165,218	-	1,578	**166,796**
Total comprehensive income for the period	**-**	**618,959**	**165,218**	**-**	**9,568**	**793,745**
Changes in share-based payment reserves	-	-	14,255	-	-	**14,255**
Convertible Bond - conversion rights*	-	-	-	-	-	**-**
Capital increase	-	-	-	-	-	**-**
Dividends	-	(180,530)	-	-	(6,008)	**(186,538)**
Transfers	-	1,137	(5,904)	4,767	-	**-**
Changes in treasury shares	-	-	-	(22,159)	-	**(22,159)**
Changes in scope	-	(37,930)	(2,115)	-	(13,841)	**(53,885)**
BALANCE AT THE END OF 2021	**1,384,273**	**2,151,292**	**(196,370)**	**(226,313)**	**54,392**	**3,167,274**

The legal reserve of €55.0million which is included in the retained earnings is not available for distribution. The share capital of the Group as at 31 December 2021 was composed of 246,400,000 shares with no par value.

*The conversion rights embedded in the € 500 million convertible bond issued on 23 June 2020 were valued at € 37.7 million net of transaction costs and deferred taxes. This value according to IFRS rules will not be remeasured over time, nor at conversion nor at maturity.

The change in scope movements over the year are mainly related to the squeeze-out to acquire the remaining 8.8 % of the shares in Agosi (Allgemeine Gold- und Silberscheideanstalt AG, Germany) for € 53.9 million.

The notes F1(p. 115) through Parent company separate summarized financial statements(p. 178) are an integral part of these consolidated financial statements.

Consolidated statement of cash flow

Thousands of Euros	Notes	2020	2021
Profit (loss) from continuing operations		135,927	**626,949**
Adjustments for profit of equity companies		5,332	**(17,347)**
Adjustment for non-cash transactions	F34	449,022	**399,936**
Adjustments for items to disclose separately or under investing and financing cashflows	F34	116,051	**228,573**
Change in working capital requirement	F34	(103,756)	**167,154**
Cashflow generated from operations		**602,576**	**1,405,265**
Dividend received		2,026	**5,018**
Tax paid during the period		(78,955)	**(174,990)**
Government grants received		2,673	**23,287**
NET OPERATING CASHFLOW	**F34**	**528,320**	**1,258,580**
Acquisition of property, plant and equipment	F16	(391,475)	**(379,572)**
Acquisition of intangible assets	F14	(44,060)	**(36,854)**
Acquisition of new subsidiaries, net of cash acquired	F8	(156)	**-**
Acquisition in additional shareholdings in subsidiaries		-	**(53,870)**
Acquisition of financial assets	F18	(1,633)	**(5,014)**
New loans extended	F18	(752)	**(170)**
Sub-total acquisitions		**(438,076)**	**(475,480)**
Disposal of property, plant and equipment		1,475	**1,994**
Disposal of intangible assets		6,620	**623**
Disposal of subsidiaries and associates, net of cash disposed		518	**1,417**
Sub-total disposals		**8,613**	**4,034**
NET CASHFLOW GENERATED BY (USED IN) INVESTING ACTIVITIES	**F34**	**(429,463)**	**(471,446)**

Thousands of Euros	Notes	2020	2021
Capital increase (decrease) minority		27	**-**
Own shares		(26,947)	**(22,159)**
Payment of lease liabilities	F24	(19,801)	**(19,534)**
Interest received		3,392	**12,098**
Interest paid		(59,689)	**(54,510)**
New loans and repayments	F24	806,035	**(331,718)**
Dividends paid to Umicore shareholders		(60,141)	**(180,537)**
Dividends paid to minority shareholders		(4,800)	**(6,007)**
NET CASHFLOW GENERATED BY (USED IN) FINANCING ACTIVITIES	**F34**	**638,076**	**(602,367)**
Effect of exchange rate fluctuations		25,466	**(20,081)**
TOTAL NET CASHFLOW OF THE PERIOD		**762,399**	**164,686**
Net cash and cash equivalents at the beginning of the period for continuing operations	F22	**239,230**	**1,001,630**
Net cash and cash equivalents at the end of the period for continuing operations	F22	**1,001,630**	**1,166,316**
of which cash and cash equivalents		1,010,307	**1,194,437**
of which bank overdrafts		(8,678)	**(28,122)**

The notes F1(p. 115) through Parent company separate summarized financial statements(p. 178) are an integral part of these consolidated financial statements.

Notes of 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. 5) through Management Responsibility Statement(p. 180) for the year ended 31 December 2021 were authorized for issue by the Supervisory Board on 11 March 2022. 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.

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. UmicoreNV-SA is the ultimate parent company of the Umicore group.
Umicore group did not change his name compared to previous year.

Umicore is a global materials technology and recycling 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: 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 and segmentation

2.1.1 Subsidiaries

Subsidiaries are all entities (including structured entities) over which the Group has control.

The Group controls an entity when the Group is exposed to, 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 on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

Note F5 lists all significant subsidiaries of the company at the closing date.

The Group applies the acquisition method to account for business combinations. The consideration transferred for the acquisition of a subsidiary is the fair values of the assets transferred, the liabilities incurred to the former owners of the acquiree and the equity interests issued by the Group. The consideration transferred includes the fair value of any asset or liability resulting from a contingent consideration arrangement. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. The group recognizes any minority interest in the acquiree on an acquisition-by-acquisition basis, either at fair value or at the minority interest's proportionate share of the recognized amounts of acquiree's identifiable net assets. Acquisition-related costs are expensed as incurred.

If the business combination is achieved in stages, the acquisition date carrying value of the acquirer's previously held equity interest in the acquiree is re-measured to fair value at the acquisition date; any gains or losses arising from such re-measurement are recognized in profit or loss.

Any contingent consideration to be transferred by the Group is recognized at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration that is deemed to be an asset or liability is recognized in profit or loss. Contingent consideration that is classified as equity is not re-measured, and its subsequent settlement is accounted for within equity.

Inter-company transactions, balances and unrealized gains on transactions between group companies are eliminated. Unrealized losses are also eliminated. When necessary, amounts reported by subsidiaries have been adjusted to conform with the Group's accounting policies. The line "other operating income" and "other financial income" of the income statements 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 between the discontinued and continued operations.

2.1.2 Changes in ownership interests in subsidiaries without change of control

Transactions with minority interests that do not result in loss of control are accounted for as equity transactions – that is, as transactions with the owners in their capacity as owners.

The difference between fair value of any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in equity. Gains or losses on disposals to minority interests are also recorded in equity.

2.1.3 Disposal of subsidiaries

When the Group ceases to have control, any retained interest in the entity is remeasured to its fair value at the date when control is lost, with the change in carrying amount recognized in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognized in other comprehensive income in respect of that entity are accounted for as if the Group had directly disposed of the related assets or liabilities. This may mean that amounts previously recognized in other comprehensive income are reclassified to profit or loss.

2.1.4 Associates

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 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 investee after the date of acquisition.

The Group's investment in associates includes goodwill identified on acquisition. If the ownership interest in an associate is reduced but significant influence is retained, only a proportionate share of the amounts previously recognized in other comprehensive income is reclassified to profit or loss where appropriate. The Group's share of post-acquisition profit or loss is recognized in the income statement, 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. When the Group's share of losses in an associate equals or exceeds its interest in the associate, including any other unsecured receivables, the Group does not recognize further losses, unless it has incurred legal or constructive obligations or made payments on behalf of the associate. The Group determines at each reporting date whether there is any objective evidence that the investment in the associate is impaired. If this is the case, the Group calculates the amount of impairment as the difference between the recoverable amount of the associate and its carrying value and recognizes the amount adjacent to "share of profit/(loss) of associates" in the income statement.

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.

2.1.5 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 accounting, interests in joint ventures are initially recognized at cost and adjusted thereafter to recognize the Group's share of the postacquisition 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.

2.1.6 Segment reporting

Note F7 provides the Company'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 heavyduty 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 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 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 companies are allocated to the business group with the closest fit from a market segment perspective.

2.2 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.

2.3 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 relevant to that entity. The consolidated financial statements are presented in euros which is the functional currency of the parent. To consolidate the Group and each of its subsidiaries, the financial statements are translated as follows:

- Assets and liabilities at the year-end rate as published by the European Central Bank.
- Income statements at the average exchange rate for the year.
- The components of shareholders' equity at the historical exchange rate.

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.

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.

2.4 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 at 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 F2.21, Financial instruments).

2.5 PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment 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 write-off or write-down 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	7
- Small equipment	5
Furniture and vehicles	
- Vehicles	5
- Mobile handling equipment	7
- Computer equipment	3 - 5
- Furniture and office equipment	5 - 10

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.

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 CO_2 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 emission rights to the Flemish sites of certain companies, including Umicore. Each year, at the end of February, one fifth of these emission rights is put on an official registry account. The release of emission rights to this registry account entails the capitalization in the intangible assets, which is in line with the guidance of the Belgian Accounting Standards Commission. Gains on the recognition of emission rights at fair value are deferred until the certificates 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, a write-down 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 restituted to the Government. The charge related to the impairment loss or the recognition of provisions are fully 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.

In case of an earn-out component, a remeasurement is foreseen, adapting the carrying amount of the asset and the amortization accordingly.

Umicore has currently no intangible asset with an indefinite useful live.

2.7 Lease

IFRS 16 sets out the principles for the recognition, measurement, presentation, and disclosure of leases and requires lessees to account for all leases under a single on-balance sheet model, similar to the accounting for finance leases under IAS 17. At the commencement date of a lease, lessees recognize 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).

The lease liabilities are recognized at the present value of the remaining lease payments (see note F24) in non-current liabilities (including the current portion of the lease liabilities) which is considered immaterial in view of the financial statements as a whole.

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.

2.8 Financial assets at fair value through oci, loans and non-current receivables

All movements in financial assets at fair value through OCI, loans and receivables are accounted for at trade date.

Financial assets at fair value through OCI are carried at fair value. Unrealized gains and losses from changes in the fair value of such assets are recognized in equity as financial assets at fair value through OCI reserves (Other Comprehensive Income). When the assets are sold or impaired, the accumulated fair value adjustments are also included in the OCI. Financial assets are derecognized when the rights to receive cash flows from the investments have expired or have been transferred and the Group has transferred substantially all risks and rewards of ownership.

Loans and receivables are carried at amortized cost less any impairment.

All write-downs are recorded on a separate account and are netted with the carrying amounts when all chances of recovery are depleted. Own shares are deducted from equity.

2.9 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.

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 F2.21.1 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, 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 submitting 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 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.

2.10 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.

2.11 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.

2.12 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.

2.13 Share capital and retained earnings

A. Repurchase of share capital: 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 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.

2.14 Minority interests

Minority interests include a proportion 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 proportion 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.

2.15 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:

2.15.1 Provisions for employee benefits (See note F2.16 - Employee benefits)

2.15.2 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.

2.15.3 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.

2.16 Employee benefits

2.16.1 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.

2.16.2 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.

2.16.2.1 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.

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 two defined contribution pension plans exist which are externally financed via the "Pensionskasse Degussa" (PKD) or the support fund "Unterstützungskasse Degussa" (RUK).The PKD and RUK plans secure only the inflation and guaranteed interest rate adjustments of the benefits. In recent years, due to the low interest rate environment, there is a risk of shortfalls in the self-funding at the DKP and RUK to honor these adjustments. In case of such shortfalls the PKD and RUK would call upon Umicore to contribute the extra funding required. For this reason, the inflation and guaranteed interest rate adjustments for the PKD and RUK plans are recognized as defined benefit obligation plans under IFRS. Management applied a best estimate simplified method to calculate the shortfall risk and recognized this as an additional obligation.

2.16.2.2 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.

2.16.3 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.

2.16.4 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.

2.16.5 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.

The option or share exercise price equals the market price of the (underlying) shares at the date of the grant. When the 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 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'.

2.16.6 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.

2.17 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.

As from 2019, the financial debt also contains the lease liability as per IFRS 16 (see note F2.7).

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.

2.18 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.

2.19 Income taxes

Taxes on profit or loss of the year include current and deferred tax. Such taxes are calculated in accordance with the 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 are intended to withstand challenge from tax authorities. However, it is accepted that some of the position can be uncertain and include interpretation of complex tax laws.

Tax provisions are recognized where the precise impact of the tax law and regulations on taxes payable with respect to profit arising in those jurisdiction is unclear and could trigger a tax adjustment represented by a future flow of funds to a tax authority or a consequent adjustment to a deferred tax asset. Uncertain tax positions are assessed periodically, implying a detail assessment following the interpretation of IFRIC 23, considering uncertainties individually or collectively, based on which approach provided the best predictions 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; and recognizing an Uncertain Tax Position or UTP (or group of UTPs) 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 realised on 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 measurement of the Uncertain tax positions, the Group considers the statute of limitation applicable in each jurisdiction, addionally interest and penalties are included in the assessment.

Deferred taxes are calculated using the liability method on temporary differences arising between the tax base of assets and liabilities and their carrying amounts in the financial statements. These taxes are measured using the rate prevailing at the end of the reporting period or future applicable tax rates formally announced by the government in the country 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 and presented net only if they relate to income taxes levied by the same taxation authority on the same taxable entity.

2.20 Revenue recognition

2.20.1 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 boni) 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 boni), 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.

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 either the Group has performed the performance obligation for which no billing occurred yet, or alternatively has received advance payments for which the performance obligation has not been satisfied.

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.

2.20.2 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.

2.21 Financial instruments

The company 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 company 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.

2.21.1 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 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 labeled 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.

2.21.2 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.

2.21.3 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.

2.22 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 US dollar denominated metal prices linked to the recycling and refining operations.

An increasing portion of the structural risk exposure stems from non-metal related revenues denominated in USD such as product premiums and refining charges. This increase is particularly related to the accelerating growth in battery materials activities in Asia.

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.

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 2021, 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, USD/CNY, EUR/CNY, EUR/PLN 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 currencies against the EUR, predominantly the KRW, CNY, USD, BRL 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 our hedge effectiveness we apply 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 2021, Umicore entered into additional forward contracts to cover a substantial part of its expected structural price exposure to certain precious metals for 2022, 2023 and 2024. For 2022, based on the respective currently expected exposures, the following lock-ins have been secured: close to two thirds for palladium, more than half for gold, somewhat less than half for silver and close to one third for platinum and rhodium. For 2023, the expected lock-in ratios are: close to a third for gold, silver and palladium and a minor portion for platinum and rhodium. For 2024, only a minor portion was locked-in for the expected gold, silver and palladium exposures. Finally, Umicore also has hedges in place for a portion of its expected lead and copper exposure for 2022 and 2023.

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.

The accelerating growth in battery materials in recent years substantially increased the exposure to specific related metals such as cobalt or nickel. Increasing volumes, the vulnerability to the associated price volatility and in the case of certain metals such as cobalt the absence of a liquid paper forward market result in increased metal risks. For cobalt, 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 cobalt 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 F2.21.1 – 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 2021, the Group’s gross financial debt stood at € 2,155 million, of which 1,621 million carrying a fixed interest rate. The outstanding interest rate swaps totaled € 40 million and will expire in 2023.

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 risk

The tax charge included in the financial statements is the Group's best estimate of its tax liability but, 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 tax authorities to ensure that the Group's tax affairs are as current as possible and that any differences in the interpretation of tax legislation and regulation are resolved as quickly as possible. Given the scale and the international nature of the Group's business, VAT, sales tax and intra- Group transfer pricing are an inherent tax risk as it is for other international businesses. Changes in tax laws or in their application with respect to matters such as transfer pricing, VAT, foreign dividends, R&D tax credits and tax deductions, could increase the Group's effective tax rate and adversely affect its net results. Based on these tax risks described, management performed a detailed assessment for uncertain tax positions which resulted in provisions recorded for these uncertainties in line with IFRIC 23.

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.

We refer to our note on events after the reporting date (F38) for additional insight over the crisis in Ukraine.

3.9 COVID-19 related risks

The liquidity risks that arose in 2020 related to the Covid-19 pandemic gradually declined during 2021. Consequently, and without hampering the wide diversity of accessible funding of Umicore, the Covid-19 specific short term fundings have not been extended beyond their original expiry dates in 2021. We refer to note F24 for further details. Credit risks were closely monitored and the Group did not face material credit losses.

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 2021, the carrying amount of the goodwill for the consolidated entity was € 158.6 million (€ 156.0 million in 2020). 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 2.15. 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 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 2021, the carrying amount of rehabilitation provisions was € 109.8 million (€ 108.2 million in 2020). 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 2.16. 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 2021, a liability with respect to employee benefit obligations of € 387.2 million was recognized (€ 426.4 million in 2020).

4.4 Recovery of deferred tax assets

Deferred tax assets are recognized for deductible temporary differences, unused tax losses and fair value reserves entries only if it is probable that future taxable profits (based on Group operational plans) are available to use those temporary differences and losses. The actual tax results in future periods may differ from the estimate 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 2021 its dedicated provisioning model for battery materials as introduced in 2018.

Additional significant provisions for other liabilities and charges are related to onerous contracts. An onerous contract provision is recognised 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 2021, the carrying amount of the provisions for other liabilities and charges amount to € 89.4 million (€ 80.1 million in 2020).

4.6 Provisions for uncertainty over income tax treatments

As mentioned under the note F.2.19, Umicore makes a detail assessment of all tax uncertainties within the Group as per IFRIC 23. In the measurement of the uncertain tax positions, the Group has considered the statute of limitation taking into account the tax law and regulations that are applied in the correspondent country, resulting in a range of three to eight years. The resolution of the tax positions taken by the Group can take considerable period of time to conclude and, in some cases, it is difficult to predict the outcome. The estimates made reflects where the Group: is involved in routine tax audits; has identified potential tax exposures related to transfer pricing ; or is involved in discussions with tax authorities. The estimation of the tax liability and income tax expense includes the corresponding penalties and late payment interests. Most of the uncertain tax positions are measured using the expected value, consisting to the sum of the probability - weighted outcome of a range of potential outcomes, nevertheless the most likely amount has also been used in a limited number of uncertain tax positions. The large majority of the provision for uncertainty over tax treatments is related to various individual uncertainties whether the tax authority will accept a certain applied transfer pricing methodology or to various individual uncertainties related to the deductibility of an amount for tax purposes. Group provision for uncertainty over tax treatments at December 2021 amounting to € 101.1 million (2020 : € 114.9 million) results in a decrease of those liabilities by € 13.8 million. This provision was booked under Income Tax Payable in the consolidated balance sheet. The movement of the year corresponds from remeasurement and roll-forward of existing uncertain tax positions; reversal of uncertain tax position based on mitigation actions taken and on the expiration of the statute of limitation; and the recognition of newly uncertain tax positions. The decrease during the year 2021 mainly corresponds to conclusion of tax audits in Europe mainly related to Transfer Pricing.

F5 Group companies

Below is a list of the main operating companies included in the consolidated financial statements

		% interest in 2020	**% interest in 2021**
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	91.29	**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**
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**
China	Umicore Marketing Services (Shanghai) Co., Ltd.	100.00	**100.00**
-	Umicore Marketing Services (Hong Kong) Ltd.	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**
Denmark	Umicore Denmark ApS	100.00	**100.00**
Finland	Umicore Finland OY	100.00	**100.00**
France	Umicore France 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 Marketing Services 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**
-	Allgemeine Gold- und Silberscheideanstalt AG (**)	91.21	**0.00**
-	Agosi AG (**)	100.00	**100.00**
-	Umicore Galvanotechnik GmbH	91.21	**100.00**
-	Todini Deutschland GmbH	100.00	**100.00**
-	Umicore Shokubai Germany GmbH	60.00	**60.00**
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 Co., Ltd.	100.00	**100.00**
-	Umicore Catalysis Korea Co.,Ltd. (previously: Ordeg Co, Ltd,)	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**
Mexico	Todini Atlántica S.A. de C.V.	70.00	**70.00**
Netherlands	Schöne Edelmetaal BV	91.21	**100.00**
Philippines	Umicore Specialty Chemicals Subic Inc.	78.20	**78.20**
Poland	Umicore Autocat Poland sp. z o.o.	100.00	**100.00**

		% interest in 2020	**% interest in 2021**
-	Todini Europe sp. z o.o.	70.00	**70.00**
-	Umicore Poland Sp. z o.o.	100.00	**100.00**
Portugal	Umicore Marketing Services Lusitana Metais Lda	100.00	**100.00**
South Africa	Umicore Marketing Services Africa (Pty) Ltd.	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**
Switzerland	Allgemeine Suisse SA	91.21	**100.00**
Taiwan	Umicore Thin Film Products Taiwan Co Ltd	100.00	**100.00**
Thailand	Umicore Precious Metals Thailand Ltd.	91.21	**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 Marketing Services 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	100.00	**100.00**
-	Umicore Electrical Materials USA Inc.	100.00	**100.00**
-	Umicore Catalyst USA, LLC	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).

(**) In 2021, Allgemeine Gold- und Silberscheideanstalt AG was merged with its shareholder Umicore International AG after the acquisition of the remaining 8.8% of minority shares. Umicore International AG was subsequently renamed into Agosi AG.

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 (€), 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.

		CLOSING RATES		AVERAGE RATES	
		2020	**2021**	2020	**2021**
American Dollar	USD	1.227	**1.133**	1.142	**1.183**
UK Pound Sterling	GBP	0.899	**0.840**	0.890	**0.860**
Canadian Dollar	CAD	1.563	**1.439**	1.530	**1.483**
Swiss Franc	CHF	1.080	**1.033**	1.071	**1.081**
Japanese Yen	JPY	126.490	**130.380**	121.846	**129.877**
Brazilian Real	BRL	6.377	**6.320**	5.889	**6.381**
South African Rand	ZAR	18.022	**18.063**	18.765	**17.477**
Chinese Yuan	CNY	8.023	**7.195**	7.875	**7.628**
Thai Baht	THB	36.727	**37.653**	35.708	**37.837**
Korean Won (100)	KRW	13.360	**13.464**	13.456	**13.541**
Polish Zloty	PLN	4.560	**4.597**	4.443	**4.565**

F7 Segment information

BUSINESS GROUP INFORMATION 2020

Thousands of Euros	Notes	Catalysis	Energy & Surface Technologies	Recycling	Corporate & Unallocated	Eliminations	**Total Continued**
Total segment turnover		**5,916,870**	**2,811,050**	**13,903,640**	**25,676**	**(1,947,120)**	**20,710,116**
External turnover		5,783,840	2,750,410	12,150,190	25,676	-	**20,710,116**
Inter-segment turnover		133,030	60,640	1,753,450	-	(1,947,120)	**-**
Total segment revenues (excluding metals)		**1,364,210**	**1,045,040**	**836,000**	**-**	**(6,530)**	**3,238,720**
External revenues		1,362,640	1,044,940	831,140	-	-	**3,238,720**
Inter-segment revenues		1,570	100	4,860	-	(6,530)	**-**
Operating result	**F9**	**96,338**	**(41,118)**	**310,900**	**(61,528)**	**-**	**304,592**
Adjusted		153,688	70,422	361,815	(57,894)	-	**528,030**
Adjustments		(57,350)	(111,539)	(50,915)	(3,634)	-	**(223,438)**
Equity method companies	**F9**	**-**	**4,874**	**-**	**(10,206)**	**-**	**(5,332)**
Adjusted		-	4,874	-	3,457	-	**8,331**
Adjustments		-	-	-	(13,663)	-	**(13,663)**
EBIT	**F9**	**96,338**	**(36,244)**	**310,900**	**(71,734)**	**-**	**299,260**
Adjusted		153,688	75,295	361,815	(54,437)	-	**536,361**
Adjustments		(57,350)	(111,539)	(50,915)	(17,297)	-	**(237,101)**
Depreciation and amortisation	**F9**	**80,496**	**110,457**	**62,949**	**14,040**	**-**	**267,941**
Adjusted		80,496	110,457	62,949	14,040	-	**267,941**
EBITDA	**F9**	**176,834**	**74,213**	**373,849**	**(57,694)**	**-**	**567,201**
Adjusted		234,184	185,752	424,764	(40,397)	-	**804,302**
Consolidated total assets		**3,447,098**	**3,376,191**	**1,643,894**	**1,568,336**	**(1,694,627)**	**8,340,892**
Segment assets		3,447,098	3,337,762	1,643,894	1,466,927	(1,694,627)	**8,201,054**
Investments in associates		-	38,429	-	101,410	-	**139,839**
Consolidated total liabilities		**1,814,687**	**1,260,177**	**1,215,316**	**3,123,485**	**(1,694,627)**	**5,719,038**
Capital Employed at 31/12 of previous year	F31	1,536,950	2,323,770	405,422	175,849	-	**4,441,991**
Capital Employed at 30/06	F31	1,560,188	2,189,523	578,205	124,696	-	**4,452,611**
Capital Employed at 31/12	F31	1,727,443	2,133,138	446,861	149,138	-	**4,456,580**
Average Capital Employed in first half year	F31	1,548,569	2,256,646	491,813	150,273	-	**4,447,301**
Average Capital Employed in second half year	F31	1,643,815	2,161,330	512,533	136,917	-	**4,454,596**
Average Capital Employed in the year	**F31**	**1,596,192**	**2,208,988**	**502,173**	**143,595**	**-**	**4,450,948**
ROCE	F31	9.63%	3.41%	72.05%	-37.91%	0.00%	**12.05%**
Capital expenditure	**F34**	**63,798**	**251,688**	**71,577**	**16,105**	**-**	**403,169**
Total R&D expenditure	**F9**	**138,742**	**58,269**	**10,186**	**15,766**	**-**	**222,964**
R&D recognized in operating expenses	F9	125,275	43,636	10,186	11,499	-	**190,596**
R&D capitalized as intangible assets	F34	13,468	14,633	-	4,267	-	**32,368**

BUSINESS GROUP INFORMATION 2021

Thousands of Euros	Notes	Catalysis	Energy & Surface Technologies	Recycling	Corporate & Unallocated	Eliminations	**Total Continued**
Total segment turnover		**8,154,850**	**3,533,830**	**15,609,350**	**34,849**	**(3,278,440)**	**24,054,439**
External turnover		7,989,680	3,478,360	12,551,550	34,849	-	**24,054,439**
Inter-segment turnover		165,170	55,470	3,057,800	-	(3,278,440)	**-**
Total segment revenues (excluding metals)		**1,687,430**	**1,173,660**	**1,108,140**	**-**	**(5,920)**	**3,963,310**
External revenues		1,685,690	1,173,420	1,104,200	-	-	**3,963,310**
Inter-segment revenues		1,740	240	3,940	-	(5,920)	**-**
Operating result	**F9**	**307,811**	**132,841**	**528,640**	**(90,355)**	**-**	**878,938**
Adjusted		326,365	131,522	572,927	(79,981)	-	**950,833**
Adjustments		(18,554)	1,319	(44,287)	(10,374)	-	**(71,896)**
Equity method companies	**F9**	**-**	**7,659**	**-**	**9,688**	**-**	**17,347**
Adjusted		-	7,659	-	12,884	-	**20,543**
Adjustments		-	-	-	(3,197)	-	**(3,197)**
EBIT	**F9**	**307,811**	**140,500**	**528,640**	**(80,668)**	**-**	**896,284**
Adjusted		326,365	139,181	572,927	(67,097)	-	**971,377**
Adjustments		(18,554)	1,319	(44,287)	(13,571)	-	**(75,092)**
Depreciation and amortisation	**F9**	**75,180**	**122,613**	**66,921**	**14,811**	**-**	**279,526**
Adjusted		75,229	122,613	66,921	14,811	-	**279,576**
EBITDA	**F9**	**382,991**	**263,114**	**595,562**	**(65,856)**	**-**	**1,175,810**
Adjusted		401,595	261,795	639,848	(52,286)	-	**1,250,952**
Consolidated total assets		**3,356,473**	**4,364,500**	**1,426,498**	**1,825,075**	**(1,927,305)**	**9,045,241**
Segment assets		3,356,473	4,316,864	1,426,498	1,717,571	(1,927,305)	**8,890,101**
Investments in associates		-	47,636	-	107,504	-	**155,140**
Consolidated total liabilities		**1,858,320**	**2,075,177**	**973,614**	**2,898,161**	**(1,927,305)**	**5,877,967**
Capital Employed at 31/12 of previous year	F31	1,727,443	2,133,138	446,861	149,138	-	**4,456,580**
Capital Employed at 30/06	F31	1,846,061	2,191,046	236,829	77,507	-	**4,351,443**
Capital Employed at 31/12	F31	1,551,494	2,275,465	460,723	89,213	-	**4,376,895**
Average Capital Employed in first half year	F31	1,786,752	2,162,092	341,845	113,323	-	**4,404,011**
Average Capital Employed in second half year	F31	1,698,778	2,233,255	348,776	83,360	-	**4,364,169**
Average Capital Employed in the year	**F31**	**1,742,765**	**2,197,674**	**345,310**	**98,341**	**-**	**4,384,090**
ROCE	F31	18.73%	6.33%	165.92%	-68.23%	0.00%	**22.16%**
Capital expenditure	**F34**	**70,052**	**218,674**	**83,097**	**16,774**	**-**	**388,596**
Total R&D expenditure	**F9**	**141,592**	**63,518**	**13,164**	**26,939**	**-**	**245,213**
R&D recognized in operating expenses	F9	132,726	49,903	13,164	21,590	-	**217,383**
R&D capitalized as intangible assets	F34	8,867	13,614	-	5,349	-	**27,830**

GEOGRAPHICAL INFORMATION 2020

Thousands of Euros	Notes	Europe	of which Belgium	Asia-Pacific	North America	South America	Africa	**Total**
Total segment turnover		11,115,296	156,181	5,016,465	3,881,278	561,411	135,667	**20,710,116**
Total non current assets		1,389,895	564,209	1,109,045	112,075	45,590	4,726	**2,661,333**
Capital expenditure	F34	274,403	100,914	104,880	8,829	14,750	306	**403,169**
Employee compensation & benefits		573,311	317,820	124,557	72,255	20,139	8,220	**798,481**
Income taxes		44,445	596	1,776	(6,601)	16,447	3,064	**59,131**

GEOGRAPHICAL INFORMATION 2021

Thousands of Euros	Notes	Europe	of which Belgium	Asia-Pacific	North America	South America	Africa	**Total**
Total segment turnover		12,676,355	213,003	6,422,284	3,761,205	1,010,605	183,991	**24,054,439**
Total non current assets		1,487,101	592,688	1,200,470	122,993	51,229	4,283	**2,866,076**
Capital expenditure	F34	253,053	102,104	108,851	16,984	9,213	496	**388,596**
Employee compensation & benefits		613,163	329,680	138,417	71,916	21,497	8,147	**853,140**
Income taxes		88,603	42,066	40,374	17,440	28,557	4,070	**179,044**

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 an arm's length transfer pricing system. In the absence of relevant market price references, 'cost plus' mechanisms are used. Segment turnover and revenue (without metals) is taking into account intragroup operations. 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.

The Group's business segments have no single external customer that amounts to 10 per cent or more of the Group's revenue.

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.

BUSINESS GROUPS

The Group is organized into the following reporting segments:

CATALYSIS

The segment in 2021 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 non-on 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.

RECYCLING

The segment consists of the business units Precious Metals Refining, Jewelry & Industrial Metals and Precious Metals Management. Recycling treats complex waste streams containing 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, electrics 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 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/ operating result. As illustrated in the table above, the difference between the adjusted operating result and the operating result as presented in the Consolidated income statement consists of the adjustments for which definitions are given in the glossary.

Associate companies 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 combination during the year 2021.

F9 Result from operating activities

Thousands of Euros	2020	2021
Sales	20,565,648	**23,901,842**
Services	144,468	**152,597**
Turnover	**20,710,116**	**24,054,439**
Re-invoicing of costs to third parties	42,654	**61,307**
Operating grants	19,865	**26,031**
Royalties and license fees	6,168	**11,264**
Emission rights income	5,207	**8,945**
Insurance recovery	21,580	**18,406**
Various interests and penalties for late payments	1,167	**880**
Gains on disposals of assets	2,647	**1,057**
Translation difference on intercos Elimination	(25,567)	**(1,361)**
Tax incentive	4,247	**5,294**
Tax credit	-	**39,779**
Other	2,633	**5,318**
Other operating income	**80,602**	**176,919**
OPERATING INCOME OF CONTINUING OPERATIONS	**20,790,718**	**24,231,358**
Raw materials and consumables used	**(18,819,323)**	**(21,644,346)**
Payroll and related benefits	**(798,481)**	**(853,140)**
Depreciation of fixed assets	(267,941)	**(279,526)**
Impairment loss on fixed assets	(87,543)	**(48,504)**
Inventory and bad debt provisions	(7,013)	**(10,747)**
Depreciation and impairment results	**(362,497)**	**(338,777)**
Services and outsourced refining and production costs	(370,526)	**(422,798)**
Royalties, licence fees, consulting and commissions	(41,606)	**(57,820)**
Taxes other than income taxes	(19,332)	**(22,960)**
Provisions (increase/use and reversals)	(74,128)	**(13,477)**
Capital losses on disposal of assets	(996)	**(258)**
Other operating expenses	**(506,588)**	**(517,313)**
OPERATING EXPENSES OF CONTINUING OPERATIONS	**(20,486,888)**	**(23,353,576)**

Turnover refers to turnover from customers as per IFRS 15. The further disaggregation is detailed in note F7. As described in the accounting policy 2.20, the revenue from contracts with customers are recognized

at a point in time. The increase in turnover in 2021 is mainly related to the increase of metal prices and a volume effect.

Services mainly include the revenues from tolling contracts.

Tax credit in 2021 mainly concerns the tax credit received in Brazil resulting from a landmark ruling by the Brazilian Supreme Court in May of this year covering multiple years.

The increase in raw materials and consumables used is mainly related to the increase of metal prices and a volume effect. Raw materials and consumables used include primarily the value of the purchased metals. Utilities (water, gas and electricity) represent for € 144.2 million in 2021 (€ 99.7 million in 2020) for continuing operations.

The impairment losses of fixed assets have decreased compared to 2020. In 2021, those impairments are mainly related to the decision to stop a development program in Precious Metals Chemistry linked to the semiconductor industry and to impairment of Intellectual Properties linked to the closure of Automotive Catalysts' heavy-duty diesel operations in Frederikssund, Denmark.

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.

R&D EXPENDITURE

Thousands of Euros	Notes	2020	**2021**
R&D recognized in Other operating expenses		190,596	**217,383**
R&D capitalized as intangible assets	F14	32,368	**27,830**
TOTAL R&D EXPENDITURE FOR CONTINUING OPERATIONS		**222,964**	**245,213**

Total R&D expenditure for continuing operations was € 245.2 million in the fully consolidated companies in 2021 (€ 223.0 million in 2020). The part of the R&D expenditures that is directly recognized in operating expenses amounts to € 217.4 million in 2021 (€ 190.6 million in 2020).

ADJUSTMENTS INCLUDED IN THE RESULT

		2020			**2021**		
Thousands of Euros	Notes	Total	Adjusted	Adjustments	**Total**	**Adjusted**	**Adjustments**
Turnover		20,710,116	20,710,116	-	**24,054,439**	**24,054,439**	**-**
Other operating income		80,602	79,494	1,108	**176,919**	**137,133**	**39,786**
Operating income		**20,790,718**	**20,789,611**	**1,108**	**24,231,358**	**24,191,572**	**39,786**
Raw materials and consumables used		(18,819,323)	(18,781,872)	(37,451)	**(21,644,346)**	**(21,644,346)**	**-**
Payroll and related benefits		(798,481)	(798,131)	(350)	**(853,140)**	**(852,147)**	**(993)**
Depreciation and impairment results		(362,496)	(274,435)	(88,062)	**(338,777)**	**(298,187)**	**(40,590)**
of which depreciation and amortisation		(267,941)	(267,941)	-	**(279,526)**	**(279,576)**	**50**
Other operating expenses		(506,587)	(407,485)	(99,102)	**(517,313)**	**(446,256)**	**(71,057)**
Operating expenses		**(20,486,887)**	**(20,261,923)**	**(224,964)**	**(23,353,576)**	**(23,240,935)**	**(112,641)**
Income from other financial investments		761	342	419	**1,156**	**196**	**959**
Result from operating activities		**304,592**	**528,030**	**(223,438)**	**878,938**	**950,833**	**(71,896)**
Net contribution from equity method companies		(5,332)	8,331	(13,663)	**17,347**	**20,543**	**(3,197)**
EBIT		**299,260**	**536,361**	**(237,101)**	**896,284**	**971,377**	**(75,092)**
EBITDA		**567,201**	**804,302**	**(237,101)**	**1,175,810**	**1,250,952**	**(75,142)**
Finance cost	F11	(104,202)	(104,202)	-	**(90,292)**	**(99,586)**	**9,294**
Income taxes	F13	(59,131)	(102,729)	43,598	**(179,044)**	**(196,309)**	**17,266**
Net result		**135,927**	**329,430**	**(193,503)**	**626,949**	**675,482**	**(48,533)**
of which minority shares		5,397	7,023	(1,626)	**7,990**	**7,990**	**-**
of which group shares		130,530	322,407	(191,877)	**618,959**	**667,492**	**(48,533)**

ADJUSTMENTS PER SEGMENT AND NATURE INCLUDED IN THE RESULT

	2020					2021				
Thousands of Euros	Total	Catalysis	Energy & Surface Technologies	Recycling	Corporate & Unallocated	**Total**	**Catalysis**	**Energy & Surface Technologies**	**Recycling**	**Corporate & Unallocated**
Other operating income	**1,108**	-	1,108	-	-	**39,786**	**30,312**	**1,877**	**7,597**	**-**
Operating income	**1,108**	**-**	**1,108**	**-**	**-**	**39,786**	**30,312**	**1,877**	**7,597**	**-**
Raw materials and consumables used	**(37,451)**	-	(37,451)	-	-	**-**	**-**	**-**	**-**	**-**
Payroll and related benefits	**(350)**	-	(350)	-	-	**(993)**	**(993)**	**-**	**-**	**-**
Depreciation and impairment results	**(88,062)**	(36,565)	(51,161)	27	(362)	**(40,590)**	**(40,406)**	**-**	**(185)**	**-**
Other operating expenses	**(99,102)**	(20,785)	(23,781)	(50,942)	(3,594)	**(71,057)**	**(7,467)**	**(1,522)**	**(51,699)**	**(10,370)**
Operating expenses	**(224,964)**	**(57,350)**	**(112,743)**	**(50,915)**	**(3,957)**	**(112,641)**	**(48,866)**	**(1,522)**	**(51,883)**	**(10,370)**
Income from other financial investments	**419**	-	96	-	322	**959**	**-**	**964**	**-**	**(4)**
Result from operating activities	**(223,438)**	**(57,350)**	**(111,539)**	**(50,915)**	**(3,634)**	**(71,896)**	**(18,554)**	**1,319**	**(44,287)**	**(10,374)**
Net contribution from equity method companies	**(13,663)**	-	-	-	(13,663)	**(3,197)**	**-**	**-**	**-**	**(3,197)**
EBIT	**(237,101)**	**(57,350)**	**(111,539)**	**(50,915)**	**(17,297)**	**(75,092)**	**(18,554)**	**1,319**	**(44,287)**	**(13,571)**
Related to restructuring	**(128,190)**	(22,702)	(99,960)	-	(5,528)	**(33,879)**	**(31,281)**	**41**	**110**	**(2,749)**
Related to environment	**(55,788)**	-	-	(50,915)	(4,873)	**(58,251)**	**-**	**-**	**(48,836)**	**(9,415)**
Related to asset impairments	**(45,303)**	(28,628)	(8,219)	-	(8,456)	**(17,857)**	**(17,585)**	**-**	**-**	**(272)**
Other	**(7,820)**	(6,020)	(3,360)	-	1,560	**34,895**	**30,312**	**1,278**	**4,439**	**(1,134)**

Adjustments had a negative impact of € 75 million on EBIT of which € 39 million was already accounted for in the first half. Environmental-related provisions took up € 58 million of this total with additional provisions for the creation of a green zone neighboring the Hoboken plant accounting for the bulk. This reflects the success of the voluntary offer to purchase neighboring houses. The creation of the green zone is a key building block of the site's plan to further reduce the impact on its neighbors. Taking into account the use of the provision over the period, the total provision for the creation of the green zone as at 31 December 2021 amounted to € 44 million.

EBIT adjustments also include € 34 million of restructuring charges of which € 23 million have been accounted for in the second half and are mainly related to a decision to stop a development program in Precious Metals Chemistry linked to the semiconductor industry.

Impairment charges took up € 18 million of the total EBIT adjustments and were close to entirely accounted for in the first half and were mostly linked to the closure of Automotive Catalysts' heavy-duty diesel operations in Frederikssund, Denmark as well as the impairment of certain related IP.

A positive EBIT adjustment of € 40 million was recognized related to a tax credit in Brazil resulting from a landmark ruling by the Brazilian Supreme Court in May of this year covering multiple years.

Including positive adjustments to financial and tax items of € 9 million and € 17 million respectively, the total adjustments to the Group's net result over the period corresponded to a negative impact of € 49 million.

F10 Payroll and related benefits

Thousands of Euros	2020	2021
Wages, salaries and direct social advantages	(589,707)	**(640,870)**
Other charges for personnel	(50,594)	**(28,834)**
Temporary staff	(7,607)	**(10,189)**
Share-based payments	(10,108)	**(14,255)**
Employee salaries	**(658,016)**	**(694,148)**
Employer's social security	**(97,698)**	**(108,765)**
Defined benefit contributions	(21,438)	**(20,581)**
Contribution to defined contribution plan	(10,299)	**(16,893)**
Employer's voluntary contributions (other)	(4,381)	**(3,064)**
Pensions paid directly to beneficiaries	(3,486)	**(3,628)**
Provisions for employee benefits (-increase / + use and reversals)	(3,164)	**(6,063)**
Pensions and other benefits	**(42,768)**	**(50,229)**
PAYROLL AND RELATED BENEFITS OF CONTINUING OPERATIONS	**(798,481)**	**(853,140)**

AVERAGE HEADCOUNT IN CONSOLIDATED COMPANIES

	2020	2021
Executives and managerial staff	2,009	**2,045**
Non managers	8,997	**8,910**
Total for continuing operations	11,006	**10,955**

SHARE-BASED PAYMENTS

Thousands of Euros	Notes	2020	2021
Date of grant		10-02-2020	**11-02-2021**
Share price at the date of grant (Belgium & Other)	F28	42.05	**47.47**
Share price at the date of grant (France)	F28	NA	**NA**
Number of stock options granted	F28	1,168,375	**1,108,500**
Valuation model		Present Economic Value	
Assumed volatility (% pa)		25.00	**27.50**
Risk-free interest rate (% pa)		(0.620)	**(0.710)**
Dividend increase (% pa)		10.00	**10.00**
Rate of pre-vesting forfeiture (%pa)		NA	**NA**
Rate of post-vesting leaving (%pa)		7.50	**5.00**
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)		6.46	**8.56**
Total fair value of options granted		**7,548**	**9,489**
52.000 shares granted at 42,05 EUR		2,187	**-**
10.000 shares granted at 37,33 EUR		373	**-**
10.000 shares granted at 49,72 EUR		-	**497**
52.000 shares granted at 47,08 EUR		-	**2,448**
48.500 shares granted at 37,55 EUR		-	**1,821**
Total fair value of shares granted		**2,560**	**4,767**
SHARE-BASED PAYMENTS		**10,108**	**14,255**

The Group recognized a share-based payment expense of € 14.3 million during the year for continuing operations.

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 27.5% to reflect the increase of observed volatility. No other market condition has been included in the basis of calculation of fair market value.

The free share part of the expense is valued at the market price of the shares at the grant date. In 2021, shares have been granted mainly to top management resulting in an extra charge of € 4.8 million for continuing operations.

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".

F11 Finance cost – net

Thousands of Euros	2020	**2021**
Interest income	3,749	**12,962**
Interest expenses	(61,659)	**(64,460)**
Discounting of non-current provisions	(3,146)	**(3,046)**
Foreign exchange gains and losses	(30,445)	**(23,480)**
Other financial income	295	**942**
Other financial expenses	(12,996)	**(13,210)**
TOTAL OF CONTINUING OPERATIONS	**(104,202)**	**(90,292)**

All interest income and expenses are recognized using the effective interest rate method.

The 2021 interest income reached € 13.0 million benefiting from the € 9.3 million impact related to the interests on the tax credit in Brazil , resulting from a landmark ruling by the Brazilian Supreme Court in May 2021 and covering multiple years. Those related interests have been taken in adjustments (see note F9). The interest expenses amounted to € 64.5 million. Those expenses included € 10.0 million of interest expenses (theoretical phantom interests) on the debt component of the convertible debt (€ 5.2 million in 2020) and € 1.0 million of interests related to leases as per IFRS 16.

The discounting of non-current provisions relates mainly to employee benefits provisions and to a lesser extent to environmental provisions. 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 2021 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	2020	**2021**
Capital gains and losses on disposal of financial investments	517	**946**
Dividend income	230	**210**
Interest income from financial assets	14	**-**
TOTAL FOR CONTINUING OPERATIONS	**761**	**1,156**

F13 Income taxes

Thousands of Euros	2020	**2021**
Income tax expense		
Recognized in the income statement		
Current income tax	(115,672)	**(201,870)**
Deferred income tax	56,542	**22,826**
Total tax expense for continuing operations	**(59,131)**	**(179,044)**
RELATIONSHIP BETWEEN TAX EXPENSE (INCOME) AND ACCOUNTING PROFIT		
Result from operating activities	304,592	**878,938**
Financial result	(104,202)	**(90,292)**
Profit (loss) before income tax of consolidated companies for continuing operations	**200,390**	**788,646**
Weighted average theoretical tax rate (%)	25.48	**24.77**
Income tax calculated at the weighted average theoretical tax rate for continuing operations	**(51,055)**	(195,312)
Tax effect of :		
Expenses not deductible for tax purposes	(4,383)	**(7,395)**
Tax-exempted revenues	3,457	**303**
Dividends from consolidates companies & Associates	(267)	**(66)**
Gains & Losses taxed at a reduced rate	37	**36**
Tax incentives and tax holidays	14,563	**26,903**
Tax computed on other basis	(1,657)	**563**
Utilisation of previously unrecognized tax losses	4,349	**4,130**
Write down (or reverse of previous write down) of DTA	6,050	**(6,475)**
Change in applicable tax rate	(31)	**(300)**
Other tax credits (excluding R&D tax credits)	958	**1,058**
Non recoverable foreign withholding taxes	(12,003)	**(7,943)**
Previous years adjustments	988	**(3,299)**
Other (including IFRIC 23)	(20,135)	**8,753**
TAX EXPENSE AT THE EFFECTIVE TAX RATE FOR THE YEAR	**(59,129)**	**(179,044)**

The weighted average theoretical tax rate evolved from 25.5% in 2020 to 24.8% in 2021 for the continuing operations. Excluding the impact of adjustments, the adjusted effective tax rate for 2021 was 23.1%. This compares to the 24.2% in 2020.

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	151,880	101,229	149,792	19,213	85,216	**507,329**
Accumulated amortisation	(98,113)	(46,499)	(122,842)	-	(25,721)	**(293,176)**
Net book value at the beginning of previous year	**53,768**	**54,730**	**26,949**	**19,213**	**59,494**	**214,154**
. acquisition through business combinations	-	82	40	-	(23)	**98**
. additions	13,784	50	5,404	-	24,821	**44,060**
. disposals	-	(2,336)	(3)	(4,009)	(217)	**(6,564)**
. amortisation charged (included in "Depreciation and impairments")	(12,708)	(9,334)	(8,267)	-	(4,901)	**(35,209)**
. impairment losses recognized (included in "Depreciation and impairments")	(17,299)	(8,529)	(1,485)	-	-	**(27,313)**
. emission rights allowances	-	-	-	697	-	**697**
. translation differences	(450)	(6)	(346)	(3)	(908)	**(1,712)**
. other movements	1,422	50	4,401	(0)	(3,186)	**2,687**
At the end of previous year	**38,517**	**34,707**	**26,694**	**15,898**	**75,081**	**190,897**
Gross value	157,704	98,840	150,989	15,898	103,637	**527,068**
Accumulated amortisation	(119,187)	(64,134)	(124,295)	-	(28,556)	**(336,172)**
Net book value at the end of previous year	**38,517**	**34,707**	**26,694**	**15,898**	**75,081**	**190,897**
. additions	8,867	842	1,435	8	25,702	**36,854**
. disposals	(553)	-	(26)	0	(45)	**(623)**
. amortisation charged (included in "Depreciation and impairments")	(9,424)	(8,890)	(8,119)	-	(4,691)	**(31,123)**
. impairment losses recognized (included in "Depreciation and impairments")	(5,099)	(17,381)	(274)	-	(214)	**(22,968)**
. emission rights allowances	-	-	-	1,979	-	**1,979**
. translation differences	(145)	5	329	(1)	533	**722**
. other movements	3,843	3,507	8,463	0	(10,287)	**5,526**
At the end of the year	**36,006**	**12,790**	**28,503**	**17,884**	**86,079**	**181,263**
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 FOR CONTINUING OPERATIONS	**36,006**	**12,790**	**28,503**	**17,884**	**86,079**	**181,263**

In 2021, additions amounted to € 36.9 million and mainly contain capitalized expenses in internally generated developments for € 27.8 million (see note F9), of which € 19.0 million included in "Other intangible assets" as "Intangible assets under construction". Additions also contain capitalized expenses (studies, project costs, IT) related to the new cathode materials plant in Poland for around € 4.0 million. Impairment losses are mainly linked to impairment of IP's following the closure of Automotive Catalysts' heavy-duty diesel operations in Frederikssund, Denmark. Net increase of emission right allowances amounts to € 1.9 million in 2021 (new grants € 7.8 million and settlement €-5.9 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 € 69.2 million (mainly capitalized development costs) but also some business portfolio and customers' list acquired for € 16.3 million. There are no pledges on, or restrictions to, the title on intangible assets, other than disclosed in note F35.

F15 Goodwill

Thousands of Euros	31/12/2020	**31/12/2021**
At the end of the previous year		
Gross value	169,915	**165,627**
Accumulated impairment losses	(13,210)	**(9,637)**
Net book value at the end of previous year	**156,705**	**155,990**
. acquisition through business combinations	1,499	**-**
. translation differences	(2,214)	**2,595**
At the end of the year	**155,990**	**158,585**
Gross value	165,627	**168,915**
Accumulated impairment losses	(9,637)	**(10,330)**
NET BOOK VALUE FOR CONTINUING OPERATIONS	**155,990**	**158,585**

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 only to 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**
31/12/2020	**49,999**	**87,737**	**18,254**	**155,990**
31/12/2021	**49,988**	**90,264**	**18,333**	**158,585**

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 2021 goodwill impairment testing indicated sufficient headroom in the respective cash generating units and hence no goodwill impairments were recognized. The 2021 impairment testing used an average tax rate of 25.0% (unchanged versus 2020) and a weighted average cost of capital post-tax of 7% (unchanged versus 2020) . 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 2020). Inflation rates were based on guidance from national and international institutes such as the NBB or ECB.

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	1,189,490	2,402,378	242,362	15,070	461,369	**4,310,669**
Accumulated depreciation	(530,148)	(1,553,922)	(166,862)	(13,950)	-	**(2,264,881)**
Net book value at the beginning of previous year without leasing	**659,343**	**848,457**	**75,500**	**1,120**	**461,369**	**2,045,788**
. acquisition through business combinations	3,510	(798)	548	-	876	**4,136**
. additions	20,663	32,588	7,852	364	330,009	**391,475**
. disposals	(10)	(938)	(176)	(20)	(134)	**(1,278)**
. depreciations (included in "Depreciation and impairments")	(43,501)	(148,434)	(19,154)	(194)	-	**(211,282)**
. net impairment losses recognized (included in "Depreciation and impairments")	(15,053)	(44,416)	(654)	(312)	-	**(60,435)**
. translation differences	(18,017)	(20,505)	(2,321)	(54)	(16,266)	**(57,164)**
. other movements	88,832	154,714	20,807	-	(267,820)	**(3,466)**
At the end of previous year without leasing	**695,767**	**820,668**	**82,403**	**903**	**508,033**	**2,107,775**
At the beginning of the year without leasing						
Gross value	1,242,294	2,478,662	260,590	23,522	508,033	**4,513,101**
Accumulated depreciation	(546,526)	(1,657,994)	(178,187)	(22,619)	-	**(2,405,326)**
Net book value at the beginning of the year without leasing	**695,767**	**820,668**	**82,403**	**903**	**508,033**	**2,107,775**
. additions	76,361	42,349	14,979	16,148	229,435	**379,272**
. disposals	(446)	(207)	(111)	(312)	(113)	**(1,189)**
. depreciations (included in "Depreciation and impairments")	(47,462)	(159,613)	(20,906)	(331)	-	**(228,312)**
. net impairment losses recognized (included in "Depreciation and impairments")	(462)	(24,543)	(743)	312	-	**(25,436)**
. translation differences	16,705	19,803	600	39	24,674	**61,822**
. other movements	50,119	183,342	10,746	40	(249,089)	**(4,842)**
At the end of the financial year without leasing	**790,583**	**881,799**	**86,969**	**16,799**	**512,941**	**2,289,090**
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 FOR CONTINUING OPERATIONS WITHOUT LEASING	**790,583**	**881,799**	**86,970**	**16,799**	**512,940**	**2,289,091**

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	47,341	135	18,175	500	-	**66,152**
Accumulated depreciation	(11,496)	(58)	(5,713)	-	-	**(17,268)**
Net book value at the beginning of previous year for leasing	**35,845**	**77**	**12,462**	**500**	**-**	**48,884**
. additions	17,901	1,034	8,578	144	-	**27,657**
. depreciations (included in "Depreciation and impairments")	(12,726)	(724)	(6,765)	(142)	-	**(20,357)**
. translation differences	(1,133)	(10)	(99)	(0)	-	**(1,242)**
. transfer	979	(35)	-	-	-	**944**
At the end of previous year for leasing	**40,866**	**342**	**14,176**	**502**	**-**	**55,886**
Leasing at begining of the year						
Gross value	67,193	1,055	24,865	637	-	**93,750**
Accumulated amortisation	(26,327)	(713)	(10,689)	(135)	-	**(37,864)**
Net book value at the beginning of the year for leasing	**40,865**	**342**	**14,176**	**502**	**-**	**55,886**
. additions	16,638	1,274	7,662	-	-	**25,573**
. depreciations (included in "Depreciation and impairments")	(11,907)	(771)	(7,330)	(105)	-	**(20,113)**
. translation differences	1,336	2	40	0	-	**1,378**
. transfer	(681)	-	1	-	-	**(680)**
At the end of the financial year for leasing	**46,251**	**847**	**14,549**	**397**	**-**	**62,043**
Gross value	68,958	2,310	28,436	625	-	**100,329**
Accumulated amortisation	(22,707)	(1,463)	(13,888)	(228)	-	**(38,286)**
NET BOOK VALUE FOR LEASING	**46,251**	**847**	**14,549**	**397**	**-**	**62,044**
Tangible asset including leasing						
Gross value	1,451,054	2,705,637	305,423	39,965	512,940	**5,015,019**
Accumulated amortisation	(614,220)	(1,822,992)	(203,904)	(22,769)	-	**(2,663,885)**
NET BOOK VALUE FOR CONTINUING OPERATIONS INCLUDING LEASING	**836,834**	**882,646**	**101,519**	**17,196**	**512,940**	**2,351,134**

Capital expenditures totaled € 389 million (including additions on intangible assets but without the capitalized R&D costs as per Umicore's capital expenditures definition), compared with € 403 million the previous year. Energy & Surface Technologies accounted for close to 60 % of the Group's capital expenditures, driven by Rechargeable Battery Materials' European expansion investments. This implies a temporary slow-down in Energy & Surface Technologies' capital expenditures compared to 2020. In Catalysis and Recycling, capital expenditures only slightly increased compared to the low spending levels of 2020. In Catalysis, Automotive Catalysts continued to focus on production footprint optimization investments and targeted capacity expansions. In Recycling, the capital expenditures increase was earmarked for environmental and safety-related investments in Precious Metals Refining.

Impairments on property, plant and equipment are mainly related to a decision to stop a development program in Precious Metals Chemistry linked to the semiconductor industry.

The line 'other movements' mainly includes the transfer between tangible assets in progress and the other categories 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.

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 2020	**Percentage 2021**
For continuing operations				
Associates				
IEQSA	Peru	PEN	40.00	**40.00**
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**

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.

Investments in associates are accounted for in accordance with the equity method and represent approximately 1.7% of Umicore's consolidated balance sheet total. 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 and material contingencies, 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 F36 for pending file qualified as contingent liability at Element Six Abrasives and note F9 for adjustments).

Thousands of Euros	Net book value	Goodwill	**Total**
At the end of previous year	**94,683**	**45,156**	**139,839**
. profit for the year	17,347	-	**17,347**
. dividends	(4,808)	-	**(4,808)**
. change in other reserves	(3,114)	-	**(3,114)**
. translation differences	5,449	427	**5,877**
AT THE END OF THE YEAR FOR CONTINUING OPERATIONS	**109,557**	**45,583**	**155,140**

Umicore's share in the aggregated balance sheet and profit and loss items of the associates and joint ventures would have been as follows:

Thousands of Euros	31/12/2020	**31/12/2021**
Assets	214,719	**270,781**
Liabilities	101,894	**143,037**
Turnover	195,889	**261,159**
Net result	(5,332)	**17,347**

In the above table, there are no more assets and liabilities related to joint ventures.

F18 Financial assets at fair value through oci and loans granted

Thousands of Euros	Financial assets at FV through OCI	Loans granted
Non-current financial assets		
At the beginning of previous year	**10,897**	**2,192**
. increase	1,633	753
. reversals of impairment losses (included in "Income from other financial instruments")	2	-
. translation differences	(45)	(79)
. fair value recognized in equity	(4,193)	-
. other movements	59	386
At the end of previous year	**8,352**	**3,252**
. increase	5,014	39
. translation differences	78	36
. fair value recognized in equity	(43)	-
. other movements	719	(719)
AT THE END OF THE FINANCIAL YEAR FOR CONTINUING OPERATIONS	**14,120**	**2,608**
CURRENT FINANCIAL ASSETS		
At the end of the preceding financial year	**-**	**80**
. increase	-	132
. translation differences	-	1
. other	-	(44)
AT THE END OF THE FINANCIAL YEAR FOR CONTINUING OPERATIONS	**-**	**169**

In 2021, the movements in non-consolidated entities include, amongst other, the equity investment in a developer of next-generation solid state batteries.

F19 Inventories

Thousands of Euros	31/12/2020	31/12/2021
Analysis of inventories		
Base products - gross value	2,706,918	**2,874,788**
.Permanently tied up metal inventories (not hedged)	775,213	**834,372**
.Commercially available metal inventories (hedged) (*)	1,477,096	**1,364,202**
.Other base products inventories (not hedged)	454,609	**676,214**
Consumables - gross value	102,163	**111,128**
Write-downs	(105,715)	**(118,279)**
Advances paid	7,222	**12,059**
Contracts in progress	7,503	**(10,626)**
TOTAL INVENTORIES FOR CONTINUING OPERATIONS	**2,718,092**	**2,869,071**

* applying Umicore's transactional metal hedging - see note F2.21.1 and F3.2.2

Inventories have increased by € 151.0 million compared with December 2020. This increase is mainly due to higher metal prices impacting the value of the commercially available metal inventories. The increase of permanently tied up inventories is mainly linked to the battery materials activities, where ramp-up of production capacity and commissioning 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 2021 compares to a value of € 3,298 million when applying the 31 December market prices (€ 3,008 million at end December 2020).

As per the accounting policy with regards to permanently tied-up metal inventories (see Chapter 2.9), the permanently tied-up metal inventories are considered to have an unlimited useful life (no depreciations are applied) and are instead subject to Umicore's annual impairment testing of the CGU's carrying these inventories. Applying the LOCOM principle on permanently tied-up metal inventories on 31 December 2021 would have given rise to a non-cash impairment charge of € 0.9 million for the Group.

The change in inventory recognized in Raw Materials and Consumables in the consolidated income statement is a positive amount of € 76 million (representing the cash movements on inventory balances). The net write-down of inventory recorded in the consolidated income statement in 2021 amounts to € 10 million.

There are no pledges on, or restrictions to, the title on inventories.

F20 Trade and other receivables

Thousands of Euros	Notes	31/12/2020	31/12/2021
Non current			
Cash guarantees and deposits		8,370	**9,737**
Other receivables maturing > 1 year		2,574	**10,217**
Assets employee benefits		820	**718**
TOTAL FOR CONTINUING OPERATIONS		**11,764**	**20,672**
Current			
Trade receivables (at cost)		1,366,686	**1,394,540**
Trade receivables (write down)		(22,319)	**(18,771)**
Other receivables (at cost)		177,008	**243,746**
Other receivables (write down)		(207)	**(207)**
Interest receivable		495	**1,439**
Fair value receivable financial instruments held for cash-flow hedging	F33	45,091	**80,452**
Fair value receivable - financial instruments related to FV hedging (IFRS 9 hedge accounting)	F33	21,511	**9,868**
Fair value receivable - financial instruments related to FV hedging (economic hedging)		1,931	**3,977**
Deferred charges and accrued income		86,973	**116,989**
TOTAL FOR CONTINUING OPERATIONS		**1,677,167**	**1,832,033**

Compared to 31 December 2020, trade receivables substantially increased driven mainly by higher sales volumes and higher metal prices.

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	**1,328,476**	1,161,303	137,088	21,569	4,384	4,131
Other receivables - at cost	**177,007**	176,020	-	-	223	765
Loss allowance	**14,888**	9,412	1,291	334	240	3,611
Expected loss rate	**0.99%**	0.70%	0.94%	1.55%	5.20%	73.75%
Ageing balance analysis at the end of year						
Trade receivables (w/o doubtful and securitized receivables) - at cost	**1,357,690**	1,222,865	111,435	12,724	6,021	4,645
Other receivables - at cost	**243,746**	236,195	2,940	1,186	252	3,173
Loss allowance	**16,595**	10,006	1,465	270	692	4,162
Expected loss rate	**1.04%**	0.69%	1.28%	1.94%	11.03%	53.24%

CREDIT RISK – TRADE RECEIVABLES

Thousands of Euros	Trade receivables (write-down)	Other receivables (write-down)	**Total**
At the beginning of previous year	**(22,983)**	**(207)**	**(23,190)**
. Impairment losses recognized in P&L	(3,943)	342	**(3,602)**
. Reversal of impairment losses	4,328	-	**4,328**
. Impairment written off against asset carrying amount	48	-	**48**
. Other movements	(408)	(346)	**(755)**
. Translation differences	639	5	**644**
At the end of previous year	**(22,320)**	**(207)**	**(22,526)**
At the beginning of the financial year	**(22,320)**	**(207)**	**(22,526)**
. Impairment losses recognized in P&L	(1,761)	-	**(1,761)**
. Reversal of impairment losses	1,535	-	**1,535**
. Impairment written off against asset carrying amount	4,564	-	**4,564**
. Other movements	129	-	**129**
. Translation differences	(918)	0	**(917)**
AT THE END OF THE FINANCIAL YEAR FOR CONTINUING OPERATIONS	**(18,771)**	**(207)**	**(18,978)**

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 2021, two main credit insurance policies with two different insurers were in place. At closing, € 462 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 policy covered € 262 million of trade invoices with a global annual deductible of € 5 million, a maximum indemnity per year of € 100 million and an indemnification in case of non-payment of 90%. The Group also managed credit exposure by selling invoices to financial institutions without recourse (€ 410 million end of 2021 compared to € 301 million end of 2020), partly covered by the above credit insurance policies. Under one of these facilities, the carrying amount of receivables sold before the transfer amounts to € 220 million while total carrying amount of the assets that the entity continues to recognize and the related continuing involvement liability equal to € 17.6 million as of 31 December 2021. The latter consist mainly of non-transferred credit risk as well as late payment risk over the relevant portfolio. Other facilities amounted to € 190 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) (€ 290 million end of year 2021 compared to € 245 million end of 2020).

Finally, some of our businesses function without credit insurance and instead internal credit limits are set based on available financial information and business knowledge. Theses limits are duly reviewed and approved by management.

F21 Tax assets and liabilities

Thousands of Euros	31/12/2020	**31/12/2021**
Tax assets and liabilities		
Income tax receivables	39,553	**46,762**
Deferred tax assets	221,938	**219,248**
Income tax payable	(160,734)	**(197,488)**
Deferred tax liabilities	(22,846)	**(24,294)**

	Assets		Liabilities		Net	
Thousands of Euros	2020	**2021**	2020	**2021**	2020	**2021**
At the end of preceding financial year	**168,927**	**221,938**	**(11,461)**	**(22,846)**	**157,466**	**199,092**
Deferred tax recognized in the P&L	59,688	**18,119**	(3,146)	**4,707**	56,542	**22,826**
Deferred tax recognized in equity	(12,208)	**(23,322)**	3,632	**(8,156)**	(8,576)	**(31,478)**
Acquisitions through business combination	-	**-**	(359)	**-**	(359)	**-**
Translation adjustments	(6,199)	**5,359**	218	**(84)**	(5,981)	**5,275**
Transfer	11,722	**(2,085)**	(11,722)	**2,085**	-	**-**
Other movements	8	**(761)**	(8)	**-**	-	**(761)**
AT THE END OF FINANCIAL YEAR FOR CONTINUING OPERATIONS	**221,938**	**219,248**	**(22,846)**	**(24,294)**	**199,092**	**194,954**

	Assets		Liabilities		Net	
Thousands of Euros	2020	**2021**	2020	**2021**	2020	**2021**
Deferred tax in respect of each type of temporary difference						
Intangible assets	22,144	**25,797**	(11,043)	**(6,392)**	11,101	**19,405**
Goodwill on fully consolidated companies	-	**-**	(514)	**(556)**	(514)	**(556)**
Property, plant and equipment	11,506	**11,848**	(29,644)	**(29,662)**	(18,138)	**(17,814)**
Long term receivables	1,371	**141**	(181)	**(470)**	1,190	**(329)**
Inventories	41,534	**77,332**	(33,159)	**(27,804)**	8,375	**49,528**
Trade and other receivables	8,212	**15,529**	(25,600)	**(58,640)**	(17,388)	**(43,111)**
Group Shareholder's equity	-	**105**	(6,148)	**(3,959)**	(6,148)	**(3,854)**
Long Term Financial Debt and other payable	11,688	**15,743**	(18,023)	**(24,307)**	(6,335)	**(8,564)**
Provisions Employee Benefits	89,764	**77,506**	(8,267)	**(7,299)**	81,497	**70,207**
Provisions for Environment	26,150	**29,969**	(378)	**(205)**	25,772	**29,764**
Provisions for other liabilities and charges	12,968	**22,889**	(583)	**(658)**	12,385	**22,231**
Current Financial Debt	40	**1,224**	(1,080)	**(4,858)**	(1,040)	**(3,634)**
Current Provisions for Environment	1,969	**1,969**	-	**-**	1,969	**1,969**
Current Provisions for Other Liabilities & Charges	9,952	**4,281**	(8)	**(8)**	9,944	**4,273**
Trade and other payables	67,076	**60,570**	(1,309)	**(877)**	65,767	**59,693**
Total deferred tax due to temporary differences	**304,374**	**344,903**	**(135,937)**	**(165,695)**	**168,437**	**179,208**
Tax losses to carry forward	**70,257**	**80,051**	**-**	**-**	**70,257**	**80,051**
Investments deductions	867	**650**	-	**-**	867	**650**
Other	3,389	**2,236**	-	**-**	3,389	**2,236**
Deferred tax assets not recognized	(43,858)	**(67,191)**	-	**-**	(43,858)	**(67,191)**
Total tax assets/liabilities	**335,029**	**360,649**	**(135,937)**	**(165,695)**	**199,092**	**194,954**
Compensation of assets and liabilities within same entity	(113,091)	**(141,401)**	113,091	**141,401**		
NET AMOUNT	**221,938**	**219,248**	**(22,846)**	**(24,294)**	**199,092**	**194,954**

Thousands of Euros	2020 Base	**2021 Base**	2020 Tax	**2021 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 with no time limit	158,635	**249,850**	43,858	**67,191**

The changes of the period 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 in deferred tax recognized directly in the consolidated statement of comprehensive income are deferred taxes generated by temporary differences included within the lines "Trade and other receivables" (negative by € 8.3 million), “Provisions for employee benefits” (negative by € 12.7 million) and “Trade and other payables” (negative by € 10.7 million).

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. The actual tax results in future periods may differ from the estimate made at the time the deferred taxes are recognized.

Unrecognized deferred tax assets of € 67.2 million mainly arise from tax losses (€ 61.6 million).

In accordance with IAS 12, a deferred tax liability on untaxed reserves of the Belgian companies, amounting potentially to € 37.5 million, has not been recognized as management anticipates that this liability will not be incurred in a foreseeable future.

Group current income tax payable at 31 December 2021 amounting € 197.5 million (2020 : € 160.7 million) include uncertain tax positions of € 101.1 million (€ 114.9 million in 2020).

F22 Net cash and cash equivalents

Thousands of Euros	31/12/2020	**31/12/2021**
Cash and cash equivalents		
Short-term investments : bank term deposits	373,904	**272,965**
Short-term investments : term deposits (other)	5	**43**
Cash-in-hands and bank current accounts	636,397	**921,428**
Total cash and cash equivalents	**1,010,307**	**1,194,437**
Bank overdrafts	8,678	**28,122**
NET CASH AS IN CASH FLOW STATEMENT FOR CONTINUING OPERATIONS	**1,001,629**	**1,166,315**

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 and uncommitted credit facilities 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.

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	Financial assets 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	**-**	**1,141**	**(33,865)**	**5,493**	**(687)**	**87,094**	**(298,028)**	**37,271**	**(82,873)**	**(284,454)**
Remeasurements recognized in other comprehensive income	-	(4,198)	(20,951)	7,972	(84)	(513)	(27,632)	-	-	**(45,406)**
Remeasurements recognized in equity	50,324	-	-	-	-	-	-	10,108	-	**60,432**
Remeasurements derecognized out of other comprehensive income	-	-	27,054	2,707	-	(8,057)	-	-	-	**21,704**
Transfer from/to retained earnings	-	-	-	-	-	-	-	(2,737)	-	**(2,737)**
Other movements	-	-	-	-	-	868	(1,775)	-	-	**(908)**
Exchange differences	-	5	74	549	-	(204)	2,403	-	(119,284)	**(116,457)**
BALANCE AT THE END OF PREVIOUS YEAR	**50,324**	**(3,052)**	**(27,688)**	**16,721**	**(771)**	**79,187**	**(325,033)**	**44,642**	**(202,157)**	**(367,826)**
Balance at the beginning of the year	**50,324**	**(3,052)**	**(27,688)**	**16,721**	**(771)**	**79,187**	**(325,033)**	**44,642**	**(202,157)**	**(367,826)**
Remeasurements recognized in other comprehensive income	-	2	69,150	(16,354)	(1,971)	(25,487)	48,082	-	-	**73,423**
Remeasurements recognized in equity	-	-	-	-	-	-	-	14,255	-	**14,255**
Remeasurements derecognized out of other comprehensive income	-	-	28,949	(14,165)	-	(6,044)	(0)	-	-	**8,740**
Transfer from/to retained earnings	-	-	-	-	-	-	-	(5,904)	-	**(5,904)**
Change in scope	-	-	-	-	-	912	(3,026)	-	-	**(2,114)**
Exchange differences	-	40	393	150	(143)	(176)	(2,107)	-	84,898	**83,055**
BALANCE AT THE END OF THE YEAR	**50,324**	**(3,009)**	**70,804**	**(13,649)**	**(2,885)**	**48,392**	**(282,084)**	**52,994**	**(117,259)**	**(196,370)**

The net gains recognized in the OCI regarding cash flow hedges (€ 50.8 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 (€ 14.8 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 € 3.6 million, recognized in the income statement. This amount includes the mentioned net losses derecognized from OCI (€ 14.8 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 (€ 11.2 million).

New net remeasurements as a result of changes in the actuarial assumptions on the defined post-employment benefit plans have been recognized in OCI for € 48.1 million (refer to Note 27 on Provisions for employee benefits). The 2021 shares and stock option plans have led to a share-based payment reserve increase of € 14.3 million (refer to note F10 on employee benefits). € 5.9 million, linked to exercised options and free shares plans, have been transferred to retained earnings.

The movements on exchange differences are mainly related to the strengthen of the USD, CNY, HKD and BRL compared to EUR. The total exchange differences are mainly impacted by the following currencies : BRL, KRW, PLN, CNY, ZAR, CAD, ARS and USD.

F24 Financial debt

Thousands of Euros	Bank loans	Lease liability	Other loans	**Total**
Non-current				
At the beginning of previous year	**1,101,266**	**46,262**	**3,555**	**1,151,083**
. Increase	125,000	27,657	494,360	**647,017**
. Decrease	-	(19,801)	(304)	**(20,105)**
. Translation differences	(146)	(1,251)	5	**(1,392)**
. Transfers	(21,120)		(4)	**(21,124)**
. Conversion rights recognized in equity	-		(50,324)	**(50,324)**
At the end of previous year	**1,205,000**	**52,865**	**447,289**	**1,705,154**
. Increase	-	25,573	32,109	**57,682**
. Decrease	-	(19,534)	(824)	**(20,358)**
. Translation differences	-	1,400	(0)	**1,400**
. Transfers	-	2,588	(22,430)	**(19,842)**
At the end of the financial year for continuing operations	**1,205,000**	**62,892**	**456,145**	**1,724,037**
Current portion of long-term financial debts				
At the end of the preceding financial year	**21,790**	**-**	**158**	**21,948**
. Increase / decrease	(22,144)	-	1,785	**(20,359)**
. Translation differences	354	-	(40)	**314**
. Transfers	-	-	18,097	**18,097**
At the end of the financial year for continuing operations	**-**	**-**	**20,000**	**20,000**

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	**554,266**	**8,678**	**134,282**	**4**	**697,230**
. Increase / decrease	(204,601)	19,093	(126,277)	(1,786)	**(313,571)**
. Transfers	-	-	-	1,745	**1,745**
. Translation differences	25,055	351	-	38	**25,444**
At the end of the financial year for continuing operations	**374,720**	**28,122**	**8,005**	**1**	**410,847**

Net financial debt at 31 December 2021 stood at € 960.4 million, down compared with € 1,414.0 million at the start of the year.

The financial debt includes the US private debt placements issued in 2019 (€ 390 million; fair value of € 396.4 million) and in 2017 (€ 360 million; fair value € 377.9 million), the Schuldschein issued in 2017 (€ 330 million; fair value € 336.6 million), the European Investment Bank (EIB) loan issued in 2020 (€ 125 million; fair value € 122.0 million) and the convertible bond issued in 2020 (€ 500 million ; fair value € 456.1 million).

On December 31, 2021, an amount of € 5 million was outstanding on the French NEU CP program and an amount of € 20 million was outstanding on the French NEU MTN program (out of € 600 million available under each program).

An amount of € 3 million was outstanding on the Belgian Commercial Paper program (out of € 600 million available under the program).

On December 31, 2021, there were no outstanding advances neither under the € 500 million Syndicated Bank Credit Facility renewed in 2021 and maturing in October 2026, nor under the € 495 million Syndicated Bank Credit Facility maturing in April 2025.

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 2021 or in previous years.

The long-term debts mainly consist in debt instruments in EUR.

The average interest rate on the average gross debt amounted to 2.23% for full year 2021 (1.91% for full year 2020).

The line "new loans and repayment of loans" in the consolidated statement of cash flow do 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 (€10.0 million in 2021) which is non cash.

The net gearing ratio (see definition in Glossary) end of 2021 of 23.3% (35.0% in 2020) and the net financial debt over adjusted EBITDA ratio of 0.77x (compared to 1.76x end of 2020) position the Group well within its targeted capital structure limits.

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		-	40,478	12,387	**52,865**
Credit Institutions	Fixed/Floating	584,895	3,190	-	**588,085**
Commercial Papers	Floating	134,282	-	-	**134,282**
Schuldschein	Fixed/Floating	-	287,000	43,000	**330,000**
US Private Placement	Fixed	-	-	750,000	**750,000**
EIB Loan	Fixed	-	-	125,000	**125,000**
Convertible Bond	Fixed	-	444,100	-	**444,100**
TOTAL		**779,177**	**774,768**	**930,387**	**2,424,332**

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		-	45,209	17,683	**62,892**
Credit Institutions	Fixed/Floating	402,847	-	-	**402,847**
Commercial Papers	Floating	28,000	-	-	**28,000**
Schuldschein	Fixed/Floating	-	287,000	43,000	**330,000**
US Private Placement	Fixed	-	50,000	700,000	**750,000**
EIB Loan	Fixed	-	125,000	-	**125,000**
Convertible Bond	Fixed	-	456,145	-	**456,145**
TOTAL		**430,847**	**963,354**	**760,683**	**2,154,884**

Thousands of Euros	EUR	Total
Analysis of long term debts by currencies (including current portion)		
Bank loans	1,205,000	**1,205,000**
Other loans	476,145	**476,145**
NON-CURRENT FINANCIAL DEBTS (INCLUDING CURRENT PORTION)	**1,681,145**	**1,681,145**

Thousands of Euros	2020	2021
Non current financial debt	1,705,154	**1,724,037**
Current portion of non current financial debt	21,948	**20,000**
Current financial debt	697,230	**410,847**
Cash and cash equivalents	(1,010,307)	**(1,194,437)**
NET FINANCIAL DEBT	**1,414,024**	**960,447**

Gross outstanding debt	
Short term bank loans	**17.4%**
Long term bank loans	**55.9%**
Commercial paper	**0.4%**
Bank overdrafts	**1.3%**
Lease liability	**2.9%**
Convertible Bond	**21.2%**
Other bank facilities	**0.9%**

Millions of Euros	2020	2021
Net financial debt	1,414.0	**960.4**
Equity	2,621.9	**3,167.3**
Total	4,035.9	**4,127.7**
Gearing ratio (%)	35.0	**23.3**

F25 Trade debt and other payables

Thousands of Euros	Notes	31/12/2020	31/12/2021
Non-current			
Other long-term debts		5,682	**6,540**
Investment grants and deferred income from grants		17,823	**40,821**
Total for continuing operations		**23,505**	**47,361**
Current			
Trade payables		1,896,099	**2,196,225**
Advances received on contracts in progress		32,180	**29,851**
Tax payable (other than income tax)		38,317	**32,885**
Payroll and related charges		135,835	**168,014**
Other amounts payable		39,733	**67,708**
Dividends payable		11,618	**11,612**
Accrued interest payable		9,109	**10,326**
Fair value payable financial instrument held for cash flow hedging	F33	57,957	**24,504**
Fair value payable - financial instruments related to FV hedging (IFRS 9 hedge accounting)	F33	18,708	**31,874**
Fair value payable - financial instruments related to FV hedging (economical hedging)		19,589	**433**
Accrued charges and deferred income		159,784	**234,534**
Total for continuing operations		**2,418,928**	**2,807,966**

Compared to 31 December 2020, trade payables increased, driven mainly by more purchase volumes at higher metal prices with longer payment terms. 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 transferrability, their use as financing collateral or their ability to be discounted. End of 2021, Umicore issued € 260 million of bank acceptance drafts in China (compared to € 280 million end of 2020). Trade payables end of 2021 include contracted metals to be repurchased for an amount of € 136 million (compared to € 230 million end of 2020). The tax payables (other than income tax) mainly include VAT payables.

Umicore has no global supply chain programme. 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 2021, such confirmations were provided for a total outstanding payable amount of € 242 million.

F26 Liquidity of the financial liabilities

PREVIOUS FINANCIAL YEAR

	Earliest contractual maturity					
Thousands of Euros	< 1 Month	1 to 3 Months	3 Months to 1 Year	1 to 5 Years	> 5 years	**Total**
Financial debt	**274,765**	**90,870**	**353,542**	**774,766**	**930,387**	**2,424,330**
Current	**274,765**	**90,870**	**353,542**	**-**	**-**	**719,177**
Short term bank loans	231,384	55,590	267,293	-	-	**554,266**
Bank overdrafts	8,678	-	-	-	-	**8,678**
Short-term loan: commercial paper	25,000	35,250	74,032	-	-	**134,282**
Other loans	-	4	-	-	-	**4**
Current portion of long-term bank loans	9,691	-	12,099	-	-	**21,790**
Current portion of other long-term loans	13	26	119	-	-	**158**
Non-current	**-**	**-**	**-**	**774,766**	**930,387**	**1,705,153**
Bank loans	-	-	-	287,000	918,000	**1,205,000**
Lease liability	-	-	-	40,478	12,387	**52,865**
Other loans	-	-	-	447,288	0	**447,288**
TRADE AND OTHER PAYABLES	**1,377,057**	**362,626**	**659,330**	**32,008**	**11,409**	**2,442,430**
Current	**1,377,057**	**362,626**	**659,330**	**19,912**	**-**	**2,418,925**
Trade payables	1,105,279	246,622	544,198	-	-	**1,896,099**
Advances received on contracts in progress	13,586	18,199	395	-	-	**32,180**
Tax payable (other than income tax)	35,188	2,591	539	-	-	**38,317**
Payroll and related charges	38,663	41,765	55,407	-	-	**135,835**
Other amounts payable	28,760	4,627	6,346	-	-	**39,733**
Dividends payable	11,618	-	-	-	-	**11,618**
Accrued interest payable, third parties	6,960	1,653	496	-	-	**9,109**
Fair value payable financial instrument held for cash flow hedging	471	9,324	28,631	19,527	-	**57,953**
Fair value payable - financial instruments related to FV hedging (IFRS 9 hedge accounting)	9,405	6,075	2,844	385	-	**18,708**
Fair value payable - financial instruments related to FV hedging (economical hedging)	6,715	11,827	1,047	-	-	**19,589**
Accrued charges and deferred income	120,413	19,943	19,428	-	-	**159,784**
Non-current	**-**	**-**	**-**	**12,096**	**11,409**	**23,505**
Other long-term debts	-	-	-	1,182	4,500	**5,682**
Investment grants and deferred income from grants	-	-	-	10,914	6,909	**17,823**

FINANCIAL YEAR

	Earliest contractual maturity					
(EUR thousand)	< 1 Month	1 to 3 Months	3 Months to 1 Year	1 to 5 Years	> 5 years	**Total**
Financial debt	**252,209**	**69,764**	**108,874**	**963,354**	**760,683**	**2,154,884**
Current	**252,209**	**69,764**	**108,874**	**-**	**-**	**430,847**
Short term bank loans	216,083	69,764	88,873	-	-	**374,720**
Bank overdrafts	28,122	-	-	-	-	**28,122**
Short-term loan: commercial paper	8,005	-	-	-	-	**8,005**
Other loans	-	-	1	-	-	**1**
Current portion of other long-term loans	-	-	20,000	-	-	**20,000**
Non-current	**-**	**-**	**-**	**963,354**	**760,683**	**1,724,037**
Bank loans	-	-	-	462,000	743,000	**1,205,000**
Lease liability	-	-	-	45,209	17,683	**62,892**
Other loans	-	-	-	456,145	0	**456,145**
Trade and other payables	**1,868,161**	**583,445**	**342,920**	**48,278**	**12,522**	**2,855,327**
Current	**1,868,161**	**583,445**	**342,920**	**13,439**	**-**	**2,807,966**
Trade payables	1,539,519	463,937	192,769	-	-	**2,196,225**
Advances received on contracts in progress	16,545	9,155	4,151	-	-	**29,851**
Tax payable (other than income tax)	26,481	6,186	218	-	-	**32,885**
Payroll and related charges	50,943	42,202	74,869	-	-	**168,014**
Other amounts payable	26,120	27,639	13,949	-	-	**67,708**
Dividends payable	11,612	-	-	-	-	**11,612**
Accrued interest payable, third parties	6,777	139	3,410	-	-	**10,326**
Fair value payable financial instrument held for cash flow hedging	1,949	1,831	10,942	9,782	-	**24,504**
Fair value payable - financial instruments related to FV hedging (IFRS 9 hedge accounting)	8,974	12,550	6,693	3,657	-	**31,874**
Fair value payable - financial instruments related to FV hedging (economical hedging)	-	-	433	-	-	**433**
Accrued charges and deferred income	179,242	19,806	35,487	-	-	**234,534**
Non-current	**-**	**-**	**-**	**34,839**	**12,522**	**47,361**
Other long-term debts	-	-	-	1,178	5,362	**6,540**
Investment grants and deferred income from grants	-	-	-	33,661	7,161	**40,821**

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	**380,834**	**2,633**	**27,087**	**15,802**	**426,356**
. Increase (included in "Payroll and related benefits")	38,091	252	6,635	2,887	**47,864**
. Reversal (included in "Payroll and related benefits")	659	-	-	(48)	**611**
. Use (included in "Payroll and related benefits")	(35,968)	(130)	(5,322)	(1,010)	**(42,430)**
. Interest and discount rate impacts (included in "Finance cost - Net")	3,092	7	6	93	**3,198**
. Translation differences	3	(4)	(129)	(10)	**(141)**
. Transfers	927	-	(689)	(295)	**(57)**
. Recognized in other comprehensive income	(48,255)	60	(0)	(0)	**(48,196)**
AT THE END OF THE FINANCIAL YEAR FOR CONTINUING OPERATIONS	**339,383**	**2,817**	**27,588**	**17,418**	**387,206**

Thousands of Euros	31/12/2020	Movements 2021	**31/12/2021**
Belgium	95,573	(18,512)	**77,061**
Germany	300,743	(20,316)	**280,427**
Subtotal	**396,316**	**(38,828)**	**357,488**
Other entities	30,040	(322)	**29,718**
TOTAL FOR CONTINUING OPERATIONS	**426,356**	**(39,150)**	**387,206**

The first 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 an increase 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 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.

Umicore defined benefit pension schemes for the 2 major countries are the following:

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 € 309.2 million and assets for € 232.1 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 € 77.1 million can be broken down in post-employment defined benefit plans (€ 54.0 million of which € 167.3 million is the obligation and € 113.3 million relates to plan assets), termination benefits plan (€ 4.8 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 (€ 14.8 million of which € 133.6 million is the obligation and € 118.8 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.

GERMANY

Characteristics of the Defined Benefit plans The post-employment benefits are mainly unfunded pension plans of defined benefit type providing retirement, disability and death benefits. All benefit plans are based on final or final average pay excluding the deferred compensation plans. The benefits of the deferred compensation plan are based on annual converted salary and provide a guaranteed interest of 3.0% p.a. (6.0% p.a. for salary conversions before 2014). All post-employment plans represent a defined benefit obligation of € 288.2 million and assets for € 7.8 million.

The net provisions for pension of € 280.4 million mainly includes the Degussa pension defined benefit plans, including the contribution plan where the inflation and interest rate adjustments of the benefits are guaranteed (€ 207.4 million), the closed and open compensation plans (€ 57.4 million), a jubilee premium plan (€ 8.5 million) and other termination benefits (€ 7.1 million).

Funding As mentioned above, the post-employment benefits 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 two defined contribution pension plans exist which are externally financed via the "Pensionskasse Degussa" (PKD) or the support fund "Unterstützungskasse Degussa" (RUK). With respect to the required pension adjustments of pensions paid by these plans, 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 2023 has been included in the defined benefit obligation and is yearly reviewed (additional obligation of € 4.8 million for PKD and € 0.7 million for RUK at the end of 2021).
- 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 defined based upon the Belgian 10-year interest rate but within the range 1.75% – 3.25%. 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 € 133.6 million as at the end of December 2021 and related plan assets to € 118.8 million.

Thousands of Euros	2020	2021
Change in benefit obligation		
Benefit obligation at beginning of the year	**651,685**	**697,222**
Current service cost	34,591	**43,641**
Interest cost	6,246	**5,904**
Plan Participants' Contributions	905	**843**
Remeasurements - changes in demographic assumptions	1,556	**(831)**
Remeasurements - changes in financial assumptions	29,185	**(37,337)**
Remeasurements - experience adjustments	2,942	**723**
Benefits paid from plan/company	(26,873)	**(30,537)**
Expenses paid	(1,819)	**(2,479)**
Plan combinations	157	**-**
Exchange rate changes	(1,353)	**818**
BENEFIT OBLIGATION AT END OF THE YEAR	**697,222**	**677,967**

Thousands of Euros	2020	2021
Change in plan assets		
Fair value of plan assets at the beginning of the year	**259,952**	**271,690**
Expected return on plan assets	2,349	**2,069**
Remeasurements on plan assets	5,398	**11,671**
Employer contributions	32,473	**37,350**
Member contributions	905	**843**
Benefits paid from plan/company	(26,873)	**(30,537)**
Expenses paid	(1,870)	**(2,534)**
Net transfer in/(out) (including the effect of any business combinations/divestitures)	(76)	**-**
Exchange rate changes	(568)	**927**
FAIR VALUE OF PLAN ASSETS AT THE END OF THE YEAR	**271,690**	**291,479**

Pension plans mainly in Belgium, Korean, 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.

Thousands of Euros	2020	2021
Amount recognized in the balance sheet		
Defined benefit obligations	697,222	**677,967**
Fair value of plan assets	271,690	**291,479**
Funded Status	**425,532**	**386,488**
NET LIABILITY (ASSET)	**425,532**	**386,488**
Components of pension costs		
Amounts recognized in profit and loss statement		
Current service cost	34,591	**43,641**
Interest cost	6,246	**5,904**
Interest income on plan assets	(2,349)	**(2,069)**
Remeasurement of Other Long Term Benefits	277	**(920)**
Administrative expenses and taxes	51	**55**
Total pension cost recognized in P&L account	**38,816**	**46,611**
Amounts recognized in other comprehensive income		
Cumulative remeasurements at opening	**270,082**	**299,829**
Remeasurements of the year	28,004	**(48,196)**
Minorities	37	**27**
Other movements	1,775	**-**
Exchange differences	(69)	**4**
Change in scope	-	**3,026**
Total recognized in the OCI at subsidiaries	**299,829**	**254,689**
Remeasurements at associates and joint ventures	25,202	**27,396**
TOTAL RECOGNIZED IN THE OCI	**325,030**	**282,084**
Remeasurements recognised in Other comprehensive income as per Note F23 (w/o Minorities)	(27,632)	**48,082**
Currency translation differences as per Note F23 (w/o Minorities)	2,403	**(2,107)**
Reameasurements related to Minorities (including ctd's on Minorities)	32	**32**
Total Remeasurement shown in OCI	**(25,198)**	**46,007**
.Currency translation differences as per Note F23 (w/o Minorities)	(2,403)	**2,107**
.Currency translation differences related to Minorities	5	**(5)**
.Remeasurements related to equity companies	(409)	**87**
TOTAL REMEASUREMENTS SHOWN IN NOTE F27	**(28,004)**	**48,196**
Remeasurements (recognized in other comprehensive income)		
Effect of changes in demographic assumptions	1,433	**(805)**
Effect of changes in financial assumptions	29,124	**(37,103)**
Effect of experience adjustments	2,677	**1,404**
(Return) on plan assets (excluding interest income)	(5,230)	**(11,692)**
TOTAL REMEASUREMENTS INCLUDED IN OTHER COMPREHENSIVE INCOME	**28,004**	**(48,196)**

The interest cost and return on plan assets as well as the remeasurement impact on the non post-employment benefit plans, are recognized under the finance cost in the income statement (see note F11). All other elements of the expense of the year are classified under the operating result in the "wages, salaries and direct social advantages".

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.

	2020	2021
PRINCIPAL ACTUARIAL ASSUMPTIONS		
Weighted average assumptions to determine benefit obligations at year end		
Discount rate (%)	0.78	**1.17**
Rate of compensation increase (%)	2.55	**2.62**
Rate of price inflation (%)	1.75	**1.80**
Rate of pension increase (%)	1.30	**1.27**
Weighted average assumptions used to determine net cost		
Discount rate (%)	0.95	**0.78**
Rate of compensation increase (%)	2.60	**2.55**
Rate of price inflation (%)	1.78	**1.75**
Rate of pension increase (%)	1.30	**1.30**

	2021	
	Fair value of all plan assets	**Fair Value of plan assets with quoted market price**
Plan assets		
Cash and cash equivalents	**22,062**	**22,062**
Equity instruments	**66,269**	**66,269**
Debt instruments	**93,787**	**93,787**
Real estate	**6,738**	**6,738**
Assets held by insurance company	**94,290**	**80,983**
Other	**8,333**	**7,322**
TOTAL PLAN ASSETS	**291,479**	**277,161**

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.

	2021	
	Valuation trend +0,25%	**Valuation trend -0,25%**
Sensitivity to trend rate assumptions on discount rate		
Present value of defined benefit obligation	**640,901**	**687,587**
Weighted average duration of benefit obligation (in years)	**13.33**	**14.92**
Sensitivity to trend rate assumptions on inflation rate		
Present value of defined benefit obligation	**648,639**	**622,105**
Sensitivity to trend rate assumptions on salary increase rate		
Present value of defined benefit obligation	**670,622**	**652,617**

Thousands of Euros	2020	2021
BALANCE SHEET RECONCILIATION		
Balance sheet liability (asset) as of previous year	**391,734**	**425,529**
Pension expense recognized in P&L in the financial year	38,816	**46,611**
Amounts recognized in SoCI	28,004	**(48,196)**
Employer contributions via funds in the financial year	(20,633)	**(25,572)**
Employer contributions paid directly in the financial year	(11,840)	**(11,771)**
Amounts recognized due to plan combinations	233	**-**
Other	-	**(3)**
Exchange rate adjustment - (gain)/loss	(785)	**(109)**
BALANCE SHEET LIABILITY (ASSET) AS OF END OF THE YEAR	**425,529**	**386,489**
Provisions for employee benefits in non current liabilites as per Balance Sheet	426,356	**387,206**
Asset employee benefit in non current asset (note F20)	(820)	**(718)**
Other	(7)	**-**
NET OBLIGATION ON BALANCESHEET	**425,529**	**386,488**

At 31 December

Thousands of Euros	2017	2018	2019	2020	2021
Present value of defined benefit obligation	552,021	549,052	651,685	697,222	**677,967**
Fair value of plan assets	209,774	216,101	259,952	271,690	**291,479**
Deficit (surplus) in the plan	**342,247**	**332,951**	**391,733**	**425,532**	**386,488**
Experience adjustments on plan assets	(5,286)	4,410	(17,138)	(5,398)	**(11,671)**
Experience adjustments on plan liabilities	4,611	5,967	3,032	2,942	**723**

Thousands of Euros	2021
EXPECTED CASH FLOWS FOR FOLLOWING YEAR	
Expected employer contributions	**36,912**
Expected total benefit payments	
Year 1	**30,310**
Year 2	**48,062**
Year 3	**20,078**
Year 4	**31,508**
Year 5	**28,122**
Next 5 years	**119,823**

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 2015	09/02/2022	all working days of Euronext Brussels	17.29	**39,000**
			18.90	**2,500**
			19.50	**3,000**
				44,500
ISOP 2016	04/02/2023	all working days of Euronext Brussels	16.63	**248,750**
				248,750
ISOP 2017	13/02/2024	all working days of Euronext Brussels	25.50	**413,500**
			27.04	**23,750**
				437,250
ISOP 2018	08/02/2025	all working days of Euronext Brussels	40.90	**973,125**
				973,125
ISOP 2019	10/02/2026	all working days of Euronext Brussels	34.08	**1,216,000**
			36.78	**5,000**
				1,221,000
ISOP 2020	09/02/2027	all working days of Euronext Brussels	42.05	**1,168,375**
				1,168,375
ISOP 2021	10/02/2028	all working days of Euronext Brussels	47.08	**1,108,500**
				1,108,500
TOTAL				**5,201,500**

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.

	2020		2021	
	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	**5,641,250**	**27.42**	**5,785,190**	**32.00**
Granted during the year	1,168,375	42.05	**1,108,500**	**47.08**
Exercised during the year	1,024,435	18.25	**1,692,190**	**22.72**
OUTSTANDING AT THE END OF THE YEAR	**5,785,190**	**32.00**	**5,201,500**	**38.23**
Exercisable at the end of the year	5,785,190	32.00	**5,201,500**	**38.23**

The options outstanding at the end of the year have a weighted average contractual life until January 2026.

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	**108,238**	**13,136**	**121,374**
. Increase (included in "Other operating expenses")	58,989	14,377	**73,367**
. Reversal (included in "Other operating expenses")	(471)	(159)	**(630)**
. Use (included in "Other operating expenses")	(57,081)	(6,519)	**(63,600)**
. Discounting (included in "Finance cost -Net")	(152)	-	**(152)**
. Translation differences	256	-	**256**
AT THE END OF THE FINANCIAL YEAR FOR CONTINUING OPERATIONS	**109,780**	**20,836**	**130,615**
Of which - Non Current	106,247	11,146	**117,393**
Of which - Current	3,533	9,689	**13,222**

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.

Provisions increased overall by € 9.2 million, with additional provisions which are higher than the uses and reversals of existing provisions.

The new provisions for soil and groundwater remediation are mainly related to new provisions taken in Belgium at the Hoboken and Olen sites. In Hoboken, additional provisions for the creation of a green zone neighboring the Hoboken plant have been taken for € 45.6 million. This reflects the success of the voluntary offer to purchase neighboring houses. The creation of the green zone is a key building block of the site's plan to further reduce the impact on its neighbors. Taking into account the use of the provision over the period (€ 51.2 million), the total provision for the creation of the green zone at December 31 amounted to € 44.4 million.

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. 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 the need for and adjustment of CO2 emission rights in Belgium.

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 onerous contracts IFRS 9	Provisions for other liabilities and charges	**Total**
At the end of the previous year	**40,856**	**2,686**	**19,963**	**57,454**	**120,958**
. Increase (included in "Other operating expenses")	8,147	84	-	47,396	**55,626**
. Reversal (included in "Other operating expenses")	(1,530)	-	(20,267)	(247)	**(22,045)**
. Use (included in "Other operating expenses")	(10,451)	(228)	-	(18,506)	**(29,185)**
. Translation differences	912	3	305	765	**1,984**
. Transfers	(2)	(18)	-	6	**(14)**
. Other movements	823	-	-	-	**823**
AT THE END OF THE FINANCIAL YEAR FOR CONTINUING OPERATIONS	**38,754**	**2,527**	**-**	**86,869**	**128,148**
Of which - Non Current	27,226	801	-	70,081	**98,108**
Of which - Current	11,529	1,725	-	16,790	**30,044**

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 increased overall by € 7.2 million.

Additional provisions for reorganization and restructuring have been mainly taken for the restructuring initiatives linked to the closure of Automotive catalysts's heavy duty diesel operation in Frederikssund (Denmark) and in Cobalt & Specialty Materials in Belgium. The uses of provision for reorganization and restructuring mainly relate to the execution of the previously announced restructurings in Cobalt & Specialty Materials in Belgium and in the USA and 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.

The provisions for onerous contracts related to IFRS 9 were linked to the introduction of IFRS 9 for fair value hedging. Those provisions were taken when IFRS 9 hedge accounting could not be applied or obtained, Umicore previously offset under IAS 37 principles any material positive mark-to-markets with provisions for onerous contracts and reclassified the negative mark-to-markets under the provisions for onerous contracts. In 2021, Umicore has decided to directly reverse the material positive mark-to-markets and to

abandon the provisions for onerous contracts logic for IFRS 9, resulting in a reversal of last year taken provision. From the provision of € 20.0 million for 2020, € 10.0 million could be reversed in 2021 as hedge accounting was obtained, as explained in note 2.21.1.

Additional other provisions for liabilities and charges include other onerous contracts provisions of € 22.0 million and provisions for warranty and quality recall risks of € 22.7 million 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 introduced in 2018). The use of provisions related to other onerous contract provisions amounts to € 15.4 million in 2021.

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	31/12/2020	30/06/2021	**31/12/2021**
Intangible assets	F14,F15	346,888	344,025	**339,849**
Property, plant and equipment	F16	2,163,661	2,236,527	**2,351,134**
Investments accounted for under the equity method	F17	139,839	150,052	**155,140**
Financial assets at FV through OCI	F18	8,352	15,125	**14,120**
Inventories	F19	2,718,092	3,081,161	**2,869,071**
Non current receivable (excluding assets employee benefits)	F20	10,945	12,378	**19,954**
Adjusted current accounts receivable		1,611,461	2,013,295	**1,750,174**
Income tax receivable		39,553	44,147	**46,762**
Assets included in capital employed		**7,038,790**	**7,896,710**	**7,546,203**
Non-current trade and other payables	F25	23,505	32,774	**47,360**
Adjusted current accounts payable		2,360,975	3,149,457	**2,783,459**
Translation reserves	F23	(202,148)	(149,920)	**(117,250)**
Non-current provisions	F29,F30	182,040	221,178	**215,502**
Current provisions	F29,F30	60,296	57,857	**43,266**
Income tax payable		160,734	236,935	**197,488**
Liabilities included in capital employed		**2,585,401**	**3,548,280**	**3,169,825**
Capital employed		**4,453,389**	**4,348,430**	**4,376,378**
Eliminations		3,191	3,012	**517**
CAPITAL EMPLOYED AS PUBLISHED		**4,456,580**	**4,351,443**	**4,376,895**
Average Capital Employed in half year preceding closing date		4,454,596		**4,364,169**
Average Capital Employed in year preceding closing date		**4,450,948**		**4,384,090**
Adjusted EBIT in year preceding closing date	F9	536,361		**971,377**
ROCE in year preceding closing date		**12.05%**		**22.16%**

The adjusted current account receivables included in the "Capital Employed" do not take into account the margin calls (€ 1.4 million at the end of 2021) and the gains booked on the mark-to-market value of strategic hedging instruments (€ 80.5 million in 2021). The adjusted current account payables included in the "Capital Employed" do not take into account the losses booked on the mark-to-market value of strategic hedging instruments (€ 24.5 million at the end of 2021).

Average capital employed for the half years is calculated as the average of the capital employed at the end of the period and at the end of the preceding period. Average capital employed for the year is calculated as the average of the capital employed of both half years.

F32 Financial instruments by category

AS AT THE END OF PREVIOUS YEAR

							Carrying amount
Thousands of Euros	Level	Fair value	Held for trading - economic hedging	Fair value hedge accounting	Cash Flow hedge accounting	Loans, receivables and payables	Financial assets at FV through OCI
ASSETS							
Financial assets at fair value through Other Comprehensive Income		**8,352**	**-**	**-**	**-**	**-**	**8,352**
Financial assets at fair value through Other Comprehensive Income - Shares	1	8,352	-	-	-	-	8,352
Loans granted		**3,332**	**-**	**-**	**-**	**3,332**	**-**
Loans to associates and non consolidated affiliates		3,332	-	-	-	3,332	-
Trade and other receivables		**1,688,931**	**1,931**	**21,511**	**45,091**	**1,620,398**	**-**
Non-current							
Cash guarantees and deposits		8,370	-	-	-	8,370	-
Other receivables maturing in more than 1 year		2,574	-	-	-	2,574	-
Assets employee benefits		820	-	-	-	820	-
Current							
Trade receivables (at cost)		1,366,686	-	-	-	1,366,686	-
Trade receivables (write-down)		(22,319)	-	-	-	(22,319)	-
Other receivables (at cost)		177,008	-	-	-	177,008	-
Other receivables (write-down)		(207)	-	-	-	(207)	-
Interest receivable		495	-	-	-	495	-
Fair value of financial instruments held for cash-flow hedging	2	45,091	-	-	45,091	-	-
Fair value receivable - financial instruments related to FV hedging	2	23,442	1,931	21,511	-	-	-
Deferred charges and accrued income		86,973	-	-	-	86,973	-
Cash and cash equivalents		**1,010,306**	**-**	**-**	**-**	**1,010,306**	**-**
Short-term investments: bank term deposits		373,904	-	-	-	373,904	-
Short-term investments: term deposits (other)		5	-	-	-	5	-
Cash-in-hand and bank current accounts		636,397	-	-	-	636,397	-
TOTAL OF FINANCIAL INSTRUMENTS (ASSETS)		**2,710,921**	**1,931**	**21,511**	**45,091**	**2,634,036**	**8,352**

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 Financial assets at FV through OCI
LIABILITIES							
Financial debt		**2,495,431**	**-**	**-**	**-**	**2,424,331**	**-**
Non-current							
Bank loans		1,276,100	-	-	-	1,205,000	-
Lease liability		52,865	-	-	-	52,865	-
Other loans		447,289	-	-	-	447,289	-
Current							
Short term bank loans		576,056	-	-	-	576,056	-
Bank overdrafts		8,678	-	-	-	8,678	-
Short term loan: commercial paper		134,282	-	-	-	134,282	-
Other loans		162	-	-	-	162	-
Trade and other payables		**2,442,433**	**19,589**	**18,708**	**57,957**	**2,346,180**	**-**
Non-current							
Other long term debts		5,682	-	-	-	5,682	-
Investments grants and deferred income from grants		17,823	-	-	-	17,823	-
Current							
Trade payables		1,896,099	-	-	-	1,896,099	-
Advances received on contracts in progress		32,180	-	-	-	32,180	-
Tax - other than income tax - payable		38,317	-	-	-	38,317	-
Payroll and related charges		135,835	-	-	-	135,835	-
Other amounts payable		39,733	-	-	-	39,733	-
Dividends payable		11,618	-	-	-	11,618	-
Accrued interest payable		9,109	-	-	-	9,109	-
Fair value financial instrument held for cash flow hedging	2	57,957	-	-	57,957	-	-
Fair value payable - financial instruments related to FV hedging	2	38,296	19,589	18,708	-	-	-
Accrued charges and deferred income		159,784	-	-	-	159,784	-
TOTAL OF FINANCIAL INSTRUMENTS (LIABILITIES)		**4,937,864**	**19,589**	**18,708**	**57,957**	**4,770,511**	**-**

AS AT THE END OF THE FINANCIAL YEAR

Thousands of Euros	Level	Fair value	Carrying amount: Held for trading - economic hedging	Carrying amount: Fair value hedge accounting	Carrying amount: Cash Flow hedge accounting	Carrying amount: Loans, receivables and payables	Carrying amount: Financial assets at FV through OCI
ASSETS							
Financial assets at fair value through Other Comprehensive Income		**14,120**	**-**	**-**	**-**	**-**	**14,120**
Financial assets at fair value through Other Comprehensive Income - Shares	1	14,120	-	-	-	-	14,120
Loans granted		**2,777**	**-**	**-**	**-**	**2,777**	**-**
Loans to associates and non consolidated affiliates		2,777	-	-	-	2,777	-
Trade and other receivables		**1,852,705**	**3,977**	**9,868**	**80,452**	**1,758,408**	**-**
Non-current							
Cash guarantees and deposits		9,737	-	-	-	9,737	-
Other receivables maturing in more than 1 year		10,217	-	-	-	10,217	-
Assets employee benefits		718	-	-	-	718	-
Current							
Trade receivables (at cost)		1,394,540	-	-	-	1,394,540	-
Trade receivables (write-down)		(18,771)	-	-	-	(18,771)	-
Other receivables (at cost)		243,746	-	-	-	243,746	-
Other receivables (write-down)		(207)	-	-	-	(207)	-
Interest receivable		1,439	-	-	-	1,439	-
Fair value of financial instruments held for cash-flow hedging	2	80,452	-	-	80,452	-	-
Fair value receivable - financial instruments related to FV hedging	2	13,845	3,977	9,868	-	-	-
Deferred charges and accrued income		116,989	-	-	-	116,989	-
Cash and cash equivalents		**1,194,436**	**-**	**-**	**-**	**1,194,436**	**-**
Short-term investments: bank term deposits		272,965	-	-	-	272,965	-
Short-term investments: term deposits (other)		43	-	-	-	43	-
Cash-in-hand and bank current accounts		921,428	-	-	-	921,428	-
TOTAL OF FINANCIAL INSTRUMENTS (ASSETS)		**3,064,038**	**3,977**	**9,868**	**80,452**	**2,955,621**	**14,120**

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 Financial assets at FV through OCI
LIABILITIES							
Financial debt		**2,182,852**	**-**	**-**	**-**	**2,154,884**	**-**
Non-current							
Bank loans		1,232,968	-	-	-	1,205,000	-
Lease liability		62,892	-	-	-	62,892	-
Other loans		456,145	-	-	-	456,145	-
Current							
Short term bank loans		374,720	-	-	-	374,720	-
Bank overdrafts		28,122	-	-	-	28,122	-
Short term loan: commercial paper		8,005	-	-	-	8,005	-
Other loans		20,001	-	-	-	20,001	-
Trade and other payables		**2,855,327**	**433**	**31,874**	**24,504**	**2,798,516**	**-**
Non-current							
Other long term debts		6,540	-	-	-	6,540	-
Investments grants and deferred income from grants		40,821	-	-	-	40,821	-
Current							
Trade payables		2,196,225	-	-	-	2,196,225	-
Advances received on contracts in progress		29,851	-	-	-	29,851	-
Tax - other than income tax - payable		32,885	-	-	-	32,885	-
Payroll and related charges		168,014	-	-	-	168,014	-
Other amounts payable		67,708	-	-	-	67,708	-
Dividends payable		11,612	-	-	-	11,612	-
Accrued interest payable		10,326	-	-	-	10,326	-
Fair value financial instrument held for cash flow hedging	2	24,504	-	-	24,504	-	-
Fair value payable - financial instruments related to FV hedging	2	32,307	433	31,874	-	-	-
Accrued charges and deferred income		234,534	-	-	-	234,534	-
TOTAL OF FINANCIAL INSTRUMENTS (LIABILITIES)		**5,038,179**	**433**	**31,874**	**24,504**	**4,953,400**	**-**

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 reporting period. The fair value of quoted financial assets held by the Group is their quoted market price at the end of the reporting period. 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

The Group adopted the amendment to IFRS 7 for financial instruments which are measured in the balance sheet at fair value, with effect from January 2009. This amendment requires disclosures of fair value measurements by level, 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 € 14.4 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 € 6.5 million higher/lower if the energy prices would strengthen/weaken by 10%. The fair value on financial instruments related to cash flow hedging purchases would have been € 4.7 million higher/lower if the metal prices would strengthen/weaken by 10%.

The fair value on other commodity sales hedge compliant financial instruments would have been € 26.1 million lower/higher and the fair value on other commodity purchases hedge compliant financial instruments would have been € 8.7 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 € 5.7 million lower/higher and the fair value on other commodity purchases financial instruments according to economic logic would have been € 5.9 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 € 28.7 million higher if the EUR would strengthen against USD by 10% and would have been € 35.1 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 € 10.6 million lower if the USD would strengthen against KRW by 10% and would have been € 10.6 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 higher if the EUR would strengthen against CNY by 10% and would have been € 6.9 million lower if EUR would weaken against CNY by 10%.

The fair value of forward currency contracts related to cash flow hedging would have been € 9.8 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 € 6.4 million lower if the USD would strengthen against BRL by 10% and would have been € 6.4 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 € 2.5 million lower if the USD would strengthen against CAD by 10% and would have been € 3.1 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 € 2.6 million lower if the EUR would strengthen against PLN by 10% and would have been € 3.2 million higher if EUR would weaken against PLN by 10%.

The fair value of other forward currency contracts sold would have been € 40.5 million higher if the EUR would strengthen against USD by 10% and would have been € 49.5 million lower if the EUR would weaken against USD by 10%.

The fair value of other forward currency contracts bought would have been € 9.5 million lower if the EUR would strengthen against USD by 10% and would have been € 11.7 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 € 5.5 million lower if the EUR would strengthen against USD by 10% and would have been € 6.8 million higher 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 € 15.8 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 € 33.2 million lower if the EUR would strengthen against CNY by 10% and would have been € 40.6 million higher if the EUR would weaken against CNY by 10%.

The fair value of other forward currency contracts sold would have been € 17.3 million higher if the CNY would strengthen against USD by 10% and would have been € 18.2 million lower if the CNY would weaken against USD by 10%.

The fair value of other forward currency contracts bought would have been € 4.3 million lower if the EUR would strengthen against PLN by 10% and would have been € 5.2 million higher 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 € 12.2 million higher if the EUR would strengthen against PLN by 10% and would have been € 14.9 million lower if the EUR would weaken against PLN by 10%.

The fair value of other forward currency contracts sold would have been € 8.1 million higher if the EUR would strengthen against HKD by 10% and would have been € 9.9 million lower if the EUR would weaken against HKD by 10%.

The fair value of net position of current assets and liabilities exposed to HKD would have been € 8.1 million lower if the EUR would strengthen against HKD by 10% and would have been € 9.9 million higher if the EUR would weaken against HKD by 10%.

The fair value of other forward currency contracts sold would have been € 5.5 million higher if the KRW would strengthen against USD by 10% and would have been € 5.5 million lower if the KRW would weaken against USD by 10%.

The fair value of other forward currency contracts bought would have been € 4.2 million higher if the KRW would strengthen against USD by 10% and would have been € 4.2 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 € 9.9 million lower if the EUR would strengthen against KRW by 10% and would have been € 12.1 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 € 1 million lower if interest rate levels would increase by 10% and € 1 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 Interest Rate Swaps with reputable brokers and banks.

33.1 Financial instruments related to cash-flow hedging

	Notional or Contractual amount		Fair value		Change in fair value
Thousands of Euros	31/12/2020	**31/12/2021**	31/12/2020	**31/12/2021**	31/12/2021
Forward commodities sales	131,855	**156,750**	(49,786)	**11,241**	61,027
Forward commodities purchases	(86,877)	**(52,394)**	22,099	**59,564**	37,465
Forward currency contracts sales	641,320	**681,471**	12,606	**(16,315)**	(28,921)
Forward currency contracts purchases	(79,688)	**(57,804)**	2,986	**4,621**	1,635
Forward IRS contracts	40,000	**396,600**	(771)	**(3,164)**	(2,393)
Total fair value impact subsidiaries			**(12,866)**	**55,947**	**68,813**
recognized under trade and other receivables			45,091	**80,452**	
recognized under trade and other payables			(57,957)	**(24,504)**	
Total fair value impact associates and joint ventures			1,114	**(1,953)**	
Total			**(11,752)**	**53,995**	

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 and copper. The forward commodity purchase contracts are set

up to hedge primarily the electricity, gas and fuel oil price risks and the commodity nickel. The forward currency contracts are set up to hedge USD towards EUR, KRW, CNY, BRL and CAD as well as EUR towards PLN and CNY. The terms and conditions of the forward contracts are common market conditions.

Umicore did not face any ineffectiveness on cash flow hedging in P&L in 2020 and 2021.

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 2021. This positive impact is most significant for commodities purchased, while forward currency contracts offset part of this positive impact. All of the hedging instruments have their maturity within the next three years.

33.2 Financial instruments related to fair value hedging

	Notional or Contractual amount		Fair value		Change in fair value
Thousands of Euros	31/12/2020	**31/12/2021**	31/12/2020	**31/12/2021**	31/12/2021
Forward commodities sales (IFRS 9-hedge accounting)	-	**259,702**	-	**(14,858)**	(14,858)
Forward commodities sales (economic hedging)	303,729	**59,432**	(19,549)	**1,984**	21,533
Forward commodities purchases (IFRS 9-hedge accounting)	-	**(82,064)**	-	**4,934**	4,934
Forward commodities purchases (economic hedging)	(33,687)	**(58,194)**	1,891	**1,560**	(331)
Forward currency contracts sales	1,532,188	**1,216,640**	5,342	**(12,232)**	(17,575)
Forward currency contracts purchases	(536,554)	**(494,154)**	(2,539)	**150**	2,689
Total fair value impact subsidiaries			**(14,854)**	**(18,462)**	**(3,609)**
recognized under trade and other receivables (IFRS 9- hedge accounting)			21,511	**9,868**	
recognized under trade and other receivables (economic hedging)			1,931	**3,977**	
recognized under trade and other payables (IFRS 9- hedge accounting)			(18,708)	**(31,875)**	
recognized under trade and other payables (economic hedging)			(19,589)	**(433)**	
Total			**(14,854)**	**(18,462)**	

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 F2.21.1).

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 2021. 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 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, KRW, CNY, BRL and CAD as well as EUR towards CNY, HKD, KRW, JPY, THB, DKK and PLN.

The forward contracts following the economic logic are contracts to hedge following commodities: silver, gold, platinum and palladium.

Fair value hedged items and hedging instruments compliant with IFRS 9 hedge accounting

	31/12/2020		**31/12/2021**				
Thousands of Euros	Fair Value Hedged Items	Fair Value Hedging Instruments	**Fair Value Hedged Items**	**Fair Value Hedging Instruments**	Change in Fair Value Hedged Items	Change in Fair Value Hedging Instruments	Ineffectiveness
Transactional metal hedges	14,499	(5,614)	**18,905**	**(12,031)**	4,406	(6,417)	(2,011)

The main source of hedge ineffectiveness on the fair value hedging originates from forward curve impacts on the base metals, in particular the negative impact from backwardation curve on copper and nickel. 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. The total fair value on these transactional currency hedges amounted to a loss of € 12.1 million. The ineffectiveness on currency hedges is immaterial.

AS AT THE END OF PREVIOUS YEAR

	Earliest contractual maturity (undiscounted) - notional amounts					Earliest contractual maturity (undiscounted) - fair value				
Thousands of Euros	< 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 (FAIR VALUE)										
Commodity risk										
Total forward sales (CFH)	-	249	661	743	**1,653**	-	6	7	(4)	**9**
Total forward purchases (CFH)	2,719	5,547	35,851	42,760	**86,877**	1,007	2,081	10,155	8,855	**22,099**
Total forward purchases (FV economic hedging)	15,741	14,752	-	-	**30,493**	1,151	780	-	-	**1,931**
FX Risk										
Forward currency contracts sales (CFH)	32,269	55,116	260,213	204,150	**551,748**	1,452	2,436	11,856	4,254	**19,997**
Forward currency contracts purchases (CFH)	3,336	6,807	28,824	33,226	**72,194**	103	210	1,042	1,632	**2,986**
Forward currency contracts sales (FV - IFRS 9 Hedge Accounting)	594,604	522,845	173,820	-	**1,291,269**	6,530	5,360	5,008	-	**16,897**
Forward currency contracts purchases (FV - IFRS 9 Hedge Accounting)	98,242	10,145	1,786	630	**110,803**	4,478	124	4	8	**4,614**
FINANCIAL INSTRUMENTS LIABILITIES (FAIR VALUE)										
Interest Rate Risk										
Interest rate swaps	-	-	-	40,000	**40,000**	-	-	-	(771)	**(771)**
Commodity risk										
Total forward sales (CFH)	288	15,247	46,867	67,800	**130,202**	(13)	(8,268)	(24,383)	(17,131)	**(49,795)**
Total forward sales (FV economic hedging)	44,004	162,083	97,642	-	**303,729**	(6,675)	(11,827)	(1,047)	-	**(19,549)**
Total forward purchases (FV economic hedging)	3,195	-	-	-	**3,195**	(40)	-	-	-	**(40)**
FX Risk										
Forward currency contracts sales (CFH)	3,148	8,156	34,112	39,750	**85,167**	(458)	(927)	(4,381)	(1,626)	**(7,391)**
Forward currency contracts sales (FV - IFRS 9 Hedge Accounting)	92,962	56,711	91,247	-	**240,920**	(7,111)	(3,228)	(1,216)	-	**(11,555)**
Forward currency contracts purchases (FV - IFRS 9 Hedge Accounting)	211,408	144,148	51,452	18,743	**425,751**	(2,293)	(2,847)	(1,628)	(385)	**(7,153)**

AS AT THE END OF THE FINANCIAL YEAR

	Earliest contractual maturity (undiscounted) - notional amounts					Earliest contractual maturity (undiscounted) - fair value				
Thousands of Euros	< 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	-	-	-	121,600	**121,600**	-	-	-	47	**47**
Commodity risk										
Total forward sales (CFH)	10,140	33,666	43,231	55,937	**142,974**	191	(254)	(509)	12,444	**11,872**
Total forward purchases (CFH)	2,475	4,952	32,113	12,854	**52,394**	1,515	3,006	43,242	11,801	**59,564**
Total forward purchases (FV - IFRS 9 Hedge Accounting)	25,929	30,273	25,862	-	**82,064**	1,445	1,528	1,961	-	**4,934**
Total forward sales (FV economic hedging)	-	43,666	2,592	-	**46,258**	-	2,224	193	-	**2,417**
Total forward purchases (FV economic hedging)	14,932	40,885	2,377	-	**58,194**	497	1,041	21	-	**1,560**
FX Risk										
Forward currency contracts sales (CFH)	32,617	9,338	49,359	23,610	**114,924**	963	501	2,865	18	**4,348**
Forward currency contracts purchases (CFH)	2,475	4,952	34,319	16,058	**57,804**	337	680	3,287	317	**4,621**
Forward currency contracts sales (FV - IFRS 9 Hedge Accounting)	81,149	40,909	25,430	-	**147,488**	755	306	256	-	**1,318**
Forward currency contracts purchases (FV - IFRS 9 Hedge Accounting)	121,549	78,972	47,854	385	**248,759**	1,419	394	1,801	1	**3,616**
Financial Instruments Liabilities										
Interest Rate Risk										
(Cross-currency) Interest rate swaps	-	-	-	275,000	**275,000**	-	-	-	(3,211)	**(3,211)**
Commodity risk										
Total forward sales (CFH)	305	1,870	6,514	5,087	**13,776**	(55)	(87)	(337)	(152)	**(631)**
Total forward sales (FV - IFRS 9 Hedge Accounting)	65,774	94,180	58,764	40,983	**259,702**	(2,455)	(3,406)	(5,197)	(3,801)	**(14,858)**
Total forward sales (FV economic hedging)	-	-	13,174	-	**13,174**	-	-	(433)	-	**(433)**
FX Risk										
Forward currency contracts sales (CFH)	41,509	44,982	256,654	223,401	**566,547**	(1,894)	(1,744)	(10,605)	(6,420)	**(20,663)**
Forward currency contracts sales (FV - IFRS 9 Hedge Accounting)	486,931	351,714	192,287	38,220	**1,069,152**	(5,800)	(6,746)	(1,148)	144	**(13,550)**
Forward currency contracts purchases (FV - IFRS 9 Hedge Accounting)	76,362	115,950	53,083	-	**245,394**	(720)	(2,398)	(348)	-	**(3,466)**

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 net profit and loss 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	2020	2021
Adjustments for non cash transactions		
Depreciations	267,941	**279,526**
(Reversal) Impairment charges	87,543	**48,504**
Mark to market of inventories and commitments	464	**19,764**
Exchange difference on long-term loans	(4,169)	**4,878**
Inventories and bad debt provisions	7,012	**10,747**
Depreciation on government grants	(199)	**(401)**
Share-based payments	10,108	**14,255**
Change in provisions	80,323	**22,662**
Total	**449,023**	**399,936**
Adjustments for items to disclose separately or under investing and financing cash flows		
Tax charge of the period	59,131	**179,043**
Interest (income) charges	57,910	**51,498**
(Gain) loss on disposal of fixed assets	(760)	**(1,759)**
Dividend income	(230)	**(210)**
Total	**116,051**	**228,573**
Change in working capital requirement analysis		
Inventories	(255,762)	**(150,979)**
Trade and other receivables	(237,694)	**(171,084)**
Trade and other payables	531,216	**449,647**
As in the consolidated balance sheet	**37,760**	**127,584**
Non-cash items (*)	17,742	**35,113**
Items disclosed elsewhere (**)	(37,822)	**(52,810)**
Impact of business combination	(3,136)	**-**
Currency translation differences	(118,300)	**57,269**
As in the consolidated cash flow statement	**(103,756)**	**167,154**

(*) Non-cash items are mainly linked to mark to market of inventories and commitments, strategic and transactional hedging and inventories, impairments in inventories and bad debt provisions.

(**) Item disclosed elsewhere are mainly due to changes in interest, dividend and tax receivable and payable and government grants.

Thousands of Euros	Net cash and cash equivalent	Loans (w/o bank overdrafts)	**Net financial debt**
At the end of previous year	**1,001,629**	**2,415,654**	**1,414,025**
Cash flow of the period	164,686	(288,892)	**(453,578)**
AT THE END OF THE FINANCIAL YEAR	**1,166,315**	**2,126,762**	**960,447**

34.2 Net cash flow generated by operating activities

Operating cash flow after tax from continuing operations is € 1,259 million. The net working capital requirements for continuing operations decreased with € 167.2 million in 2021 compared to 2020. This is a further reduction of € 137 million compared to end of June 2021 which benefited from some temporary cut-off effects. Working capital came down in all business groups, but most so in Catalysis where it reflects lower precious metal prices and softer volumes in the second half. At current metal prices, working capital in 2022 is expected to increase from the levels of end of 2021.

34.3 Net cash flow used in investing activities

Net cash used in investing activities for continuing operations increased by € 42.0 million in 2021. Capital expenditure for continuing operations reached € 388.6 million (compared to € 403.2 million in 2020) if capitalized R&D costs are excluded as per Umicore's definition of capital expenditures (refer to Glossary). Energy & Surface Technologies accounted for close to 60 % of the Group's capital expenditures, driven by Rechargeable Battery Materials' European expansion investments. This implies a temporary slow-down in Energy & Surface Technologies' capital expenditures compared to 2020 but is expected to result in some capital expenditures spill-over effect into 2022. In Catalysis and Recycling, capital expenditures only slightly increased compared to the low spending levels of 2020. In Catalysis, Automotive Catalysts continued to focus on production footprint optimization investments and targeted capacity expansions. In Recycling, the capital expenditures' increase was earmarked for environmental and safety-related investments in Precious Metals Refining. Capitalized development expenses amounted to € 27.8 million, slightly down versus 2020.

The acquisition of the remaining 8.8 % minority shares in the listed subsidiary Allgemeine Gold- und Silberscheideanstalt AG (Germany) and its subsequent delisting resulted in a cash out of € 53.9 million in the second half.

34.4 Net cash flow used in financing activities

The cash used in financing activities is mainly related to the purchase and use of own shares to cover the exercise of options (€ 22.2 million), the payment of dividends (€ 186.5 million) and of interest (€ 42.4 million) and the reimbursement of the lease liability (€ 19.5 million).

Thousands of Euros	2020	2021
Acquisition of tangible assets	391,475	**379,572**
Acquisition of intangible assets	44,060	**36,854**
Acquisitions of assets	**435,535**	**416,426**
Capitalized R&D	32,368	**27,830**
Capital expenditure for continuing operations	**403,168**	**388,596**

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	2020	2021
Guarantees constituted by third parties on behalf of the Group	30,999	**38,112**
Guarantees constituted by the Group on behalf of third parties	6,940	**3,112**
Guarantees received	68,596	**81,102**
Goods and titles held by third parties in their own names but at the Group's risk	1,513,704	**1,643,975**
Commitments to acquire and sell fixed assets	288	**4,278**
Commercial commitments for commodities purchased (to be received)	701,475	**910,182**
Commercial commitments for commodities sold (to be delivered)	1,667,126	**1,930,639**
Goods and titles of third parties held by the Group	4,930,583	**5,447,836**
Miscellaneous rights and commitments	288	**-**
TOTAL	**8,919,711**	**10,059,236**

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.

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 2021, there was a net lease-in position of € 1,005 million vs. € 846 million at end of 2020. This increase is mainly caused by higher volumes. As detailed in Note F2.7, those metal leases are not under the scope of IFRS 16.

F36 Contingencies

As previously disclosed, the Group has a pending file that can be qualified as a contingent liability according to the definition of IFRS. A subsidiary of Element Six Abrasives received notice of a local tax assessment for € 24.9 million to be grossed up with statutory interests, estimated at 31 December 2021 at € 14.5 million. On March 8th 2022 a court determination was issued ruling in favour of the company's appeal. The local tax authorities have the possibility to appeal within 28 days of the determination. Umicore retains a 40.22 % interest in Element Six Abrasives and accounts for the company using the equity method.

The Group is the also subject of a number of other claims and legal proceedings incidental to the normal conduct of its business. Management does not believe that such claims and proceedings are likely to have a material adverse effect on the financial condition of Umicore.

F37 Related parties

Thousands of Euros	2020	2021
Transactions with joint ventures and associates		
Operating income	100,444	**196,699**
Operating expenses	(148,888)	**(232,041)**
Dividends received	(1,796)	**(4,808)**

Thousands of Euros	2020	2021
Outstanding balances with joint ventures and associates		
Current trade and other receivables	32,685	**39,774**
Current trade and other payables	38,779	**79,573**

The transactions with associates and joint ventures are mainly commercial transactions, sales and purchases of goods and services.

There are no transaction with entities held by key management personnel.

Thousands of Euros	2020	2021
Supervisory Board		
Salaries and other compensation	1,022	**1,262**
Fixed portion	296	**296**
Variable portion (based on attended meetings)	373	**467**
Value of the share grant	350	**497**
Benefit in kind company car chairman	3	**3**

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	2020	2021
Management Board		
Salaries and other benefits	7,522	**18,814**
Short-term employee benefits	1,496	**11,021**
Post-employment benefits	1,052	**1,044**
Other long-term benefits	492	**2,027**
Share-based payments	4,483	**4,721**

The data above shows the accounting view of the supervisory board and management board remuneration and 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.

With regards to share-based incentives the share grant figures included in share-based payments above represent the value of the shares granted in 2021 for services rendered in 2020. The remuneration report shows the value of the shares granted in 2022 for services rendered in the reporting year 2021.

The figures related to the undeferred part of the variable remuneration linked to the individual performance for the reference year 2021, included in 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 2021.

Accruals booked for the deferred parts of the variable cash remuneration for the reference year 2021 are included in the other long-term benefits. The amounts to be paid in 2024 will depend on long-term performance measures and the exact amounts paid will be included in the remuneration report of 2023.

F38 Events after the reporting period

The Supervisory Board will propose a gross annual dividend of € 0.80 per share at the Annual General Meeting on 28 April 2022. This compares to a full dividend of € 0.75 p.s. paid out for the financial year 2020. Taking into account the interim dividend of € 0.25 per share paid out on 24 August 2021 and subject to shareholder approval, a gross amount of € 0.55 per share will be paid out on 4 May 2022.

In February 2022, Umicore has signed a € 500 million sustainability-linked loan (SLL), tying for the first time the Group's funding costs to its sustainability performance and successfully refinancing its existing € 300 million syndicated credit facility.

In February 2022, Umicore has signed two separate long-term power purchase agreements (PPAs), with ENGIE and Axpo to source renewable electricity from offshore and onshore wind turbines in Belgium. These agreements will cover more than half of the electricity demand from Umicore's Belgian sites and help the Group achieve its objective to be carbon neutral by 2035.

In February 2022, Umicore announced the signing of an agreement with Automotive Cells Company (ACC) on battery recycling services for the needs of ACC pilot plant in Nersac, France.

Related to the contingent liability linked to a tax assessment received by Element Six Abrasives and subsequent appeal, on March 8th 2022 a court determination was issued ruling in favour of the company's appeal. The local tax authorities have the possibility to appeal within 28 days of the determination.

Umicore is closely monitoring the crisis in Ukraine and assessing any resulting implications to its business. It is currently impossible to fully assess the direct or indirect impact of this crisis on Umicore in view of the fast evolving context and the related uncertainties.

Umicore's sales in 2021 into Russia or Ukraine were negligible on Group level and Umicore has no operational presence in Ukraine and no meaningful operational presence in Russia. Russia, however, is a relevant supplier country to Umicore, to certain of its customers and to certain supply chains it serves. In particular, Russia is an important global producer of certain Platinum Group Metals (mostly palladium and to a lesser extent rhodium) and of nickel. Umicore built a diversified supply base for these metals with supply from various countries and is additionally being supplied through its own recycling operations. Any prolonged absence of supply of these metals as a result of the crisis is expected to increase global supply tightness and potentially disrupt supply chains in some of the markets Umicore serves, particularly in the automotive industry, which could impact demand for Umicore's product and services in these markets. This potential metal supply tightness could trigger severe metal price and trading volatility, which could impact the Group's profitability and cash flows.

Finally, the crisis is resulting in a sharp increase in global energy prices, inflating the Group's operational costs and potentially structurally impacting global economic growth if persistent.

Umicore strongly condemns all acts of war and violence and the company and its employees are engaging into humanitarian support initiatives to help to alleviate the human suffering.

F39 Earnings per share

Earnings per share

(EUR)	2020	**2021**
EPS - basic	0.54	**2.57**
EPS - diluted	0.54	**2.56**
Basic adjusted EPS	1.34	**2.77**

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	2020	**2021**
Net consolidated profit, Group share	F9		
From continuing operations		130,530	**618,959**
Adjusted net consolidated profit, Group share	F9	322,407	**667,492**

The following numbers of shares have been used as the denominator in the calculation of basic and diluted earnings per share:

DENOMINATOR ELEMENTS

	2020	**2021**
Total shares issued as at 31 December	**246,400,000**	**246,400,000**
of which treasury shares	5,733,685	**5,200,995**
of which shares outstanding	240,666,315	**241,199,005**
Weighted average number of outstanding shares	**240,589,550**	**240,868,119**
Potential dilution due to stock option plans	1,183,525	**1,112,044**
Adjusted weighted average number of outstanding shares	241,773,075	**241,980,163**

Total outstanding shares are after deduction of treasury shares, which are held to cover existing stock option plans or are available for resale. The denominator for the calculation of diluted earnings per share takes into account an adjustment for stock options.

During 2021, no new shares were created as a result of the exercise of stock options with linked subscriptions rights. During the year Umicore used 1,692,190 of its treasury shares in the context of the exercise of stock and 110,500 for shares granted. In the course of 2021, Umicore bought back 1,270,000 own shares. On 31 December 2021, Umicore owned 5,200,995 of its own shares representing 2.11 % 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 2021 with a material impact on the Group's consolidated financial statements .

In case of material, these are developed in the accounting policies section.

A fundamental reform of major interest rate benchmarks is being undertaken globally, including the replacement of some interbank offered rates (IBORs) with alternative nearly risk-free rates (referred to as 'IBOR reform'). The amendments to IFRS 9 and IAS 39 Financial Instruments: Recognition and Measurement provide a number of reliefs, which apply to all hedging relationships that are directly affected by interest rate benchmark reform. A hedging relationship is affected if the reform gives rise to uncertainty about the timing and/or amount of benchmark-based cash flows of the hedged item or the hedging instrument. These amendments have no impact on the consolidated financial statements of the Umicore Group as it does not have any interest rate hedge relationships that are referenced to LIBOR. In 2021, Umicore set up a working group to monitor the IBOR reform and its potential effect across the Group on contracts.

For all other new interpretations and standards not yet mandatory as from 1 January 2021, management has no indications that this will result in a material impact on the Group's consolidated financial statements.

F41 Auditors' remuneration

The world-wide remuneration for the statutory auditor and its affiliated companies totaled € 2.2 million, including an amount of € 1.8 million for the statutory audit missions (€ 0.5 million for the audit of the mother company) and € 0.4 million for non-statutory audit services including audit-related and other attestation services (€ 0.2 million) and other non-audit related services (€ 0.2 million).

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		31/12/2019	31/12/2020	**31/12/2021**
Summarized balance sheet at 31 December				
1. Assets				
Fixed assets		**2,885,295**	**3,172,625**	**3,296,290**
I.	Formation expenses	6,066	14,685	**10,288**
II.	Intangible assets	114,726	99,032	**99,067**
III.	Tangible assets	467,458	452,430	**460,546**
IV.	Financial assets	2,297,045	2,606,478	**2,726,389**
Current assets		**1,748,153**	**2,060,640**	**2,169,189**
V.	Amounts receivable after more than one year	449,366	476,214	**584,998**
VI.	Stocks and contracts in progress	534,771	617,346	**503,271**
VII.	Amounts receivable within one year	519,135	620,119	**861,136**
VIII.	Investments	184,701	290,395	**185,936**
IX.	Cash at bank and in hand	2,190	4,565	**559**
X.	Deferred charges and accrued income	57,990	52,001	**33,289**
TOTAL ASSETS		**4,633,448**	**5,233,265**	**5,465,479**
2. Liabilities and shareholders' equity				
Capital and reserves		2,268,310	2,177,834	**2,428,079**
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	389,855	414,075	**391,090**
V.	Result carried forward	262,604	267,163	**352,163**
Vbis.	Result for the period	209,258	86,475	**272,454**
VI.	Investments grants	8,372	11,900	**14,151**
Provisions and deferred taxation				
VII.A.	Provisions for liabilities and charges	123,600	206,053	**198,047**
Creditors		**2,241,539**	**2,849,378**	**2,839,353**
VIII.	Amounts payable after more than one year	1,082,864	1,707,729	**1,707,589**
IX.	Amounts payable within one year	1,076,244	1,063,641	**1,040,392**
X.	Accrued charges and deferred income	82,431	78,008	**91,372**
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		**4,633,449**	**5,233,265**	**5,465,479**

Thousands of Euros			31/12/2019	31/12/2020	**31/12/2021**
Income statement					
	I.	Operating income	3,489,297	4,459,290	**6,229,378**
	II.	Operating charges	(3,494,693)	(4,481,338)	**(5,947,989)**
	III.	**Operating result**	**(5,396)**	**(22,048)**	**281,389**
	IV.	Financial income	259,275	201,457	**213,675**
	V.	Financial charges	(41,210)	(85,500)	**(133,578)**
	VI.	**Result on ordinary activities before taxes**	**212,669**	**93,908**	**361,486**
	X.	Income taxes	(3,411)	(7,433)	**(51,736)**
	XI.	**Result for the period**	**209,258**	**86,475**	**309,750**
	XIII.	**Result for the period available**	**209,258**	**86,475**	**309,750**

Thousands of Euros			2019	2020	**2021**
Appropriation account					
A.	**Profit (loss) to be appropriated**		**588,668**	**558,337**	**661,913**
	1.	Profit (loss) for the financial year	209,258	86,475	**309,750**
	2.	Profit (loss) carried forward	379,410	471,862	**352,163**
C.	**Appropriation to equity**		**(26,598)**	**(24,220)**	**22,985**
	3.	To the reserve for own shares	(26,598)	(24,220)	**22,985**
D.	**Profit (loss) to be carried forward (1)**		**471,862**	**352,163**	**491,957**
	2.	Profit (loss) to be carried forward	471,862	352,163	**491,957**
F.	**Profit to be distributed (1)**		**(90,208)**	**(181,954)**	**(192,941)**
	1.	Dividends			
		ordinary shares	(90,208)	(180,395)	**(192,941)**
	2.	Profit sharing to personnel	-	(1,559)	**-**

(1) The total amount of these two items will be amended to allow for the amount of the company's own shares held by Umicore on the date of the Annual General Meeting of Shareholders on 28 April 2022 ; 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
	2.2.	Registered shares or bearer shares		
		Registered		43,682,308
		Bearer		202,717,692
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.	15.98	39,363,737	29/06/2021
	BlackRock Investment Management	4.97	12,239,906	17/09/2021
	Baillie Gifford & Co and Baillie Gifford Overseas Ltd.	10.01	24,660,116	29/09/2021
	Others	66.94	164,935,246	31/12/2021
	Own shares held by Umicore	2.11	5,200,995	31/12/2021
		100.00	246,400,000	
	of which free float	100.00	246,400,000	

(1) At 31 December 2021, 5.201.500 options on Umicore shares are still to be exercized. This amount includes 5.201.500 acquisition rights of existing shares held by Umicore.

Management responsibility statement

We hereby certify that, to the best of our knowledge, the Consolidated Financial Statements as of 31 December 2021, 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.

11 March 2022,

MATHIAS MIEDREICH
CHIEF EXECUTIVE OFFICER

Environmental Statements

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Consolidated environmental figures

	unit	notes	2017	2018	2019	2020	**2021**
CO_2e emissions (scope1)	tonne	E7	364,139	417,140	389,101	330,619	**372,699**
CO_2e emissions (scope2) - Market based	tonne	E7	269,565	350,562	402,795	401,926	**473,738**
CO_2e emissions (scope2) - Location based[1]	tonne	E7	299,168	368,649	426,074	417,346	**418,989**
Energy consumption	terajoules	E6	6,532	7,458	7,476	7,591	**8,308**
Renewable electricity	%	E6	-	-	14	15	**17**
Metal emissions to water (load)	kg	E5	1,437	1,861	2,052	2,695	**3,440**
Metal emissions to water$_1$	impact units	E5	125,688	144,657	174,725	216,739	**190,464**
Metal emissions to air (load)	kg	E5	1,829	1,564	864	984	**994**
Metal emissions to air$_1$	impact units	E5	84,463	88,044	52,492	69,371	**70,084**
Diffuse metal emissions	%	E5			114.20	100.00	**64.80**
SOx emissions	tonne	E5	661	657	531	389	**372**
NOx emissions	tonne	E5	320	304	280	239	**240**
Water withdrawal	thousand m3	E4	4,755	5,885	6,208	7,813	**10,103**
Fresh water withdrawal	thousand m3	E4					**9,764**
Total waste produced	tonne	E3	72,804	78,778	68,317	99,434	**94,619**
Hazardous waste$_1$	tonne	E3	55,442	58,759	47,589	78,055	**73,551**
of which recycled$_1$	%	E3	4.3	5.3	7.9	5.0	**8.0**
Non hazardous waste$_1$	tonne	E3	17,373	20,018	20,728	21,379	**21,065**
of which recycled$_1$	%	E3	58.2	62.2	59.4	64.7	**71.4**
Compliance excess rate	%	E8	0.10	0.14	0.10	0.15	**0.10**
Environmental complaints	N°	E8	34	29	33	80	**104**
Sites ISO 14001 certified	%	E8	92	91	95	96	**94**

1 Some definitions of KPIs 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.

E1 scope of environmental statements

Environmental key figures include data from consolidated industrial sites where Umicore has operational control. The following sites are no longer reported compared to 2020: Wickliffe (United States; Cobalt & Specialty Materials) and Guarulhos (Brazil; Jewelry & Industrial Metals, Precious Metals Chemistry, Precious Metals Refining) – all three entities moved from Guarulhos to the existing site in Americana (Brazil; previously Automotive Catalysts only). The following site was added to the environmental reporting scope in 2021: Jiangmen Site 2 (China; Rechargeable Battery Materials). This brings the total number of consolidated industrial sites that report environmental data in 2021 to 54, down from 55 in 2020. The site in Lyngby (Denmark; Automotive Catalysts) moved location and is reported as Hørsholm (Denmark; Automotive Catalysts) as of 2021. At our site in Tulsa (United States; Precious Metals Chemistry), the activities of Automotive Catalysts were discontinued and no longer reported in 2021.

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 8 sites with the largest environmental impact for 2021 are: Hanau (Germany; Catalysis, Recycling), Olen (Belgium; Energy & Surface Technologies, Corporate R&D), Hoboken (Belgium; Recycling), Jiangmen Site 1, Jiangmen Site 2 (both China; Energy & Surface Technologies), Cheonan Site 1, Cheonan Site 2/3 (both Korea; Energy & Surface Technologies), and Kokkola (Finland; Energy & Surface Technologies). These sites reported their full year figures in 2021. Only sites running from the 1st of January are included. A sensitivity analysis, undertaken for the 2021 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 2020 annual report have been restated in the 2021 report.

E2 Resource Efficiency

In 2021, Umicore revised the definitions to allocate raw materials between primary and secondary materials. This revision was initiated due to the changes in the external environment where an increased focus on resource efficiency and circularity led to new metrics. The definitions below are inspired by these developments and have been refined for the Umicore context. The raw materials in scope for this indicator are the metals purchased to development-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 final (Umicore) product.

The following definitions apply for primary and secondary raw materials[1]:

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 which 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-groups[2]:

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.

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 made based on the local regulation for the region where the reporting entitiy 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.

E4 Water

Water withdrawal figures for 2021 includes withdrawn produced water (mainly, this is the 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, while the 'water use' figures from 2017-2020 do not include these amounts.

4.1 Water, by business group

	unit	Catalysis	Energy & Surface Technologies	Recycling	Umicore Group
Water withdrawal	thousand m^3	536	6,942	2,625	10,103

E5 Emissions

We focus on the metals that are present in Umicore's material flow and that are relevant to the environment in terms of impact. A detailed assessment to evaluate and define the relevant metals was carried out in 2010 and implemented in 2011. A procedure is in place to evaluate the effect of changes to Umicore's material flow at existing sites as well as at plants that are newly established or joining the company, to ensure that the list of metals is up to date and relevant. Since 2011, no changes to the list were needed.

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.

[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

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. For mercury and arsenic, vapor/fume fractions are counted as well.

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 regulation for most metals and on Tatsi et.al (2015) for thallium[1]. An impact factor of 1 was attributed to the antimony PNEC of 113 µg/l. The impact factors for emissions to air 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 zinc (oxide) OEL of 2 mg/m^3. Subsequently, an impact factor for all relevant metals was calculated based on these references. The metal impact to air and to water is expressed as "impact units/year".

In 2021, a review of the PNECs and OELs for each metal of concern was carried out to update the scientific basis for the impact factors. This led to a revision of impact factors for several metals. The revised set of impact factors for metals to air and water is applied from 2021 onward, and the values for 2020 have been recalculated to allow a direct comparison with the 2020 metal emissions impact. The impact figures for 2017-2019 were not recalculated with the new set of impact factors and are presented only for the sake of completeness – a comparison with those years is meaningful, but not precise.

Other emissions tracked by Umicore are SOx and NOx emissions, which are reported in tonnes/year. The majority of the data for SOx and NOx are obtained from direct measurements (online analyzers), complemented to a lesser extent by data based on calculations based on site-specific data. Our sites emit further compounds to a certain extent, but these are not considered material, based on a thorough review of trends in the years 2011-2015, when data on VOCs, COD, etc. were also collected. All sites that have joined Umicore since 2015 have been reviewed for potential additional material compounds, and no such addition was deemed required.

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 in excess of the strictly legal requirements to improve data reliability, where this is meaningful. Emission of compounds that are not legally required to be monitored and that we have not voluntarily added to our analysis campaigns may occur, but the impact of such untracked emissions is considered negligible.

Umicore has applied the materiality principle to emissions since 2016, meaning that only the sites with a material impact in comparison to the Group total are required to report. An assessment of the emissions of 2015, the last year when all industrial sites were required to report emissions, identified 10 or fewer sites that made up 95% or more of the Group total for each (set of) parameter(s) (assessed in terms of load for SOx and NOx and in terms of impact for metals emissions to water and air). Sites that have joined Umicore since 2015 have been reviewed for their materiality impact and were grouped for each (set of) parameter(s) as material or not, based on a comparison with the sites in these two categories of the 2015 assessment. This renders the previously used '95% or more' assessment rule somewhat less accurate, but it is clear that we are still very close to above 95% of the Group total emissions for any material compound. All non-material sites are requested to assess if there were any significant upward deviations from their 2015/recent emissions baseline, triggering a discussion of whether or not they are to be considered material in the reporting year; this was not applicable in 2021.

It should be noted that during the analysis of the 2021 metal emissions data, a notable uncertainty was encountered with regard to the waste water discharged at one site, having an impact on the total emissions of metals to water. The detailed analysis shows that this might lead to an overestimation of up to 5% in terms of metal emissions to water in terms of impact for the whole Group. However, as this leads to an overestimation of our environmental impact and as it is unclear how large exactly that uncertainty is, 2021 metal emissions were not revised down, not least because this also allows for a better comparison with the 2020 figures, for which a similar level of overestimation at the concerned site can be assumed. In addition, at another site, stormwater events led to unplanned discharge of untreated and partly treated process water in 2021, resulting in metal load and impact to the water environment in addition to the standard operational discharge. The contribution in terms of metal impact from this unplanned discharge represents 23% of the total Group impact in 2021. However, this is likely an underestimation of the total load and impact, as the unplanned discharge is only analysed for about half of the metals that the standard discharge is analysed for."Measures were taken to increase the capacity of buffer tanks at the site to prevent unplanned water discharge in the future, and to fill the mentioned data gaps with a view to aligning the analyzed parameters for full comparability between these two types of water discharge.

Diffuse metal emissions

The concentration of suspended particulate matter (PM10) in air of relevant metals (lead, arsenic and cadmium) is measured in $µg/Nm^3$ daily at three measurement stations related to our production site in Hoboken. The monthly averages result in an annual moving average concentration, which is then multiplied by the impact factors to air for the respective metals. The data were normalized at the end of 2020, giving the baseline for this Let's go for Zero target.

In 2021 and 2022 a screening is ongoing across the Group to identify which other sites may be material in contribution to this target. We expect to include the performance of other identified sites in future

[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

reporting. Their impact will be added to the baseline by projecting their impact backward to end of 2020 and the baseline will be adapted when new sites are acquired.

E6 Energy

6.1 Energy, by business group

	unit	Catalysis	Energy & Surface Technologies	Recycling	Umicore Group
Energy consumption	terajoules	1,423	4184	2,692	8,308

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 as given 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 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.

E7 Greenhouse gases

7.1 scope 1 & scope 2 emissions, group data

	2017	2018	2019	2020	**2021**
Total	633,704	767,702	791,896	732,545	**846,437**
CO_2e emissions scope 1	364,139	417,140	389,101	330,619	**372,699**
CO_2e emissions scope 2 - Market based	269,565	350,562	402,795	401,926	**473,739**

7.2 scope 1 + 2 emissions, by business group

	unit	Catalysis	Energy & Surface Technologies	Recycling	Umicore Group
CO_2e emissions (scope1+2) - Market based	tonne	141,636	370,890	333,178	846,437
CO_2e emissions (scope1+2) - Location based	tonne	147,568	358,712	284,937	791,687

Umicore reports its absolute CO_2e emissions as per the scope of sites outlined in E1. The absolute CO_2e 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). CO_2e includes the greenhouse gases CO_2, CH_4 and N_2O for scope 1 and major process emissions. Other greenhouse gases are not relevant in Umicore's operations. The scope 2 emissions take only CO_2 into account.

The calculation of scope 2 emissions for each site is done in two ways: once using market-based CO_2 emission factors and once using location-based CO_2 emission factors. The market-based emission factors allow calculating the CO_2 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 CO_2 emission factors facilitate calculating the CO_2 emissions based on grid average emission factors in a country/region where these data are available. The total CO_2 emissions for the Group are then presented as two separate values based on this differentiation, and the metrics are abbreviated as: CO_2e market-based and CO_2e location-based.

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 CO_2e market-based emissions divided by the total revenues excluding metals.

7.3 Upstream scope 3 emissions, group data

	unit	Purchased Goods and Services	Capital Goods	Fuel & Energy related activities	Upstream distribution	Waste generated	Employee commuting	Total
CO_2e emissions scope 3	tonne	4,815,266	113,374	70,764	190,946	23,916	10,438	5,224,704

The estimation of the scope 3 GHG emissions covers all upstream scope 3 categories except for business travel, which has been excluded due to its assumed low impact. Data were collected at business unit level. The emission factors used come from databases (Ecoinvent 3.4, ADEME, DEFRA, EEIOA, etc.) consulted between June and August 2019, when such emission factors were valid. We list here the main encountered limitations and their related assumptions:

- For purchased goods and services: proxies have been selected whenever the emission factors of the related products were not available. The emissions factor for recycled materials is assumed to be equal to 0.

- For capital goods, the most conservative EFs have been selected from the types of investment available in the environmentally extended input/output analysis database.
- Upstream transportation and distribution: as a conservative approach, in the absence of specific data on destination or starting point in the same country, the distance travelled by the goods was estimated to be equivalent to a large distance between two cities in different parts of the country (e.g., Bruges-Arlon for Belgium). When 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 (truck) if on the same continent and shorter by road. When transportation was multimodal, only the biggest part of the journey was taken into account (e.g., for goods shipped from Japan to Germany, only the sea journey was considered and not the truck parts of the journey from ports to facilities).
- For waste treatment, emission factors from the French carbon database were used for all countries, as no other appropriate EFs that take into account waste collection were encountered in available databases. The emissions for the waste sent to recycling or recovery were considered in this category. Considering that no EF was available to represent the recycling treatment process without taking into account the avoided emission linked to remanufacturing new products, the EF for treating hazardous waste was used for calculating the emissions linked to recycling treatment. It is a conservative approach, as "hazardous waste treatment" is the highest EF used in this assessment to estimate waste treatment emissions.
- For employee commuting, emissions were extrapolated on the emissions reported for this category in the last scope 3 inventory made by Umicore (reported year: 2007). The amount of GHG emissions per employee in 2007 was multiplied by the number of employees in 2018.

The scope 3 emissions for the covered categories have been reported in our CDP submissions in 2021, accessible here.

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 materials for electric mobility

- The solution to compare: we compared the emissions of a medium passenger car with a rechargeable battery containing our cathode 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 the period 2016-2020.
- We considered the NMC (nickel manganese cathode) materials produced between 2016 and 2020 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.
- The comparison covers the following steps: mining, production of the cathode 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 production of the car and its recycling has not been considered as it has been assumed that it was the same for both the Umicore technology and the solution to compare.

Recycling

- 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. Data from commercial LCA databases had to be used for some metals in the absence of such industry average.
- We have considered the recovery of a selected number of metals by Umicore during the period 2016-2020. For these metals, the climate change impact for the scope 1, 2 and 3 upstream has been considered.

E8 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.

Group data

%	2017	2018	2019	2020	**2021**
Compliance excess rate	0.10	0.14	0.10	0.15	**0.10**

Social Statements

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Consolidated social figures

	unit	Notes	2017	2018	2019	2020	**2021**
Workforce (fully consolidated companies)	No.	S2	9,769	10,420	11,152	10,859	**11,050**
Temporary contracts	% of workforce	S2	3.86	3.13	3.31	3.19	**3.51**
Women amongst all employees	% of workforce	S2	21.92	21.30	20.88	21.68	**22.48**
Women amongst all managers	% of workforce	S2	22.37	22.98	23.13	23.06	**25**
Women amongst senior management	% of workforce	S2	6.77	9.70	10.96	10.74	**12.42**
Non-European representation in senior management functions	%	S2	18.05	17.91	18.49	20.13	**21.57**
Average training hours per employee	hours/employee	S3	45.33	43.10	48.73	36.33	**41.59**
Employees having a yearly appraisal	% of workforce	S3	98.29	96.15	94.00	93.42	**94.14**
Voluntary leavers - ratio	% of workforce	S3	5.03	7.18	5.99	4.20	**5.82**
Employees represented by union or Collective Labour Agreement (CLA)	% of workforce	S2	65.41	64.49	65.60	66.38	**66.94**
Exposure ratio 'all biomarkers aggregated'[1]	%	S5	2.7	2.8	1.8	2.0	**1.5**
Exposure ratio lead (blood)[2]	%	S5	0.5	2.0	0.9	2.5	**1.4**
Exposure ratio arsenic (urine)[2]	%	S5	1.0	1.2	0.8	0.8	**1.3**
Exposure ratio cobalt (urine)[2]	%	S5	6.0	5.0	3.4	2.7	**2.2**
Exposure ratio cadmium (urine)[2]	%	S5	0.7	0.5	0.2	0.2	**0.2**
Exposure ratio nickel (urine)[2]	%	S5	1.4	2.6	1.8	2.0	**1.2**
Exposure ratio indium (blood)[2]	%	S5	14.2	2.8	1.9	1.6	**0**
People with platinum salts sensitisation	No.	S5	1	3	1	1	**0**
People with noise-induced hearing loss	No.	S5	0	0	5	3	**0**
People with contact dermatitis	No.	S5	2	3	4	0	**0**
People with occupational asthma other than Pt-salts	No.	S5	0	0	0	1	**2**
People with muskulo-skeletal ailments	No.	S5	8	6	8	1	**8**
Fatal accidents	No.	S4	0	0	0	1	**0**
Fatal accidents sub-contractors	No.	S4	0	1	0	0	**0**
Lost Time Accidents (LTA)	No.	S4	51	61	90	49	**73**
Lost Time Accidents (LTA) sub-contractors	No.	S4	22	21	25	17	**20**
LTA frequency rate		S4	3.01	3.36	4.6	2.5	**3.7**
Calendar days lost	No.	S4	1,590	1,830	3,893	9,176	**2,328**
LTA severity rate		S4	0.09	0.10	0.2	0.5	**0.1**

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.

2 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 are the total number of employees 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.

S1 scope of social statements

In total, 86 consolidated sites are included in the HR related notes of the social reporting (S2 to S3). While the total number of sites remains the same as 2020, two changes occurred in reporting: in the USA, a small portion of headcount Attleboro relocated to Riverside and in South Korea, Cheonan is reported as 1 site rather than 2 separate sites. The sites report full-year data for the social indicators. The indicators presented are based on data from fully consolidated companies.

S2 Workforce

2.1 Group data

	unit	2017	2018	2019	2020	**2021**
Workforce (fully consolidated companies)	N°	9,769	10,420	11,152	10,859	**11,050**
Workforce from associated companies	N°	3,360	3,180	2,976	2,460	**2,589**
Employees men	N°	7,628	8,201	8,823	8,505	**8,566**
Employees women	N°	2,141	2,219	2,329	2,354	**2,484**
Full-time equivalent	N°	9574	10,224	10,956	10,576	**10,828**
Employees < 30 years	N°	1697	1,980	2141	1,893	**1,911**
Employees between 30 and 50 years	N°	5504	5,939	6363	6,339	**6,521**
Employees > 50 years	N°	2568	2,501	2648	2,627	**2,618**
Temporary contracts	% of workforce	3.86	3.13	3.31	3.19	**3.51**
Women amongst all employees	% of workforce	21.92	21.30	20.88	21.68	**22.48**
Women amongst all managers	% of workforce	22.37	22.98	23.13	23.06	**25.00**
Non-European representation in senior management positions	%	18.05	17.91	18.49	20.13	**21.57**
Employees represented by union or Collective Labour Agreement (CLA)	% of workforce	65.41	64.49	65.60	66.38	**66.94**

2.2 Regional data

	unit	Europe	North America	South America	Asia Pacific	Africa
Total workforce	N°	7,185	701	1,031	4,135	587
Workforce (fully consolidated companies)	N°	6,220	688	660	3,323	159
Workforce from associated companies	N°	965	13	371	812	428
Employees men	N°	4,857	517	490	2,603	99
Employees women	N°	1,363	171	170	720	60
Full-time equivalent	N°	6,008.02	680.75	660.00	3,320.26	159.00
Temporary contracts	% of workforce	4.42	3.05	1.97	2.38	0.00
Employees represented by union or Collective Labour Agreement (CLA)	% of workforce	85.18	3.34	90.76	42.55	39.62

2.3 Business group data

	unit	Catalysis	Energy & Surface Technologies	Recycling	Corporate	Umicore Group
Total workforce	N°	3,007	4,628	2,867	3,137	13,639
Workforce (fully consolidated companies)	N°	3,007	3,836	2,867	1,340	11,050
Workforce from associated companies	N°		792		1,797	2,589
Employees men	N°	2,375	3,019	2,396	776	8,566
Employees women	N°	632	817	471	564	2,484
Full-time equivalent	N°	2,970.22	3,837.37[1]	2,810.07	1,210.37	10,828
Temporary contracts	% of workforce	6.22	3.28	1.95	1.42	3.51
Employees represented by union or Collective Labour Agreement (CLA)	% of workforce	48.65	61.86	86.99	79.63	66.94

1 In Business Group Energy & Surface Technologies the Full-time equivalent (FTE) number is greater than the Workforce number due to the distribution method used to allocate FTE of employees in commercial profiles to different Business Units.

2.4 General overview of sites & employees

	Production sites	R&D | Technical centres	Other sites	Employees
Europe				
Austria	1	-	-	152
Belgium	3	1	1	3,229
Denmark	1	1	-	59
Finland	1	1	-	293
France	3	-	1	247
Germany	4 (1)	3	1	1735 (342)
Ireland	(1)	-	-	(485)
Italy	-	-	2	38
Liechtenstein	1	1	-	81
Luxemburg	-	-	1	12
Netherlands	-	-	1	9
Poland	2	-	1	268
Portugal	-	-	1	6
Russia	-	-	1	6
Spain	-	-	1	6
Sweden	1	-	(1)	37 (1)
United Kingdom	1	(1)	2 (1)	42 (137)
Asia-Pacific				
Australia	-	-	1	7
China	4 (2)	1	5 (1)	1603 (801)
India	1	-	2	95
Japan	2	3	2 (1)	174 (7)
Philippines	1	-	-	114
South Korea	2	2	1	1,138
Taiwan	-	-	2	31
Thailand	2	-	1	161
United Arab Emirates	-	-	(1)	(4)
North America				
Canada	3	-	-	251
Mexico	-	-	1	1
United States	7	1	4 (1)	436 (13)
South America			-	
Argentina	1	-	-	70
Brazil	4	1	-	590
Peru	(1)	-	-	(371)
Africa				
South Africa	1 (1)	-	1	159 (428)
Total	**46 (6)**	**15 (1)**	**33 (6)**	**11,050 (2,589)**

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	2017	2018	2019	2020	**2021**
Employees having a yearly appraisal	% of workforce	98.39	96.15	94.00	93.42	**94.14**
Average number of training hours per employee	hours/ employee	45.33	43.10	48.73	36.33	**41.59**
Average number of training hours per employee – Men	hours/ employee	46.53	44.68	48.26	37.11	**41.21**
Average number of training hours per employee – Women	hours/ employee	41.01	37.29	50.48	33.49	**42.90**
Average number of training hours per employee – Managers	hours/ employee	38.54	37.59	43.01	26.98	**42.40**
Average number of training hours per employee – Other employee categories	hours/ employee	46.44	42.94	49.51	38.62	**41.28**
Voluntary leavers ratio	% of workforce	5.03	7.18	5.99	4.2	**5.82**
Voluntary leavers men	N°	404	619	521	372	**519**
Voluntary leavers women	N°	70	110	126	86	**123**

3.2 Regional data

	unit	Europe	North America	South America	Asia Pacific	Africa	Umicore Group
Average number of training hours per employee	hours/ employee	35.17	34.95	43.22	55.53	26.02	41.59
Employees having a yearly appraisal	% of workforce	92.81	97.42	96.32	95.30	98.75	94.14
Voluntary leavers ratio	% of workforce	2.69	8.17	4.91	11.62	1.88	5.82

3.3 Business group data

	unit	Catalysis	Energy & Surface Technologies	Recycling	Corporate	Umicore Group
Average number of training hours per employee	hours/ employee	44.13	48.55	31.24	37.80	41.59
Employees having a yearly appraisal	% of workforce	96.22	93.50	93.47	92.71	94.14
Voluntary leavers ratio	% of workforce	6.27	7.93	3.37	3.95	5.82

S4 Occupational safety

All consolidated industrial sites where Umicore has operational control, are included in the scope of the occupational safety reporting. In 2021, following Umicore's internal reporting procedure 91 consolidated sites of which 56 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	2017	2018	2019	2020	2021
Fatal accidents	No.	0	0	0	1	0
Fatal accidents sub-contractors	No.	0	1	0	0	0
Lost Time Accidents (LTA)	No.	51	61	90	49	73
Lost Time Accidents (LTA) sub-contractors	No.	22	21	25	17	20
LTA frequency rate		3.01	3.36	4.6	2.5	3.7
Calendar days lost	No.	1,590	1,830	3,893	9,176	2,328
LTA severity rate		0.09	0.10	0.2	0.5	0.1
Recordable Injuries (RI)	No.	138	158	158	119	104
Recordable Injuries frequency rate		8.15	8.70	8.07	6.13	5.28
Ratio N° of sites with no LTA / total N° of sites reporting	%	84	84	83	83	81.3
ISO 45001 certified	%	51.0	51.9	52.6	54.4	59.26

4.2 Regional data

	unit	Europe	North America	South America	Asia-Pacific	Africa	Umicore Group
Lost Time Accidents (LTA)	No.	62	3	1	7	0	73

4.3 Business group data

	unit	Catalysis	Energy & Surface Technologies	Recycling	Corporate	Umicore Group
Fatal accidents	N°	0	0	0	0	0
Lost Time Accidents (LTA)	N°	6	11	49	7	73
Calendar days lost	N°	527	449	1,142	210	2,328

S5 Occupational health

All consolidated industrial sites where Umicore has operational control, are included in the scope of the occupational health reporting. In 2021, 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**.

S6 Donations

6.1 Group data

€ thousand	2017	2018	2019	2020	2021
Cash donations	1,151.46	1,287.22	1432.68	1346.28	1458.62
Donations in kind	60.47	66.10	78.95	159.19	146.72
Staff freed time	87.40	78.34	102.02	11.74	18.65
TOTAL DONATIONS	**1,299.34**	**1,431.66**	**1613.65**	**1517.21**	**1623.99**

6.2 Regional data

€ thousand	Europe	North America	South America	Asia-Pacific	Africa	Umicore Group
Total donations	1,364.71	94.18	88.76	64.54	11.80	1,623.99

6.3 Business group data

€ thousand	Catalysis	Energy & Surface Technologies	Recycling	Corporate	Umicore Group
Total donations	150.70	268.83	360.63	843.83	1,623.99

S7 Contribution to the Sustainable Development Goals

Umicore supports the Ten Principles of the United Nations Global Compact and has been committed to advancing the Sustainable Development Goals (SDGs) for many years. To gain more insights about our contribution to the SDGs, we conducted a detailed analysis in 2021.

For the analysis, the 169 targets of the 17 United Nations' SDGs[1] were assessed according to the following dimensions:

- **Potential contribution:** This 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:** This dimension indicates if Umicore is 'enhancing its positive contribution' or 'minimizing its negative impact' to achieve an SDG target.
- **Level of contribution:** This dimension indicates if Umicore has a low, medium, or high contribution to the world through the SDG target.

To correctly assess the impact, external expert Sustainalize considered detailed insights from our strategy, operations, and internal documentation, a targeted scan of the SDG compass[2] and information from relevant industry documentation[3].

By using these data sources to assess our contribution to the SDG targets according to the dimensions listed above, we gained comprehensive insight into the specific contribution of Umicore to each of the SDGs, determining which SDGs are the most relevant to our strategic commitments.

The SDGs selected are those on which Umicore has a high direct impact. We added SDG 5 'gender equality', for which we have a medium direct impact, as it is a strategic priority for Umicore. The key SDGs for Umicore are therefore SDG 3, 5, 6, 7, 8, 9, 11, 12 and 13.

A degree of subjectivity is inherent to this kind of exercise. To increase objectivity, several review rounds were organized, and the reasoning for our specific decision was recorded.

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1 Definitions can be found on the site of the UN.
2 As SDGs are primarily defined on a governmental level, the SDG Compass links the SDGs targets to relevant business indicators which makes it easier for companies to assess their contribution.
3 Industry documentation included the" Chemical Sector SDG Roadmap" from WBCSD and the "SDG Industry Matrix for Energy, Natural Resources & Chemicals" from the UN and KPMG.

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 can positively contribute 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 can contribute positively to mental health and wellbeing by providing its employees with wellbeing programs focussed 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 can contribute 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 can contribute positively by the nature of its business i.e. producing catalysts for cancer treatments and by providing its employees with substantial health coverage. It can also support by giving charities medical aid in developing countries e.g. AZG, Red Cross (although this is not part of the philanthropy focus on education and technology).
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 can reduce 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 can also contribute 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 can positively contribute 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 can positively contribute through its partnerships to educate and encourage young people to study sciences e.g. That's Brilliant campaign to promote STEM education. Umicore can also contribute 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 can positively contribute 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 can contribute 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 can contribute positively by eliminating discrimination within its own organisation. Moreover, it can promote 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 can contribute by eliminating all forms of violence against women within its own organisation but more specifically in its supply chain: it can promote 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 can contribute by taking measures within its own organisation i.e. equal pay, gender parity in management, providing services for working mothers,... . Moreover, Umicore can also promote and enforce 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 can minimize its negative impact by keeping control over the water pollution its operations may cause in areas surrounding factories as well as in sourcing areas of precious metals and minerals. Umicore can also contribute 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 can minimize 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 can minimize 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 can contribute 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 can contribute 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.

SDG #	SDG Name	SDG description	SDG sub-target	Potential contribution	Sense of contribution	Level of contribution	Comments
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 can contribute 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 can contribute 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 can contribute 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 can positively contribute 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 can contribute 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 can contribute positively by ensuring equal opportunities and inclusiveness within its own organization. Moreover, it can promote 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 can contribute 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.

SDG #	SDG Name	SDG description	SDG sub-target	Potential contribution	Sense of contribution	Level of contribution	Comments
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 can contribute positively by ensuring that human rights are respected within its supply chain i.e. by having suppliers sign policies such as the "Responsible global supply chain of minerals from conflict-affected and high risk areas" policy (which encompasses a code of conduct, human rights policy and sustainable procurement charter) and by executing targeted controls, especially as the regions in which precious metals and materials are sourced, are sensitive to issues such as forced labor and violence. Umicore can also contribute by supporting NGOs who are working in its sourcing areas e.g. Fund for the Prevention of Child labor in Mining Communities in DRC.
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 can contribute 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 can promote 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.	9.1 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 can contribute 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.	9.2 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 can contribute 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.	9.4 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 can contribute 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 can also contribute by making its operations more energy efficient and reducing air, water and soil pollution through the use of new sustainable technologies.
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 can contribute positively by investing in R&D programs to develop sustainable products and technologies e.g. more efficient recycling of materials.
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 can contribute by ensuring equality and implementing inclusion policies within its own organization. Moreover, it can promote social inclusion in its supply chain.

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 can contribute by implementing policies within its own organization. It can also contribute 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.	11.2 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 can contribute 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.	11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	Indirect	Enhancing positive contribution	Medium	Umicore can contribute positively by limiting the mining of new metals by recycling metals and thus keeping current landscapes and resources untouched. Umicore can also contribute by reducing harmful emissions through the production of catalysts, therefore reducing impacts such as climate change impacts and acid rain.
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 can minimize 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.	12.2 By 2030, achieve the sustainable management and efficient use of natural resources	Direct	Enhancing positive contribution	High	Umicore can contribute 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.	12.4 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 can minimize 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.	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	Direct	Enhancing positive contribution	High	Umicore can contribute 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 can also minimize 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.	12.6 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 can contribute 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.
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 can contribute 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,...

SDG #	SDG Name	SDG description	SDG sub-target	Potential contribution	Sense of contribution	Level of contribution	Comments
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 can contribute 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 (which will be validated by SBTi) and by aligning with the TCFD.
13	Climate Action	SDG 13. Take urgent action to combat climate change and its impacts	13.2 Integrate climate change measures into national policies, strategies and planning	Direct	minimizing negative impact	Medium	Through its operations, Umicore emits GHG. To minimize that negative impact, Umicore has integrated the goal of 'net zero GHG emissions' by 2035 in its corporate 'Let's go for zero' strategy.
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	Umicore can contribute 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 can help mitigate climate change e.g. reducing resource consumption by recycling of minerals.
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 can minimize 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.	15.1 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 can minimize 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 can also contribute 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.	15.3 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 can minimize its negative impact by limiting the emissions, pollution and waste from its own production processes, thus mitigating climate change which can cause droughts and floods. Umicore can also contribute by efficient water use in its own operations and in the supply chain.
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 can minimize 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 can also contribute 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.	16.1 Significantly reduce all forms of violence and related death rates everywhere	Indirect	Enhancing positive contribution	Low	Umicore can contribute 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.
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 can contribute 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 can also contribute by actively supporting programs/NGOs aimed at preventing child labor.

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 can contribute positively by continuing and elaborating responsible sourcing programs for its precious minerals and metals as those materials can 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.	16.5 Substantially reduce corruption and bribery in all their forms	Direct	Enhancing positive contribution	Medium	Umicore can contribute 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.
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 can contribute positively by involving stakeholders e.g. employees at lower management levels in strategic company decisions.
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	Low	Umicore can contribute positively by engaging in the Global Battery Alliance (GBA) to help shape a circular, responsible and sustainable battery value chain.
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	Low	Umicore can contribute positively by engaging in the partnerships such as Global Battery Alliance (GBA), Belgian Alliance for Climate Action (BACA) and through its engagement for STEM education.

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G1 Corporate governance framework

During the financial year 2021, 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 9 December 2020. 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 (see G9).

In terms of 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 constitutes 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 CG Charter 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 and of the nomination & remuneration committee. The present statements provide information on governance issues which relate primarily to the financial year 2021.

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. In order 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 centre provides a number of corporate and support functions in the areas of legal, finance, human resources, tax, internal audit, public and investor relations.

G3 Shareholders

3.1 Issued shares – capital structure

On 31 December 2021 there were 246,400,000 Umicore shares in issue.

The following shareholders have declared a participation of 3% or more (the below mentioned participations are those as mentioned in the transparency 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.	39,363,737 shares (15.98%)
Baillie Gifford & Co and Baillie Gifford Overseas Ltd.	24,660,116 shares (10.01%)
BlackRock Inc.	12,239,906 shares (4.97%)
APG Asset Management	6,728,778 shares (3.00%)

Also on 31 December 2021, Umicore owned 5,200,995 of its own shares representing 2.11% 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, 1,692,190 own shares were used in the context of the exercise of employee stock options and 110,500 shares were used for share grants, of which 10,000 to the members of the supervisory board, 52,000 to the management board members and 48,500 to senior management members.

3.2 Dividend policy and payment

In 2021, Umicore paid a gross dividend of € 0.75 per share relating to the financial year 2020. This was an increase by € 0.375 compared to the gross dividend paid in 2020 in respect of the financial year 2019.

In July 2021, the supervisory board decided to pay a gross interim dividend of € 0.25 per share, which was paid on 24 August 2021.

3.3 Shareholders' meetings in 2021

The (annual and special) shareholders' meetings were held digitally, with the possibility of postal and proxy voting, on 29 April 2021, due to the continuing Covid-19 pandemic.

On the occasion of the annual shareholders' meeting, the shareholders approved the resolutions regarding the annual accounts, the appropriation of the results and the discharges to the directors and to the statutory auditor regarding their respective 2020 mandates. The annual shareholders' meeting also approved the grant of an identical profit premium in favour of the Umicore employees in Belgium. At the same meeting, the shareholders appointed Birgit Behrendt as new independent member of the supervisory board for a period of 3 years. Furthermore, the mandates of Thomas Leysen as member of the supervisory board and of Koenraad Debackere, Mark Garrett and Eric Meurice as independent members of the supervisory board, were renewed, also for 3 years. The annual shareholders' meeting also approved the remuneration report as well as the remuneration of the supervisory board for 2021. Details of the fees paid to the members of the supervisory board in 2021 are disclosed in the remuneration report. Finally, the annual shareholders' meeting appointed EY Bedrijfsrevisoren BV / EY Réviseurs d'Entreprises SRL, represented by Marnix Van Dooren & C° BV/SRL, represented by Marnix Van Dooren, and Eef Naessens BV/SRL, represented by Eef Naessens, as new statutory auditor for 3 years.

The special shareholders' meeting approved various change of control clauses in accordance with article 7:151 of the BCCA.

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 6 members. The members' term of office may not exceed 4 years. In practice, supervisory board members are elected for a (renewable) period of 3 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 31 December 2021, the supervisory board was composed of 9 members. On the same date, 6 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 3 women and 6 different nationalities among its 9 members on 31 December 2021. Diversity also arises from the supervisory board members' educational backgrounds which include engineering, law, economics, finance 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 7 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 health and safety, talent attraction and retention and supply chain sustainability.

The composition of the supervisory board underwent the following changes in 2021:

- Birgit Behrendt was appointed independent member of the supervisory board for a period of three years at the annual shareholders' meeting held on 29 April 2021,
- Liat Ben-Zur resigned as independent member of the supervisory board with effective date 29 April 2021.

Furthermore, the mandates of Thomas Leysen as member of the supervisory board, and those of Koenraad Debackere, Mark Garrett and Eric Meurice as independent supervisory board members were renewed for three years on 29 April 2021.

4.2 Meetings and topics

The supervisory board held ten regular meetings in 2021. Eight of these meetings were held by means of a videoconference due to the covid-19 pandemic. On one occasion, the supervisory board also took decisions by unanimous written consent.

The matters reviewed by the supervisory board in 2021 included the following:

- 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),
- approval of the agenda of an ordinary and a special shareholders' meeting and calling of these meetings,
- Environmental, social and sustainability governance (ESG) related topics, including but not limited to climate action, risk and resilience, diversity, transparency and disclosures and more
- safety,
- investment and divestment projects,
- audit committee reports,
- funding,
- strategic opportunities and operational challenges,
- business and technology reviews and market updates,
- mergers & acquisitions projects and updates,
- annual performance review of the CEO and the other members of the management board,
- succession planning at the level of the supervisory board and the management board;
- interim dividend distribution.

The supervisory board also visited the sites in Hoboken and Olen (Belgium).

4.3 Performance review of the supervisory board and its committees

The supervisory board undertakes at least every three years an evaluation of its own performance and its interaction with the CEO and the management board, as well as its size, composition, functioning and that of the board committees.

The last performance review took place in 2020 and included a preliminary feedback round and an in-depth discussion during a supervisory board meeting held in July 2020.

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.

The audit committee is composed of three members of the supervisory board, two of them being independent. It is chaired by Ines Kolmsee.

The composition of the audit committee remained unchanged in 2021.

All the members of the audit committee have extensive experience in accounting and audit matters as demonstrated by their curriculum.

The committee met five times in 2021, including four videoconference calls. Apart from the review of the 2020 full year and the 2021 half year accounts, the audit committee reviewed reports and discussed matters related to internal audit, financial reporting, internal controls, group auditor succession and other audit-related matters. The 2022 internal audit plan was validated. The committee met with the group's auditor and reviewed and approved provided non-audit services. Members of the audit committee also discussed ad hoc matters with senior management.

4.5 Nomination & remuneration committee

The composition of the nomination and remuneration committee's composition is fully in line with the requirements of article 7:100 of the BCCA and of the CG Code 2020.

On 31 December 2021, 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 chairman of the supervisory board.

The composition of the nomination & remuneration committee remained unchanged in 2021.

Nine nomination & remuneration committee meetings were held in 2021, including eight 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 2021. The committee also discussed the succession planning at the level of the supervisory board and the management board.

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 2021:

- Bart Sap was appointed EVP Catalysis and member of the management board with effective date 1 March 2021,
- Stephan Csoma, former EVP Recycling, resigned as member of the management board effective 1 April 2021,
- An Steegen, former Chief Technology Officer, resigned as member of the management board effective 1 October 2021,
- Mathias Miedreich was appointed CEO and chairman of the management board effective 1 October 2021,
- Marc Grynberg, former CEO, terminated his mandate in mutual agreement effective on 1 November 2021,
- Frank Daufenbach was appointed Chief Strategy Officer with effective date 6 December 2021.

Also in 2021, a number of responsibility reallocations took place within the management board, with Denis Goffaux (formerly EVP Energy & Surface Technologies) being appointed EVP Recycling effective 1 April 2021 and Ralph Kiessling (formerly EVP Catalysis) being appointed EVP Energy & Surface Technologies effective 1 March 2021.

On 31 December 2021 the management board was composed of 7 members, including the CEO.

5.2 Performance review

The management board regularly reviews and assesses its own performance. The valuation is also discussed at the nomination and 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 10 February 2021.

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 31 December 2021, save for the 5,200,995 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.

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 2021.

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 so-called "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.

The extraordinary shareholders' meeting held on 26 April 2018 (resolutions published on 29 May 2018) renewed the authorization granted to the supervisory board[1] to increase the Company's share capital. 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 28 May 2023 but it can be renewed.

Up until 31 December 2021, the supervisory board has once made use of its powers under the above authorized capital, i.e. when it resolved on 15 June 2020 to issue senior unsecured convertible bonds due 2025 for an aggregate principal amount of € 500,000,000. These convertible bonds carry a zero-coupon and their initial conversion price amounts to € 55.32 per share. In connection with the issuance of these convertible bonds, the supervisory board resolved to disapply the preference subscription right of existing shareholders in accordance with articles 7:191 juncto 7:198 of the BCCA. The terms of the convertible bonds provide that the bonds can be converted into new shares and/or existing shares; in case of new shares, they will be issued in the framework of the authorized capital. The above terms also provide for specific cases of early redemption at the option of the Company and/or the bondholders.

The exact amount to be allocated on the above authorized capital limit of € 55,000,000 will be determined, as the case may be, upon (full or partial) conversion of the convertible bonds into new shares.

Following a resolution of the extraordinary shareholders' meeting held on 26 April 2018, 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 € 100 and until 31 May 2022 (included). The same authorization was also granted to the Company's direct subsidiaries. The Company acquired 1,270,000 own shares in 2021 in implementation of the above 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 closed 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 2021, 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

Pursuant to the European Regulation 537/2014 of 16 April 2014 on specific requirements regarding statutory audit, as supplemented by the opinion of the Belgian public oversight body, PwC Bedrijfsrevisoren BV / PwC Reviseurs d'Entreprises SRL was no longer allowed to continue its statutory auditor mandate for Umicore beyond the audit of the fiscal year ending 31 December 2020, and it submitted its resignation for serious personal reasons with effective date 29 April 2021. As a consequence, the statutory audit mandate of PwC Bedrijfsrevisoren BV / PwC Reviseurs d'Entreprises SRL was terminated prematurely.

In light of the above, the annual shareholders' meeting held on 29 April 2021 appointed EY Bedrijfsrevisoren BV / EY Réviseurs d'Entreprises SRL, as new statutory auditor for a renewable period of 3 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 operates a Code of Conduct for all its employees, representatives and supervisory or management board members. This Code of Conduct is fundamental to the task of creating and maintaining a relation of trust and professionalism with its main stakeholders namely its employees, commercial partners, shareholders, government authorities and the public.

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 "whistle-blower" protection.

The Code of Conduct is published in Appendix 6 to the CG Charter.

[1] The authorization was originally granted to the former board of directors, but this authorization was automatically vested in the supervisory board following the adoption of the two-tier board structure by the extraordinary shareholders' meeting held on 30 April 2020.

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.

G11 Compliance with the CG Code 2020

During the financial year 2021, the Company has complied with all the provisions of the CG Code 2020, except those provisions which are deviated from, for the reasons explained hereunder in this corporate governance statement.

The sole provision of the CG Code deviated from in 2021, relates to the grant of stock options to the former CEO. As explained in the remuneration policy, which was approved by the shareholders' meeting held on 30 April 2020, the stock options granted to the former CEO vest immediately upon grant, as contractually agreed. This deviates from provision 7.11 of the CG Code 2020. However, even if they vest immediately, the options can only be exercised after three years, which is in line with the above provision 7.11.

G12 Remuneration policy

The remuneration policy (the "**Policy**"), which outlines the remuneration principles for the members of Umicore's supervisory board and management board and is effective since 1 January 2020, was approved at Umicore's annual shareholders' meeting on 30 April 2020 with 82.07% of the votes cast (disregarding the abstention votes, as provided under Belgian company law). It is available here.

On 26 November 2021 the nomination and remuneration committee presented a revised remuneration policy (the "Proposed Policy"), which was approved by the supervisory board on 9 December 2021. The Proposed Policy will be submitted to the annual shareholders' meeting on 28 April 2022. If approved, it will apply as of 1 January 2022.

The Proposed Policy provides objectives and remuneration with an increased focus on sustainable, profitable growth, combining financial and sustainability performance in full alignment with the Let's Go for Zero ESG strategy. The review also responds to feedback received from shareholders and institutional investors and contributes to Umicore's efforts to increase disclosure.

For details on the main changes, see 'Remuneration policy as of 2022' at the end of the remuneration report (G.13).

G13 Remuneration report

REMUNERATION FOR THE MEMBERS OF THE SUPERVISORY BOARD

The remuneration of the members of the supervisory board is in accordance with the Policy and unchanged versus the previous year.

Supervisory board

- **Chairman**: annual fixed fee: € 60,000 + € 5,000 per meeting attended + 2,000 Umicore shares + company car
- **Member**: annual fixed fee: € 27,000 + € 2,500 per meeting attended + € 1,000 per meeting attended in person (for foreign-based members) + 1,000 Umicore shares

Audit committee

- **Chairman**: annual fixed fee: € 10,000 + € 5,000 per meeting attended
- **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

- **Chairman**: € 5,000 per meeting attended
- **Member**: € 3,000 per meeting attended + € 1,000 per meeting attended in person (for foreign-based members)

2021 Remuneration overview members of the supervisory board

All components of the remuneration of the members of the supervisory board for the reported year are detailed in table 13.1.

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 Online/In person	Other (Car)	Total
Leysen T.								**257,047**
Chairman of the supervisory board	19-11-2008		60,000	99,440	50,000	8 / 2	2,607	
Chairman of the nomination & remuneration committee	19-11-2008				45,000	8 / 1		
Armero M.								**131,720**
Member of the supervisory board	30-4-2020		27,000	49,720	27,000	8 / 2		
Member of the nomination & remuneration committee	9-12-2020				28,000	8 / 1		
Behrendt B.								**68,708**
Member of the supervisory board	29-4-2021		18,197	33,511	17,000	4 / 2		
Ben-Zur L.								**32,512**
Member of the supervisory board	25-4-2017	29-4-2021	8,803	16,209	7,500	3 / 0		
Chombar F.								**128,720**
Member of the supervisory board	26-4-2016		27,000	49,720	25,000	8 / 2		
Member of the nomination & remuneration committee	26-4-2018				27,000	8 / 1		
Debackere K.								**148,720**
Member of the supervisory board	26-4-2018		27,000	49,720	25,000	8 / 2		
Member of the audit Committee	26-4-2018		5,000		15,000	4 / 1		
Member of the nomination & remuneration committee	9-12-2020				27,000	8 / 1		
Garrett M.								**129,720**
Member of the supervisory board	28-4-2015		27,000	49,720	26,000	9 / 1		
Member of the nomination & remuneration committee	25-4-2017				27,000	9 / 0		
Kolmsee I.								**139,720**
Member of the supervisory board	26-4-2011		27,000	49,720	27,000	8 / 2		
Chairman of the audit Committee	28-4-2015		10,000		26,000	4 / 1		
Meurice E.								**103,720**
Member of the supervisory board	28-5-2015		27,000	49,720	27,000	8 / 2		
Raets L.								**121,720**
Member of the supervisory board	25-4-2019		27,000	49,720	25,000	8 / 2		
Member of the audit Committee	25-4-2019		5,000		15,000	4 / 1		

1 The share grant relates to the services rendered in the reported year. The shares were granted on 14 May 2021 and were valued at the fair market value of the share at € 49.72, equivalent to the lowest of the closing share price on the day before the delivery date and the average closing price of the last 30 calendar days before delivery date.

REMUNERATION FOR THE CEO AND THE OTHER MEMBERS OF THE MANAGEMENT BOARD

The remuneration of Marc Grynberg and the other members of the management board was reviewed by the supervisory board on 10 February 2021, on the basis of recommendations from the nomination and remuneration committee following a comparison survey with BEL20 and European peer companies. The remuneration for Marc Grynberg and other members of the management board included in 2021 the following components: fixed remuneration, variable compensation, share-based compensation, pension plans and other benefits.

Remuneration former CEO (Marc Grynberg)

On proposal of the nomination and remuneration committee, the supervisory board of 10 February 2021 decided to maintain the annual fixed remuneration of Marc Grynberg at € 720,000 and the annual variable cash remuneration potential at € 700,000.

80,000 stock options were granted for 2021 as part of the annual Umicore Incentive Stock Option Plan. In addition, the supervisory board of 15 February 2022 decided to grant 8,334 Umicore shares for services rendered in the reported year. These shares are subject to a 3 year lock-up and are not subject to forfeiture conditions. Umicore and Marc Grynberg decided in mutual agreement to terminate the CEO contract with effect on 1 November 2021. In recognition of Marc Grynberg's long service within Umicore and within the mandate of CEO, the supervisory board decided, on proposal of the nomination and remuneration committee, to pay to Marc Grynberg an amount of €1,800,000 gross.

All components of the remuneration earned by Marc Grynberg for the reported year are detailed in table 13.2.

Remuneration CEO (Mathias Miedreich)

On proposal of the nomination and remuneration committee, the supervisory board of 25 May 2021 decided to appoint Mathias Miedreich as CEO. Mathias Miedreich started the CEO mandate as of 1 October 2021.

The annual fixed remuneration of Mathias Miedreich has been set at € 1,000,000. The undeferred and deferred variable compensation plans for the year of performance 2021 were not applicable to Mathias Miedreich. Mathias Miedreich will participate in the short- and long-term variable compensation programs as of the year of reference 2022. The total variable remuneration target has been set at € 1,200,000.

A gross sign-on fee of € 1,000,000 has been paid in 2021 to cover the loss of unvested variable remuneration and equity awards Mathias Miedreich faced when changing companies.

Mathias Miedreich has been enrolled in the defined contribution plan, as in place for the other members of the management board joining as of 1 July 2018. He is in addition entitled to death-in-service and disability benefits and the usual benefits such as a company car, medical insurance and representation allowance. The company also pays for the tuition fees (secondary school) in Belgium.

The supervisory board of 15 February 2022 decided to grant 500 Umicore shares for services rendered in the reported year. These shares are subject to a 3 year lock-up and are not subject to forfeiture conditions.

All components of the remuneration earned by Mathias Miedreich for the reported year are detailed in table 13.2.

Remuneration other members of the management board

On proposal of the nomination and remuneration committee, the supervisory board of 10 February 2021 decided to maintain the fixed remuneration of each other member of the management board at € 440,000. The annual variable cash remuneration potential increased from € 380,000 to € 400,000. 30,000 stock options per person were offered in 2021 (pro-rated for Bart Sap and Stephan Csoma) as part of the annual Umicore Incentive Stock Option Plan. Denis Goffaux received 10,000 additional stock options following his foreign assignment in South Korea.

On proposal of the nomination and remuneration committee, the supervisory board of 20 September 2021 decided to appoint Frank Daufenbach as member of the management board, starting as of 6 December 2021. The annual fixed remuneration of Frank Daufenbach has been set at € 440,000. The undeferred and deferred variable compensation plans for the year of performance 2021 were not applicable to Frank Daufenbach. Frank Daufenbach will participate in the short- and long-term variable compensation programs as of the year of reference 2022.

The supervisory board of 15 February 2022 decided to grant 7,000 Umicore shares per person for services rendered in the reported year (pro-rated for Stephan Csoma and Bart Sap, and An Steegen). Frank Daufenbach received 143 Umicore shares. These shares are subject to a 3 year lock-up and are not subject to forfeiture conditions.

All components of the remuneration earned by the other members of the management board for the reported year are detailedin table 13.2.

13.2 Remuneration overview members of the management board

in (€)

Name, Position	Mandate Start date End date	Fixed Compensation[1]	Undeferred Variable 50%[2]	Deferred Variable 50%[3]	Shares[4]	Stock Options[5]	Pension Plans[6]	Other[7]	Total	Ratio fixed[8]	Ratio variable[9]
Grynberg M., CEO	19/11/2008 31/10/2021	600,000	300,000	448,000	276,855	684,800	186,118	1,853,020	4,348,792	83%	17%
Miedreich M., CEO	1-10-2021	250,000	0	0	16,610	0	52,200	1,019,502	1,338,312	100%	0%
Csoma S., EVP	01/11/2012 31/03/2021	110,000	45,000	243,200	58,135	0	35,979	12,733	505,047	43%	57%
Daufenbach D., EVP	6/12/2021	31,884	0	0	4,750	0	6,657	452	43,744	100%	0%
Goffaux D., EVP	01/07/2010	440,000	140,000	243,200	236,787	342,400	130,780	74,385	1,607,551	76%	24%
Kiessling R., EVP	01/02/2019	440,000	190,000	222,933	234,412	256,800	91,872	73,594	1,509,611	73%	27%
Nolens G., EVP	01/07/2015	440,000	170,000	243,200	232,540	256,800	139,396	17,684	1,499,620	72%	28%
Platteeuw F., EVP	01/11/2012	440,000	190,000	243,200	232,540	256,800	140,284	24,279	1,527,103	72%	28%
Sap B., EVP	1-3-2021	366,667	158,333	0	193,805	214,000	76,560	5,806	1,015,171	84%	16%
Steegen A., EVP	01/10/2018 30/09/2021	330,000	112,500	243,200	174,405	256,800	68,904	17,622	1,203,431	70%	30%
Reymondet P., EVP	01/08/2003 31/01/2019	-	-	20,267	-	-	-	-	20,267	0%	100%

1 The fixed compensation includes the fixed remunerations from Umicore entities.
2 The undeferred variable has been determined in accordance with the Policy and relates to the reported year 2021. The pay-out was done in 2022 in cash, except for M. Grynberg, D. Goffaux and B. Sap and G. Nolens (for 50%), who received the variable in the form of shares.
3 The deferred variable relates to the reference year 2019 and takes into account, over the years 2019-2020-2021, an average ROCE of 15.6%, resulting in a pay-out of 81% of the 2019 deferred target, and a compounded average EBIT growth% of 23.7%, resulting in a pay-out of 47% of the 2019 deferred target . The pay-out was done in 2022 in cash, except for M. Grynberg, D. Goffaux and B. Sap and G. Nolens (for 50%), who received the variable in the form of shares.
4 The share grant relates to the services rendered in the reported year 2021 in the mandate of member of the management board. The shares were granted on 16 February 2022 and were valued at the fair market value of the share at € 33.22, equivalent to the lowest of the closing share price on the day before the delivery date and the average closing price of the last 30 calendar days before delivery date. For German and Korean tax purposes, the shares were valued at respectively € 33.54 (lowest market quotation of the shares on the delivery date), € 35.50 (the closing share price on the delivery date).
5 The stock option grant relates to the services rendered in the reported year 2021 in the mandate of member of the management board. The stock options were granted on 11 February 2021 and were valued at a notional value of € 8.56 per option according to the Black & Scholes formula. S. Csoma did not accept the 2021 stock options offer.
See table G13.4 for all stock option transactions in the course of the reported year.
6 Includes DC and DB contributions (service cost).
7 Includes the representation allowance, benefit in kind company car, insurance benefits and additional benefits for D. Goffaux following his foreign assignment in South Korea (housing, mobility premium, medical insurance), and for R. Kiessling for his frequent and extensive presence in Asia (mobility premium). It also includes the long service recognition premium for M. Grynberg and the payment of the sign-on fee and tuition fees for M. Miedreich.
8 (1)+(4)+(5)+(6)+(7)/Total remuneration
9 (2)+(3)/Total remuneration

COMPARITIVE INFORMATION ON THE CHANGE OF REMUNERATION – PAY RATIO

Table 13.3 provides an overview on the annual change of remuneration for the CEO, the other members of the management board (in aggregate), the mandates within the supervisory board and the committees, the average employee remuneration on a full-time equivalent basis and the performance of the Company. Incomplete years of remuneration due to a start or end of the mandate in the course of the reference year, have been adjusted to an annual base. The number of shares in the table represents for all years the number of shares taken into account the share split of 16 October 2017.

The average employee remuneration relates to Umicore (Belgium), in accordance with applicable legal provisions.

13.3 Comparative table on the change of remuneration and company performance over the last five reported financial years

Annual Change		2017 vs 2016	2018 vs 2017	2019 vs 2018	2020 vs 2019	2021 vs 2020	Comments
Remuneration management board	**Type of remuneration**						
CEO	Fixed	3.0%	2.9%	0.0%	2.9%	0.0%	
	Variable	27.0%	-24.8%	-5.6%	37.9%	57.7%	
	Number of shares	0.0%	0.0%	-3.8%	0.0%	0.0%	
	Number of options	0.0%	0.0%	-6.7%	0.0%	-31.4%	
	Pension + other	4.8%	1.1%	8.2%	13.0%	6.7%	[1]
Members of the management board (excl. CEO)	Fixed	2.5%	3.3%	0.4%	4.5%	0.0%	
	Variable	31.1%	-28.0%	18.3%	10.6%	58.2%	
	Number of shares	0.0%	0.0%	-5.4%	0.0%	-0.9%	
	Number of options	0.0%	0.0%	-14.3%	5.6%	0.0%	
	Pension + other	-7.4%	-2.3%	1.9%	13.8%	-6.1%	
Remuneration supervisory board	**Type of remuneration**						
Chairman supervisory board	Fixed	0.0%	50.0%	0.0%	0.0%	0.0%	
	Attendance fee/meeting	0.0%	0.0%	0.0%	0.0%	0.0%	
	Number of shares	0.0%	0.0%	0.0%	0.0%	0.0%	
Chairman audit committee	Fixed	0.0%	0.0%	0.0%	0.0%	0.0%	
	Attendance fee/meeting	0.0%	0.0%	0.0%	0.0%	0.0%	
	Number of shares	-	-	-	-	-	
Chairman nomination & remuneration committee	Fixed	-	-	-	-	-	
	Attendance fee/meeting	0.0%	0.0%	0.0%	0.0%	0.0%	
	Number of shares	-	-	-	-	-	
Member supervisory board	Fixed	35.0%	0.0%	0.0%	0.0%	0.0%	
	Attendance fee/meeting	0.0%	0.0%	0.0%	0.0%	0.0%	
	Number of shares	0.0%	0.0%	0.0%	0.0%	0.0%	
Member audit committee	Fixed	0.0%	0.0%	0.0%	0.0%	0.0%	
	Attendance fee/meeting	0.0%	0.0%	0.0%	0.0%	0.0%	
	Number of shares	-	-	-	-	-	
Member nomination & remuneration committee	Fixed	-	-	-	-	-	
	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		5.1%	3.6%	3.7%	2.7%	7.5%	
Company's performance		**2017**	**2018**	**2019**	**2020**	**2021**	
ROCE		**15.1%**	**15.4%**	**12.6%**	**12.1%**	**22.2%**	
EBIT M€		**410**	**514**	**509**	**536**	**971**	
% ROCE change versus previous year		3.4%	2.0%	-18.2%	-4.0%	83.5%	
% EBIT change versus previous year		16.8%	25.4%	-1.0%	5.4%	81.1%	

1 The long service recognition premium is not included for this comparison.

The pay ratio 2021 between the highest and lowest pay level at Umicore (Belgium) was equal to 57. The ratio takes into account the total remuneration on a full-time equivalent basis, including fixed, variable and share-based remuneration, other incentive premiums, plans and benefits. Exceptional payments are excluded from the calculation.

SHARE AND SHARE OPTION PLANS AND TRANSACTIONS 2021

Management board share option transactions 2021

Table 13.4 provides an overview of the number of stock options granted for the services rendered in 2021 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.

13.4 Management board share option transactions

Transactions in the reported year 2021

Name, Position	Options Granted		Options Exercised		Options Expired
Grynberg M., CEO - until 31/10/2021	ISOP 2021	80,000	ISOP 2015 ISOP 2016 ISOP 2017	75,000 150,000 150,000	0
Miedreich M. CEO - as of 1/10/2021	ISOP 2021	0	-		-
Csoma S., EVP - until 31/3/2021	ISOP 2021	0	ISOP 2017	35,000	0
Daufenbach F., EVP - as of 6/12/2021	ISOP 2021	0	-		-
Goffaux D., EVP	ISOP 2021	40,000	ISOP 2016 ISOP 2017 ISOP 2018	35,000 35,000 35,000	0
Kiessling R., EVP	ISOP 2021	30,000	ISOP 2017	12,000	0
Nolens G., EVP	ISOP 2021	30,000	ISOP 2014 ISOP 2015 ISOP 2016 ISOP 2017	12,000 12,000 35,000 35,000	0
Platteeuw F., CFO	ISOP 2021	30,000	-		0
Sap B., EVP - as of 1/3/2021	ISOP 2021	25,000	ISOP 2018	9,000	0
Steegen A., EVP - until 30/9/2021	ISOP 2021	30,000	-		0

Main provisions of the outstanding stock option plans

ISOP Plan	Grant Date	Exercise Price[1]	Exercise window, Start - End
2021	11/02/2021	47.080	11/02/2024 - 10/02/2028
2020	10/02/2020	42.050	10/02/2023 - 09/02/2027
2019	11/02/2019	34.080	01/03/2022 - 10/02/2026
2018	09/02/2018	40.900	01/03/2021 - 08/02/2025
2017	13/02/2017	25.500	01/03/2020 - 12/02/2024
2016	05/02/2016	16.632	01/03/2019 - 04/02/2023
2015	09/02/2015	17.289	01/03/2018 - 08/02/2022

1 The exercise prices take into account the share split of 16 October 2017

Details of all options exercised and other share-related transactions can be found on the FSMA website.

Management board share grant 2021

Table 13.5 provides an overview of the number of shares granted in 2021 for the services rendered in 2020 in the mandate of member of the management board. The shares were granted on 11 February 2021 and were valued at the fair market value of the share at € 47.08, equivalent to the lowest of the closing share price on the day before the delivery date and the average closing price of the last 30 calendar days before delivery date. For German and Korean tax purposes, the shares were valued at respectively € 47.09, € 48.00. The shares are subject to a 3 year lock-up until 10 February 2024 included, and are not subject to forfeiture conditions.

13.5 Management board share grant

Name, Position	Number of shares received in 2021	Comment
Grynberg M., CEO[1]	10,000	
Csoma S., EVP[2]	7,000	
Goffaux D., EVP	7,000	
Kiessling R., EVP	7,000	
Nolens G., EVP	7,000	
Platteeuw F., CFO	7,000	
Steegen A., EVP[3]	7,000	

1 until 31/10/2021
2 until 31/3/2021
3 until 30/9/2021

As per the Policy, the CEO is required to build up, within 3 years from the date of appointment, and to retain minimum 30,000 Umicore shares throughout his tenure. This requirement is also applicable to the other members of the management board, in respect of a minimum of 15,000 shares.

On 31 December 2021 the members of the management board reached this minimum shareholder requirement, with exception of M. Miedreich, F. Daufenbach, R. Kiessling and B. Sap, being still in the 3 years' time frame to build up the required minimum.

The members of the management board collectively held a total number of 212,747 shares on 31 December 2021.

Supervisory board share grant 2021

Table 13.6 provides an overview of the number of shares granted in 2021 to the members of the supervisory board for the services rendered in 2021. The shares were granted on 14 May 2021 and were valued at the fair market value of the share at € 49.72, equivalent to the lowest of the closing share price on the day before the delivery date and the average closing price of the last 30 calendar days before delivery date. The shares have to be held until at least one year after the member leaves the supervisory board and until at least three years after the delivery date.

13.6 Supervisory board share grant

Name, Mandate in the supervisory board	Shares held by serving members on 31 Dec 2021	Number of shares received in 2021	Comment
Leysen T., Chaiman	814,000	2,000	
Armero M. , Member	1,669	1,000	
Behrendt B. , Member	674	674	Pro rata the services in 2021, as of 29/04/2021
Ben-Zur L. , Member until 29/4/2021		326	Pro rata the services in 2021, until 29/04/2021
Chombar F. , Member	5,684	1,000	
Debackere K. , Member	3,684	1,000	
Garrett M. , Member	15,386	1,000	
Kolmsee I. , Member	9,610	1,000	
Meurice E. , Member	6,666	1,000	
Raets L. , Member	2,000	1,000	

The members of the supervisory board collectively held a total number of 859,373 shares on 31 December 2021.

APPROVAL OF THE 2020 REMUNERATION REPORT

The 2020 remuneration report was approved by the shareholders' meeting with a majority of 81.49% of the votes cast (disregarding the abstention votes, as provided under Belgian company law).

PROPOSED NEW REMUNERATION POLICY AS OF 2022

The remunation policy has been reviewed in with the evolution of the company strategy. The purpose of the changes, as reflected in the Proposed Policy, is to ensure Umicore's remuneration structure and policy are both in line with current international remuneration trends and that they reward fairly and responsibly.

The Proposed Policy also responds to feedback received from shareholders and institutional investors. It provides for increased disclosure, in particular around our performance goals in relation to variable pay.

For the establishment of the Proposed Policy, the nomination and remuneration committee has taken market benchmarks into consideration with the aim to offer a well-balanced remuneration, tailored specifically to its market segments and scale, ensuring that Umicore can attract, motivate and retain the right talent for the management and supervisory board.

The proposed changes relate to the remuneration of the members of the management board:

- Revised short- and long-term variable remuneration plans, addingto revised financial goals also sustainability objectives in alignment with Umicore's Let's Go for Zero ESG strategy.
- Replacement of the current deferred cash compensation plan with a Performance Share Unit Plan (PSU plan) for the long-term variable remuneration.
- Reduced number of unconditional share awards, redistributed over increased variable remuneration and fixed annual fee. A pay mix with a higher portion of variable remuneration reinforces the link between reward and sustainable performance.
- Increased timescale of shareholding build-up from 3 to 5 years.
- Possibility to grant a sign-on fee for external recruitment to cover the loss of unvested variable remuneration and equity awards faced by the individual when changing companies.

The Proposed Policy will be submitted to Umicore's annual shareholders' meeting on 28 April 2022, and if approved, will apply as of 1 January 2022, further strengthening alignment to Umicore's strategic objectives and driving strong sustainable performance.

Alignment to strategic objectives

The short- and long-term variable programs have been redesigned to further strengthen high performance to achieve Umicore's strategic objectives, delivering sustained superior shareholder value and contributing to a cleaner and healthier world. Including stretched and achievable targets in the variable remuneration demonstrates Umicore's commitment to achieve meaningful progress against the Let's Go for Zero goals and to enhance sustainable long-term value creation.

SHORT-TERM INCENTIVE: THE ANNUAL VARIABLE COMPENSATION PLAN, YEAR OF REFERENCE 2022



The proposed short-term variable compensation plan shifts from fully individual and discretionary to a balanced and specified remuneration:

- Group financial performance objectives are split evenly between the quality of the financial results (ROCE) and company growth (Actual adjusted EBITDA versus targeted adjusted EBITDA at like-for-like precious metal prices).
- Group sustainability performance objectives are split between diversity (zero inequality), health and safety (zero harm), in line with Umicore's Let's Go for Zero strategy.
- Individual performance objectives are based on financial performance, progress against business and sustainability strategic objectives (tied to economic performance, value chain and ESG goals) and adherence to the Umicore values.

LONG-TERM INCENTIVE: PERFORMANCE SHARE UNIT PLAN (PSU), YEAR OF REFERENCE 2022



The proposed PSU plan replaces the cash deferred variable program, and moves from 100% ROCE and EBIT to balanced financial and ESG targets:

- Group financial performance objectives are split evenly between average ROCE and Total Shareholder Return versus a peer group. The peer group is composed of Air Liquide, Albemarle, Aurubis, BASF, Boliden, Clariant, Croda, Johnson Matthey, LG Energy Solution, Linde, Samsung SDI, Solvay. The supervisory board will review the peer group from time to time to ensure it is as relevant as possible.
- Group sustainability performance objectives are in line with Umicore's Let's Go for Zero strategy and relate to climate, health & safety and diversity. A Diversity of Thought Index has been designed at the level of senior management and focuses on how Umicore is moving the needle in terms of demographic and cognitive diversity through 3 pillars, gender diversity, international diversity and diversity of experience.

Key features of the PSU plan:

- The performance period is three years.
- The PSUs are granted conditionally and vest after three years from the date of grant, depending on the achievement of the pre-set performance goals.
- A service condition applies for the members of the management board joining as of 1 April 2021.

See table 13.7 for more details on the 2022 performance objectives.

Driving strong sustainable performance

The number of unconditional share awards will reduce as of the year of performance 2022 and will be redistributed over increased variable remuneration and fixed annual fee. The remuneration composition for the CEO shifts from 80% fixed and 20% variable (former CEO pay mix) to 60% fixed and 40% variable, and for the members of the management board from 70% fixed and 30% variable to 60% fixed and 40% variable. The total variable remuneration consists of 35% sustainability objectives, 40% financial objectives and 25% individual. This revised pay mix with a higher portion of variable remuneration reinforces the link between reward and strong sustainable performance.

13.7 Overview of the 2022 performance objectives and weighting

	Weight	2022 Target	Threshold, Award %	Maximum, Award %
Annual Variable compensation plan (1y performance)				
ROCE	15%	12.5%	7.5%, 0% award	17.5%, 150% award
Adjusted EBITDA	15%	Defined by the supervisory board[1]	95%, 50% award Below 95%, 0% award	105%, 150% award
Process Safety Event Frequency Rate	5%	Reduction of 10% by 2022 versus 2021 + the absence of process safety events with material environmental or health impact	90%, 0% award	100%, 100% award
Total Recordable Injury Rate (TRIR)	10%	Reduction of 5% by 2022 vs. 2021	90%, 0% award	100%, 100% award
Recruitment of women managers	5%	35% recruited	30% recruited, 0% award	35% recruited, 100% award
Individual performance	50%	Defined yearly	0% award	120% award
Performance Share Unit Plan (3y performance)				
ROCE	25%	12.5%	7.5%, 0% award	17.5%, 150% award
Total Shareholder Return (TSR)	25%	Ranked in top 50% of 12 peers	Rank: outside top 50%, 0% award 6th place, 25% award 5th place, 50% award 4th place, 75% award	Rank: 3rd place, 100% award 2nd place, 125% award 1st place, 150% award
GHG emissions	25%	Scope 1+2: Reduction of 6.2% by 2024 vs. 2019	90%, 0% award	100%, 100% award
		Scope 3: Submit scope 3 target to SBTi by the end of June 2022 for validation	Not reached, 0% award	Reached, 100% award
Diffuse emissions	12.50%	Reduction of 14.7% lead/38.8 % arsenic by 2024 vs 2021	90%, 0% award	100%, 100% award
Diversity of thought index	12.50%	Increase of 12% by 2024 vs. 2021	90%, 0% award	100%, 100% award

1 Umicore does not disclose the adjusted EBITDA target which is commercially sensitive information.

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About this report

An integrated approach

The Umicore annual report offers a comprehensive view of performance for 2021 and reflects our integrated strategic approach which combines economic, environmental and social performance targets. This report further clarifies the integrated nature of Umicore's performance using the "six capitals" approach to integrated reporting defined by the International <IR> Framework.

This report contains an overview of our strategic approach, an annual review of key performance aspects as they relate to our Clean Mobility & Recycling and Let's go for Zero strategies, a view of leadership and governance, followed by the full financial, environmental, social and governance statements and notes.

This report has been prepared in accordance with the GRI Standards: Core option. As part of our commitment to increased disclosure, this report also contains first elements towards meeting SASB, TCFD and WEF disclosure guidance. To find disclosure in accordance with these frameworks, please consult the indexes (p. 217). The report also discloses which Umicore activities are eligible for the EU Taxonomy.

Umicore has aligned the corporate reporting with the non-financial reporting requirements set out in article 3:32, §2 of the Belgian Companies' and Associations' Code.

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.

Reporting scope

This report covers our operations for the 2021 calendar year which is also the Umicore fiscal year, and reports on our progress towards our Clean Mobility & Recycling and Let's go for zero objectives. The scope of objectives and a brief description of the methodology behind performance indicators are included in the statements section of the report. Where data are available, the performance indicators in the document are reported with a comparison base referring back by 5 years.

The financial scope of this report covers all fully consolidated operations and the financial contributions of all associate and joint venture companies. 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. Definitions for the terms used throughout this report can be found in the Glossary for the report, online.

Data

The financial data are collected through our financial management and consolidation process. 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.

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 on (p. 109)-(p. 180) and (p. 223).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 social and environmental statements,(p. 181)- (p. 200). EY's report on the social and environmental statements can be found on (p. 228). This report has been prepared in accordance with the GRI Standards: Core option. A full GRI index can be found on (p. 217).

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 during the joint monitoring committee in March, 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

GRI/SASB index

STANDARDS REFERENCE	DISCLOSURE	PAGE REFERENCE IN ANNUAL REPORT 2021
ORGANIZATIONAL PROFILE		
GRI 102-1	Name of the organization	Front cover
GRI 102-2	Activities, brands, products, and services	
GRI 102-3	Location of headquarters	Back cover
GRI 102-4	Location of operations	Social statements
GRI 102-5	Ownership and legal form	Back cover
GRI 102-6	Markets served	About us; Our business; Financial; Operations
GRI 102-7	Scale of the organization	Umicore at a glance; Social statements: S2; Financial statements: consolidated balance sheet
GRI 102-8	Information on employees and other workers	Social statements: S2
GRI 102-9	Supply chain	Society
GRI 102-10	Significant changes to the organization and its supply chain	Financial, Operations, Society
GRI 102-11	Precautionary principle or approach	Risks and opportunities overview
GRI 102-12	External initiatives	COSO; OECD Guidelines; ILO Human Rights; SRI, FTSE; PACI; GRI; IIRC
GRI 102-13	Membership of associations	Society
STRATEGY		
GRI 102-14	A statement from the most senior decision-maker of the organization	CEO and Chairman's review
GRI 102-15	Key impacts, risks, and opportunities	Risks and opportunities overview
GRI 102-16	Values, principles, standards, and norms of behavior	The Umicore Way; Code of Conduct; About us; Corporate governance statements: G1, G9; Employees
GRI 102-17	Mechanisms for advice and concerns about ethics	Code of Conduct; Employees
GOVERNANCE		
GRI 102-18	Governance structure	Governance; Corporate governance statements: G2, G4, G5
GRI 102-19	Delegating authority	Management approach
GRI 102-20	Executive-level responsibility for economic, environmental, and social and societal topics	Management Board; Management approach
GRI 102-21	Consulting stakeholders on economic, environmental, and social and societal topics	Aiming for impact
GRI 102-22	Composition of the highest governance body and its committees	Governance; Supervisory Board; Corporate governance statements: G2
GRI 102-23	Chair of the highest governance body	Governance; Supervisory Board; Corporate governance statements: G2
GRI 102-24	Nominating and selecting the highest governance body	Corporate governance statements: G4
GRI 102-25	Conflicts of interest	Corporate governance statements: G7, G9-G11; Corporate Governance Charter; Code of Conduct
GRI 102-26	Role of highest governance body in setting purpose, values, and strategy	Goverance; Corporate governance statements: G2
GRI 102-27	Collective knowledge of highest governance body	Supervisory Board; Corporate governance statements: G4
GRI 102-28	Evaluating the highest governance body's performance	Corporate governance statements: G4
GRI 102-29	Identifying and managing economic, environmental, and social and societal impacts	Aiming for impact; Management approach: Risks and opportunities overview
GRI 102-30	Effectiveness of risk management processes	Risks and opportunities overview
GRI 102-31	Review of economic, environmental, and Social and societal topics	Risks and opportunities overview; Management approach; Corporate governance statements: G4
SASB RT-CH-210a.1	Discussion of engagement processes to manage risk and opportunities associated with community interests	Risks and opportunities overview; Environment; Society; TCFD index
SASB RT-CH-530a.1	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	Society; Management approach; Risks and opportunities overview
GRI 102-32	Highest governance body's role in sustainability reporting	Management approach
GRI 102-33	Communicating critical concerns	Corporate governance statements: G1, G3, G9, G10, G11; Corporate Governance Charter; Code of Conduct
GRI 102-34	Nature and total number of critical concerns	not reported
GRI 102-35	Remuneration policies	Remuneration report; Corporate Governance Charter; Code of Conduct
GRI 102-36	Process for determining remuneration	Remuneration report; Corporate Governance Charter; Code of Conduct
GRI 102-37	Stakeholders' involvement in remuneration	Remuneration report; Corporate Governance Charter; Code of Conduct
GRI 102-38	Annual total compensation ratio	not reported
GRI 102-39	Percentage increase in annual total compensation ratio	not reported
STAKEHOLDER ENGAGEMENT		
GRI 102-40	List of stakeholder groups	Aiming for impact
GRI 102-41	Collective bargaining agreements	Employees; Social statements
GRI 102-42	Identifying and selecting stakeholders	Aiming for impact
GRI 102-43	Approach to stakeholder engagement	Aiming for impact
GRI 102-44	Key topics and concerns raised	Aiming for impact

STANDARDS REFERENCE	DISCLOSURE	PAGE REFERENCE IN ANNUAL REPORT 2021
REPORTING PRACTICE		
GRI 102-45	Entities included in the consolidated financial statements	About us; Umicore at a glance; Financial; Corporate governance statements: G2; Financial statements: F5, F17
GRI 102-46	Defining report content and topic boundaries	Aiming for impact
GRI 102-47	List of material topics	Aiming for impact
GRI 102-48	Restatements of information	Management approach; Environmental statements; Social statements; About this report
GRI 102-49	Changes in reporting	About us; Umicore at a glance; Environmental statements; About this report
GRI 102-50	Reporting period	Front cover; Inside front cover; About this report
GRI 102-51	Date of most recent report	Annual report website
GRI 102-52	Reporting cycle	Front cover; Inside front cover; Annual report website
GRI 102-53	Contact point for questions regarding the report	Back cover: Annelies Storme
GRI 102-54	Claims of reporting in accordance with the GRI Standards	Inside front cover; About this report
GRI 102-55	GRI content index	This section; About this report
GRI 102-56	External assurance	Assurance reports
MANAGEMENT APPROACH		
GRI 103-1	Explanation of the material topic and its boundary	Aiming for impact
GRI 103-2	The management approach and its components	Management approach
GRI 103-3	Evaluation of the management approach	Management approach
ECONOMIC PERFORMANCE		
GRI 201-1	Direct economic value generated and distributed	Umicore at a glance; Society key figures; Financial statements: F8, F9, F39; Key figures
GRI 201-3	Defined benefit plan obligations and other retirement plans	Financial statements: F27
GRI 201-4	Financial assistance received from government	Consolidated statement of cash flow
MARKET PRESENCE		
GRI 202-2	Proportion of senior management hired from the local community	Similar scope covered in Social statements: S2
INDIRECT ECONOMIC IMPACTS		
GRI 203-1	Infrastructure investments and services supported	Operations; Environment; Society; Social Statements S6; Key figures
ANTI-CORRUPTION		
GRI 205-1	Operations assessed for risks related to corruption	Risks and opportunities overview
GRI 205-2	Communication and training about anti-corruption policies and procedures	All employees receive informal training on the Code of Conduct when joining the company
ANTI-COMPETITIVE BEHAVIOR		
GRI 206-1	Legal actions for anti-competitive behaviour, anti-trust, and monopoly practices	Financial statements: F36
MATERIALS		
GRI 301-2	Recycled input materials used	Umicore at a glance; Environment

STANDARDS REFERENCE	DISCLOSURE	PAGE REFERENCE IN ANNUAL REPORT 2021
ENERGY		
GRI 302-1	Energy consumption within the organization	Environment; Environmental statements: E6
GRI 302-3	Energy intensity	Environment; Environmental statements: E6
GRI 302-4	Reduction of energy consumption	Environment; Environmental statements: E6
SASB RT-CH-130a.1	Total energy consumed, percentage grid electricity, percentage renewable, total self-generated energy	Environment; Environmental statements: E6
WATER		
GRI 303-2		Environment; Environmental statements: E5
GRI 303-3		Limited disclosure; Environment; Environmental statements: E4
SASB RT-CH-140a.1	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; Environment; Environmental statements: E4
EMISSIONS		
GRI 305-1	Direct scope 1 GHG emissions	Environment; Environmental statements: E7
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	Environment; Sustainability
GRI 305-2	Energy indirect scope 2 GHG emissions	Environment; Environmental statements: E7
GRI 305-7	Nitrogen oxides NOx, sulphur oxides SOx, and other significant air emissions	Environment; Environmental statements: E5
SASB RT-CH-120a.1	Air emissions of the following pollutants: NOX (excluding N2O), SOX, volatile organic compounds (VOCs) and hazardous air pollutants (HAPs)	Environment; Environmental statements: E5
WASTE		
GRI 306-3	Waste generated	Environment; Environmental statements: E3
GRI 306-4	Waste diverted from disposal	Environment; Environmental statements: E3
SASB RT-CH-150a.1	Amount of hazardous waste generated, percentage recycled	Environment; Environmental statements: E3
SUPPLIER ENVIRONMENTAL ASSESSMENT		
GRI 308-2	Negative environmental impacts in the supply chain and actions taken	Society; Sustainable Products & Services
EMPLOYMENT		
GRI 401-1	New employee hires and employee turnover	Umicore at a glance; Employees; Social statements: S2, S3; Key figures

STANDARDS REFERENCE	DISCLOSURE	PAGE REFERENCE IN ANNUAL REPORT 2021
OCCUPATIONAL HEALTH AND SAFETY		
GRI 403-1	Occupational health and safety management system	Management approach-workforce performance; Employees; Risks and opportunities overview; Social Statements S4, S5; Global framework Agreement on Sustainable Development; EcoVadis CSR Scorecard
GRI 403-2	Hazard identification, risk assessment, and incident investigation	Risks and opportunities overview; Management approach-workforce performance
GRI 403-3	Occupational health services	Management approach-workforce performance; Employees; Umicore occupational health and safety
GRI 403-4	Worker participation, consultation, and communication on occupational health and safety	Employees; Social statements: S2; Management approach-workforce performance; Umicore occupational health and safety
GRI 403-5	Worker training on occupational health and safety	Employees; Risks and opportunities overview - Talent attraction & retention; Social statements: S2, S3
GRI 403-6	Promotion of worker health	Management approach-workforce performance; Employees
GRI 403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Umicore Global Sustainable Sourcing Policy; Society; Management approach-workforce performance; Employees
GRI 403-8	Workers covered by an occupational health and safety management system	Management approach-workforce performance; Employees; Exposure hours are not reported. The number of LTAs for employees and contractors is more relevant to supporting Umicore's zero LTA target
GRI 403-9	Work-related injuries	Employees; Social statements S2, S3; Key figures
GRI 403-10	Work-related ill health	Employees; Social statements S2, S3
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
SASB RT-CH-320a.2	Description of efforts to assess, monitor and reduce exposure of employees and contract workers to long-term (chronic) health risks	Employees; Social statements S5
SASB RT-CH-540a.1	Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR) and Process Safety Incident Severity Rate (PSISR)	Employees; Social statements S4
TRAINING AND EDUCATION		
GRI 404-1	Average hours of training per year per employee	Employees; Social statements: S3; Key figures
GRI 404-2	Programs for upgrading employee skills and transition assistance programs	Employees; Social statements: S3
GRI 404-3	Percentage of employees receiving regular performance and career development reviews	Employees; Social statements: S3

STANDARDS REFERENCE	DISCLOSURE	PAGE REFERENCE IN ANNUAL REPORT 2021
DIVERSITY AND EQUAL OPPORTUNITY		
GRI 405-1	Diversity of governance bodies and employees	Leadership; Corporate governance statements: G4; Employees; Social statements: S2
CHILD LABOR		
GRI 408-1	Operations and suppliers at significant risk for incidents of child labor	Society; Risks and opportunities overview - Sustainable & ethical supply; Umicore Global Sustainable Sourcing Policy
FORCED OR COMPULSORY LABOR		
GRI 409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Society; Umicore Global Sustainable Sourcing Policy
SUPPLIER SOCIAL ASSESSMENT		
GRI 414-2	Negative Social and societal impacts in the supply chain and actions taken	Society; Maximizing positive impact; Social statements: S7
CUSTOMER HEALTH AND SAFETY		
GRI 416-1	Assessment of the health and safety impacts of product and service categories	Sustainable Products & Services
MARKETING AND LABELLING		
GRI 417-1	Requirements for product and service information and labelling	Sustainable Products & Services
SASB RT-CH-410a.1	Revenue from products designed for use-phase resource efficiency	Sustainable Products & Services; Environment
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
	Metal emissions to air and water	To complement reporting on GRI 305: Emissions. See Environment. Environmental statements: E5

WEF index

THEME		DISCLOSURE	PAGE REFERENCE IN ANNUAL REPORT 2021
GOVERNANCE			
Governing purpose	Setting purpose	The company's stated purpose, as the expression of the means by which a business proposes solutions to economic, environmental and social issues. Corporate purpose should create value for all stakeholders, including shareholders.	The Umicore Way; About us; Goverance; Corporate governance statements: G2
	Purpose-led management	How the company's stated purpose is embedded in company strategies, policies and goals.	The Umicore Way; About us; Our business; Goverance; Management Approach; Corporate governance statements: G2
Stakeholder engagement	Material issues impacting stakeholders	A list of the topics that are material to key stakeholders and the company, how the topics were identified and how the stakeholders were engaged.	Aiming for impact
Risk and opportunity oversight	Integrating risk and opportunity into business process	Company risk factor and opportunity disclosures that clearly identify the principal material risks and opportunities facing the company specifically (as opposed to generic sector risks), the company appetite in respect of these risks, how these risks and opportunities have moved over time and the response to those changes. These opportunities and risks should integrate material economic, environmental and social issues, including climate change and data stewardship.	Managing risk effectively; Risks and opportunities overview
Quality of governing body	Governance body composition	Composition of the highest governance body and its committees by: competencies relating to economic, environmental and social topics; executive or non-executive; independence; tenure on the governance body; number of each individual's other significant positions and commitments, and the nature of the commitments; gender; membership of under-represented social groups; stakeholder representation.	Governance; Supervisory Board; Corporate governance statements: G2
	Progress against strategic milestones	Disclosure of the material strategic economic, environmental and social milestones expected to be achieved in the following year, such milestones achieved from the previous year, and how those milestones are expected to or have contributed to long-term value.	Performance; Sustainability
	Remuneration	1. How performance criteria in the remuneration policies relate to the highest governance body's and senior executives' objectives for economic, environmental and social topics, as connected to the company's stated purpose, strategy and long-term value. 2. Remuneration policies for the highest governance body and senior executives for the following types of remuneration: Fixed pay and variable pay, including performance-based pay, equity-based pay, bonuses and deferred or vested shares Sign-on bonuses or recruitment incentive payments Termination payments Clawbacks Retirement benefits, including the difference between benefit schemes and contribution rates for the highest governance body, senior executives and all other employees	Remuneration policy; Proposed remuneration policy; Remuneration report
Ethical behavior	Anti-corruption	Total percentage of governance body members, employees and business partners who have received training on the organization's anti-corruption policies and procedures, broken down by region. Total number and nature of incidents of corruption confirmed during the current year, but related to previous years; and Total number and nature of incidents of corruption confirmed during the current year, related to this year. Discussion of initiatives and stakeholder engagement to improve the broader operating environment and culture, in order to combat corruption.	Limited disclosure: Employees All employees receive informal training on the Code of Conductwhen joining the company
	Protected ethics advice and reporting mechanisms	A description of internal and external mechanisms for: Seeking advice about ethical and lawful behaviour and organizational integrity; and Reporting concerns about unethical or unlawful behaviour and lack of organizational integrity.	Code of conduct
	Alignment of strategy and policies to lobbying	The significant issues that are the focus of the company's participation in public policy development and lobbying; the company's strategy relevant to these areas of focus; and any differences between its lobbying positions and its purpose, stated policies, goals or other public positions.	Limited disclosure: Society
PLANET			
Climate change	GHG emissions: For all relevant greenhouse gases (e.g., carbon dioxide, methane, nitrous oxide, F-gases etc.), report in metric tonnes of carbon dioxide equivalent (tCO2e) emissions. Estimate and report material upstream and downstream (GHG Protocol scope 3) emissions where appropriate.		Environment; Environmental Statements: E7
	TCFD implementation: Fully implement the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). If necessary, disclose a timeline of at most three years for full implementation. Disclose whether you have set, or have committed to set, GHG emissions targets that are in line with the goals of the Paris Agreement – to limit global warming to well below 2°C above preindustrial levels and pursue efforts to limit warming to 1.5°C – and to achieve net-zero emissions before 2050.		TCFD Index
	Paris-aligned GHG emissions targets: Define and report progress against time-bound science-based GHG emissions targets that are in line with the goals of the Paris Agreement – to limit global warming to well below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C. This should include defining a date before 2050 by which you will achieve net-zero greenhouse gas emissions, and interim reduction targets based on the methodologies provided by the Science Based Targets initiative, if applicable. If an alternative approach is taken, disclose the methodology used to calculate the targets and the basis on which they deliver on the goals of the Paris Agreement.		Sustainability

THEME	DISCLOSURE	PAGE REFERENCE IN ANNUAL REPORT 2021
Freshwater availability	Water consumption and withdrawal in water-stressed areas: Report for operations where material: megalitres of water withdrawn, megalitres of water consumed and the percentage of each in regions with high or extremely high baseline water stress, according to WRI Aqueduct water risk atlas tool. Estimate and report the same information for the full value chain (upstream and downstream) where appropriate.	Limited disclosure; Environment; Environmental statements: E4
Water pollution	Nutrients: Estimate and report wherever material along the value chain: metric tonnes of nitrogen, phosphorous and potassium in fertilizer consumed.	Environment; Environmental statements: E5
Air pollution	Air pollution: Report wherever material along the value chain: nitrogen oxides (NOx), sulphur oxides (SOx), particulate matter and other significant air emissions. Wherever possible estimate the proportion of specified emissions that occur in or adjacent to urban/densely populated areas.	Environment; Environmental statements: E5
Resource availability	Resource circularity: Report the most appropriate resource circularity metric(s) for the whole company and/or at a product, material or site level as applicable.	Environment; Environmental statements: E2
PEOPLE		
Dignity & Equality	Diversity and inclusion (%): Percentage of employees per employee category, by age group, gender and other indicators of diversity (e.g. ethnicity).	Employees; Social key figures
	Risk for incidents of child, forced or compulsory labour: An explanation of the operations and suppliers considered to have significant risk for incidents of child labour, forced or compulsory labour. Such risks could emerge in relation to: a) type of operation (such as manufacturing plant) and type of supplier; and b) countries or geographic areas with operations and suppliers considered at risk.	Society; Risks and opportunities overview - Sustainable & ethical supply; Umicore Global Sustainable Sourcing Policy
	Freedom of association and collective bargaining at risk (%): Percentage of active workforce covered under collective bargaining agreements. An explanation of the assessment performed on suppliers for which the right to freedom of association and collective bargaining is at risk, including measures taken by the organization to address these risks.	Limited disclosure: Employees; Social key figures
Health and wellbeing	Health and safety (%): 1. The number and rate of fatalities as a result of work-related injury; high-consequence work-related injuries (excluding fatalities); recordable work-related injuries; main types of work-related injury; and the number of hours worked. 2. An explanation of how the organization facilitates workers' access to non-occupational medical and healthcare services, and the scope of access provided for employees and workers	Employees; Social statements S4, S5; Social key figures
	Employee well-being (#, %): The number of fatalities as a result of work-related ill-health, recordable work-related ill-health injuries, and the main types of work-related ill-health for all employees and workers. a) Percentage of employees participating in "best practice" health and well-being programmes, and b) Absentee rate (AR) of all employees	Employees; Key figures
Skills for the future	Training provided (#, $): Average hours of training per person that the organization's employees have undertaken during the reporting period, by gender and employee category (total number of hours of training provided to employees divided by the number of employees). Average training and development expenditure per full time employee (total cost of training provided to employees divided by the number of employees).	Employees; Social statements S3; Social key figures
PROSPERITY		
Employment and wealth generation	Absolute number and rate of employment: Total number and rate of new employee hires during the reporting period, by age group, gender, other indicators of diversity and region. Total number and rate of employee turnover during the reporting period, by age group, gender, other indicators of diversity and region.	Limited disclosure: Employees; Social statements: S2, S3; Social key figures
	Economic contribution: Direct economic value generated and distributed (EVG&D), on an accruals basis, covering the basic components for the organization's global operations, ideally split out by: Revenues, Operating costs, Employee wages and benefits, Payments to providers of capital, Payments to government, Community investment Financial assistance received from the government: total monetary value of financial assistance received by the organization from any government during the reporting period.	Umicore at a glance; Financial; Financial statements: F8, F9, F39; Society key figures; Key figures
	Financial investment contribution: Total capital expenditures (CapEx) minus depreciation, supported by narrative to describe the company's investment strategy. Share buybacks plus dividend payments, supported by narrative to describe the company's strategy for returns of capital to shareholders.	Umicore at a glance; Investing in Umicore; Operations; Financial statements
Innovation of better products and services	Total R&D expenses ($) Total costs related to research and development.	Innovation
Community and social vitality	Social value generated (%) Percentage of revenue from products and services designed to deliver specific social benefits or to address specific sustainability challenges.	Sustainable Products & Services
	Total tax paid: The total global tax borne by the company, including corporate income taxes, property taxes, non-creditable VAT and other sales taxes, employer-paid payroll taxes, and other taxes that constitute costs to the company, by category of taxes.	Society; Society key figures

TCFD index

TOPIC	DISCLOSURE	PAGE REFERENCE IN ANNUAL REPORT 2021
Governance	Describe the board's oversight of climate-related risks and opportunities.	General management
	Describe management's role in assessing and managing climate-related risks and opportunities.	Operational management; CEO&Chairman Review
Strategy	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	Managing risk effectively (Market, Climate and environment)
	Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	Managing risk effectively (Climate and environment)
	Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Managing risk effectively (Climate and environment)
Risk Management	Describe the organization's processes for identifying and assessing climate-related risks.	Managing risk effectively (Regulatory and legal context, Climate and environment)
	Describe the organization's processes for managing climate-related risks.	Managing risk effectively (Regulatory and legal context, Climate and environment)
	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	Managing risk effectively (Climate and environment)
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;Sustainability (remuneration policy)
	Disclose scope 1, scope 2, and, if appropriate, scope 3 greenhouse gas (GHG) emissions, and the related risks.	Environment
	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	Sustainability

Independent auditor's report to the general meeting of Umicore NV for the year ended 31 December 2021

As required by law and the Company's articles of association, we report to you as statutory auditor of Umicore NV (the "Company") and its subsidiaries (together the "Group"). This report includes our opinion on the consolidated balance sheet as at 31 December 2021, the consolidated income statement, the consolidated statement of comprehensive income, consolidated statement of changes in equity and the consolidated statement of cash flow for the year ended 31 December 2021 and the disclosures (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 for one year.

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 2021, the consolidated income statement, the consolidated statement of comprehensive income, consolidated statement of changes in equity and the consolidated statement of cash flow of the year and the disclosures, which show a consolidated balance sheet total of € 9.045.241 thousands and of which the consolidated income statement shows a profit for the year of € 626.949 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 2021, 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 ("ISAs"). 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.

Other matter

The Company's Consolidated Financial Statements for the year ended 31 December 2020 were audited by another statutory auditor who expressed an unqualified opinion on these Consolidated Financial Statements on 22 March 2021.

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 commodities.

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 3 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, EUR 54.0 million 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 2.21.1. 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, EUR 22.0 million (negative) were recognized as fair value of the hedging instruments as disclosed in note F 32 and F 33.2.

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, EUR 3.5 million 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.
- Inspection of the hedge accounting documentation and prospective effectiveness testing to ensure compliance with IFRS 9. In particular, for the fair value hedges we assessed the net position approach for the commodity hedges. For the cash flow hedges we verified the probability of the expected future cash flows. For the part 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".
- Assessment of the accounting treatment, including the effects on equity and profit or loss, of the various hedging transactions and 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.

Uncertain tax positions

Description of the key audit matter

Umicore conducts its business globally and, as a result, is subject to audit by local taxing authorities for its various global subsidiaries and the resolution of such audits may span multiple years. Uncertainty in a tax position may arise because tax laws are complex and subject to varied interpretation. Accordingly, the ultimate outcome with respect to tax positions may differ from the amounts recognized. Accounting for uncertain tax positions requires significant judgement by management as to their recognition and valuation as disclosed in the accounting policies under note F 2.19. As explained in note F 4.6, management performed a detailed assessment of all tax uncertainties which resulted in a provision for these uncertainties amounting to EUR 101.1 million as of the balance sheet date.

We believe that the accounting treatment of uncertain tax positions is significant in our audit due to the assessment process being complex and requiring significant judgement by management, and the amounts involved being material to the consolidated financial statements of the Group.

Summary of the procedures performed

- We evaluated the Group's accounting policy related to uncertain tax positions and assessed the compliance of this policy with IFRIC 23 "Uncertainty over Income Tax Treatments".
- Assessment of the Group's internal control environment with regard to uncertain tax positions, including its process to identify the tax exposures of all the legal entities within the Group. We tested the design of management's controls in respect of the identification of various uncertain tax positions, its assessment and interpretation of tax laws, its evaluation of which tax positions may not be sustained upon audit and of their expected financial outcome.
- We analyzed and challenged management's methods and key assumptions, in particular on cases where there had been significant developments with local tax authorities.
- We obtained explanations from management and corroborated those explanations with supporting evidence, including but not limited to internal tax memorandums, communication with tax authorities and conclusions of the Group's outside tax advisors. We focused on the judgements made by

management in assessing the quantification and likelihood of significant exposures and the level of liability required for specific transactions. For significant new uncertain tax positions or potential exposures identified, or significant changes in existing positions or exposures, we analyzed the assessments prepared by the Group together with our internal tax specialists.
- We evaluated whether the liabilities and exposures for uncertain tax positions were appropriately disclosed in 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 ISAs 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 ISAs, 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;
- 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 ISAs 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 78)
- Parent company separate summarized financial statements (page 178 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 GRI. As requested by the Company, we have issued a separate limited assurance report on a selection of value chain, environmental and social KPI's in accordance with the International Standard on Assurance Engagements ISAE 3000. 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. For information not included in our specific limited assurance report on non-financial information, we do not express any assurance on individual elements that have been disclosed in this non-financial information.

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.

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 FSMA (https://www.fsma.be/en/data-portal).

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 2021 included in the annual financial report available on the portal of the FSMA (https://www.fsma.be/en/data-portal) 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, 23 March 2022

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

Report of the Independent Auditor

TO THE GENERAL SHAREHOLDERS' MEETING OF THE COMPANY UMICORE

Scope

We have been engaged by Umicore SA to perform a limited assurance engagement, as defined by the International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ("ISAE 3000") here after referred to as the engagement, to report on Umicore Groups' (the "Company") sustainability indicators of the accompanying annual report 2021 (the "Report") as listed in Appendix (the "Subject Matter") for the period from 1 January 2021 to 31 December 2021.

Other than as described in the preceding paragraph, which sets out the scope of our engagement, we did not perform assurance procedures on the remaining sustainability related information included in the Report, and accordingly, we do not express a conclusion on this information.

Criteria applied by Umicore SA

In preparing the sustainability indicators as listed in Annex 1 of the Report, Umicore SA applied the reporting standards of the Global Reporting Initiative ("GRI"), the Sustainability Accounting Standards Board ("SASB") and a set of own reporting criteria as disclosed in the Report (Criteria).

Umicore SA's responsibilities

Umicore SA's management is responsible for selecting the Criteria, and for presenting the Subject Matter in accordance with the 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.

Our responsibilities

Our responsibility is to express a conclusion on the presentation of the Subject Matter based on the evidence we have obtained.

We conducted our engagement in accordance with ISAE 3000 and the terms of reference for this engagement as agreed with the Company on 24 August 2021. Those standards require that we plan and perform our engagement to obtain limited assurance about whether, in all material respects, the Subject Matter is presented in accordance with the Criteria, and to issue a report. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

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.

EY also applies the International Standard on Quality Control 1, Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements, and accordingly maintains a comprehensive system of quality control including documented policies and 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.

Although we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

Our procedures included amongst other:

- Obtaining an understanding of the reporting processes for the Subject Matter;
- Evaluating the consistent application of the Criteria;
- Interviewing relevant staff at local level responsible for data collection, reporting and calculation of the Subject Matter;

- Interviewing management and relevant staff at corporate level responsible for consolidating and carrying out internal control procedures on the Subject Matter;
- Interviewing relevant staff responsible for reporting the Subject Matter in the Report;
- Determining the nature and extent of the review procedures for each of the locations contributing to the Subject Matter. Based on the site scoping, the sites Subic (the Philippines), Hoboken and Olen (Belgium) were visited to validate the data and evaluate the design and implementation of data collection and calculation processes as well as validation procedures related to the Subject Matter. For the remaining locations contributing to the sustainability indicators listed in Appendix, procedures were carried out centrally to review the reasonableness of the data collection, data calculation, and data validation procedures;
- Obtaining information that the Subject Matter reconciles with underlying records of the Company;
- Evaluating, on a limited test basis, relevant internal and external documentation;
- Performing an analytical review of the data and trends in the Subject Matter for consolidation at corporate level and the data reported by the sites;
- Evaluating the overall presentation of the Subject Matter in the Report.

We also performed such other procedures as we considered necessary in the circumstances.

Conclusion

Based on our procedures and the evidence obtained, we are not aware of any material modifications that should be made to the Subject Matter for the period from 1 January 2021 to 31 December 2021, in order for it to be in accordance with (or based on) the Criteria.

Diegem, 23 March 2022

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

Appendix

Environmental

- Metal emissions to water (load)
- Metal emission to water (impact units)
- Metal emissions to air (load)
- Metal emissions to air (impact units)
- SOx emissions
- NOx emissions
- CO_2e-emissions scope 1 (per year)
- CO_2e-emissions scope 2 - Market based (per year)
- CO_2e-emissions scope 2 - Location based (per year)
- CO_2e-emissions (scope 1+2) - Market based (per business group)
- CO_2e-emissions (scope 1+2) - Location based (per business group)
- Energy consumption (absolute) (per year and per business group)
  - Energy consumption (per business group)
  - Indirect energy consumption
  - Direct energy consumption
- Number of energy efficiency projects
- Renewable electricity
- Total waste produced
- Hazardous waste
- of which recycled
- Non-hazardous waste
- of which recycled
- Compliance excess rate
- Environmental complaints
- Sites ISO 14001 certified
- Diffuse metal emissions

Social

- Workforce (fully consolidated companies) (per year, per region, per business group)
  - Workforce from associated companies (per year, per region, per business group)
  - Total workforce (per region, per business group)
  - Employees men (per year, per region, per business group)
  - Employees women (per year, per region, per business group)
  - Full-time equivalent (per year, per region, per business group)
  - Employees (< 30 yrs, 30-50 yrs, >50 yrs)

- Temporary contracts (per year, 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 year, per region, per business group)
  - Average number of training hours per employee - Men
  - Average number of training hours per employee - Women
  - Average number of training hours per employee - Managers
  - Average number of training hours per employee - Other categories
- Employees having a yearly appraisal (per year, per region, per business group)
- Voluntary leavers ratio (per year, per region, per business group)
  - Voluntary leavers men & women
- Pay ratio – Highest vs lowest pay level
- Retention rate
- Number of nationalities
- Number of production sites, R&D/Technical centers, other sites
- Number of employees per country
- Employees represented by union or Collective Labour Agreement (CLA) (per year, per region, per business group)
- Violation against the Code of conduct
- Exposure ratio 'all biomarkers aggregated'
  - Exposure ratio lead (blood)
  - 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
- Fatal accidents (per year and per business group)
  - Fatal accidents sub-contractors
- Lost Time Accidents (LTA) (per year, per region and per business group)
- Lost Time Accidents (LTA) for sub-contractors
- LTA frequency rate
- LTA severity rate
- Calendar days lost (per year and per business group)
- Recordable injuries
- Recordable injuries frequency rate
- Ratio N of sites with no LTA/total N of sites reporting
- Sites ISO 45001 certified

Value Chain

- Site accreditations responsible mineral sourcing
- Indirect procurement - scores of Ecovadis supplier assessments
- Ecovadis rating
- Resource efficiency (primary, secondary pre-consumer and secondary post-consumer)
- Revenues from clean mobility and recycling
- Total donations (group, regional, BU)
  - Cash donations
  - Donations in kind
  - Staff freed time

Key figures

(in million € unless stated otherwise)	2017	2018	2019	2020	**2021**
Economic performance					
Revenues (excluding metal)	2,915.6	3,271	3,361	3,239	**3,963**
Adjusted EBIT	410.3	514	509	536	**971**
Return on Capital Employed (ROCE) (in %)	15.1	15.4	12.6	12.1	**22.2**
R&D expenditure	175.2	196	211	223	**245**
Capital expenditure	365.3	478	553	403	**389**
Adjusted EPS (in €/share)	1.22	1.36	1.30	1.34	**2.77**
Gross dividend (in €/share)	0.70	0.75	0.375	0.75	**0.80**
Social and environmental performance					
Revenues from clean mobility and recycling (in%)	67	72	75	79	**79**
Total donations, including staff freed time (in thousands of euro)	1,299	1,432	1,614	1517.21	**1623.99**
CO_2e emissions (scope1)	364,139	417,140	389,101	330,619	**372,699**
CO_2e emissions (scope2) - Market based (in tonne)	269,565	350,562	402,795	401,926	**473,738**
CO_2e emissions (scope2) - Location based (in tonne)	299,168	368,649	426,074	417,346	**418,989**
Energy consumption (in terajoules)	6,532	7,458	7,476	7,591	**8,308**
Workforce (fully consolidated companies)	9,769	10,420	11,152	10,859	**11,050**
Lost Time Accidents (LTA)	51	61	90	49	**73**
LTA frequency rate	3.01	3.36	4.60	2.50	**3.7**
LTA severity rate	0.09	0.10	0.20	0.47	**0.12**
Exposure ratio 'all biomarkers aggregated' (in %)	2.7	2.8	1.8	2.0	**1.5**
Average number of training hours per employee	45.33	43.10	48.73	36.33	**41.59**
Voluntary leavers ratio	5.03	7.18	5.99	4.20	**5.82**



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umicore
materials for a better life

Glossary

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.

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.

CO_2 equivalent (CO_2e)

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.

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.

Decibel (dB)

Unit of noise level.

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.

Employee
Aperson 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.

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.

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 (CO_2); methane (CH_4); nitrous oxide (N_2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF_6). See 'Kyoto Protocol'.

GHG emissions intensity
total scope 1+2 CO2e market-based emissions divided by the total revenues excluding metals

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 Materials, Secondary 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.

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 Accident

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.

Megaliter
Unit used when measuring water, equal to 1000 m^3

Microgram per deciliter (µg/dL)
Unit used when measuring metal content in blood.

Microgram per gram (µg/g)
Unit used when measuring metal content in urine.

Net cashflow before financing
Net operating cashflow – net cashflow 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.

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.

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 CO_2 that arises from the breakdown of calcium carbonate ($CaCO_3$).

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 which 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 purchased metals.

Retention rate

100%-voluntary leavers rate

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.

scope 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 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.

FINANCIAL CALENDAR[1]

28 APRIL 2022
General meeting of shareholders
(financial year 2021)

22 JUNE 2022
Capital Markets Day

29 JULY 2022
Half year results 2022

1 Dates are subject to change. Please check the Umicore website for updates to the financial calendar - umicore.com

https://www.umicore.com/en/investors/

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