



umicore
materials for a better life

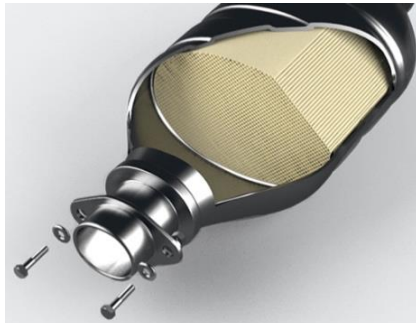
Umicore Investor Presentation

October 2019



Introduction to Umicore

We are a global materials technology and recycling group



One of three global leaders in emission control catalysts for light-duty and heavy-duty vehicles and for all fuel types



A leading supplier of key materials for rechargeable batteries used in electrified transportation and portable electronics

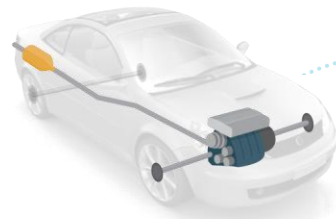


The world's leading recycler of complex waste streams containing precious and other valuable metals

With a unique position in clean mobility materials and recycling

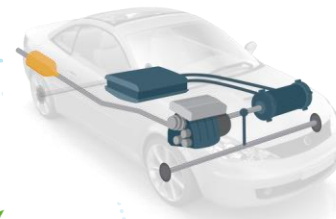
Internal Combustion Engine

Umicore provides:
Emission control catalysts



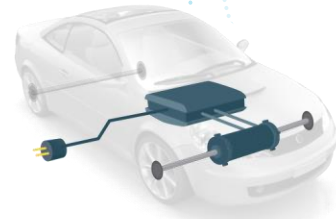
Plug-In Hybrid Electric Vehicle

Umicore provides:
Battery cathode materials and
emission control catalysts



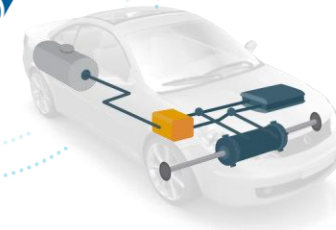
Full Electric Vehicle

Umicore provides:
Battery cathode materials



Fuel cells

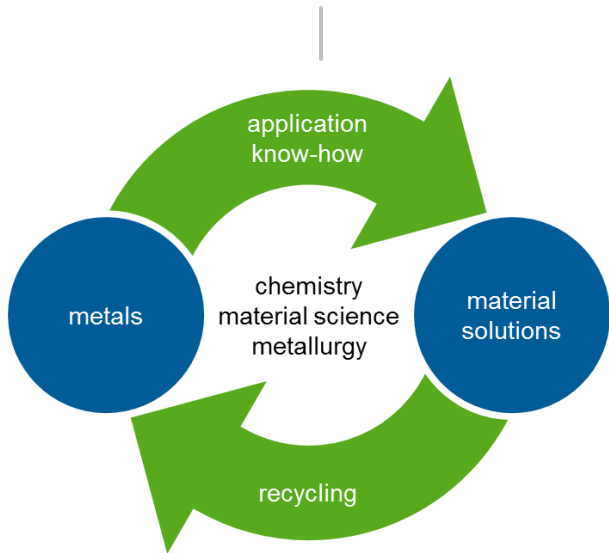
Umicore provides:
Electro-catalyst and
battery cathode materials



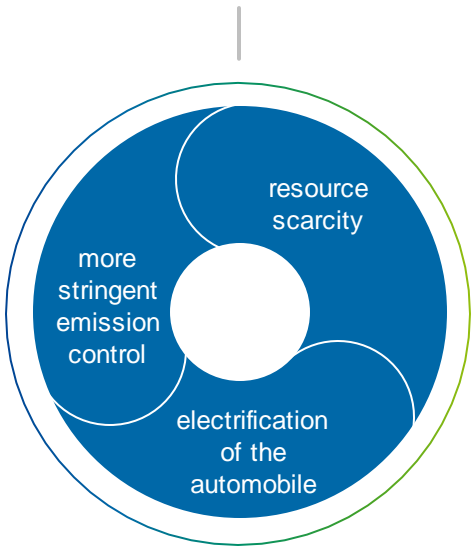
Present across all drive trains and offering sustainable closed-loop services

Built on sound foundations

Unique business model



Supportive megatrends & legislation



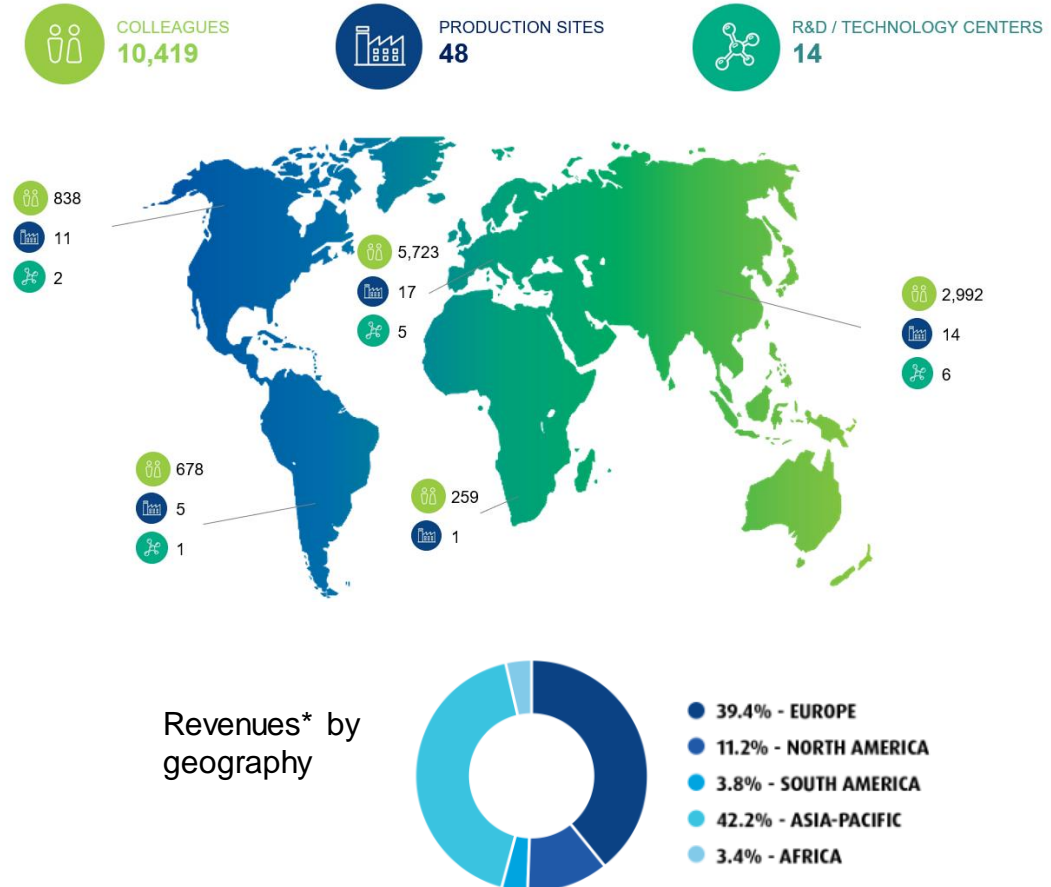
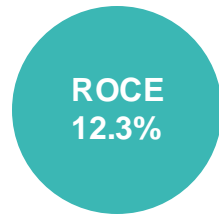
Industry leader in sustainability



We help improve air quality, make electrified transport possible and tackle resource scarcity

With a robust financial performance and a global presence

Key figures (H1 2019)



* 2018 data

We deliver on our Horizon 2020 strategy



Clear leadership
in clean mobility
materials and
recycling



Doubled the size
of the business in
terms of earnings



Rebalanced the
portfolio
& earnings
contributions



Turned
sustainability into
a greater
competitive edge

With a focused & balanced Group structure



CATALYSIS

Automotive Catalysts
Precious Metals Chemistry



ENERGY & SURFACE TECHNOLOGIES

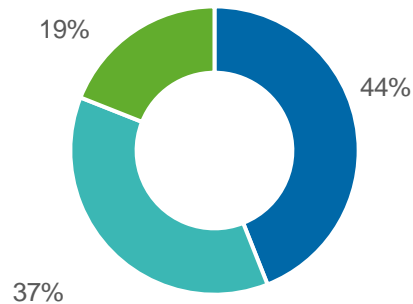
Rechargeable Battery Materials
Cobalt & Specialty Materials
Electroplating
Electro-Optic Materials



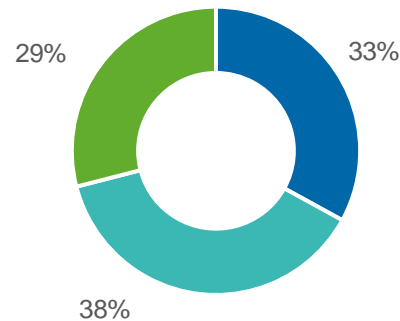
RECYCLING

Precious Metals Refining
Jewelry & Industrial Metals
Precious Metals Management

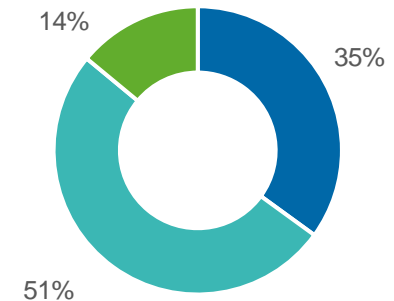
Revenues*
(excluding metal)



Recurring EBIT*



Capital employed*
(average)



* H1 2019 data; corporate not included

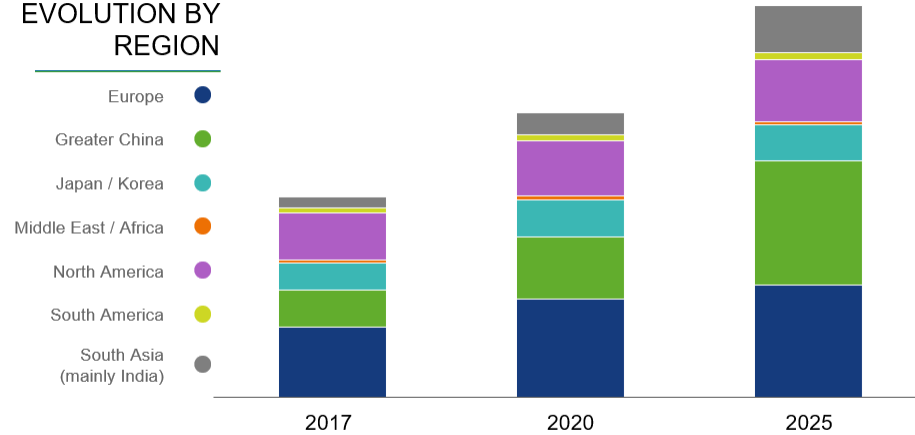


Unique position in Automotive Catalysts



Total LDV and HDD catalyst market value

MARKET VALUE
EVOLUTION BY
REGION



Source: IHS, KGP, Umicore estimates

Tightening emission norms for LDV and HDD, in particular in China, Europe and India

Significant value uplift especially in gasoline catalysts

Increasing share of **gasoline cars** globally

Umicore won largest share of **cGPF platforms** in China and Europe

Increasing uptake of **fuel cell drivetrains**

Technology and innovation play

We are well positioned to capture unprecedented value growth in automotive catalyst markets



Energy &
Surface

Technologies

Unique position in Rechargeable Battery Materials for xEV



Electrification confirmed as main avenue to drastically reduce vehicle emissions in mid- and long-term

Strongly supported by **legislation** and evidenced by massive roll-out of car OEM's e-mobility strategies

Increasing electrification drives **strong market demand** in mid and long-term

Technology roadmap offers ample room for **innovation and differentiation**

Product

Process

Closed loop offering

Umicore uniquely positioned to address long-term requirements of this industry, while managing short-term fluctuations with agility

Full spectrum of highest quality cathode materials

Process technology and ability to scale up fast

Innovation pipeline spanning next 20 years

Integrated supply chain and battery recycling



RECYCLING

Unique position in Recycling



Metallurgical leadership and proprietary technologies for treating complex residues and by-products



Closing the loop in product businesses by offering recycling services



Over 200 different input streams



Recovery of more than **20 different metals**

Increasing **resource scarcity** and need for **closing the loop**

Growing complexity of materials to recycle

Increased availability of complex materials, in particular end-of-life materials

Eco-efficient recycling processes are becoming the norm

Umicore uniquely positioned to capture growth as the **world's largest and most complex** precious metal recycler with **world class environmental and quality standards**

We have a solid framework for value creation



Strong growth

- Multiple growth drivers
- Secular trends
- Supporting legislation
- Privilege organic growth
- Complementary M&A, with focus on value creation

R&D
6% of
revenues


Capex
€ 478 m*

* 2018 data



Focus on returns

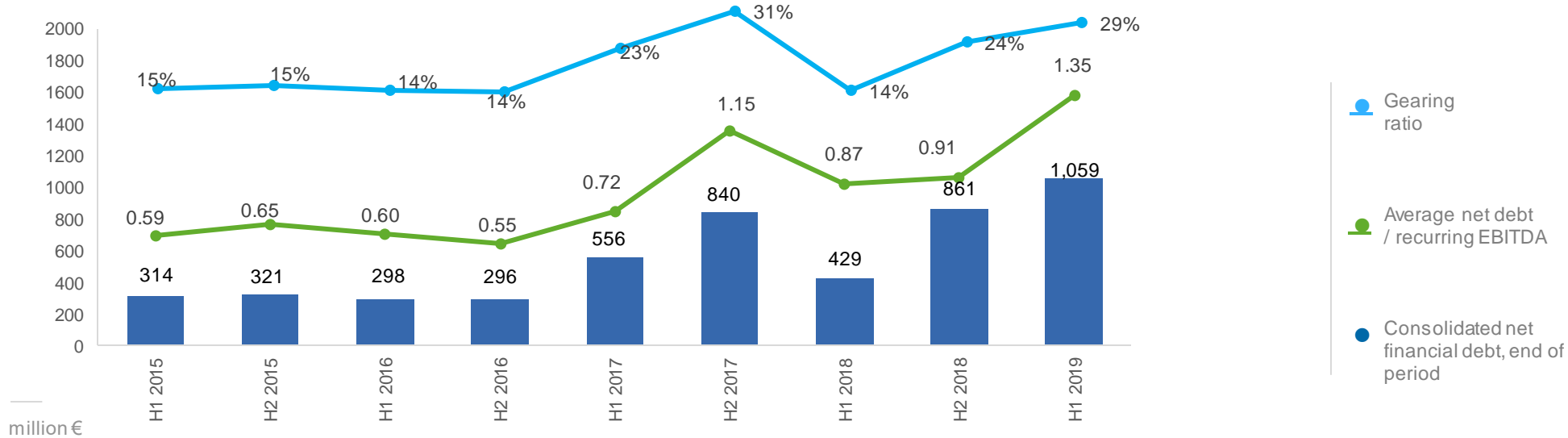
- Earnings growth objective
- Group and segment returns > cost of capital
- 15%+ ROCE target
- Value creation precedes ROCE maximization



Focus on cashflows and solid capital structure

- Prioritize cash for strategic organic growth projects
- Currently in accelerated investment phase
- Strong self-funding capacity (normalized excl. current acceleration)
- Not overstretch balance sheet
- Cash return to shareholders

And maintain a strong capital structure



Net financial debt € 1,059 m

Modest impact from the adoption of IFRS 16 due to limited use of operating leases (€ 37 m)

Corresponds to :

1.35 x average net debt to recurring EBITDA ratio
29% net gearing ratio

Ample funding headroom to execute growth strategy, no need for additional capital injection



Business Group Overview

Catalysis



Catalysis

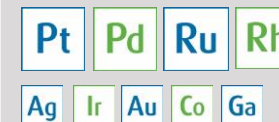
Automotive Catalysts

A world leader in emission control catalysts for light-duty and heavy-duty vehicles and for all fuel types. Complemented by smaller stationary catalyst applications (marine, power generation, ...).



Precious Metals Chemistry

Develops and produces metal-based catalysts used in chemistry, life sciences and pharmaceutical applications. Also has a complete portfolio of catalyst technologies for fuel cells.





Automotive Catalysts: business model



We develop technologies which allow our customers to meet automotive emission legislation at the lowest Total Cost of Ownership

Complete catalyst systems to reduce exhaust gas emissions



Customer focus



People engagement

Operational excellence



Global manufacturing & technical footprint

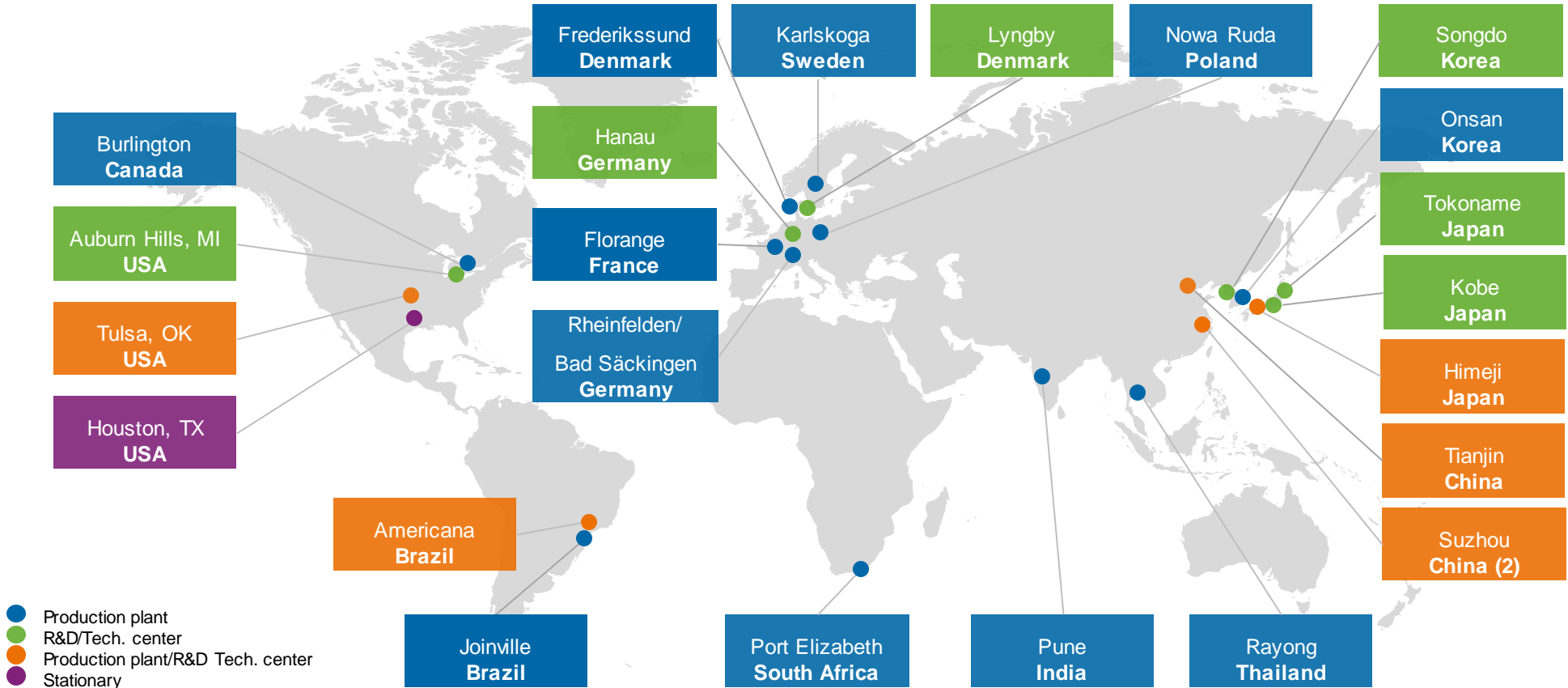




Automotive Catalysts Production Footprint



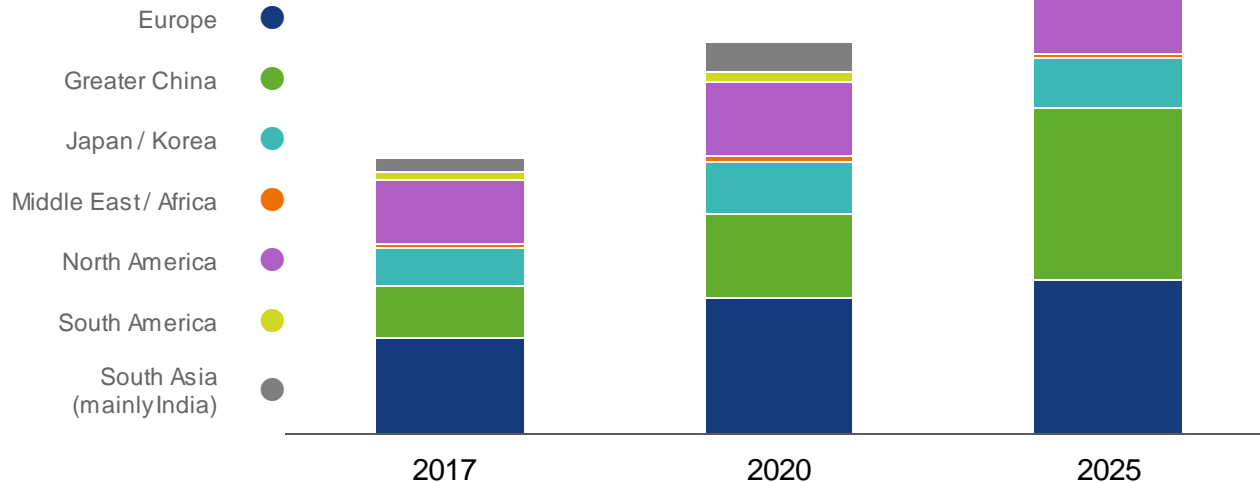
19 plants in 14 countries, 10 R&D / tech. centers in 7 countries





Total LDV and HDD catalyst market set for unprecedented value growth

MARKET VALUE EVOLUTION BY REGION



Source: IHS, KGP, Umicore estimates



- > Massive tightening of emission norms in China, Europe and India drive massive value uplift in both the LDV and HDD catalyst markets
- > Value growth by far outpacing vehicle production
- > Technology and Innovation play



Umicore well positioned to capture this growth



Next to **volume growth**, unprecedented future **system value step-up** due to tightening emission norms in Europe, China and India in particular.

Light-Duty Vehicles

- Gaining significant share in growing gasoline segment
- Disproportionate share of gasoline GPF platforms won in China and Europe

Heavy-Duty Diesel

- Growing from a distant #3 position
- Strong position in China, the largest HDD market
- Development partner of most major HDD OEMs

Stationary :

- Growing niche
- New legislation
- Leverage global presence

Through R&D, we continue to build a **competitive technology** portfolio and invest in **additional flexible capacity** using proprietary processes



Catalysis H1 2019 performance



Revenues +1% and stable REBIT; in strong contrast with declining auto market

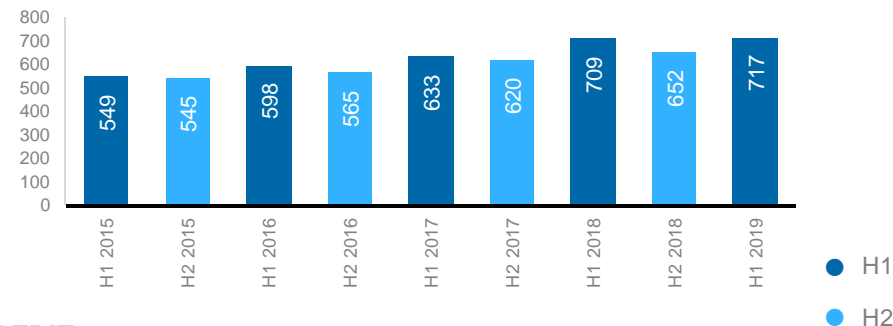
Automotive Catalysts (~90% Catalysis revenues)

- Market share gains in light duty gasoline
- Growing penetration of cGPFs
- Good customer and platform mix esp. in China
- Higher revenues in heavy-duty diesel

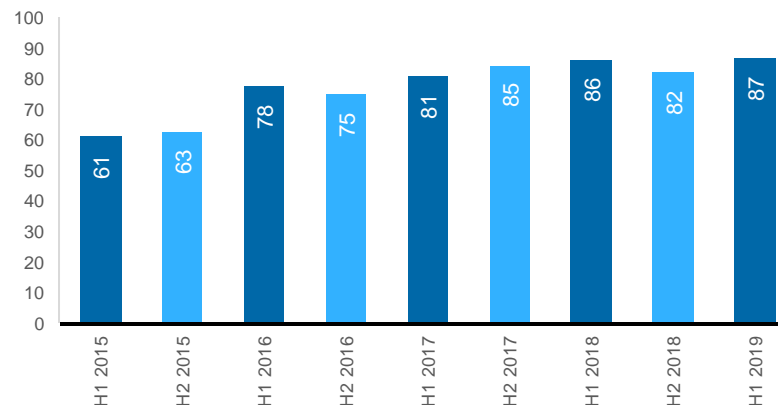
Precious Metals Chemistry

- Strong demand from pharmaceutical and chemical industries
- Higher revenues from fuel cell catalysts

REVENUES



REBIT



million €



Strong growth drivers in Catalysis

Tightening emission norms for LDV and HDD, in particular in China, Europe and India

Significant value uplift especially in gasoline catalysis

Increasing share of gasoline platforms in the global mix

Increasing uptake of fuel cell drivetrains

Umicore best positioned to capture growth in growing gasoline segment

Largest share of cGPF platforms won in China and Europe

Umicore well positioned to capture growth in HDD segments

Umicore expanding capacity in fuel cells



Impressions



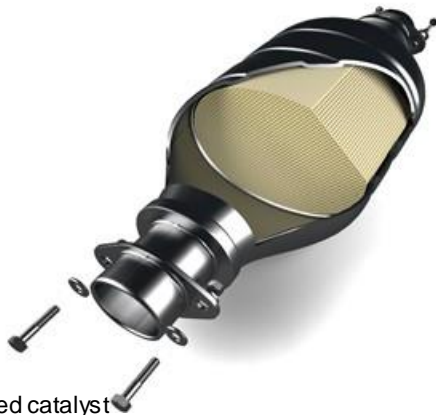
Catalyst elements



Test bench



Bad-Säckingen plant AC, Germany



Canned catalyst



Installation stationary DNOx catalyst



Nowa Ruda plant AC, Poland



Business Group Overview

Energy & Surface Technologies



Energy & Surface Technologies



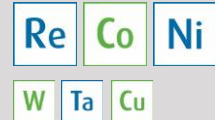
Rechargeable Battery Materials

A leading cathode material supplier for lithium-ion rechargeable batteries used in electrified vehicles and portable electronics.



Cobalt & Specialty Materials

Refines and recycles cobalt and nickel; produces cobalt and nickel specialty chemicals for a wide range of applications (incl. tires, catalysts, surface treatment). Also includes battery recycling.



Electroplating

Supplies precious metal electrolytes & processes for technical, functional and decorative applications.



Electro-Optic Materials

Supplier of products for thermal imaging as well as wafers for space solar cells and high brightness LEDs, chemicals for fiber optics and thin film applications.



Rechargeable Battery Materials: business model



Product innovation
based on strong
application know-how



Process innovation
fuels productivity
improvements while
maintaining highest quality
standards (stringent
automotive standards)



Established industrial
footprint **close to the
customer**



**Strong industrialization
capabilities** building on
historical Umicore key
competences



Integrated process flows
with guaranteed access
to critical raw materials
allows **an agile market
approach**



Battery market projections

Electrification triggered by legislation in Europe and China

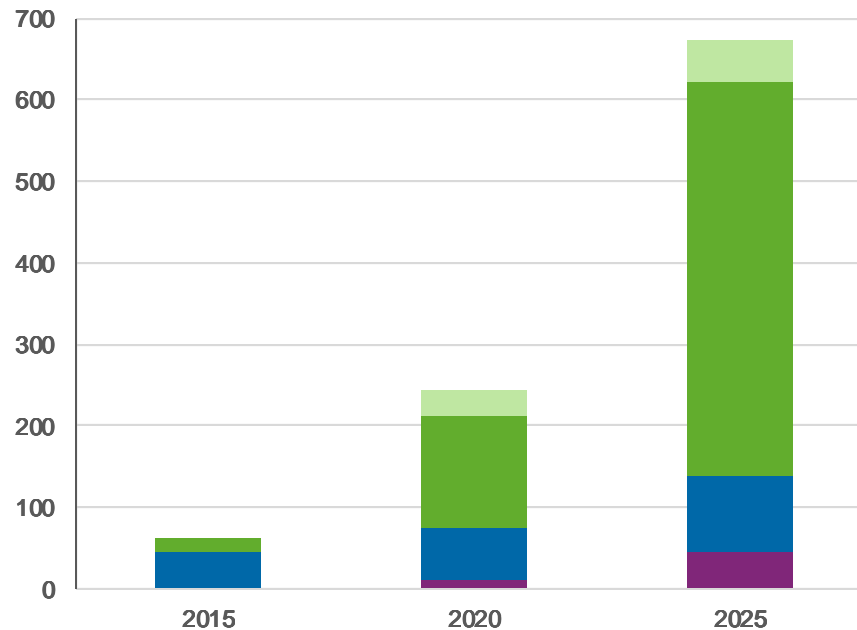
Electrification
Regulatory driver



Portables
Societal driver



Energy Storage System
Regulatory driver



RECHARGEABLE
BATTERY
MARKET (GWH)

- Heavy Duty Vehicles
- Electrification Current Scenario
- Portables
- ESS

Source: Avicenne, Navigant, Roland Berger, AABC, IHS, Gartner, SNR, CRU, Roskill



It takes a lot to play in the automotive league

Car OEMs need :

High quality cathode materials

- ... **custom made** for **different types** of xEVs
 - ... in **massive volumes**
 - ... at the highest **speed and flexibility**
 - ... at a **competitive price**
 - ...without any **sustainability image risk**.
- > excellent product quality on 20+ specs
 - > wide spectrum of cathode material technologies
 - > industrial capabilities
 - > ability to scale up fast
 - > cost-efficient processes
 - > ethically sourced materials

**It takes product technology,
process technology and supply**



Product, process and supply

Key success factors

3 Supply



- Feed flexibility
- Battery recycling

1 Product Technology

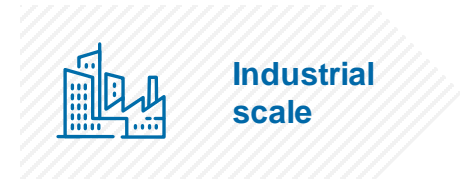


Wide spectrum of cathode material technologies

2 Process Technology



- Ability to scale up fast
- Cost-efficient processes
- Industrial capabilities



Best in class product quality on 20+ specs:
continuous fine-tuning at lab, pilot and industrial scale



Product
technology

Cathode material specs to fulfil cell performance specs



Cathode material product specs

- Particle size
- Morphology
- Composition
- Purity
- Packing density
- Porosity
- Consistency
- and more...



Cathode material performance specs

- Capacity
- Power (charge/discharge)
- Cycle life
- Safety
- Charge efficiency
- and more...

Tailoring cathode material characteristics to the cell specs requires:

Fundamental chemistry know-how to design the right product composition during lab phase

Ability to further enhance the product designs during the qualification cycles in pilot phase

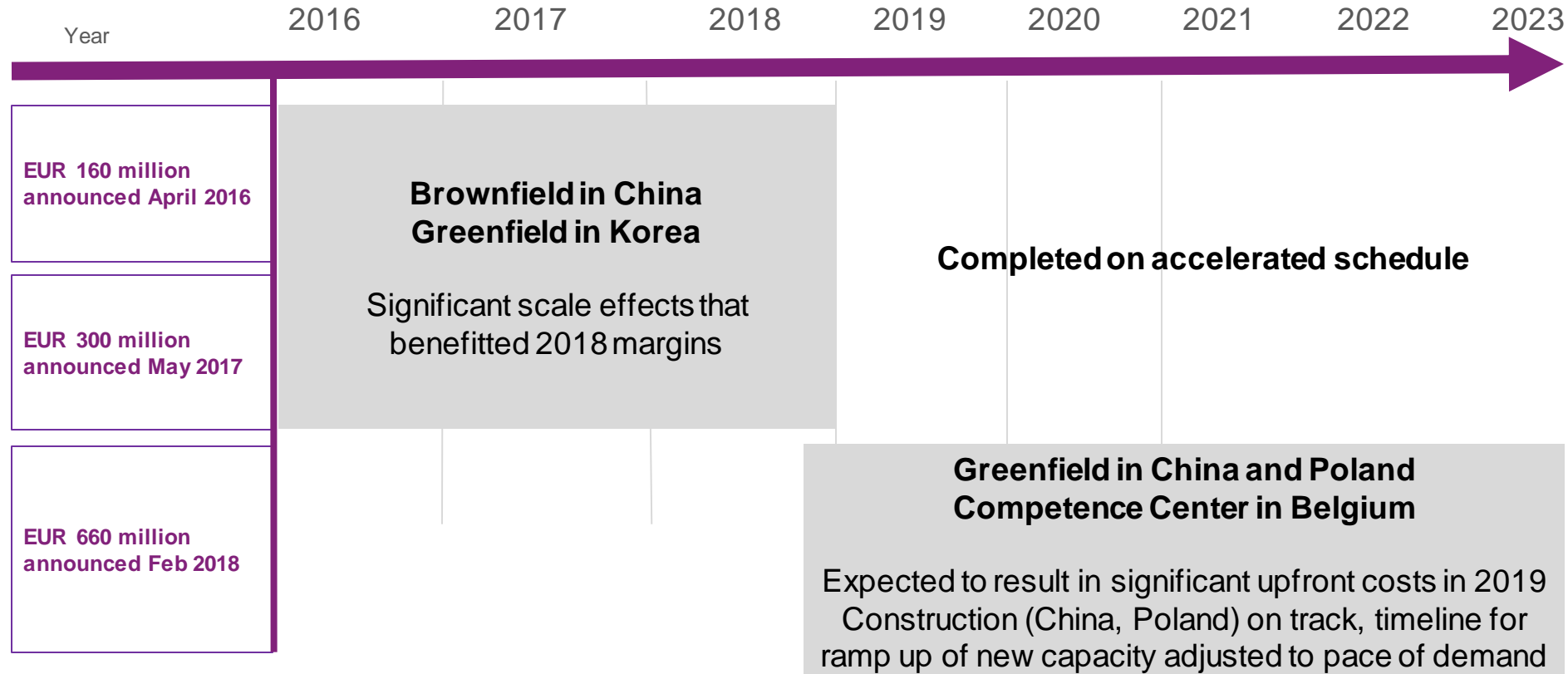


Process
technology

Rechargeable Battery Materials

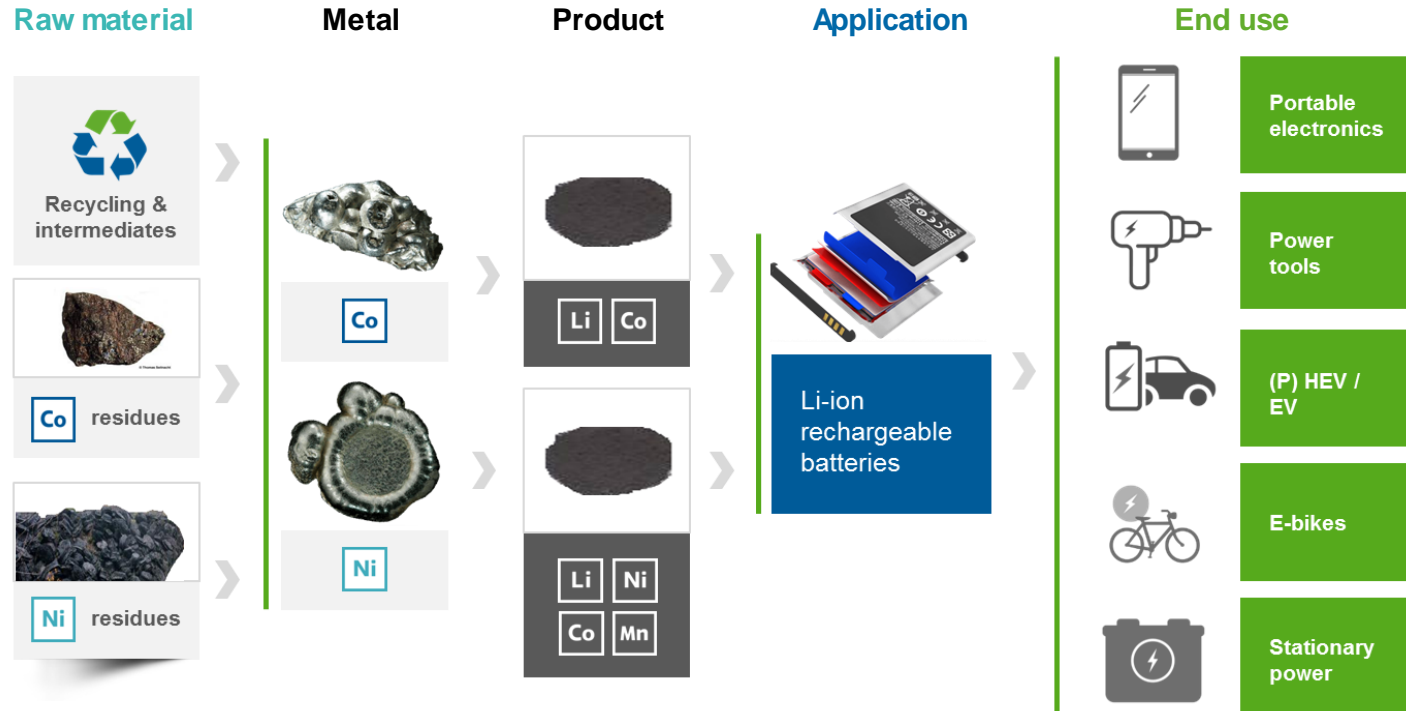


Expansion projects timeline



Access to raw materials

Unique integration in the value chain



Umicore

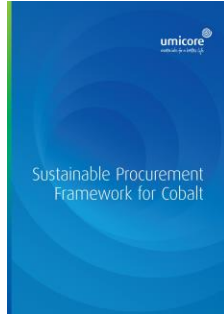
- Flexibility in supply feed, high speed to market and responsiveness to customer needs

Access to raw materials

Battery recycling as critical additional source of supply



- Umicore is fully aligned with OECD Due Diligence for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas
- Certified clean and ethical supply to our customers
- Urban mining indispensable for global electrification of transportation
- Proven industrial capabilities for all types and formats of Li-ion batteries
- Patented recycling technology
- High recovery rates for lithium, cobalt, nickel and copper
- Highest environmental standards



Umicore Flexibility in supply feed, high speed to market and responsiveness to customer needs



Expanding integrated and sustainable battery materials supply chain



Agreement to acquire Freeport Cobalt's refining and cathode precursor activities in Finland

Fully integrated and sustainable battery materials supply chain in Europe

To support Umicore's and its customers' European growth plans

Supply precursors for cathode materials production in Poland, due to start in H2 2020

Complementary IP and know-how for refining and precursor production

Team of experienced battery industry professionals

Acquisition earnings accretive from 2020 and value accretive from 2021

Closing subject to customary conditions and approvals

Partnership with Glencore for sustainable cobalt supply

Long-term supply guarantee for substantial part of our cobalt needs

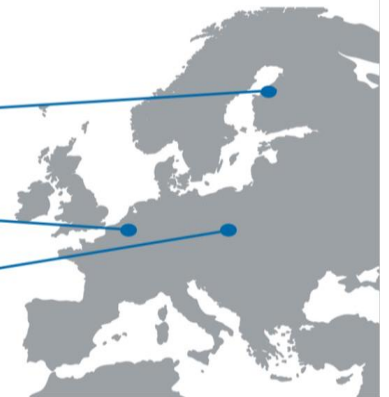
Cobalt sourced from state-of-the-art industrial mining operations, then shipped to our refineries globally

Umicore battery supply chain in Europe

Kokkola (Finland):
cobalt refinery and
precursor production

Olen (Belgium):
R&D
Hoboken (Belgium):
battery recycling

Nysa (Poland):
cathode materials
production





E&ST H1 19 performance



Revenues -7%; REBIT -16% reflecting slowdown in demand and lower metal prices

Rechargeable Battery Materials

Lower NMC for ESS and LCO sales
Flat demand for automotive applications

Recycling and refining activities hit by lower metal prices

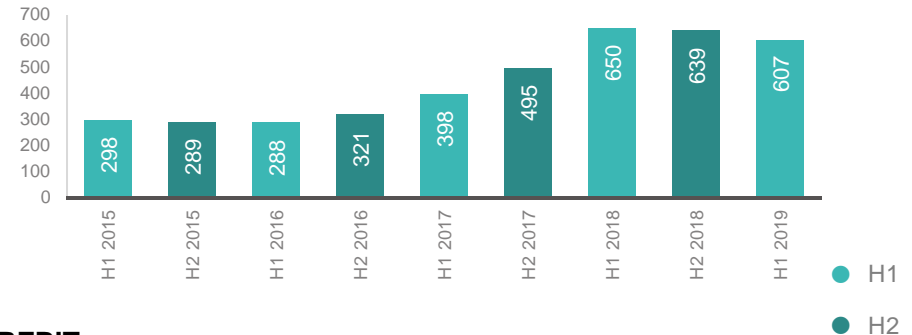
Cobalt & Specialty Materials

Customer destocking of excess inventories
Activities impacted by low metal prices
Inflow of cheaper unethically sourced artisanal cobalt

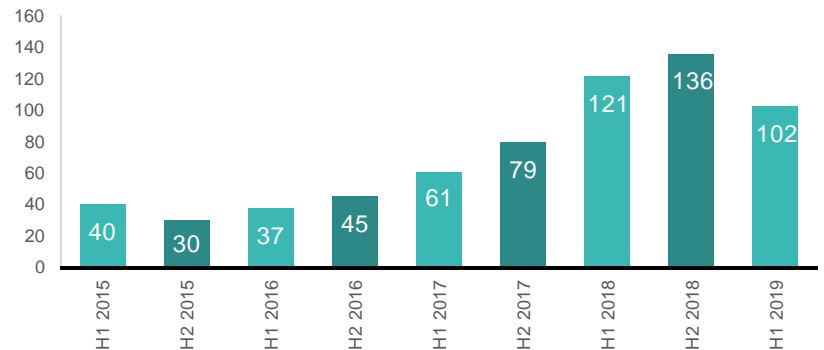
Revenues for **Electroplating** slightly down; stable for **Electro-Optic Materials**

Battery materials value chain is ~70% E&ST revenues

REVENUES



REBIT



million €



Strong growth drivers for E&ST

Electrification and technology differentiation

Electrification confirmed as the main avenue to drastically reduce vehicle emissions in mid & long term

Strongly supported by legislation:

Continued regulatory push in China despite earlier than anticipated subsidy cuts

CO₂ legislation in Europe

and evidenced by the massive roll-out of car OEM's e-mobility strategies

Technology roadmap offers ample room for innovation and differentiation:

Product: range, charging times, durability

Process: ability to scale up fast, cost efficient and flexible processes, quality consistency

Closed loop offering

Umicore ideally positioned to address the long-term requirements of this industry, while managing short-term fluctuations with agility

Impressions



EV car battery pack



Packaging finished product



RBM Cheonan production sites, Korea



Business Group Overview

Recycling



Recycling

Precious Metals Refining

Operates the world's most sophisticated precious metals recycling facility and recovers 17 precious and other valuable metals from complex waste streams.



Precious Metals Management

Services for hedging, leasing, purchasing and sale of precious and platinum group metals to internal and external customers



Jewelry & Industrial Metals

Supplier of precious metals based products for jewelry and industrial applications, recycler of jewellery and production scrap and producer of platinum-based equipment for the glass and chemical industries.





Precious Metal Refining

Largest and most complex precious metals recycling operation in the world

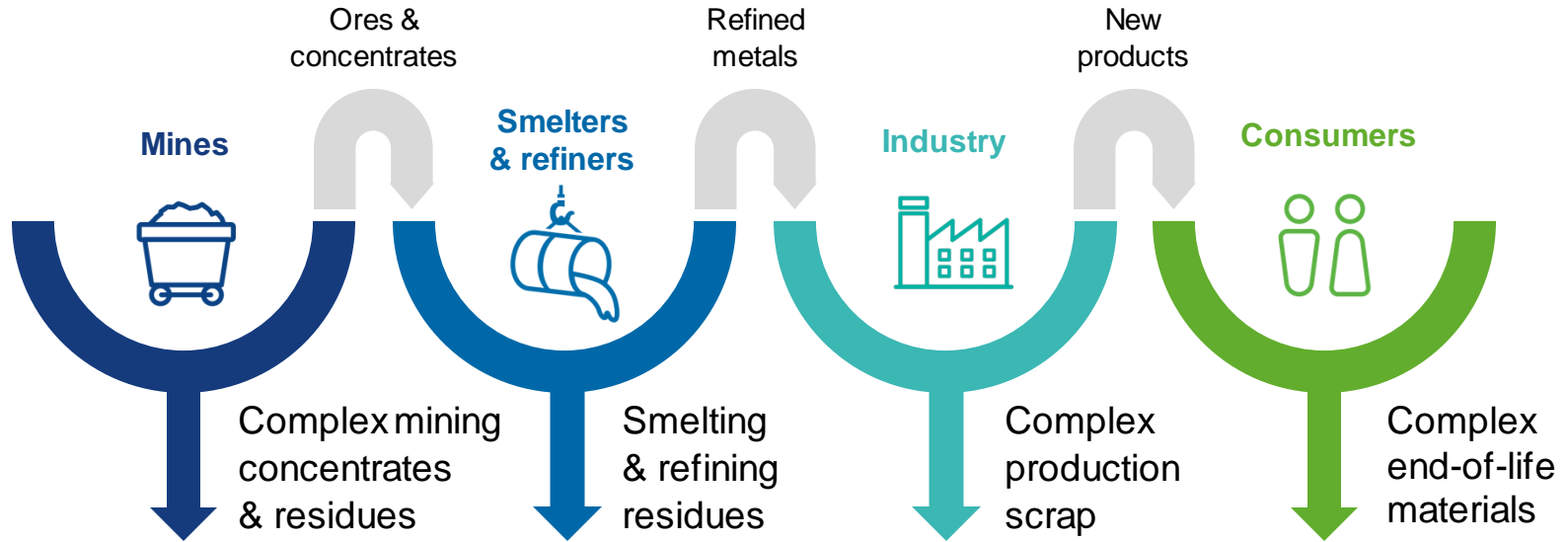


Processes more than 200 different types of raw materials





The value chain of metals



Industrial by-products

End-of life materials



Revenue Drivers



Main revenue drivers

Treatment & refining charges

Treatment charges are determined, among other criteria, by the complexity of the materials

Metal yield

Umicore assumes the risk of recovery above or under the contractually agreed recovery rate



Metal price exposure



Ag	Au	Pt	Ir	Rh	In	Sb	As
		Ru	Pd		Te	Sn	Pb
					Bi	Cu	
					Ni	Se	

Managing the effects of metal price movements on earnings

Systematic hedging of transactional exposure

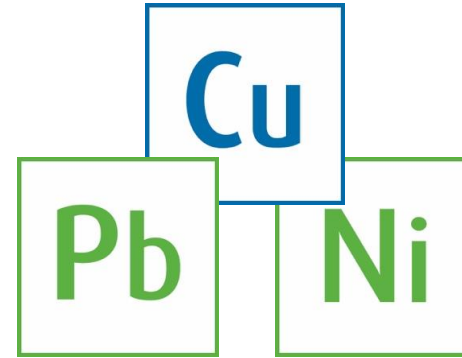
Depending on market conditions hedging of (part of) structural metal price exposure through contractual arrangements

Impact on working capital is mitigated by toll-refining – metals remain property of the supplier during treatment



Umicore has unique technology

Umicore is unique due to its proprietary complex flowsheet that combines three metallurgical streams



This enables

Flexibility to treat a broad range of input materials

Recovery & valorization of the most metals

Ability to optimize feed and therefore profitability

Scope to broaden to new types of materials in future

- Umicore technology guarantees **environmentally friendly** processing, a high yield and a more competitive cost
- Umicore introduced its unique Ultra High Temperature technology for Battery Recycling more than 5 years ago



Recycling H1 2019 performance



Revenues and REBIT -2%(*) due to extended maintenance shutdown

Precious Metals Recycling (~70% Recycling revenues)

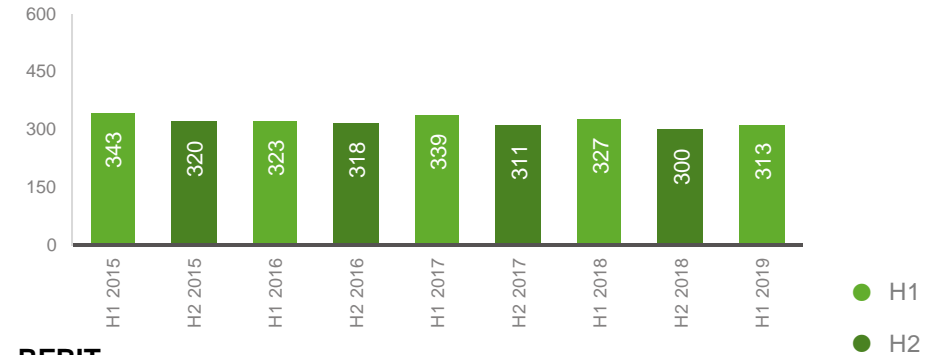
Better throughput rates following latest wave of investments in Hoboken

Lower processed volumes due to extended scheduled shutdown

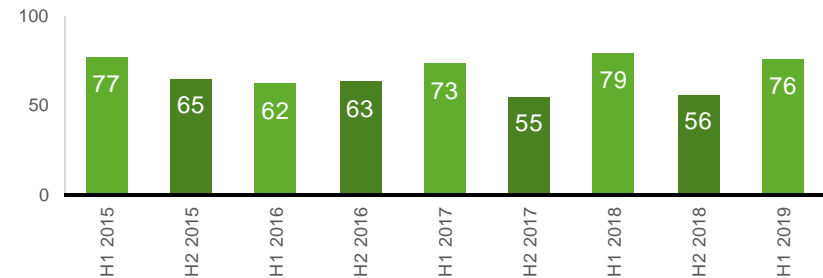
Better supply mix and higher metal prices

Revenues for **Jewelry & Industrial Metals** slightly up; higher earnings contribution from **Precious Metals Management**

REVENUES



REBIT



(*) excluding the impact of the divestment of the European activities of Technical Materials at the end of January 2018



Strong drivers for Recycling

Increasing resource scarcity
and need for closing the loop

Growing complexity of
materials to recycle

Eco-efficient recycling
processes are becoming the
norm

Umicore uniquely positioned to
capture growth in this segment
as the world's largest and most
complex precious metal
recycler with world class
environmental and quality
standards



Impressions



PMR Hoboken recycling plant, Belgium

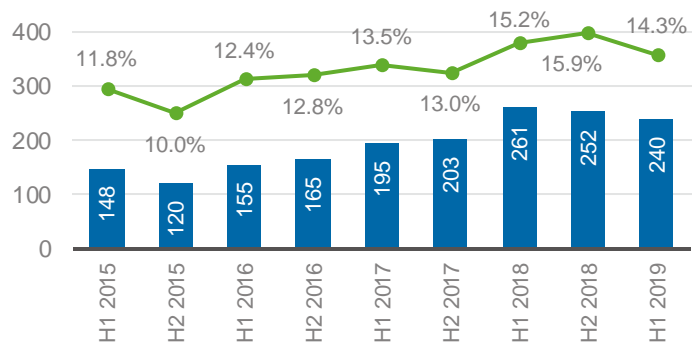


Financials H1 2019

Robust performance in a challenging environment



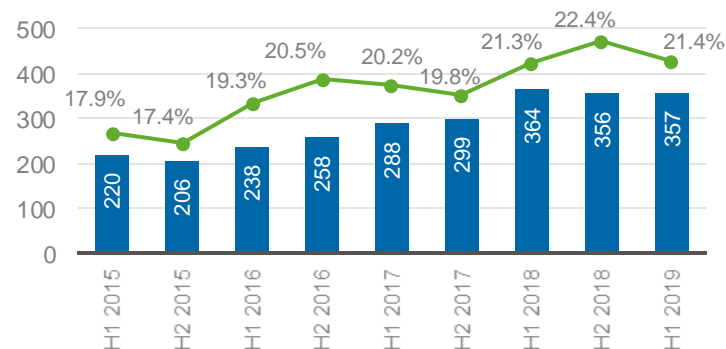
REBIT & REBIT margin



Down compared to a record H1 18 and resilient sequential performance

	vs H1 18	vs H2 18
Revenues	- 3 %	+ 3 %
Recurring EBIT	- 8 %	- 5 %
Recurring EBITDA	- 2 %	=

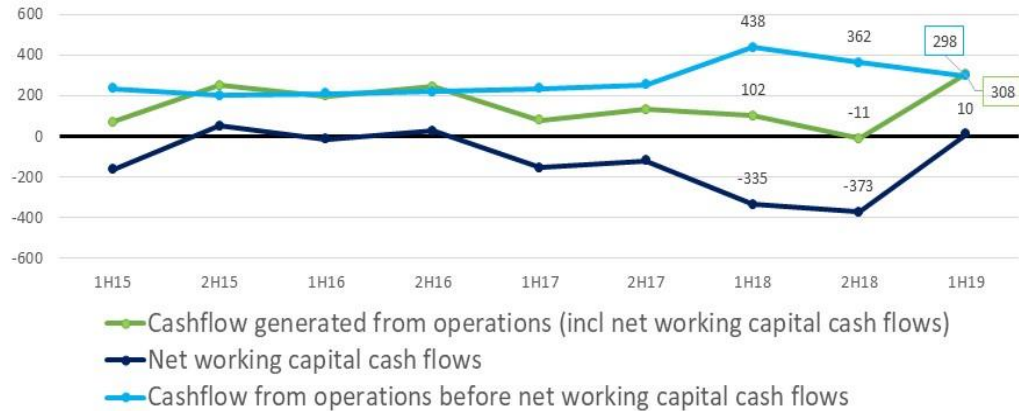
REBITDA & REBITDA margin



Robust margin performance despite higher costs (D&A and greenfield expansions):

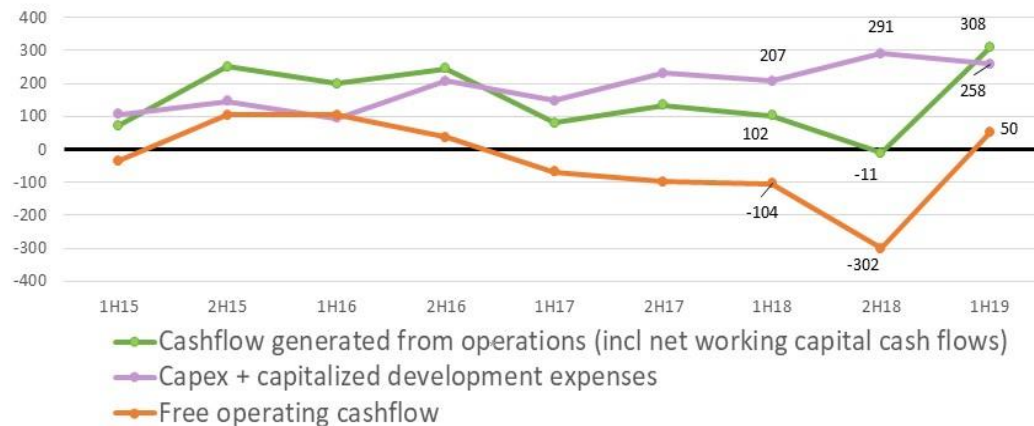
Recurring EBIT margin of 14.3%
 Recurring EBITDA margin of 21.4%
 Adoption of IFRS 16 lease standard increasing D&A and recurring EBITDA by € 7.3 million
 ROCE of 12.3% reflecting impact of recent investments

Stronger free operating cash flows



Cashflow generated from operations tripled compared to H1 18 and highest in recent years

Stable net working capital in 1H19 versus last year's strong increase



Higher capex (€ 241 m) of which two thirds in E&ST

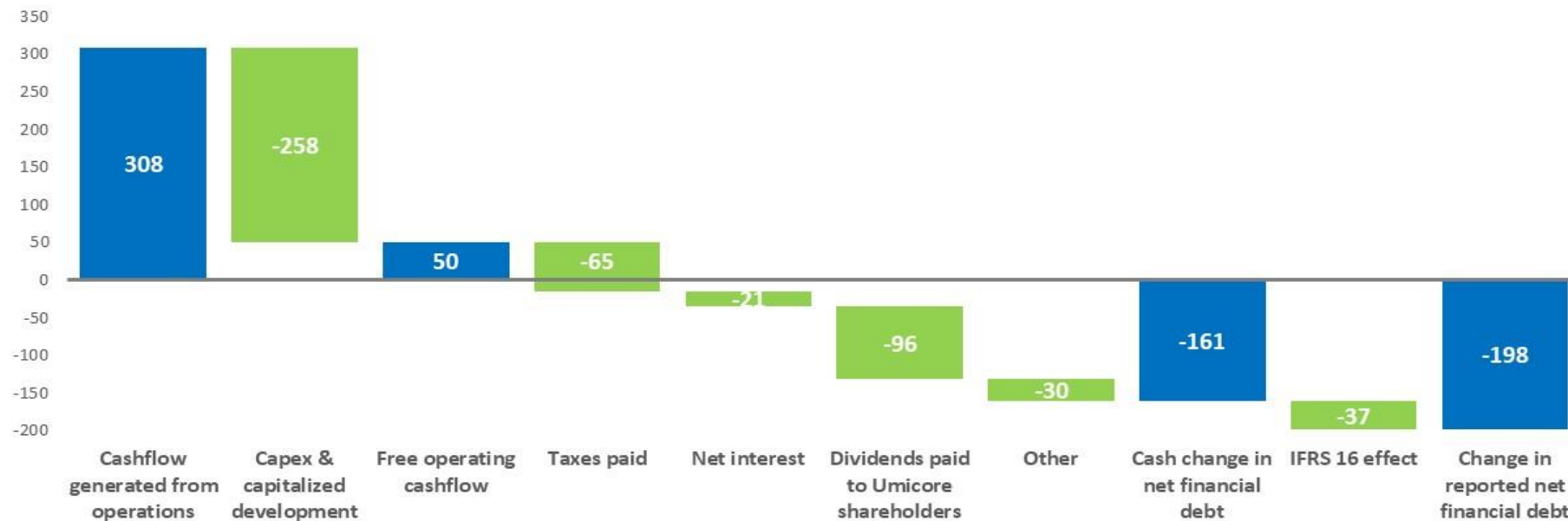
Complemented by increased capitalized development expenses (€ 17 m) also mostly in E&ST

Substantial improvement in free operating cashflow year on year (€ 50 m in H1 19)

Full year projected capex of appr. € 600 m and targeting stable working capital

* Free operating cashflow = cashflow generated from operations – capex & capitalized development expenses

Net cash flow profile



Free operating cashflow of € 50 m
(- € 104 m in H1 18)

Tax and net interest cash out of € 86 m
(€ 88 m in H1 18)

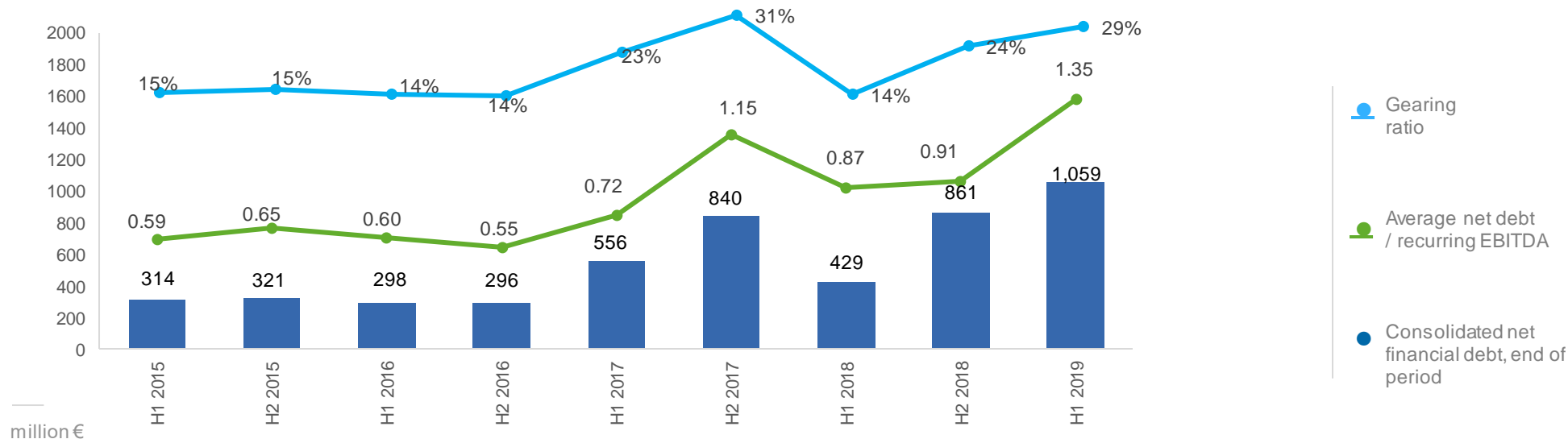
Higher dividend pay-out to Umicore shareholders
(€ 96m vs € 91m in H1 18)

Non-cash increase in net financial debt of € 37 m from IFRS 16 adoption

* Cashflow generated from operations includes net working capital cash flows

** Free operating cashflow = cashflow generated from operations – capex & capitalized development expenses

Maintaining a strong capital structure



Net financial debt € 1,059 m

Modest impact from the adoption of IFRS 16 due to limited use of operating leases (€ 37 m)

Corresponds to :

1.35 x average net debt to recurring EBITDA ratio

29% net gearing ratio

Ample funding headroom to execute growth strategy, no need for additional capital injection

Further extended funding base

Issuance of € 390 m US private placement notes,
complementing existing committed credit facilities :

Historically low, fixed interest rates

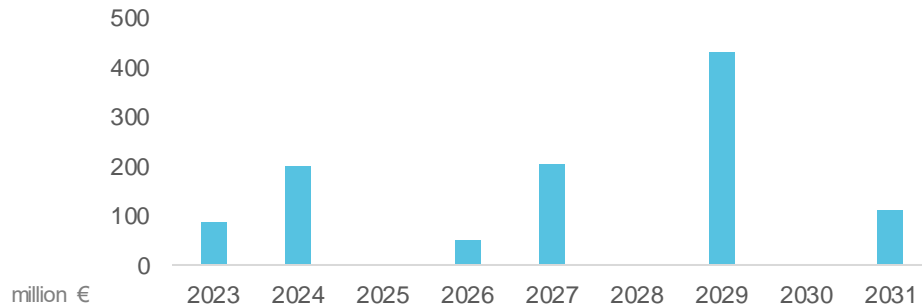
Maturities of 7, 10 and 12 years

Expected drawdown in September

Total of committed medium and long term debt facilities
amounting to € 1,875 million.

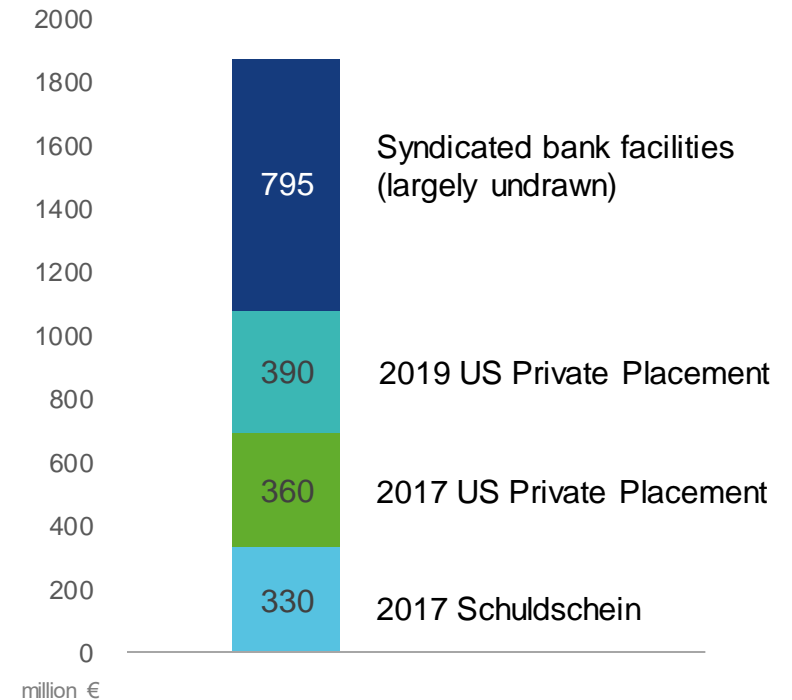
No major maturities before 2029

Debt maturity profile



Committed medium & long term facilities

Total of € 1,875 m





2019 Outlook

Outlook 2019

As announced in April, Umicore expects its recurring EBIT for the full year to be in a range of € 475 million to € 525 million, assuming no material further deterioration of the macroeconomic environment.

In Catalysis, Umicore expects to continue outperforming the automotive market and grow the business group's recurring EBIT for the full year from last year's level.

The Energy & Surface Technologies business group continues to face challenging market conditions in its key end-markets which, combined with the effect of low cobalt prices and unethical supply as well as costs related to new investments, means that the business group's recurring EBIT for the full year is expected to be well below the level of last year.

In Recycling, Umicore expects to benefit from the throughput improvement in Hoboken which, combined with a favorable supply mix and higher prices for certain metals, means that the business group's recurring EBIT for the full year should grow from the level of 2018, despite the impact of the July fire incident in Hoboken.



Key Investment Considerations

Key investment considerations

- **Well positioned to take advantage of accelerating global megatrends** : more stringent emission control, electrification of the automobile and resource scarcity
 - Global presence and unique competences acquired over many years;
 - A market leader in most key product markets and particularly in automotive catalysts, cathode materials and complex polymetallic recycling;
 - Strong organic growth prospects supported by legislation
- **Well-diversified business profile** with broad product, end-market and customer base driven by a common theme of sustainability
- **Strong track record of and commitment to innovation to maintain competitive lead** (R&D spending of close to 6 % of revenues in 2018)
- **Robust financial performance** across cycles and margin focus with recent investments yielding returns
- **Strong balance sheet** with recent substantial growth investments
- **Experienced board, management team, and clear governance principles**

Forward-looking statements

This presentation contains forward-looking information that involves risks and uncertainties, including statements about Umicore's plans, objectives, expectations and intentions.

Readers are cautioned that forward-looking statements include known and unknown risks and are subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond the control of Umicore.

Should one or more of these risks, uncertainties or contingencies materialize, or should any underlying assumptions prove incorrect, actual results could vary materially from those anticipated, expected, estimated or projected.

As a result, neither Umicore nor any other person assumes any responsibility for the accuracy of these forward-looking statements.



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