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

Full Electric Vehicle
Umicore provides: Battery cathode materials

Plug-In Hybrid Electric Vehicle
Umicore provides: Battery cathode materials and emission control catalysts

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

We help improve air quality, make electrified transport possible and tackle resource scarcity
With a robust financial performance and a global presence

Key figures (FY 2019)

- **Revenues**: €3.4 bn
- **Recurring EBITDA**: €753 m
- **Recurring EBIT**: €509 m
- **ROCE**: 12.6%

Revenues* by geography

* 2019 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

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**Revenues* (excluding metal)**
- 20%
- 37%
- 43%

**Recurring EBIT***
- 34%
- 33%
- 33%

**Capital employed* (average)**
- 13%
- 35%
- 52%

* FY 2019 data; corporate not included
Unique position in Automotive Catalysts

**Strong growth drivers:**

- 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 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**
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
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
- Focus on returns
- Focus on cashflows and solid capital structure

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

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

- Prioritize cash for strategic organic growth projects
- Currently in accelerated investment phase
- Strong self-funding capacity (normalized excl. current acceleration)
- Cash return to shareholders

R&D 6% of revenues
Capex € 553 m*

* 2019 data
**Maintaining a healthy capital structure**

- **Net financial debt of € 1,443 m**, including new € 390 m long term US private debt placement, drawn in September 2019
- **Diversified funding base and balanced maturity profile**
- **Corresponds to**: 1.9x net debt to recurring EBITDA ratio
- **35% net gearing ratio**
- **Funding headroom to execute growth strategy while remaining within the investment grade territory**

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Financial Debt (€ million)</th>
<th>Net Debt / Recurring EBITDA</th>
<th>Gearing Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>321</td>
<td>0.64</td>
<td>15.3%</td>
</tr>
<tr>
<td>2016</td>
<td>296</td>
<td>0.56</td>
<td>13.8%</td>
</tr>
<tr>
<td>2017</td>
<td>840</td>
<td>1.40</td>
<td>31.1%</td>
</tr>
<tr>
<td>2018</td>
<td>861</td>
<td>1.19</td>
<td>24.4%</td>
</tr>
<tr>
<td>2019</td>
<td>1443</td>
<td>1.92</td>
<td>35.2%</td>
</tr>
</tbody>
</table>
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**
- **People engagement**
- **Global manufacturing & technical footprint**
- **Customer focus**
- **Operational excellence**
Automotive Catalysts Production Footprint
19 plants in 14 countries, 10 R&D / tech. centers in 7 countries

- Burlington, Canada
- Auburn Hills, MI, USA
- Tulsa, OK, USA
- Houston, TX, USA
- Americana, Brazil
- Joinville, Brazil
- Port Elizabeth, South Africa
- Pune, India
- Rayong, Thailand
- Frederikssund, Denmark
- Hanau, Germany
- Florange, France
- Rheinfelden/Bad Säckingen, Germany
- Karlskoga, Sweden
- Lyngby, Denmark
- Nowa Ruda, Poland
- Songdo, Korea
- Onsan, Korea
- Tokoname, Japan
- Kobe, Japan
- Himeji, Japan
- Tianjin, China
- Suzhou, China (2)
- Nowa Ruda, Poland
- Fredricksund, Denmark
- Hanau, Germany
- Florange, France
- Rheinfelden/Bad Säckingen, Germany
- Karlskoga, Sweden
- Lyngby, Denmark
- Nowa Ruda, Poland
- Songdo, Korea
- Onsan, Korea
- Tokoname, Japan
- Kobe, Japan
- Himeji, Japan
- Tianjin, China
- Suzhou, China (2)
Recession in global car market

Global light-duty vehicle production down by 6.3% year on year:
- China - 8.9%
- Europe - 5.0%
- North America - 4.4%

China down 2nd year in a row; steep contraction in H1 19, while pace of decline eased somewhat in H2 19

Falling diesel production in Europe (-12%), share of 35% in European car market

More stringent emission norms in key regions

- Euro 6d TEMP for all new vehicles since September 2019
- Early implementation of China 6a in July 2019 in several major cities and provinces
- Increasing share of gasoline particulate filters in Europe and China
Automotive Catalysts

Market share gains in light-duty gasoline
Growing penetration of cGPFs in China and Europe
Leadership position in light-duty vehicles in China
Higher volumes and revenues in heavy-duty diesel

Precious Metals Chemistry

Strong demand from pharmaceutical and chemical industries
Significant increase in demand for fuel cell catalysts

Catalysis 2019 performance

Revenues +7% and REBIT +10%; outperforming market reflecting market share gains in light-duty gasoline

Revenues +7% and REBIT +10%; outperforming market reflecting market share gains in light-duty gasoline
Catalysis – major milestones in 2019

Sustained investments in product and process innovation

Capacity expansions to support growth of Automotive Catalysts in China, Poland and India

Opening of new plant for fuel cell catalysts in Korea
Impressions

Catalyst elements

Test bench

Bad-Säckingen plant AC, Germany

Canned catalyst

Installation stationary DNox catalyst

Nowa Ruda plant AC, Poland
<table>
<thead>
<tr>
<th><strong>Energy &amp; Surface Technologies</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rechargeable Battery Materials</strong></td>
</tr>
<tr>
<td><strong>Cobalt &amp; Specialty Materials</strong></td>
</tr>
<tr>
<td><strong>Electroplating</strong></td>
</tr>
<tr>
<td><strong>Electro-Optic Materials</strong></td>
</tr>
</tbody>
</table>
Rechargeable Battery Materials: business model

**Product innovation**
- Based on strong application know-how

**Established industrial footprint**
- Close to the customer

**Strong industrialization capabilities**
- Building on historical Umicore key competences

**Process innovation**
- Fuels productivity improvements while maintaining highest quality standards (stringent automotive standards)

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

1. **Product Technology**
   - Wide spectrum of cathode material technologies
   - Ability to scale up fast
   - Cost-efficient processes
   - Industrial capabilities

2. **Process Technology**
   - Ability to scale up fast
   - Cost-efficient processes
   - Industrial capabilities

3. **Supply**
   - Feed flexibility
   - Battery recycling

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

Expansion projects timeline


- **EUR 160 million** announced April 2016
  - Brownfield in China
  - Greenfield in Korea
  - Significant scale effects that benefitted 2018 margins

- **EUR 300 million** announced May 2017

- **EUR 660 million** announced Feb 2018

- **Completed on accelerated schedule**

- **Greenfield in China and Poland Competence Center in Belgium**
  - Significant upfront costs in 2019 and 2020.
  - Projects on track with commissioning of competence center and start of construction of Poland plant in 2019. Also start of commissioning of Chinese greenfield, with timeline for ramp up of new capacity adjusted to pace of demand.
Access to raw materials
Unique integration in the value chain

<table>
<thead>
<tr>
<th>Raw material</th>
<th>Metal</th>
<th>Product</th>
<th>Application</th>
<th>End use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling &amp; intermediates</td>
<td>Co</td>
<td>Ni residues</td>
<td>Li-ion rechargeable batteries</td>
<td>Portable electronics</td>
</tr>
<tr>
<td>Co residues</td>
<td></td>
<td>Ni residues</td>
<td></td>
<td>Power tools</td>
</tr>
<tr>
<td>Ni residues</td>
<td></td>
<td></td>
<td></td>
<td>(P) HEV / EV</td>
</tr>
</tbody>
</table>

Umicore

- Flexibility in supply feed, high speed to market and responsiveness to customer needs
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
E&ST 2019 market context

Slowdown in global EV demand and low cobalt price

Global EV market up 7.7% in 2019 compared to 62% in 2018, reflecting abrupt decline in EV sales in China in H2 due to subsidy cuts

LCO in consumer electronics: supply chain reducing excess inventories

ESS in Korea: subdued demand due to safety incidents

Depressed cobalt price (-56% vs 2018) and inflow of cheaper unethically sourced artisanal cobalt
E&ST 2019 performance

Revenues -5%; REBIT -29% reflecting slowdown in demand and low cobalt price

Rechargeable Battery Materials
Lower sales for portable electronics and ESS
Higher sales for EVs, in line with global EV market
Recycling and refining activities hit by low cobalt price
Higher D&A, higher R&D and upfront costs for greenfield expansions

Cobalt & Specialty Materials
Impacted by low cobalt price and inflow of cheaper unethically sourced artisanal cobalt
Customers reducing excess inventories

Revenues for Electroplating slightly up; stable revenues for Electro-Optic Materials
E&ST – major milestones in 2019

Capacity expansions
• Commissioning greenfield plant in China
• Start of construction greenfield plant in Poland

Commissioning of new Process Competence Center (Olen, Belgium)

Acquisition of cobalt refinery and cathode precursor activities in Kokkola, Finland

Multi-year cathode materials supply agreements with leading EV battery makers, LG Chem and Samsung SDI

Conclusion of long-term supply partnerships for sustainable cobalt

Support for long-term growth
• Obtained support within framework of IPCEI* for batteries
• Global Battery Alliance initiative

* Important Projects of Common European Interest
Impressions

EV car battery pack

Packaging finished product

RBM Cheonan production sites, Korea
Business Group Overview

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

Leading refiner of 17 different metals

World class environmental and quality standards
The value chain of metals

Mines
- Ores & concentrates

Smelters & refiners
- Complex mining concentrates & residues
- Smelting & refining residues

Industry
- Complex production scrap

Consumers
- New products
- Complex end-of-life materials

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

Direct: through metal yield

Indirect: through raw material availability

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 2019 market context
Supportive metal prices and favorable supply environment

Supportive metal price environment
Higher prices for certain precious and platinum group metals, particularly in the second half of 2019

Favorable supply environment with increased availability of complex end-of-life materials
Growing proportion of more complex and higher metal loaded spent automotive catalysts
Higher availability of printed circuit boards due to Green Fence in China
Recycling 2019 performance

Revenues +9%; REBIT +40% reflecting favorable supply mix, higher metal prices and optimization of input mix

Precious Metals Recycling

Higher availability of spent autocats and printed circuit boards
Higher metal prices
Optimization of input mix allowed to offset most of the volume shortfall due to extended maintenance shutdown and fire incident in July

Stable revenues for Jewelry & Industrial Metals; substantial earnings contribution from Precious Metals Management
Recycling – major milestones in 2019

- Completion of multi-year expansion program at Hoboken plant
- Upgrade of key equipment during extended shutdown
- Investments to sustain and improve the environmental performance of the plant
Financials FY 2019
Key figures 2019

<table>
<thead>
<tr>
<th>REVENUES</th>
<th>+3% to € 3.4 bn</th>
<th>Strong growth in Catalysis (+7%) and Recycling (+9%) partly offset by decline in E&amp;ST (-5%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECURRING NET PROFIT (Group share)</td>
<td>-5% to € 312 m</td>
<td>Recurring EPS of € 1.30 Proposed gross annual dividend of € 0.75</td>
</tr>
<tr>
<td>REBIT</td>
<td>€ 509 m, close to 2018 record level</td>
<td>Balanced contribution from the three business groups Absorbs strong increase in D&amp;A</td>
</tr>
<tr>
<td>REBITDA</td>
<td>+5 % to € 753* m</td>
<td>Stable group REBITDA margin of 22.1%* Margin increase in Catalysis and Recycling</td>
</tr>
<tr>
<td>CAPEX</td>
<td>€ 553 m</td>
<td></td>
</tr>
<tr>
<td>ROCE</td>
<td>12.6%</td>
<td>Strong performance in a persistently difficult market context</td>
</tr>
<tr>
<td>Free Operating Cash Flow</td>
<td>€ -39 m (€ -406 m in FY 18)</td>
<td>Net debt € 1,443m Net debt / REBITDA 1.9x</td>
</tr>
<tr>
<td>REBITDA</td>
<td>* € 17 m impact from IFRS 16, excluding this, REBITDA is € 736 m and REBITDA margin is 21.6%</td>
<td></td>
</tr>
</tbody>
</table>
Robust performance in challenging market context

Recurring EBIT at € 509 m, close to record level of 2018

- Double digit growth in Recycling and Catalysis offset by decrease in E&ST
- Increase in D&A and costs related to greenfield investments in battery materials

Recurring EBITDA growth (+ 5%) to new high of € 753 m

- Robust group margin despite headwinds
- Adoption of IFRS 16 lease standard effect of € 17 m
Strong sequential earnings growth in second half

**Strong H2 19 performance after more challenging H1 19**

Strong sequential and year-on-year growth in H2

Mostly driven by Recycling (higher metal prices in H2 19 and reflecting impact of extended shutdown in H1 19 and fire incident in H2 18)

Also higher H2 19 performance in Catalysis, but lower in E&ST

<table>
<thead>
<tr>
<th></th>
<th>FY 19 vs FY18</th>
<th>H2 19 vs H2 18</th>
<th>H2 19 vs H1 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>+ 3 %</td>
<td>+ 9 %</td>
<td>+ 6 %</td>
</tr>
<tr>
<td>Recurring EBIT</td>
<td>- 1 %</td>
<td>+ 7 %</td>
<td>+ 12 %</td>
</tr>
<tr>
<td>Recurring EBITDA</td>
<td>+ 5 %</td>
<td>+ 11 %</td>
<td>+ 11 %</td>
</tr>
</tbody>
</table>

Group, excluding discontinued activities, million €
**Improvement in free operating cash flows**

Cash flow from operations highest in last five years at €549 m

Includes a €78 m increase in working capital requirements, mostly driven by impact of higher PGM prices in Catalysis

Improved free cash flow from operations, close to break even (€ -39 m) despite higher growth investments

Capex of €553 m, 2/3rd in E&ST

Complemented by higher capitalized development expenses of €35 m

*Free cashflow from operations = cashflow generated from operations – capex & capitalized development expenses*
Free operating cashflow of € - 39 m (€ - 406 m in 2018)

€ 188 m cash out linked to the Kokkola acquisition

Increased dividend payout to Umicore shareholders (€ 186 m vs € 175 m in 2018)

Increase in net financial debt of € 582 m, including non-cash increase of € 46 m from IFRS 16 adoption
Further extension of 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

Total of committed medium and long term debt facilities amounting to € 1,875 million.
As communicated in April 2019, Umicore expects to grow revenues and earnings in 2020 despite a deterioration in the global macro-economic environment since then, particularly in the automotive sector. This growth outlook assumes that the recent coronavirus outbreak will not result in a protracted or material effect on the economy in 2020.

While there are no signs of an imminent recovery in the automotive market, the business group Catalysis is expected to continue to benefit from its strong market position in gasoline catalyst applications and a further penetration of higher value gasoline particulate filters in Europe and China.

Despite the expectation of subdued EV sales in China, Energy & Surface Technologies anticipates to benefit from higher sales of cathode materials for EVs in 2020, as well as the consolidation of the recently acquired activities in Kokkola, Finland. At the same time, the business group’s performance will reflect higher fixed costs related to the ongoing investments in capacity and innovation.

Performance in Recycling is expected to benefit from a combination of higher metal prices, some of which were hedged in the course of 2019, a sustained favorable supply environment and increased availability of the Hoboken smelter.
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 polynmetallic 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 2019)

• **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.
materials for a better life