



## **INTRODUCING UMICORE** 2015 EDITION

Introducing Umicore



CATALYSIS



**ENERGY MATERIALS** 

We are a global materials technology and recycling company. We focus on application areas where our expertise in chemistry, materials science, metallurgy and recycling makes a real difference.



RECYCLING



Europe

\*2014 data.

North America

South America



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## Vision & Values

Umicore's strategy, is shaped by global economic, social and environmental megatrends. Our competencies, market positions and expertise in metallurgy, materials science, application know-how and recycling give us strong growth potential in the following areas:

**Resource scarcity:** in today's world metals are in greater demand but are becoming ever scarcer. Umicore's recycling capabilities recover 26 precious and other metals.

**Clean air:** the drive towards stricter emissions standards provides global growth opportunities in automotive catalysts for both light and heavy duty vehicles.

**Vehicle electrification:** the growing market for lithium ion batteries used in electrified vehicles is driving demand for our rechargeable battery cathode materials.

## The Umicore Way

The values of openness, innovation, respect, teamwork and commitment are crucial to our success:

### Openness

We communicate openly, accurately and with enthusiasm and engage in constructive dialogue with all of our stakeholders.

### Innovation

We believe in continuously searching for better ways of doing things. We believe that innovation is the ultimate driver for long-term profitability and growth.

### Respect

We show respect for each other and for other cultures and customs. We do not compromise on health & safety and act in an environmentally responsible manner.

### Teamwork

By working together towards shared goals, we want our people to derive pride, satisfaction and fun from their work.

### Commitment

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



## Umicore is the world's leading recycler of precious metals





# "Umicore can recover metals from a huge range of industrial residues and end-of-life products."

Our recycling operations can be found across all of our activities and we do all we can to 'close the loop'. Umicore recycles materials from industry as well as end-of-life products. The world is becoming more dependent on certain metals, particularly in applications such as cars and portable electronics. Recycling is becoming increasingly important not just for its environmental benefits but also because it helps keep these vital metals available once the applications have reached the end of their life.



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Umicore is able to recover the widest range of metals in its recycling operations – from precious metals like platinum and gold, to technology metals like indium.



Metals are wonderfully adapted to recycling as they lose none of their intrinsic qualities through the recycling process: this means that they can be recycled again and again and again...

Making a difference

## Umicore technologies reduce vehicle emissions around the world

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Umicore's catalysts have helped remove billions of tonnes of harmfu pollutants from the atmosphere.

## "Regulations around the world require internal combustion engines to become cleaner. Umicore's catalyst technologies, coupled with emission legislation, enable this to happen."

Umicore's catalysts enable vehicle manufacturers to meet increasingly stringent emission norms. Catalysts, often containing platinum, palladium or rhodium, react with the harmful exhaust ( $NO_x$ , CO and particulates) and convert these into harmless gases and water vapour. Technology is at the forefront of this business and each year Umicore's scientists make improvements that enable even better emission standards possible around the world.

HC – CO – NO<sub>v</sub> – SOO

FLOW TALL PIPE GASES

OMBUSTION FNGIN

POROUS S WITH PI







Umicore has production and technology development capabilities in all major automotive markets. Umicore's product portfolio covers emission control technologies for gasoline and diesel passenger cars as well as a full product offering for heavy duty diesel applications such as trucks.

## Making a difference Electrification of the car

## Umicore's battery materials are driving the electric revolution



It is estimated that between 5 and 10% of all cars produced in 2020 wil be hybrid or electric.

## "To meet the need for lower emissions, automotive producers are getting serious about hybrid and electric vehicles."

High-performance cathode materials are at the core of the batteries that power hybrid and electric vehicles. The cathode material is the active ingredient in a rechargeable battery and plays a key role in determining the battery's cost, performance and safety. Umicore has developed a range of cathode materials for lithium ion batteries that are used by the car industry. Umicore also has a long track record of scaling up production and meeting the most stringent quality requirements.







Umicore's rechargeable battery materials are also used to power everyday applications like smartphones, tablet computers and power tools.

11



## Umicore materials are at the heart of clean energy technologies



## "The world is making increasing use of renewable energy sources and improving energy efficiency."

Umicore's products can be found in technologies for renewable energy generation. Solar technologies rely on complex combinations of materials to enable the conversion of solar energy into electricity. Umicore produces materials that are at the heart of some of the most efficient solar technologies. Umicore also produces materials that are used in fuel cells and other energy storage solutions and our materials also find their way into applications that enable greater energy efficiency.





Umicore's products such as thin film materials and germanium substrates are used in high efficiency photovoltaic technologies.





Umicore's materials can also play a role in enabling better performance in energy efficient products. LED lights use Umicore's electroplating products to increase brightness.

### 13

Environmental & social responsibility







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