The Hoboken recycling plant

Francis Vanbellen – Plant manager

Capital Markets Event on Recycling – 18-19 Nov 2010

October 2010

Agenda

Plant history

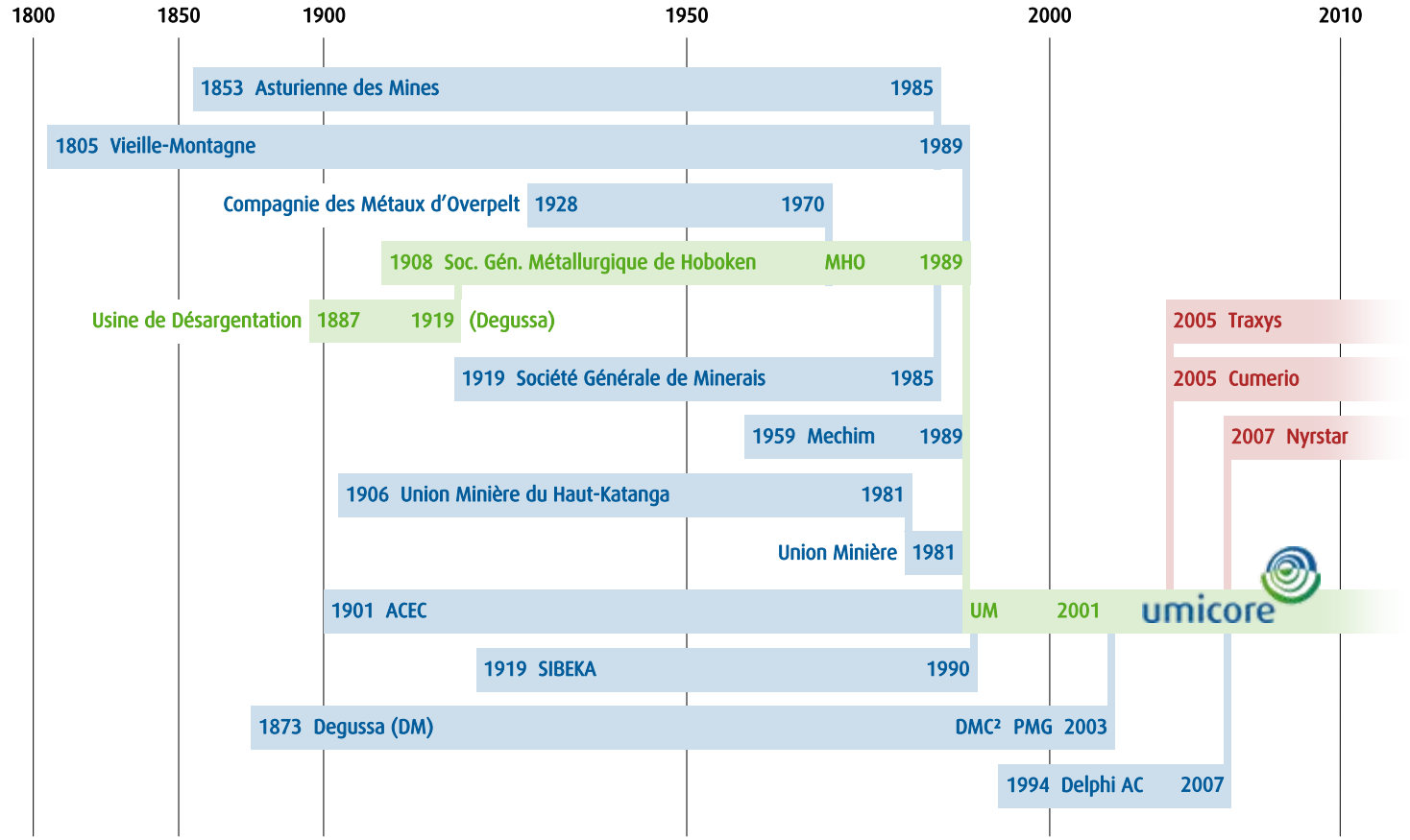
Core competences

Flowsheet

Site visit

Plant history

Hoboken plant based on more than 100 years of history



Recent history

Lead and Precious metals refiner

Precious metals Recycler

Transformation process started in late nineties

Continued process improvements and innovations since

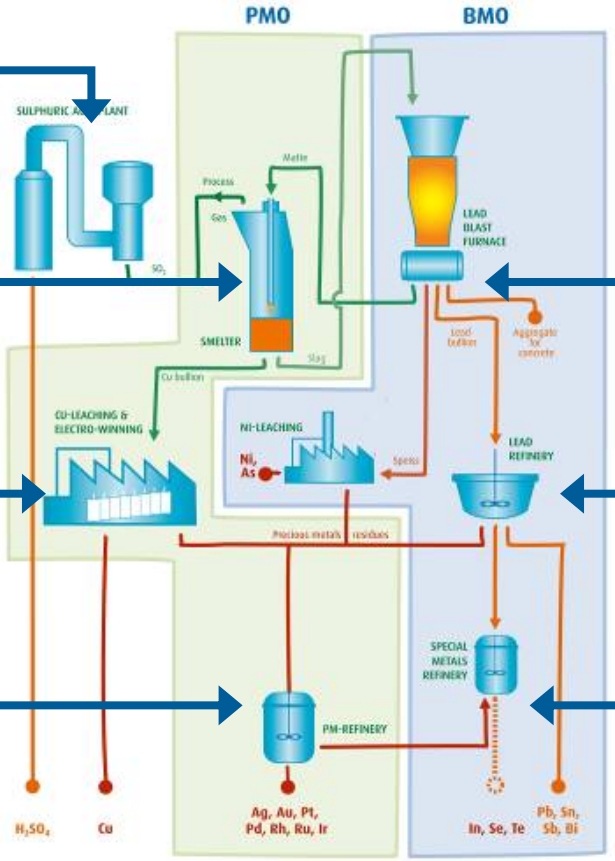
Major flowsheet investments

Sulphuric acid plant
2005 Double absorption

Smelter
1997 New plant
2007-2009 Spent industrial catalysts

Leaching & electrowining
2003 New plant

PM refining
1995-2001 Make-over
2008 New concentration plant
2008 Rh capacity increase



Sampling & assaying
2011-... Make-over

Lead blast furnace
1995-2000 Plant make-over
2007 Glas cleaning installation

Lead Refinery
1999-2005 Plant make-over
2008 Gas burners

Special Metals Refinery
2006-2008 Make-over

Core competences

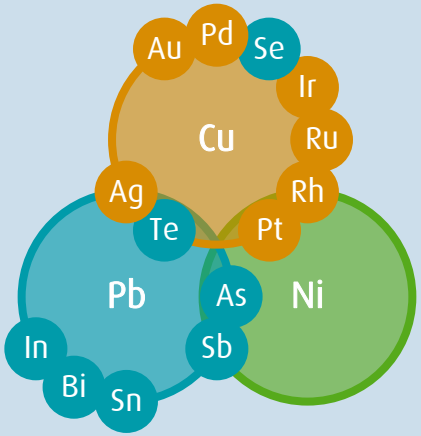
Core competences

Foster Flexibility

- Materials
- Operations
- Employees

Master Complexity

- Pyrometallurgy
- Hydrometallurgy



Ensure Reliability

- Sampling & assaying
- Knowledge management
- Market intelligence
- Risk management
- Integrity
- Environmental management

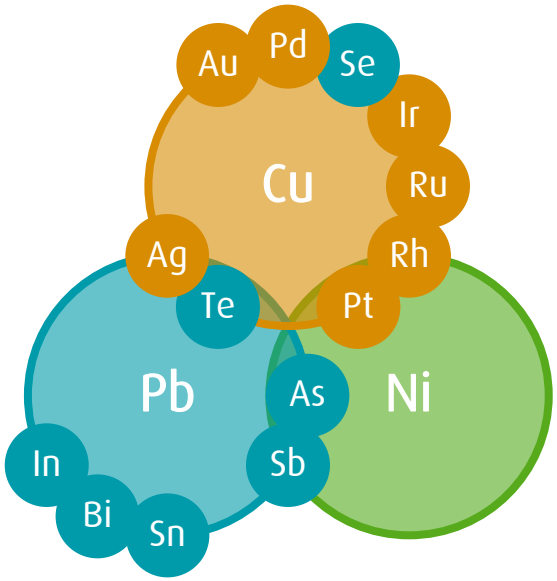
Foster Flexibility

Wide variety of physical aspects and metal content: treatment of more than 200 different raw materials with different physical aspects (dry, wet, dusty, with plastic, ceramic…)

Flexible and robust operations which can cope with high variability of supply

Competence management – Intensive training and development of competencies in combination with appraisal, stimulates personnel to grow

Master complexity



Pyrometallurgy

Hydrometallurgy

The Hoboken flow sheet

- Unique, integrated combination of innovative pyro- and hydrometallurgical operations

Expertise in metallurgy

- Our experienced staff is the driver behind innovation (a lot of in house R&D competences)
- Our long-standing in-house experience is an innovation driver

Ensure reliability

Sampling & assaying	Recognized world-class service
Knowledge management	Systematic approach to enhance process efficiency
Market intelligence	Structured information gathering process
Risk management	Hedging and metal accounting, stock take
Integrity	Ethical business and fraud prevention
Environmental management	Management systems: First Belgian company with one integrated certificate for ISO 9001, ISO 14001 and OHSAS 18001

Business Excellence

Our Business Excellence system is driven by the European Foundation of Quality Management (EFQM) model.

The EFQM approach is formalized in **one integrated management system** certified against international standards:

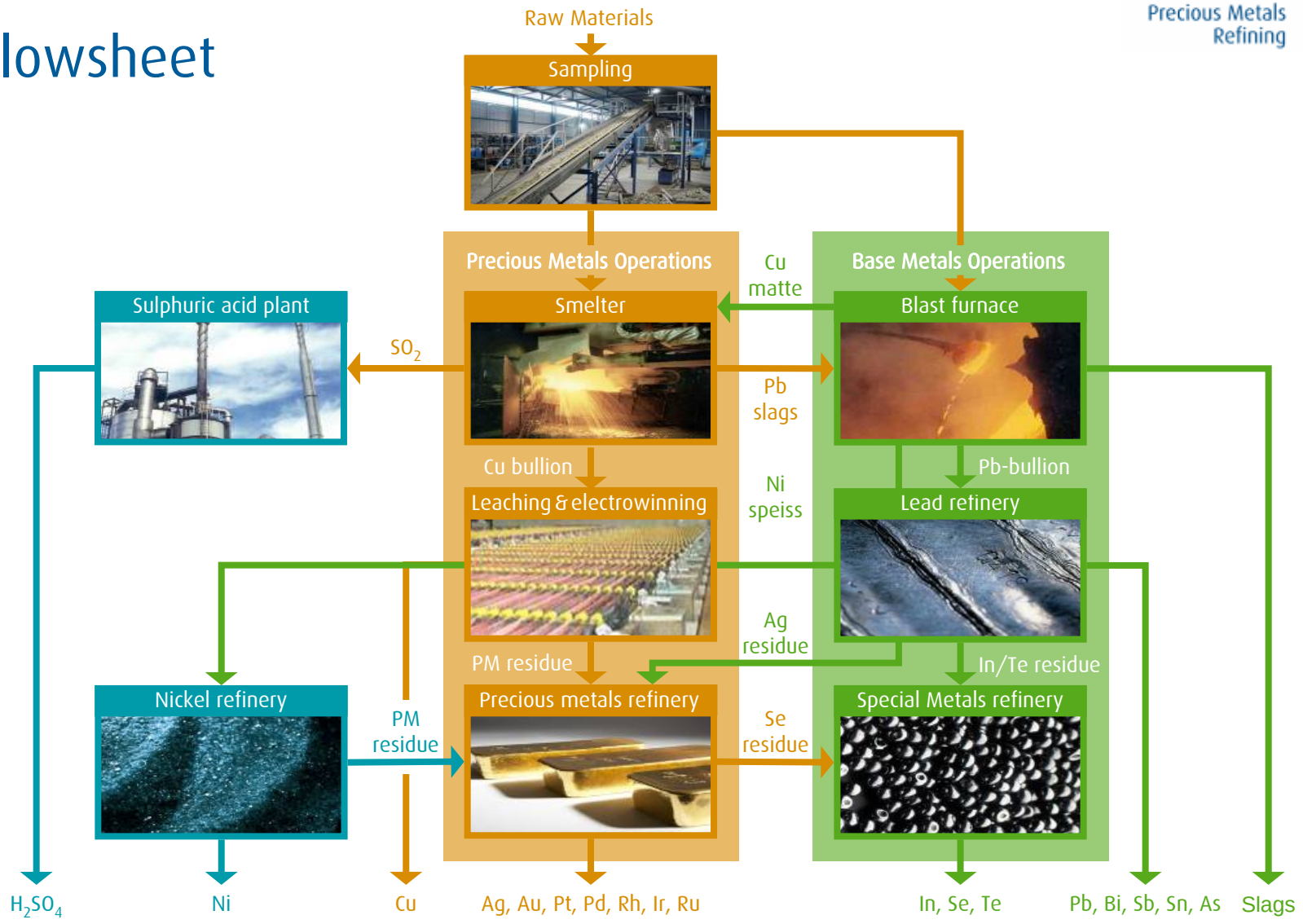
- ISO9001 certified for all our **processes**
- ISO14001 **environmental** care system
- OHSAS18001 **safe and healthy** production environment

EFQM Excellence award Finalist

UPMR obtained a **5* EFQM Award** (October 2007) and an **EEA-finalist award** (September 2009).

Flowsheet

Flowsheet


Raw Materials
Sampling
Precious Metals Operations
Base Metals Operations
Cu matte
Sulphuric acid plant
Smelter
Blast furnace
SO_2
Pb slags
Cu bullion
Pb-bullion
Ni speiss
Leaching & electrowinning
Lead refinery
Ag residue
PM residue
In/Te residue
Nickel refinery
Precious metals refinery
Special Metals refinery
PM residue
Se residue
H_2SO_4
Ni
Cu
Ag, Au, Pt, Pd, Rh, Ir, Ru
In, Se, Te
Pb, Bi, Sb, Sn, As
Slags

Sampling & Assaying

The wide variety & complexity of incoming materials mean that sampling & assaying are key success factors in determining our customer's financial yield.

UPMR allocates more than 15% of its operating budget to these services.

Sampling

Unique state-of-the-art facilities

Dedicated to process all raw materials

Key drivers

- Maximizing automations
- Adequate capacities in growing segments (e-scrap, auto catalysts…)
- Shortening the lead times
- Respecting environmental, health & safety standards

Employing 120 people

Secured area

± 8000 lots & 350,000 t/year

Assaying

Recognized leadership in the precious metals industry

Up-to-date analytical equipment, supported by:

- Robust quality assurance system
- Laboratory information & management system

Key drivers

- Customer orientation
- Respect for short lead times
- Continuous investment in analytical research & method improvement

Employing 100 people

55,000 samples/year

Recycling & Refining

Pb, Cu & Ni drive our unique recycling process. By using the specific properties of these collector metals, precious & other secondary metals are recovered with the greatest efficiency.

Our in-house developed Precious Metals Refinery is one of the world's largest & most efficient refining facilities.

Precious metals operations
Smelter

Unique Isa smelt, submerged lance combustion technology, injecting oxygen enriched air & fuel in a molten bath

Separating precious metals in a copper bullion from mostly all other metals concentrated in a lead slag

Operating at 1,000 t/day

Highly flexible technology for PM recycling:

- Variability of physical aspect (lumps, fines, wet, dry, shredded material…)
- Variability of feed mix (e.g. volume e-scrap vs. total volume)
- Ratio PM / PGMs & impurities in the feed mix

Precious metals operations
Leaching & electrowinning

Leach copper to collect precious metals in a residue for further refining in the Precious Metals Refinery

Increase PM-content in residue from intake (Cu-granules) by a factor of 10

Cu electro winning process, producing 99.99% pure Cu-cathodes

Highly flexible technology

- ratio copper / other metals
- PM & PGM content

Precious metals operations
Precious metals refinery

Combination of classical methods & unique in-house developed processes

Unique flexibility on ratio of gold, platinum, palladium & secondary PGMs vs. silver, varying substantially according to raw material feed

High purity metal production

- Ag & Au: 4N & 5N
- Pt, Pd, Rh: 3N5, catalytic grade
- Ir & Ru: concentrates

Site visit

October 2010

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.

Francis Vanbellen

Plant Manager Precious Metals Refining

Francis Vanbellen holds a Master of Science degree in Chemical Engineering from the Catholic University of Leuven, as well as an MBA from the Vlerick Management School. Francis joined Umicore in 1981 as part of a team to start up Umicore's first rhodium refining plant, before assuming other precious/special metals refining management responsibilities. During the 1990s Francis headed a range of departments ranging from business excellence & development to supply management and refining. In 2001, Francis assumed his current position as plant manager of Umicore Precious Metals Refining site in Hoboken, Belgium.