Making the most of scrap’s role in the metal supply chain

Istanbul, March 10, 2011
Gerd Hoffmann
Vice President
Commercial Recycling
1. Aurubis AG

2. Primary : secondary feed

3. Copper recycling

4. Recycling – change of paradigm in policies
The value chain of copper at Aurubis

- Concentrate treatment
- Recycling
- Sulphuric acid
- Cathodes
- Wire rod
- Pre-rolled strip
- Shapes
- Shaped wires
- Special profiles

24th Metal Bulletin Copper Conference
Group structure with 3 business units along the value chain

Integrated copper processor

Mines and recycling markets

- Copper production
  - BU Primary Copper
    - Sulphuric acid
    - Iron silicate

- BU Recycling / Precious Metals
  - Cathodes
  - Other metals
  - Precious metals

- Recycling

Copper fabrication

- BU Copper Products
  - Shapes
  - Pre-rolled strip
  - Strips
  - Shaped wires
  - Wire rod
  - Special profiles

Processors and end users

Copper production

- Copper fabrication

- Processors and end users

Mines and recycling markets

- BU Primary Copper
  - Sulphuric acid
  - Iron silicate

- BU Recycling / Precious Metals
  - Cathodes
  - Other metals
  - Precious metals

- Recycling

- Copper fabrication

- Processors and end users

Copper fabrication

- Processors and end users
Well positioned production sites in European core market

Production sites and employees (as of December 2010)

Primary Copper Production
- Hamburg
- Olen
- Pirdop
- Rothenbach

Recycling / Precious Metals
- Lunen
- Hamburg
- Olen
- Pirdop
- Fehrbellin

Copper Processing
- Hamburg
- Olen
- Avellino
- Emmerich
- Stolberg

- Yverdon-les-Bains
- Smethwick
- Dolný Kubín

The Aurubis Group employs more than 4,800 people
Stable shareholder structure

IPO in 1998
Aurubis shares are in the Prime Standard Segment of the Deutsche Börse
Shares are listed in the MDAX, in the European Stoxx 600 and in the Global Challenges Index (GCX).

Shareholder structure
Basis: 18 January 2011

- ~30% Salzgitter AG
- ~23% Other institutional investors
- ~47% Private investors
Agenda

1. Aurubis AG

2. Primary: secondary feed

3. Copper recycling

4. Recycling – change of paradigm in policies
Treatment of raw materials at Aurubis

<table>
<thead>
<tr>
<th>Raw materials</th>
<th>Products / Metals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper concentrates &gt; 2,000,000 t p.a.</td>
<td>copper</td>
</tr>
<tr>
<td>Recycling materials &gt; 600,000 t p.a.</td>
<td>lead</td>
</tr>
<tr>
<td></td>
<td>nickel</td>
</tr>
<tr>
<td></td>
<td>tin</td>
</tr>
<tr>
<td></td>
<td>zinc</td>
</tr>
<tr>
<td></td>
<td>gold</td>
</tr>
<tr>
<td></td>
<td>silver</td>
</tr>
<tr>
<td></td>
<td>PGMs</td>
</tr>
<tr>
<td></td>
<td>tellurium</td>
</tr>
<tr>
<td></td>
<td>selenium</td>
</tr>
<tr>
<td></td>
<td>sulphuric acid</td>
</tr>
<tr>
<td></td>
<td>iron silica</td>
</tr>
</tbody>
</table>
Both copper concentrates and recycling materials share the same trend: they are becoming more complex

- The level of impurities in concentrates will rise
  - Aurubis has experience in treating complex concentrates with a large variety of impurities with state-of-the-art technology in an environmentally friendly way

- Modern recycling materials also become more complex as a consequence of complex material combinations, e.g. in electronic applications. They need environmentally friendly treatment and recovery of a wide range of the metal values
  - Aurubis recycling with a combination of mechanical pre-treatment and state-of-the-art KRS and KRS-Plus technology is focused on recycling complex recycling materials
Improved concentrate supply expected due to new capacities after a 10-year wait

New capacities with resources of some 250 mill. t copper expected between 2010 and 2015.

Source: CRU November 2010
1. Aurubis AG

2. Primary : secondary feed

3. Copper recycling

4. Recycling – change of paradigm in policies
Will the share of recycling in copper production be stable in the future?

Share of copper recycling in global copper market 2009 (in mill. t)

- **15.5** Cathodes
- **2.9** Cathodes from scrap
- **5.4** Direct melt

New trends in copper applications will have consequences on recycling growth:

- Recycling growth will stem mainly from expert recycling partly replacing traditional scrap recycling.
- Complex recycling materials will require higher capital expenditure on secondary smelting and refining and high environmental costs.
- Recycling volumes will grow but stay far behind primary share.
- Share of cathode production from recycling:
  - 2009: 16%
  - Projected 2014: 18%

Source: ICSG

Source: Database CRU
High copper prices generate new product trends and impact recycling

- High copper prices may...
  - ...create substitution threats mainly in building material applications (roofing, tubes...)
  - ...speed up miniaturization
- New technologies encourage trends for complex applications with low content of each metal / material
- Low metal content will challenge economics of recycling
- Recycling of EOL materials depends on intensity of collection
- Legal requirements (WEEE materials) can only be met by multi-metal / material recycling
Growing efficiency requirements and increasing metal prices influence direct melt supply

» More complex copper alloy materials with up to 10 different alloy components
  » High internal recycling rates at the (semis) fabricators
  » New collection systems between fabricators, semis fabricators and end fabrication to increase internal recycling at fabricators
  » Low scrap supply but higher availability of residues with lower metal content for recycling
Aurubis Recycling focused on complex secondary raw materials

Multi-Metal Recycling at Aurubis
Recycling raw materials with lower copper content and a large variety of accompanying metals

<table>
<thead>
<tr>
<th>Copper content</th>
<th>94 – 99 %</th>
<th>50 – 90 %</th>
<th>15 – 60 %</th>
<th>5 – 30 %</th>
<th>25 – 60 %</th>
<th>12 – 16 %</th>
<th>4 – 20 %</th>
<th>1 – 50 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper scrap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alloys</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cu-Fe scrap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shredders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circuit boards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEEE material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Capacity expansion
Markets for recycling materials have different drivers

Copper scrap
(typical Cu content: > 90%)

» Global “commodity” market – Highly competitive
» Cyclical supply
» Copper price fluctuations
» Business merchant oriented
» China as major market

Supply markets will stay volatile
Proven metallurgy

Other recycling materials
(typical Cu content: < 90%)

» More stable supply
» Product life cycles – faster EOL
» Less copper price sensitive
» Environmental legislation
» Trend for more complex materials
» Trend for miniaturization

More stable availability
Metallurgy under constant development
KRS-Plus at Aurubis Lunen: environmentally sound and efficient multi-metal recycling

KRS-Plus project to be commissioned mid-2011

» Invest: € 62.5 m, thereof € 17 m for environmental protection

» Additional furnace technology to existing KRS process

» Increase of KRS throughput from 275,000 t p.a. to 350,000 t p.a., especially for modern and complex recycling raw materials

» Further increase in metal recovery rates
Present market trends

Chinese scrap imports (in mt)
est. avg. Cu cont. 25 – 30 %

- China scrap imports have eased due to:
  - high copper prices, difficulties in financing
  - more severe import controls
  - slower domestic offtake

- High copper prices push up working capital requirements along the value added chain
  Merchants face financing limits, reduce own stocks and supply quickly to financially strong customers

- European copper recyclers well supplied, little buying interest

- Strong scrap RCs cause higher scrap intake at some primary smelters and brass mills

Source: General Administration of Customs, China
Agenda

1. Aurubis AG
2. Primary : secondary feed
3. Copper recycling
4. Recycling – change of paradigm in policies
Impacts from regulatory framework

» Environmental standards have increased in Western Europe, the USA and also elsewhere

» Contradiction between the need for more recycling of complex materials and EU policy of CO₂ emission certificates for European recycling industries

» Complicated regulations for transboundary waste shipments harm recycling material flow

» No present effects of REACH legislation on waste shipments

  » As yet no efficient stop of illegal exports, e.g. of electronic scrap
Recycling - change of paradigm in policies

In the past, the focus of recycling was avoiding waste and landfills. Nowadays, recycling is seen primarily as an important raw material source.

- EU Raw Material Initiative (RMI) aims to strengthen supply for EU industry
- RMI demands more recycling as well as better raw material efficiency, but
  - raw material efficiency poses new challenges to recycling
Our Copper for your Life

Thank you for your attention
Disclaimer

This document contains forward-looking information that involves risks and uncertainties, including statements about Aurubis’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 Aurubis. Should one or more of these risks, uncertainties or contingencies materialise, or should any underlying assumptions prove incorrect, actual results could vary materially from those anticipated, expected, estimated or projected.