Environmental and climate protection in Copper Production

19th of October 2011

Dr. Karin Petersen
Corporate environmental protection
Angel Kostov
Head of environmental protection, Pirdop
Christiane Henke
EMAS coordinator
Company profile

» Founded in 1866 as Norddeutsche Affinerie AG in Hamburg
» IPO in 1998
» Renamed in 2009 after the acquisition of Cumerio
» 16 production sites in 11 European countries and North America with about 6,200 employees
» Second largest producer of copper cathodes in the world with an annual output of about 1.1 million tonnes of copper cathodes
» No. 1 copper recycler in the world
» Largest rod producer in the world
» World’s leading foil and flat rolled copper products manufacturer
» Production capacities for approx. 1.3 million tonnes of different copper products
» Global leader in environmental protection
Agenda

1. Copper and modern life
2. Copper production at Aurubis
3. Sustainability
4. Environmental and climate protection
5. Aurubis Bulgaria 2014
6. EMAS at Aurubis
Copper – the material for modern life

End products
- Electric motors
- Cables and wires
- Microchips
- Transformers
- Air conditioners
- Heat exchangers
- Kitchen appliances
- Brake pads
- Sanitary installations
- Pipelines
- Roofing and facades
- Coins

Properties
- High electrical conductivity
- High thermal conductivity
- High resistance

Properties
- High electrical conductivity
- High thermal conductivity
- High resistance
Europe is a major net importer of refined copper

- Copper demand by regions 2010 (in mill. t)
- Copper surplus / deficit

Total demand: 19.3 mill. t in 2010

Source: Brook Hunt June 2011
Copper price proves to be resistant and remains at a high level

Copper price and metal exchange stocks

Metal exchange stocks
LME copper price

Exchange stocks in days of usage (end of May 2011): world 13 days
New technologies result in more copper applications

Cable

» Expansion of electricity grid continues

» Underground cable use to become priority in Germany

Alternative energy

» Expansion of decentralised energy supply proceeds

» High copper demand for grid connections

» High copper demand for wind turbines

Hybrid and electric cars

» Increased popularity of hybrid cars worldwide

» Electric drive is the technology of the future, China intends to become market leader within 3 years
Trend towards renewable energy drives copper demand

Copper content in a wind turbine (Repower 5M) (in kg)

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power converter and transformer</td>
<td>5,000 kg</td>
</tr>
<tr>
<td>Generator</td>
<td>2,400 kg</td>
</tr>
<tr>
<td>Azimut engine</td>
<td>200 kg</td>
</tr>
<tr>
<td>Lightning arrester</td>
<td>100 kg</td>
</tr>
<tr>
<td>Medium voltage cable</td>
<td>400 kg</td>
</tr>
<tr>
<td>Rotary blades</td>
<td>120 kg</td>
</tr>
<tr>
<td>Other components</td>
<td>75 kg</td>
</tr>
<tr>
<td>Total</td>
<td>8,295 kg</td>
</tr>
</tbody>
</table>

» Wind turbines are a major source of copper use, especially modern wind turbines with multi-pole generators.

» Additional copper use in offshore wind parks (mainly cables) more or less doubles the specific copper use.
Copper is essential for innovative heat systems, renewable energies and for sustainable homes.
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Aurubis’ position has further improved following closing of Luvata RPD acquisition on 1 September 2011

Production sites

Aurubis will have more than 6,000 employees following the acquisition
Aurubis is an internationally leading cathode producer

Global copper output from refineries (2010 est; in 1,000 t)

<table>
<thead>
<tr>
<th>Company</th>
<th>Output (in 1,000 t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codelco</td>
<td>1,856</td>
</tr>
<tr>
<td>Aurubis*</td>
<td>1,144</td>
</tr>
<tr>
<td>Freeport McMoran</td>
<td>999</td>
</tr>
<tr>
<td>Xstrata</td>
<td>814</td>
</tr>
<tr>
<td>Jiangxi</td>
<td>800</td>
</tr>
<tr>
<td>Nippon</td>
<td>631</td>
</tr>
<tr>
<td>BHP Billiton</td>
<td>573</td>
</tr>
<tr>
<td>Tongling</td>
<td>560</td>
</tr>
<tr>
<td>KGHM</td>
<td>512</td>
</tr>
<tr>
<td>Mitsubishi</td>
<td>505</td>
</tr>
</tbody>
</table>

* Fiscal year 2009/10

Source: Wood Macquenzie, Copper Jun 2010
Group structure with 3 business units to meet requirements of group expansion

Integrated copper processor

Mines and recycling markets

Copper production

Pre-rolled strip

Copper fabrication

Shapes

Processors and end users

Wire rod

Mines and recycling markets

Concentrates

Cathodes

BU Primary Copper

Sulphuric acid

Iron silicate

BU Recycling / Precious Metals

Recycling

Cathodes

Other metals

Precious metals

BU Copper Products

Pre-rolled strip

Strip

Shaped wires

Shaped wires

Wire rod

Special profiles
Two Primary smelters in Hamburg and Pirdop

» Flexible blending facilities for parallel treatment of different Cu-concentrates
» Energy effective steam heated dryers
» State of the art FSF technology
» PS converters
» High energy efficiency by recovery of process heat by waste heat boiler

» Minimization of fugitive emissions by state of the art secondary hood systems
» Local suction of anode furnaces and casting wheels
» Permanent training of operators to keep the safety level, to minimize emissions and to increase process knowledge
Reliable raw material supplies due to long-term agreements with leading mines worldwide

Copper mine in Chile

Concentrates

Enriched ore with a copper content of about 30%

Countries of origin of concentrate supplies 2009/10

- Chile: 17%
- Peru: 24%
- Australia: 14%
- Canada: 10%
- Argentina: 10%
- Indonesia: 5%
- Brazil: 3%
- Others: 3%

80-90 % of supplies covered by long-term contracts
Aurubis is the leading global copper recycling company

<table>
<thead>
<tr>
<th>Company / volumes (in t*)</th>
<th>Copper scrap</th>
<th>Total recycling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aurubis</td>
<td>280,000</td>
<td>575,000</td>
</tr>
<tr>
<td>Metallo Chimique (incl. Elmet)</td>
<td>26,000</td>
<td>300,000</td>
</tr>
<tr>
<td>Boliden</td>
<td>35,000</td>
<td>190,000</td>
</tr>
<tr>
<td>MW Brixlegg (incl. Krompachy)</td>
<td>90,000</td>
<td>160,000</td>
</tr>
<tr>
<td>Xstrata Copper</td>
<td>25,000</td>
<td>105,000</td>
</tr>
<tr>
<td>Sumitomo Metal Mining</td>
<td>50,000</td>
<td>n.a.</td>
</tr>
<tr>
<td>Jiangxi Copper</td>
<td>200,000</td>
<td>n.a.</td>
</tr>
<tr>
<td>Tongling Nonferrous Metals</td>
<td>100,000</td>
<td>n.a.</td>
</tr>
<tr>
<td>Various other Chinese refiners</td>
<td>- 900,000 (Cu content) -</td>
<td></td>
</tr>
</tbody>
</table>

- Treatment of a wide range of copper-bearing recycling materials
- Efficient, environmentally friendly recycling technologies (pre-processing plants, state-of-the-art smelting technology, multi-metal recovery)

* data based on 2009 figures (Aurubis estimates)
500,000 tonnes of copper were produced from recycling raw materials in the Aurubis Group

Aurubis is the largest copper recycler worldwide

Kayser Recycling System in Lünen

State-of-the-art technology for processing recycling raw materials

Control room

Copper anodes from recycling process
State-of-the-art copper recycling is a substantial part of sustainable raw material supply

» Copper can be recycled continuously without degrading in quality.

» Recycling of copper is part of sustainable development.

» Recycling of copper is a process where quality is monitored continuously.

» State-of-the-art copper recycling seizes secondary raw material with copper contents of 1 – 99 % and contains the extraction of accompanying metals like gold, silver, platinum, palladium, tin, zinc, lead, and nickel.

» Aurubis recycling separates further fractions like iron and aluminium by mechanical processing facilities. Moreover, plastics are separated as completely as possible before the melting processes via state-of-the-art separation techniques.

» Circa 8 mill. t of CO₂ (WVM) could be reduced by the use of recycling materials for copper, aluminium and zinc production.

Recycling is an essential source of raw material for Europe
Aurubis turns a variety of complex secondary raw materials into products

- Copper scrap
- Residues
- Shredder-materials
- Printed circuit boards
- Copper Iron
- Slimes

Processes

- Copper cathode
- Grade A
- Nickel-sulfate
- SnPb Alloy
- Precious Metals
- Iron-silicate
Sustainable production by transformation of raw materials and recycling materials into products

**Raw Materials**
- Cu Concentrate "Chalcopyrite" (CuFeS2)
- Sand (SiO2)
- Recycling Material

**Product Lines**
- Anode (Cu 99.6%)
- Cathode (Cu 99.99%)
- Rods
- Shapes
- Other accompanying elements (Ag, Au, etc.)
- Iron Silicate Stone and Fayalite (crystalline)
- Iron Silicate Granulate (amorphous)

**Process**
- Cu Concentrate "Chalcopyrite" (CuFeS2) + Sand (SiO2) + Recycling Material → Iron Silicate Melt (Fe2SiO3) → Sulphuric Acid (H2SO4) → Anode (Cu 99.6%) → Cathode (Cu 99.99%) → Rods, Shapes, Other accompanying elements (Ag, Au, etc.), Iron Silicate Stone and Fayalite (crystalline), Iron Silicate Granulate (amorphous)
Own cathode output provides the basis for the production of products in the Group

- Copper anode with 99.5 % copper
- Tankhouse with a capacity of about 1 mill. tonnes of copper p.a.
- Copper anode with > 99.99 % copper
The Group produces more than 1 mill. tonnes of copper and copper products p.a.

Wire rod production

Continuous cast shapes weighing up to 25 tonnes each

Billets as an example for the production of seamless tubes
Leading wire rod producer with competence and customer proximity

Global wire rod production
(2010 est.; in 1,000 t)

<table>
<thead>
<tr>
<th>Company</th>
<th>Production (in 1,000 t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aurubis*</td>
<td>791</td>
</tr>
<tr>
<td>FreeportMcMoRan</td>
<td>590</td>
</tr>
<tr>
<td>Jiangsu Jinhui</td>
<td>390</td>
</tr>
<tr>
<td>Jiangxi Copper</td>
<td>390</td>
</tr>
<tr>
<td>Nexans</td>
<td>380</td>
</tr>
<tr>
<td>Changzhou</td>
<td>350</td>
</tr>
<tr>
<td>Jinyuan</td>
<td>350</td>
</tr>
<tr>
<td>Nanjing Walsin</td>
<td>350</td>
</tr>
<tr>
<td>Southwire</td>
<td>320</td>
</tr>
<tr>
<td>CCI</td>
<td>305</td>
</tr>
<tr>
<td>KGHM</td>
<td>260</td>
</tr>
</tbody>
</table>

* Business year 2009/10
1. Copper and modern life

2. Copper production at Aurubis

3. Sustainability

4. Environmental and climate protection

5. Aurubis Bulgaria 2014

6. EMAS at Aurubis
Sustainability in copper production is an essential part of the sustainable growth for future generations

Copper industry admits to sustainability

» Sustainability, economy, social responsibility, environmental and climate protection as well as health and safety strategy go hand in hand

» Sustainable business strategy gives Aurubis a stable position in the dynamic markets

» Aurubis established a code of conduct, corporate values as well as a corporate governance

» Aurubis is member of the initiative “Responsible Care” and has implemented these principles in the corporate guidelines

Recycling of copper preserves natural resources and contributes to climate protection
Our work focuses on health and environmental protection which have been continually improved in the past and will be developed further in future.

Sustainability and resource efficiency are corporate principles of Aurubis. This means especially satisfying the requirement of the current generations while at the same ensuring that the development of future generations is not impaired.

- Commended as a works with an exemplary occupational safety system
- Voluntary agreement with the Ministry (e.g. City of Hamburg)
- Environmental management system as per ISO 14001 and EMAS
- Participation in the Environment Partnership scheme: Industry - Authorities
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Corporate environmental guideline is implemented at the different sites

Environmental targets for the Aurubis Group:

- Understand partners agenda & interests as well as organizational culture
- Establish a network to use the expertise of Aurubis to create win-win situations
- Compliance with law and guidelines
- Best practice in environmental protection
- Definition of common environmental key indicators and ensure that estimation and calculation will be on a similar basis
- Develop an environmental strategy as well as the Environmental Group Reports
- Membership: Efficient use of network in association representation (e.g. Eurometaux)
Environmental Aurubis Group targets 2014 – Further improvement of environmental protection measures

**Noise**
- Target: Reduction of noise emission
- Example: Installation of a noise protection wall in Olen

**Air**
- Target: Additional reduction of air emissions
- Example: Project „Aurubis Bulgaria 2014“

**Water**
- Target: Further improvement of water protection
- Example: Installation of new water treatment plants in Pirdop and Lünen

**Waste**
- Target: Improvement of waste recovery
- Example: Marketing of Fayalit in Pirdop

**Climate Protection**
- Target: Further reduction of CO₂-emissions
- Example: Aurubis contribution to the climate protection program of Hamburg City
Roadmap of Environmental Reporting at Aurubis

Sites covered:
- Hamburg and Lünen
- Hamburg and Lünen, Outlook NA / Cumerio
- Hamburg, Lünen, Avellino, Pirdop, Olen
- All Aurubis sites

Environmental Statements... since 2002

1st Sustainability Report
- September 2008

2nd Sustainability Report
- September 2009

1st Environmental Group Report
- September 2011
Aurubis has a leading position in environmental protection; most other copper companies have to invest a great deal in future to fill the gap

Quality and environmental protection are priority in the entire production process. Our management systems are certified in accordance with renowned international standards (ISO 9001, 14001 and EMAS)

Since 1990 we have achieved outstanding success in environmental and climate protection and are one of the most environmentally friendly copper producers in the world today

We have invested € 359 million at the Hamburg site in environmental protection measures in the last 30 years
370 Mio. € **Capital expenditure in environmental protection measures during the last 10 years**

Capital expenditure environment, copper production (in Mio. €)

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital Expenditure (in Mio. €)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>33.3</td>
</tr>
<tr>
<td>2001</td>
<td>83.4</td>
</tr>
<tr>
<td>2002</td>
<td>30.7</td>
</tr>
<tr>
<td>2003</td>
<td>10.4</td>
</tr>
<tr>
<td>2004</td>
<td>11.7</td>
</tr>
<tr>
<td>2005</td>
<td>10.0</td>
</tr>
<tr>
<td>2006</td>
<td>23.1</td>
</tr>
<tr>
<td>2007</td>
<td>38.4</td>
</tr>
<tr>
<td>2008</td>
<td>19.6</td>
</tr>
<tr>
<td>2009</td>
<td>27.5</td>
</tr>
<tr>
<td>2010</td>
<td>81.5</td>
</tr>
</tbody>
</table>
Copper industry cannot bear any further or additional burdens that are not applied on global level - CO\textsubscript{2} savings potential reaches its technological and physical limits.

Specific CO\textsubscript{2} emissions* at Aurubis AG, Hamburg (in t CO\textsubscript{2}/t copper)

- Initial achievement: 78% reduction already in initial phase
- CO\textsubscript{2} reduction: 80,000 t CO\textsubscript{2}/a
- € 16 million
- Projected CO\textsubscript{2} reduction: 40,000 t CO\textsubscript{2}/a
- € 22 million

Climate protection concept 2007-2012
- ca. 82% reduction until 2012

Economisation of 120,000 t CO\textsubscript{2} corresponds to the electricity consumption of 100,000 households.

* fuel-related
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14.10.2011

34
Main Productions units in Aurubis Bulgaria

Production figures in 2010

» Anode copper 308 000 t.
» Cathode copper 221 000 t.
» Sulphuric acid 1 200 000 t.
More than 400 mill. € invested in Aurubis Bulgaria

» More than 310 mill. € investments in modernization of the process
  » Modernization of the Smelter
  » Upgrading of the Sulfuric Acid Plant
  » Construction of New Refinery
  » Renewed Slag Flotation Installation

» Additional 90 mill € investments in improvement of environmental performance
  » Remediation program after Privatization
  » Waste Water Treatment Plant
  » Off gases capture and utilization
  » Fayalite Tailing Pond
  » New Gypsum Cake Pond
Major investment projects in Bulgaria
Secondary gas treatment - 2008

Secondary gas cleaning for € 14 mill. implemented in 2008

Parameters of the gases BEFORE installation:
- Volume of gases: 345,000 Nm³/h
- SO₂ emissions: 1,100 mg/Nm³
- Dust emissions: 85.0 mg/Nm³

Parameters of the gases AFTER installation:
- Volume of gases to be cleaned: 345,000 Nm³/h
- SO₂ emissions: <400 mg/Nm³
- Dust emissions: <5.0 mg/Nm³
Air protection in Pirdop: Successful reduction of emissions

Pirdop: Trend in emissions to the air

Dust (in g/t of copper output)  

- Drastic reduction in all pollutant emissions
- Aurubis is going beyond requirements of national emission regulations
- **Further reduction in emissions as corporate target**
Major investment projects in Bulgaria
New Refinery - 2008

» New Refinery for € 82 mill. - the largest industrial investment in the country

» ISA 2000 latest technology (Australia)
» Cost efficient and environmentally compliant
» Designed capacity of 180,000 tonnes of copper cathodes per year

» Fully automated machinery from Outotec (Finland)
» Fully automated handling system from Kuenz (Austria)
» Fully integrated computer control system (DCS)
Major investment projects in Bulgaria
Slag flotation plant

» Investment of EUR 15 million

» Installation of new Autogenous mill – L 7.0 m/W 6.5 m

» Additional Flotation cells – 3 pieces – 70m³ each

» Annual capacity – 600 000 t. per year

» Complete Autoimmunization of the flotation and grinding processes (mill sense, froth master, specific software)

» Fully automated machinery from Outotec (Finland)

» Fully automated handling system from Kuenz (Austria)
Ongoing improvement of environmental protection is a key issue of the Aurubis strategy

» Reduction and treatment of fugitive emissions
» Sewerage systems for rain and domestic water
» Soil investigation
» Continue to increase the resource efficiency (e.g. recovery of fayalite)
» Installation of best available environmental technologies and best performance in operation
» Improvement of implementation of environmental protection into the everyday duties of all employees
» Improve communication with social partners – municipalities, NGOs, local community
**Scope of Aurubis Bulgaria 2014**

- **Two directions**
  - Productivity increase
  - Improvement of the environmental performance in the plant to meet also the future EU regulations

- **Investment of the project is EUR 44.2 million**
  - EUR 26 million for environmental protection projects
  - EUR 18 million for 21% total capacity increase

- **Implementation period**
  - Until the year 2014 – the most important step for the successful meeting the deadline is receiving of permit by the authorities shut down of operations in September 2012 and start installation of new facilities.

- By providing the funds for this new project, Aurubis Group has put its confidence in the potential of the plant of Aurubis Bulgaria.
Directions of the project
Expansion

» Smelter
  » Replacement of bag filters of the dryers;
  » Replacement of concentrate burner and modification of cooling system Flash Smelting Furnace;
  » Modification of Waste Heat Boiler;
  » Revamping of Dry Electrostatic Precipitators of Flash Smelting Furnace.

» Acid Plant
  » Improvement of the cooling processes;
  » Partial change of catalyst to improve the conversion rate.
Directions of the project
Environmental part

» Improving capturing and exhaustion of installations as well as of the whole hall to clean up the off gases

» Construction of a new treatment plant for the new gases

» Ventilation at the anode furnace section

» Increase the filter capacity of the concentrate dryer

» Improvement and optimization of the operation of the secondary hood system
Location of changes Smelter area

Off gas treatment plant

1. Enlargement bag filter Drayer
2. Modification concentrate burner / air slide
3. Modification cooling system FSF
4. Modification WHB
5. Improvement Performance ESP/FSF
6. Modification Bypass FSF/CPS duct
7. NEW hood slag train (CPS slag)
8. Relocation revert screen
9. ID fan connection primary/secondary hood
10. NEW hoods AF-CV, dry gases
11. NEW hoods CW, wet gases
12. Installation vacuum cleaner
13. Roof ventilation
15. Ventilation Blend tower
Key figures

- **Reduction of SO₂ Exceeding without decreasing of throughput**
  - Reduction SO₂ Load Smelter (average/ peak) from 96/493 kg/h to 22/96 kg/h -77 / -80 %
  - Reduction of Immission Peak (DMD stable layer hourly average) from 1,600 µg/m³ to 400 µg/m³ -75 %

- **Harmonization with the target threshold for dust (PM₁₀), coming into effect 2013**
  - Reduction of PM₁₀ e.g. Arsenic from 50 ng/m³ to < 20 ng/m³ -60 %

- **Reduction of specific operation cost** 14 %

- **Increasing throughput of fresh concentrate** 1.07 mill. t/year to 1.3 mill. t/year +21 %

- **Reduction of metal loss from the ESP /FSF**
  - Copper 40 to/ year to 10 to/year -75 %
Environmental compliance

- Establish compliance with future legal environmental requirements
  - Change of internal processes, implementation of best practices in operation
  - Improvement of the existing equipment and facilities
  - Additional capturing of non considered sources
  - Installation of additional off-gas treatment capacity
Expansion to 1.3 mill. t

- Removal of current bottlenecks in the existing production chain by optimization and replacement
  - Avoid decreasing of throughput in order to prevent $\text{SO}_2$ exceeding
  - Optimization of production process, continuous improvement
  - Availability improvement of existing production facilities
  - Performance improvement of existing production facilities
  - Installation of additional equipment
Installation of hoods

Existing Situation in place Pirdop, no capturing of hot gases, which are mainly contains PM$_{10}$ Arsenic

Considered arrangement, similar of place Hamburg
Off gas treatment plant

General layout, Sulfacid process smelter area (foot print 65 m x 37 m)

Similar plant Co. Impala Platinum LTD South Africa, with horizontal vessels
Expansion actions Smelter

- Replacement concentrate burner, installation air slide (240 t/h blend)

- Modification cooling system FSF (1,508 m³/h)
  - closing of circuit between pumps and cooling elements, increase the cooling capacity

- Modification WHB
  - Redesign transition area, radiation part, baffle plate, additional banks

- Revamp ESP / FSF
  - Installation of 7 smaller fields in the same BHA case, change of control rectifier, change the Lurgi process to BHA type
  - Real actions are depending on the current investigations (Step by Step)
NEW Concentrate burner arrangement

New concentrate burner with air slide, in order to cover the higher throughput and to optimize combustion by equalizing of feed.
Installation of seven smaller fields in the same existing case. Actual five fields are installed.
Location of SAP Changes
Wet ElectroStatic Precipitator (plastic design)
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Environmental Management is part of our Strategy

- Cost reduction
- Performance enhancement
- Development of know-how
- Quality increase

- Further education / employee training
- Conservation of resources
- Environmental/climate protection
- Occupational safety/health protection

- International and organic growth of the core business
- Process and Product innovation
- Capitalise synergy potential in operations
EMAS means Eco-Management and Audit Scheme and is defined by European Community

Eco-Management and Audit Scheme

Management System Tool which obtains the European Union for the voluntary Implementation of Environmental Management System which based on Regulation (EC) Nr. 1221/2009

Management System Tool to evaluate, report and improve the environmental Management System of Aurubis, open to organisations in all lines of business (http://ec.europa.eu/environment/emas/index_en.htm)
Number of EMAS-Organisations increase continually

EMAS STATISTICS
EVOLUTION OF ORGANISATIONS AND SITES
Quarterly Data 31/06/2011

EMAS based on DIN EN ISO 14001

C O R T I F I C A T E

Management system as per DIN EN ISO 14001: 2009

In accordance with TÜV NORD CERT procedure, it is hereby certified that

Aurubis AG
Hovestraße 50
D-20539 Hamburg

with the location Aurubis AG
Kupferstraße 21, D-44532 Lünen

applies a management system in line with the above standard for the following scope:

the production of copper from copper concentrates and recycled raw materials as well as the extraction of precious metals, sulphuric acid and iron silicate stone and the processing of copper into continuous cast wire rod and shapes

Certificate Registration No.: 04-104-0701-09
Audit Report No.: 3907-2479
Valid until 2014-06-06
Initial certification 1997

Exeem, 2011-05-07

The certificate was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH
Langemarkstraße 26
45141 Exeem
www.tuv-nord-cert.com

Certificate of Registration

Aurubis AG
Hovestraße 50
D-20539 Hamburg

Kupferstraße 23
44532 Lünen

Registration-No.: DE-131-00035
Date of first registration 1st November 2005
This certificate is valid until 18th July 2014.

This organisation has established an environmental management system according to EU-Regulation Nr. 1221/2009 and EN ISO 14001:2004 section 4 to promote the continual improvement of environmental performance. Publicly an environmental statement, has the environmental management system verified and the environmental statement validated by a verifier, is registered under EMAS and is therefore entitled to use the EMAS-Logo.

Hamburg, 26th September 2011

Handelskammer Hamburg

Prof. Dr. Heinrich Schmidt-Triex
Hauptgeschäftsführer
Environmental management system as well as environmental requirements are implemented by EMAS / ISO 14001 System

- Optimize production processes
- High quality of environmental management
- Reduce environmental impacts
- Compliance with environmental legislation
- Continuous improvement of environmental performance
- Validated environmental information
- Regulatory reliefs

(http://ec.europa.eu/environment/emas/about/benefits_en.htm)
The key requirements of environmental management programs are defined in EMAS as well as ISO 14001

- Investigation and evaluation of direct and indirect environmental Aspects
- Continuous improvement of environmental performance
- To prepare and announce the Environmental Report
- Public dialogue about environmental protection and environmental impacts of Aurubis

Hamburg and Lünen has to develop an environmental program under EMAS. For Pirdop plant this program is implemented in the ISO14001 System.
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.