

# The Copper Story

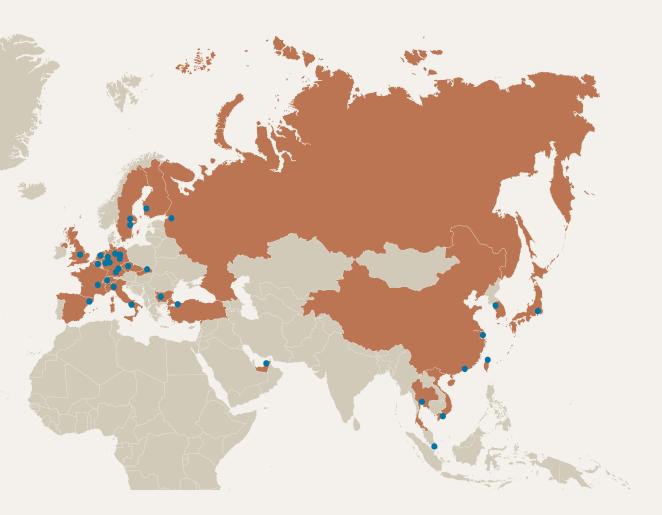




### **Production sites**

ΑE	Dubai	\$				
BE	Brussels	<i>\bar{V}</i>				
	Olen	©*	ð	8		
BG	Pirdop		©*	ð	æ	A
		<i>&gt;</i>				
CN	Hong Kong	1				
	Shanghai	\$				
CZ	Prague	\$				
DE	Emmerich					
	Fehrbellin	₫				
		<u> </u>	<u> </u>	<i>&gt;</i>	8	
	Fehrbellin Hamburg Group headquarters				<b>S</b>	<u></u>
	Hamburg					
	Hamburg Group headquarters	<u>A</u>			0	
	Hamburg Group headquarters Lünen				0	
	Hamburg Group headquarters Lünen Röthenbach					₽ ₽
FI	Hamburg Group headquarters  Lünen  Röthenbach  Stolberg	<u>A</u>				
FI FR	Hamburg Group headquarters Lünen Röthenbach Stolberg Strass					\$ \$

IT	Avellino	8			
	Mortara	<b>(2)</b>	1		
JP	Tokyo	<i>\bar{p}</i>			
KR	Seoul	\$			
NL	Zutphen	<b>©</b>	0	<b>(2)</b>	\$
RU	St. Petersburg	\$			
SG	Singapore	<i>&gt;</i>			
SI	Dolný Kubín	<b>6</b>	P		
ES	Barcelona	<i>&gt;</i>			
SE	Finspång	\$			
	Västerås	\$			
СН	Yverdon-les-Bains	1			
TW	Taipei	1			
TH	Bangkok	1			
TR	Istanbul	P			
UK	Birmingham	<b>©</b>	1		
US	Buffalo	©*	0	P	
	Chicago	P			
VN	Ho Chi Minh City	P			



#### Raw materials

Concentrates and recycling materials are the raw materials from which copper is produced.



Concentrates

Recycling materials

#### **Products**

The copper is processed into products.

Some products are already the result of copper production.



Iron silicate







Cathodes



Continuous cast shapes



Wire rod



Specialty rod/shaped wire



Bars & Profiles

### **Slitting Centers**

Service centers located near our customers slit strip to the desired dimensions.



#### Sales and distribution

An international sales and distribution network markets our products.



### Facts & Figures

### **Aurubis**

150 Years

**Aurubis – 150 Years of the Future.** The company, which was founded in 1866 as Norddeutsche Affinerie AG, will be celebrating its 150th anniversary on April 28, 2016.

6,300

**employees** work at Aurubis today at production sites in Europe and the US as well as in an extensive service and sales system for copper products in Europe, Asia and North America.

1,150,000 t

of copper products are produced annually (FY 2014/15).

99.99%

copper content in our copper cathodes at the least – **this high purity** ensures that our products are of excellent quality.

> 370

million euro have been invested in **environmental protection** measures since 2000 alone.

8%

is the **quota of apprenticeships** – we are proud of this.





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### At home in the world of copper

The history of our company is characterized by dynamics and flexibility, tradition, expertise and innovation – a company that was already founded as a stock corporation in 1866. 150 years of Aurubis means 150 years of the future. The Aurubis Group is ideally positioned: with about 6,300 employees at production sites in Europe and the US as well as in an extensive service and sales system for copper products in Europe, Asia and North America, we are one of the leading integrated copper groups and the largest copper recycler in the world. Aurubis stands for innovative processes, state-of-the-art technology, exemplary environmental protection, customer value and profitability.

The combination of the primary copper and copper products segments (including recycling) and tailored special solutions makes us unique: we have a strong customer orientation, especially when it comes to increasing our closing-the-loop projects. Two production segments, perfectly attuned to each other.

Our subsidiaries and holdings supplement these activities in an ideal manner. With this positioning we are staking out central market areas along the copper value chain and guarantee our customers top service and maximum benefit.



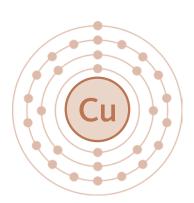


### Copper – the red gold

High productivity and processing depth, consistent market orientation and close customer relations are the foundation of our success. Processing raw materials and generating products involves utilizing technologically efficient and environmentally friendly processes and techniques.

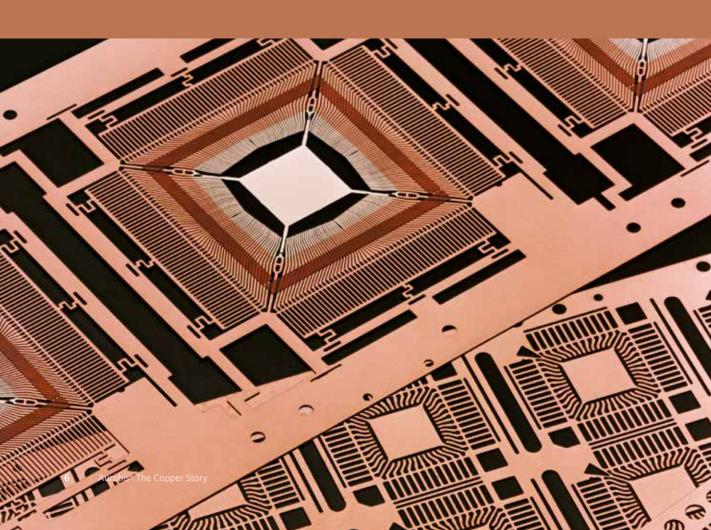
From copper of the highest purity, we produce continuous cast wire rod and shapes, pre-rolled strip, strip, specialty wire, profiles and copper alloys – essential starting materials for our customers.

In addition, we market all of the natural accompanying elements from copper products. This includes precious metals, sulfuric acid and iron silicate. Our customer structure reflects the diversity of our product range: companies active in the electrical engineering, telecommunications and chemical industries as well as construction/architecture, the automotive industry and mechanical engineering sector use our materials. We utilize the many different properties of copper in a targeted manner. The development of innovative products and integrated recycling solutions connected with operational efficiency secure our leading position – now and in the future. We are far more than simply a copper producer – we are a gateway to the world of copper.



### The material of progress

Copper is the oldest metal used by the human race. Some 10,000 years ago the "red gold" was already used to make tools, utensils and dishes. There is hardly another material that is as versatile and offers such a wide range of potential applications. Thanks to its many exceptional properties, copper is an essential basic metal that is an indispensable part of modern life.

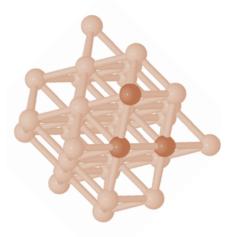




Copper is the material of the future par excellence. Whether telecommunications, energy supply or transportation and traffic infrastructure. The demand for copper not only increases with progress, but makes it possible in the first place. Copper paves the way for innovative developments, creates dynamics and plays a key role in the development of new technologies.

From live transmissions over the internet to e-mails spanning the globe and all the way through to our power

supply – copper is essential in achieving a high standard. Thanks to its excellent conductivity, copper ensures the reliable transfer of information and energy. In house construction too, copper is unbeatable: not only for sanitary applications and electrical wiring, but also for roofs and facades that brave the elements and impress with their attractive architectural design and flair. Increasing comfort and hightech: copper is an essential part of the picture. Copper of unsurpassed purity and quality, as produced by Aurubis.







Without our products, such as continuous cast shapes and wire rod, many other products would not exist at all. Together with our customers, we also develop tailored products for individual applications. We devise innovative and intelligent solutions that meet the specific demand profiles in an ideal manner.

One of our key strengths is developing new ideas and products – with farsightedness matched by a keen eye for detail. Always a step ahead, we are already working on ideas for tomorrow's success today. This includes oxygen-free copper as well as special alloys. In this way, we are creating a growth platform on the copper markets with our especially high-grade products.

Successful research into pioneering processes and new materials is an essential part of the Aurubis strategy. Highly qualified experts are at work at our own test facilities, developing attractive products for new applications.

We make systematic use of our expertise in the world of copper. In simple terms, Aurubis is becoming the supplier of choice for future technologies. The highly attractive properties of copper and its alloys are reflected in an endless flow of new high-tech applications, products and markets. Without copper there would be no data highways, no mobile phones, no energy. In the future, the importance of copper as a key element will increase further. We are on course for continuing growth.

### Success is a matter of aptitude...

We are focused on sustainable growth and long-term value enhancement. That is one of the reasons why Aurubis ranks among the international leaders in the copper industry. The foundation of the success of all of our corporate sectors lies in employee competence and motivation. It is their skills and creativity that unlock the door to innovative prowess at Aurubis. And with the power of innovation, we are ideally placed for the future.



# ... and attitude



#### Strategy and sustainability

Aurubis is on its way to becoming the world's leading integrated copper group. The Group is oriented towards sustainable growth and increasing value: the central elements of our strategy are expanding our leading market position as an integrated copper producer, utilizing growth opportunities and responsibly approaching people, resources and the environment.

#### Commitment and motivation

At Aurubis, our international outlook has earned us great expertise. Ultra-modern plants, top product quality, maximum efforts to protect the environment, excellent health and safety levels: however, none of this would be possible without a motivated and committed workforce. Consequently, we go the extra mile to ensure that we are an attractive employer for our personnel. The low fluctuation rate is proof of the job satisfaction our employees experience - with the average period of service amounting to 16 years. It is also a clear indicator that our employees appreciate and make good use of the prospects and opportunities open to them within the Group. It is not unusual for members of our staff to celebrate their 40-year tenure at Aurubis.

#### Diversity and equal opportunity

Our personnel comprise a variety of cultures and individual personalities. This is respected. We evaluate our employees based on performance regardless of function and position, not according to personal qualities or cultural background.

Five values were developed with employees from all the production sites to strengthen our corporate culture: performance, responsibility, integrity, mutability and appreciation. These company values and a group-wide Code of Conduct serve as the basis for sensitive and respectful interaction.

Team spirit always takes priority, as significant objectives can only be met together with a determined effort.

#### Responsibility and fairness

The vocational training of young people is a long-standing tradition and holds special priority at Aurubis. With a total of 19 trades and professions to choose from, Aurubis offers a broadbased start on the career ladder at its German sites.

We are proud of our high trainee share of around 8 %. What's more, the majority of our apprentices go on to join our workforce. Thanks to a program of continuous education and training, our employees enjoy a rich diversity of prospects. At Aurubis you will also find female staff active in what are traditionally male occupations.

Whatever the task, the health of our employees takes the highest priority. Occupational health and safety are an integral part of corporate philosophy at all of our plants.

# Far-reaching responsibility

Aurubis cares not only about the well-being of our employees, but also that of society at large. We are an attractive employer for our personnel, and we would like to be a good neighbor to local residents at all sites. For Aurubis, entrepreneurial responsibility means helping to shape the community actively and sustainably.

Education, sports and culture – Aurubis supports social and cultural projects as well as the preservation of significant monuments and buildings at its sites.

The future of young people is especially important to us. We are active in promoting education and are involved with special training and qualification measures.





Aurubis cooperates with schools and universities at various sites. Students gain insights into Aurubis' occupational fields and scholarships for foreign language study trips abroad and receive information about climate protection, conservation and a healthy diet.

The Hamburg project AV 10-Plus enables school leavers who haven't received an apprenticeship due to weak school performance to take part in an internship with the prospect of an apprenticeship. Similarly, for several years Lünen has successfully offered entrance qualification measures to help applicants who aren't ready for an apprenticeship to prepare for this next step.

Students are supported with scholarships, can participate in internships or write papers and thesis projects with us.

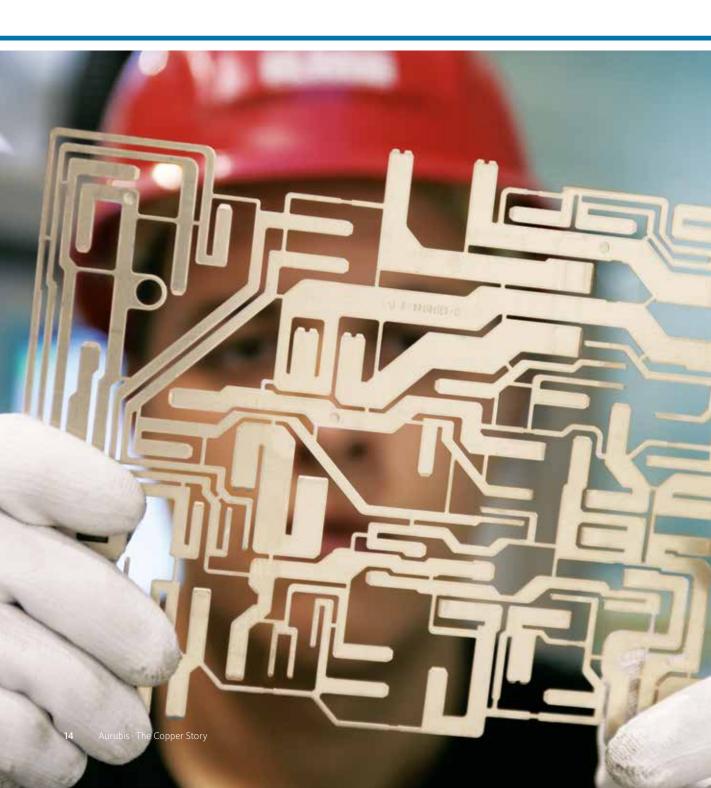
Young people are not only fostered in education. Aurubis is also involved in sports at its sites worldwide. Whether biking, ball sports or water sports – promoting team sports that encourage fairness and strengthen team spirit is important to us.

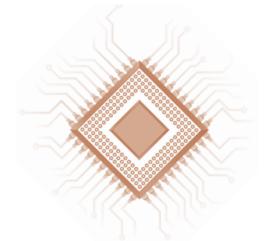
Our involvement in social projects in Germany and abroad cannot be overlooked. Aurubis is strongly committed to such initiatives, such as providing new beds for a kindergarten or activities for socially disadvantaged children during the school holidays.

We also facilitate cultural and neighborhood projects which are always related to the topic of copper or which affect the direct surroundings of our plants. At the Bulgarian site, local residents can obtain information about Aurubis and discuss their concerns at centrally located information offices.

Take a look at the copper architecture around you as well: whether in the restoration of monuments or new roofs, Aurubis is present.

# Top performance for demanding customers









#### Quality

Years of experience in producing and processing copper have made Aurubis the leading supplier of products of the highest quality.

We harness the latest process control and quality assurance systems to monitor every production process and every product. Each and every item is sample tested and subjected to a strict and comprehensive quality inspection.

#### Service

Besides first-class copper products, Aurubis is also distinguished by extensive customer-centered commercial and technical customer service. We work with our customers to develop and optimize the right materials and product solutions for individual applications. Training courses, seminars and workshops round off our range of services. In response to customer requests, both continuous cast wire rod and shapes can be produced in materials and sizes that are ideal for the intended application or production process.

Slitting centers located near our customers cut strip to the desired dimensions.

We advise and support our customers on site with our network of experienced technicians and engineers. We have production facilities located throughout the world, backed up by an international sales and distribution network. Our customers all over the globe benefit from dependable supplies, delivered on time. With our own copper production, processing and storage facilities at multiple sites, Aurubis offers guaranteed reliability.

### Charting a successful course with Aurubis

Aurubis AG regularly wins awards for its continuous, credible and high-quality reporting. We regard this as an incentive as well as an obligation. One thing is certain: we shall consistently pursue our strategy for success. Our declared objective is to achieve a sustained increase in enterprise value.





Aurubis shares are listed in the Prime Standard segment of Deutsche Börse and are included in the MDAX and the Global Challenges Index (GCX). They offer a capital investment with an attractive dividend yield. While reading this brochure, you will appreciate exactly why this is the case: it is substance that makes the difference. Our clearly focused growth strategy makes Aurubis an attractive long-term investment.

Since the company was floated in 1998, we have concentrated on a shareholder-friendly dividend policy. It is a matter of great importance to us to keep in close contact with all of our shareholders. We emphasize detailed, transparent communication in a spirit of trust.

Our presence in the capital markets is both national and international: at our annual general meetings, road shows, analyst and investment conferences and through company announcements, conference calls and personal contacts, we aim to keep the financial community continuously informed.

We are also keen to maintain a dialogue with our private shareholders: every year since 1999 we have held a series of events dedicated to exactly this purpose. Through presentations, a tour of the plants and discussions with management, everyone who attends these events can form their own personal picture of what Aurubis can do and what the future holds.

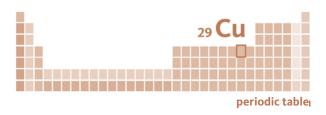
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### A journey through the world of copper

The process begins for us with the purchase of copper concentrates and recycling material. These raw materials are melted down and processed until copper wire, thin strip or even cakes weighing several tons are produced. We sell these products to processors who manufacture such diverse items as cable for the automotive industry, connectors, coating for solar cells and roof gutters.





One of the essential advantages of copper is that it can be recycled indefinitely without loss of quality. This not only conserves raw material resources; recycling also saves the energy otherwise expended to mine and process the ore.

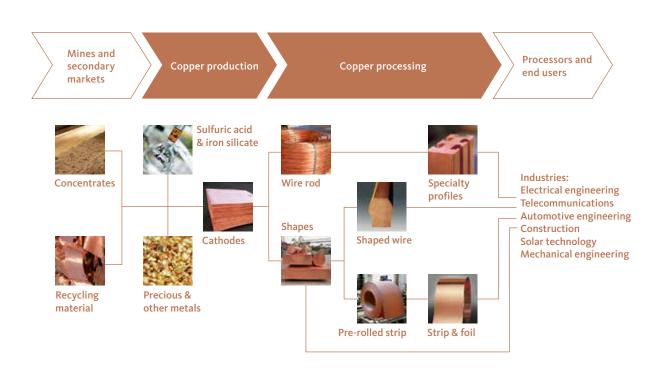
On the following pages we would like to introduce you to the production process in a little more detail.



### Combining forces

### Excellent positioning in all central market segments

Aurubis is an integrated copper producer. Our value-added chain starts with the procurement of the raw materials and, with continuous cast wire rod and shapes, shaped wire, strip and profiles, extends far into the product markets. Moreover, Aurubis extracts all other tramp elements contained in the raw materials and processes them into marketable products: precious metals, high-purity sulfuric acid and iron silicate are some salient examples.





### From the raw material to specialty products

The first marketable copper product in the value-added chain is the high-purity copper cathode, but the co-products, iron silicate and sulfuric acid, are created first. Aurubis uses its own cathodes as a reliable supply base for producing a wide range of different copper products.

The cathodes are melted down and then formed into continuous cast wire rod in a continuous casting and rolling process. The rod is produced in diameters of 8 to 23.5 mm and is delivered in coils that can weigh up to 8 t.

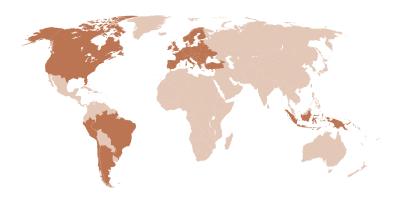
We also need the copper cathodes for producing our continuous cast shapes. First the cathodes are melted down, and then they are cast into cakes, round bars and square bars, the so-called shapes. Unit weights of up to 25 t and a broad range of grades and geometries ensure efficient processing in the semi-finished product and pipe industries.

We then produce pre-rolled strip and strip from the shapes. Here again, we guarantee high-grade quality products in our extensive product portfolio.

### The roots of our success

As an integrated copper producer, we ensure that we have a wide raw material basis that consists of a unique material mix of concentrates and recycling materials. At the Aurubis Group, copper concentrates are fed into our smelters in Hamburg and Pirdop, while recycling material is primarily processed at the Lünen recycling center and at the Hamburg, Olen and Pirdop production sites.











#### Concentrates

Our suppliers prepare the copper ore with a copper content of roughly 0.5 – 4% into a concentrate with a copper content of around 30%. This starting material often also contains small amounts of precious metals and a number of other elements, which we mainly process into products as well.

The concentrate usually reaches our smelters by sea. The concentrate for our Hamburg plant is transferred on to special vessels suitable for inland shipping in Brunsbüttel and then unloaded at the plant. In Bulgaria, the imported concentrates are also delivered by sea, transferred on to trains at the Burgas port, and then forwarded to Pirdop.

### Copper scrap and electronic scrap

Copper has an advantage over almost all other materials: it can be recycled any number of times without any depreciation in quality. As the world's largest copper recycler, we have been utilizing the cycle's economy for a long time. The Group's recycling center is located at our Lünen plant. Here, secondary raw materials are used for producing cathodes, while in Hamburg, Olen and Pirdop a mixture of primary and secondary raw materials are utilized.

Altogether, roughly one-third of the Aurubis Group's copper output originates in copper scrap and other recycling materials. This conserves natural resources and saves energy. The principle: recycling instead of disposal – a clean solution all around.

### A valuable cycle

### Copper scrap

Modern conveying systems ensure dust-free, environmentally friendly delivery of the material from inland barges and trains to our production facilities. We take representative samples in weighing hoppers, and our chemists analyze them in detail.

This calls for particular care, because the metal content determined forms the basis for settling the accounts with the suppliers. The copper ore raw material is extracted in open cast and deep mining.

For the most part, we have long-term partnerships with the mining companies that are our sources for the copper concentrates, and these companies are committed to a sustainable corporate policy. As a copper producer that does not own any mines, we pay our raw material suppliers for the metal contents in accordance with the respective price on the metal exchanges less a processing fee.

The majority of our shipments come from South America, but we also have sources in Asia and Europe.

The share of electronic scrap in our recycling materials is growing steadily. Computers and household appliances contain large quantities of copper; we recover this copper through recycling and thus return it to the economic cycle.

The Group's recycling center is located at our Lünen facilities in the Westphalia area of Germany. Thanks to its Kayser Recycling System (KRS), the center has a system specifically for material preparation, which is ranked as the most modern and environmentally friendly facility for melting and enriching non-ferrous and precious metals. We source most of our recycling material from Europe.

Cablo GmbH in Fehrbellin, not far from Berlin, specializes in recycling copper and aluminum cable scrap and produces high-grade metal granules. Cablo GmbH has a second recycling plant located in Strass, Bavaria. The chemical industry produces plastic items from the cable insulation.

E.R.N. GmbH in Hamburg extracts non-ferrous metal and precious metal fractions from previously dismantled end-of-life electrical and electronic devices. These are delivered to the steel and aluminum industries, as well as to the copper smelting operations within the Group.



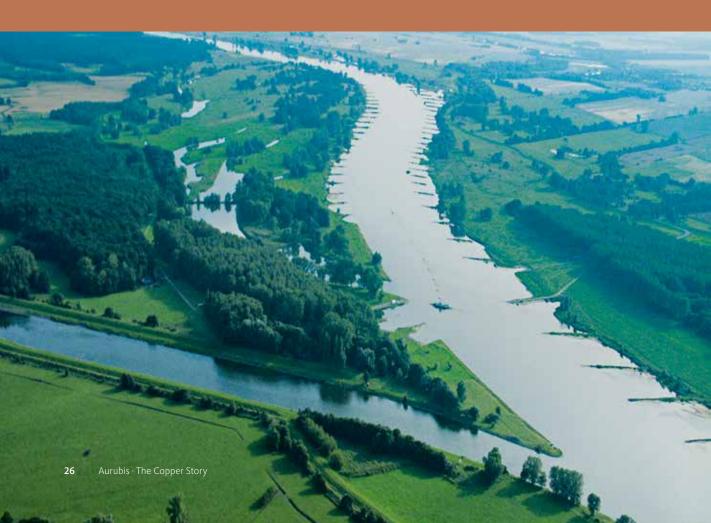
### **Electronic scrap**

The share of electronic scrap in our recycling materials is growing steadily. Computers and household appliances contain large quantities of copper; we recover this copper through recycling and thus return it to the economic cycle.



### A model of environmental protection

At Aurubis, environmental and climate protection are among the core targets of corporate strategy and are enshrined in our company guidelines. We are developing innovative and energy-efficient plant technologies in environmental protection that set new international benchmarks. An average of one-third of the Group's total capital expenditure is allocated to environmental protection. The Aurubis Group is therefore one of the most environmentally friendly copper producers in the world today. Energy efficiency and climate protection are constantly developed and improved at all sites.





Aurubis has the highest environmental protection standard worldwide in comparison to other primary copper producers. Success is also evident in the trend in sulfur dioxide emissions in Aurubis' primary copper production segment – they have been reduced by over 80 % since 2000. Likewise, specific dust emissions were also successfully

lowered: a reduction of up to 94 % has taken place for the entire primary and secondary copper production sector compared to 2000.

We created a uniform environmental protection standard for the Aurubis Group. The key factors for environmental protection are TÜV-tested and

certified. The annual TÜV audit is a good opportunity for us to have the successful implementation of the environmental protection policy, as well as the success achieved at the sites, audited and verified by an external party.

### **SO<sub>2</sub> emissions from copper smelters worldwide** in kg SO<sub>2</sub>/t of copper output

Aurubis Hamburg Aurubis Pirdop

Average of international copper smelters

### The right melt

Turning the copper concentrate raw material into bright copper takes a multi-step refining process. An enclosed conveyor belt system transports the concentrates to the smelter. The smelting process is based on the so-called "Outokumpu method", whose central unit is the flash smelter.





The entire smelting process runs in three-shift operation – around the clock, 365 days a year.

More than 2 million t of copper concentrates are processed in the Group annually. The mixture of various concentrate types and sand for forming iron silicate is first dried and then, with the addition of oxygen, melted into copper matte and iron silicate slag in the flash smelter at a temperature of 1,200° C.

The sulfur contained in the copper concentrates is collected in the furnace's off-gas and is subsequently processed into sulfuric acid.

In the converter, the second step in processing copper, the copper matte is converted into so-called blister copper. This contains roughly 98 % copper, along with traces of residual sulfur. The heat released during this conversion process is used for melting copper scrap and bought-in blister copper.

Aurubis obtains recycling material in many different forms. For example, we use electrical and electronic scrap, wire, cable granules and copper-bearing industrial residues. In Hamburg, a press forms the copper scrap into packages that weigh up to 600 kg and are then melted down in the converter.

Any sulfur still contained in the blister copper is extracted in the anode furnace with the help of oxygen. In the next step, natural gas is used to remove the oxygen from the copper. The hot phase of copper production ends with the casting into anode sheets, which already contain around 99.2 % copper. Aurubis produces anodes at the Hamburg, Pirdop, Lünen and Olen sites.

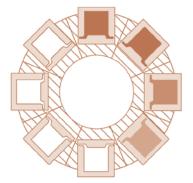
### A dream result of more than 99.99 percent

The anode sheets produced from copper concentrates or copper scrap already consist of around 99.2 % copper, but they also still contain precious metals and other tramp elements. In order to turn these sheets into a pure product, they still have to be refined in our modern tankhouse. During this last step in the refining process, copper that is more than 99.99 % pure is deposited in the form of cathodes. These copper cathodes are traded on metal exchanges around the world.





We owe the production of highpurity copper to the research work of our head chemist at the time, Emil Wohlwill. Back in 1876, Aurubis was the first company in the world to apply the electrolysis method on a large industrial scale. As even small amounts of impurities interfere with copper's electrical conductivity and mechanical and chemical properties, the copper requires further refining in the tankhouse. The material does not meet the processing industry's requirements until it has undergone this step. During the electrolysis process, the anode sheets are suspended in cells in which a sulfuric acid copper sulfate solution is circulating as the electrolyte. The electric current causes the copper ions to dissolve and deposit on the cathode in the form of high-purity copper. All additional substances, including precious metals, settle at the bottom of the tankhouse cell as anode slimes or are enriched in the electrolyte. The result of the tankhouse process is high-purity cathode sheets with more than 99.99 % copper – these sheets represent the starting material for further processing.



# The right shape for everyone

Our own output of high-purity copper cathodes is the main prerequisite for the first-class quality of our copper products. Our continuous cast wire rod, manufactured at the highest degree of automation possible, is rolled a number of times, then pickled, provided with surface protection and wound into coils. For our customers in the cable and wire industries, the best conductivity, formability and a good surface are the features that count. With production sites in Europe, North America and Asia as well as a global sales and distribution network, we are the market leader.





Our continuous casting plant in Hamburg manufactures an additional product. Here we produce cakes, round bars and square bars as the starting material for high-grade strip and foil for the electrical and electronics industries. Our continuous cast shapes are also the source material for tube production and for applications in architecture. Some of our continuous cast shapes are processed in Stolberg in the world's largest rolling mill for copper and copper alloy pre-rolled strip, a 50 % Aurubis holding.

We continue to produce finished strip, specialty products and wire in our plants in Stolberg and Olen. Strip is produced at our sites in Buffalo (USA), Pori (Finland) and Zutphen (Netherlands). Our portfolio is complemented by modern and unique thin strip casting technology. From the preliminary stage to the semi-finished product, our customers benefit from our efficient organizational and manufacturing structure and from our stringent quality demands in all production steps. This is what we consider rigorous customer and market orientation.





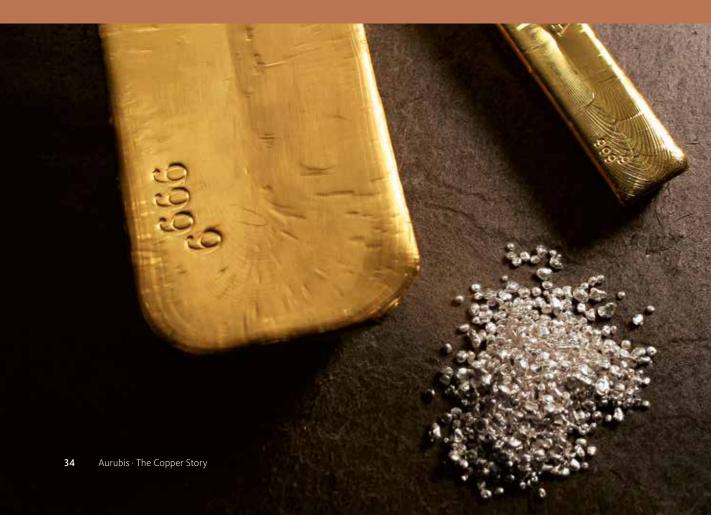






# The outlook is bright

The anode slimes that sink to the bottom of the tankhouse cells contain precious metals such as gold, silver, platinum and palladium. One of the Aurubis Group's strengths is its ability to process these slimes into marketable metal products.





Thanks to its excellent technical features, iron silicate stone is largely used in hydraulic engineering and road construction. In the reinforcement of river embankments, levees in ports, rivers and coastal protection in particular, its high weight provides a number of advantages. Iron silicate granules are processed into the standardized abrasive NAstra and are used as a raw material in the cement industry. Sulfuric acid is utilized in almost all industrial sectors. Some typical applications are fertilizer and pigment production and metal ore leaching.

Our origin as a gold and silver separating facility has given us special experience in extracting these valuable precious metals from copper concentrates and recycling materials.

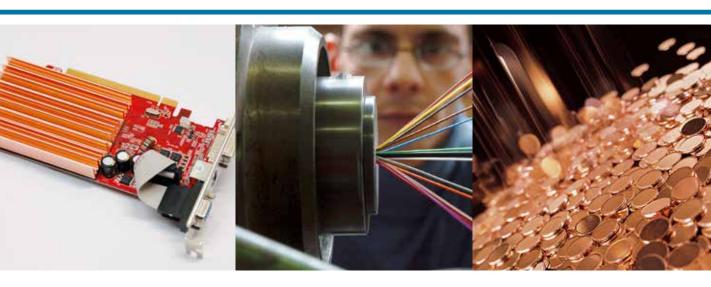
But there are still a few complicated refining processes necessary before bright granules or gleaming bars leave the precious metal refinery. The precious metal-bearing anode slimes taken from the tankhouse cells are processed in several stages.

In the last process step, we extract the purest precious metals in the silver and gold electrolysis – which now need to be melted again into marketable products. From silver coins to wedding rings to catalytic converters: we deliver the premium quality source material for the widest range of fascinating applications for valuable precious metals.

We offer a broad range of services and products. For example, additional natural tramp elements are extracted during copper production, which we then use to produce iron silicate products or sulfuric acid, for example.

We also produce lead and selenium. Selenium is used in the glass, animal feed and fertilizer industries, while lead is employed in the production of rechargeable batteries and sheathing for deep-sea cables, for example. Without these cables, transcontinental communication would be impossible.

# Copper products in use



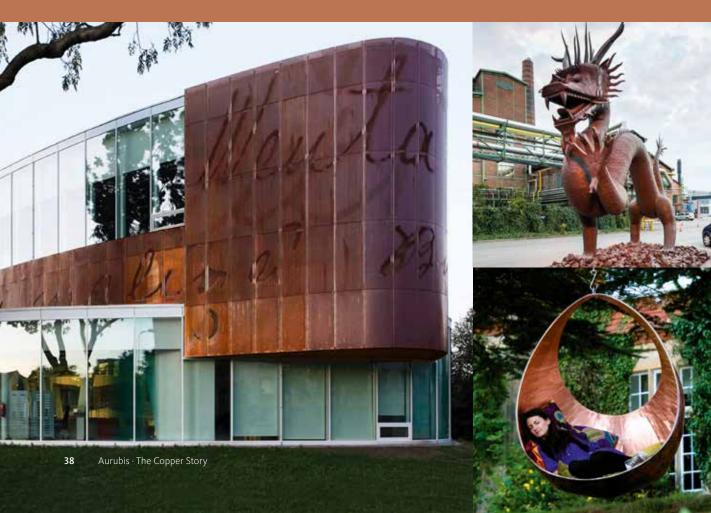
Material	Product	Industry	Application		
Copper products					
Copper	Wire rod	Electrical and electronics industry, electric appliances, automotive industry, telecommunications, mechanical engineering and plant construction, construction industry/architecture	Cable, wire, litz wire, profiles		
	Shapes	Electrical and electronics industry, telecommunications, mechanical engineering and plant construction, energy engineering, construction industry/architecture	Sheet, strip, foil		
	Strip, wire and profiles	Electrical and electronics industry, telecommunications, mechanical engineering and plant construction, automotive industry, construction industry/architecture	Cable strip, leadframes, conductor rails, switch and contact elements, connectors, mobile phones, wind genera- tors, roofing and facades		
Precious meta	s				
Gold, silver	Bars, granules	Investment, jewelry industry, photo industry, electronics and chemical industries	Photographic paper, bars, coins, contacts, solder, jewelry, special applications		
Platinum, palladium	Solution	Industry, jewelry, optical industry, dental technology	Catalysts (cars, petrochemistry), jewelry, glass fiber manufacture		



Material	Product	Industry	Application
Other metals			
Lead	Bars	Automotive, optical and electrical industries	Batteries, optical glasses
Tin/lead	Alloy	Electronics industry	Tin solder
Selenium	Concentrate	Glass, animal feed industry, IT industry	Optical glasses, feed additives, photocopiers
Zinc oxide	Concentrate	Chemical industry	Fine zinc
Chemical produ	ucts		
Copper sulfate	Crystal	Chemical industry	Fungicides
Nickel sulfate	Solution	Chemical industry	Batteries, surface coating
By-products			
Sulfuric acid	Solution	Fertilizer, pigment, metal and chemical industries	Fertilizers, paints, metal extraction, fibers, fluorine
Iron silicate	Stone, granules	Construction, blasting abrasive and cement industries	Securing shore embankments, road construction, abrasives, cement

### The fascination of copper

Copper makes the day into night, connects people and fascinates on account of its beauty. Copper gives sculptures, monuments, roofs and house facades a particular aesthetic. And let's not forget jewelry and vases that owe part of their attractiveness to the red gold. Copper captivates thanks to both its metallic red sheen and green patina.



Copper is a material that does not develop its special artistic quality until it undergoes the aging process with its typical patina. In interior design, copper and its alloys, brass and bronze, are experiencing a true renaissance. Copper is being used more and more by leading architects in prestigious buildings in particular.

All the main cultures and peoples of the world have worked with copper for 10,000 years. It was the first metal to be used by man. So it is hardly surprising that this material is used for many expressions of cultural life.

Did you know that the Colossus of Rhodes, an over 30 m high monumental bronze statue of the sun god Helios created in 300 B.C. and later destroyed in an earthquake, was made of copper, just like the roughly 5 m high Quadriga atop the Brandenburg Gate in Berlin, and that the Statue of Liberty in New York also contains more than 27 t of copper?

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