



# NF Wire Forum



# Sustainability @ Aurubis – benefits for our customers



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Antwerp, Sept. 20th, 2023

NF Wire Forum 2023



# Agenda



- 1 Aurubis Group
- 2 Sustainability at Metal Industry
- 3 Sustainability @ Aurubis
- 4 Tomorrow Metals – our promise to our customers

# Our Metals for an innovative world: Copper enables circularity

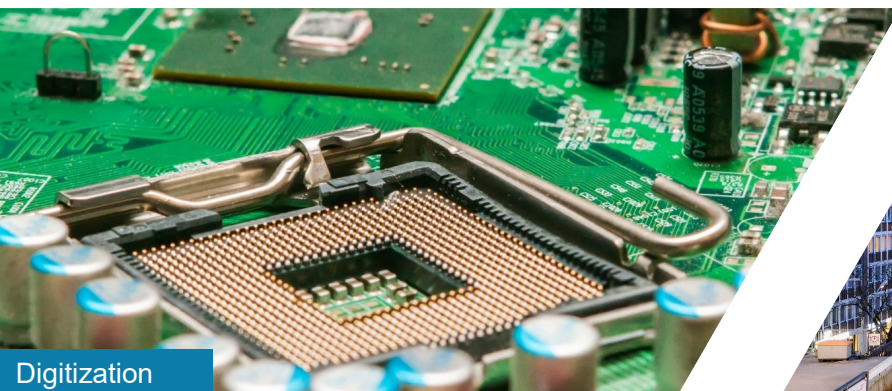


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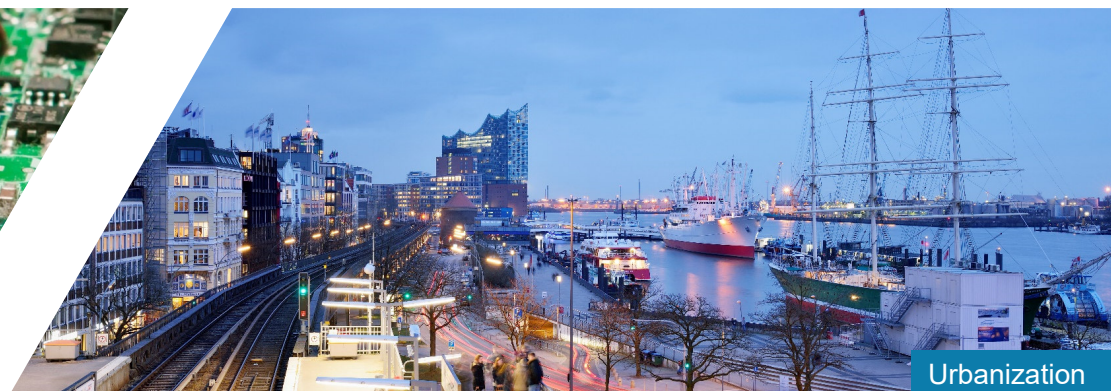
Renewable Energies



E-Mobility



Digitization



Urbanization

# Aurubis: We are experts for metals.



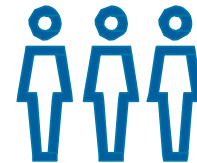
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Successful in  
**20** countries on  
**3** continents

**> 6,900 x**

passion and  
engagement



**156** years



of experience in the  
production of non-ferrous  
metals



One of the  
worldwide leading  
companies in  
copper recycling

about **1 million t**



of recycling materials  
are processed by Aurubis  
on a yearly basis



different **metals**  
are recovered by  
Aurubis

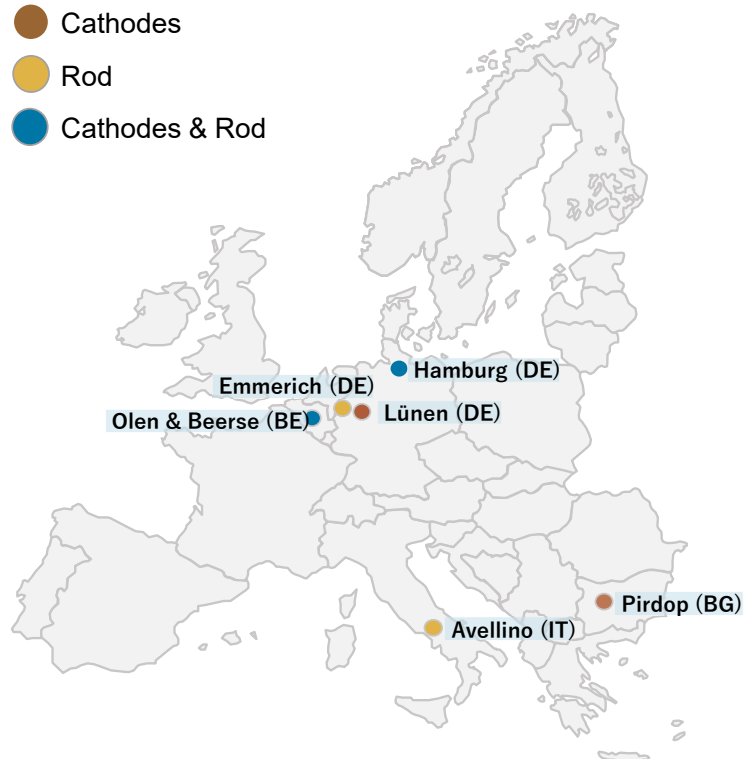
# Aurubis sites – production of primary and secondary copper



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## Production of Cathodes and Rod

- Cathodes
- Rod
- Cathodes & Rod



- Aurubis operates a closely linked network of **6 key plants in Europe** with a focus on **smelting and refining primary and recycling raw materials**
- Furthermore, Aurubis operates a network of 8 plants in **Copper Products**

FY 2021/22



Concentrate throughput

2,429,000 t



Copper scrap / blister copper throughput

540,000 t



Other recycling materials

524,000 t



Cathode production

1,111,000 t

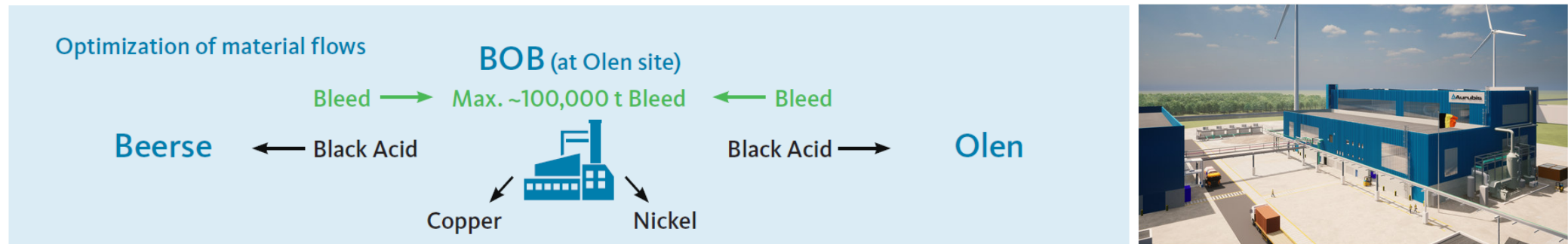


Rod production

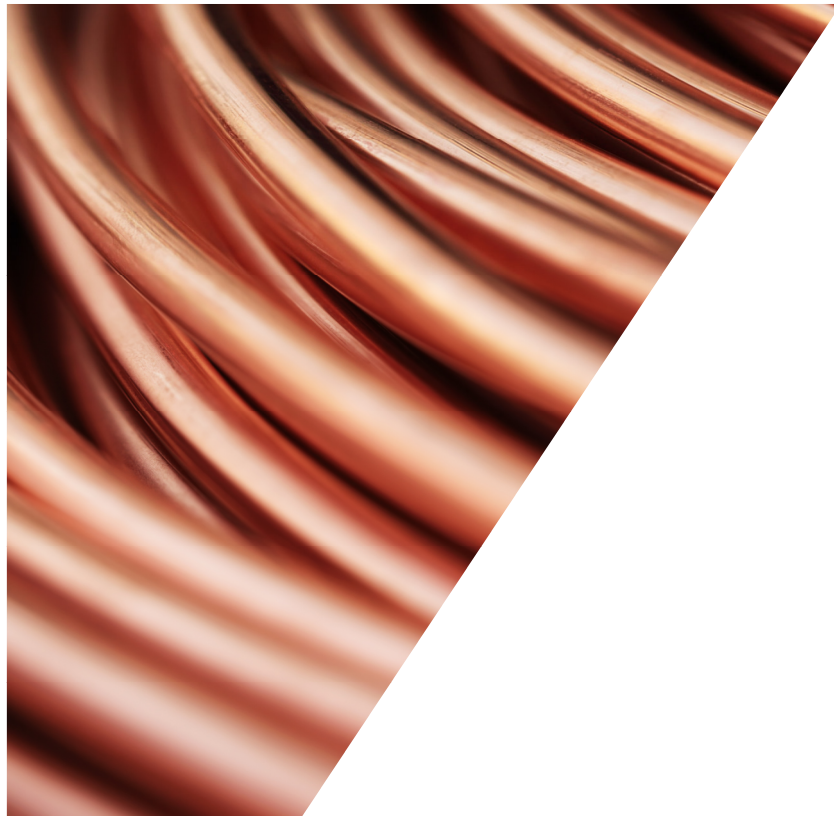
880,000 t

# BOB: Bleed Olen Beerse – one of the strategic projects

- » Advanced hydrometallurgical process for treating electrolyte containing nickel and copper
- » In a four-step process, valuable metals are recovered, and impurities are removed from the bleed.



... we acknowledge the rising demand for ESG transparency



Customers



Capital markets

Ongoing and increasing  
sustainability and  
transparency  
requirements



Legislation



NGOs and Civil Society

# Metal industry's influence on sustainability



GHG-emissions



Impact on society



Resources and recycling



Land use and diversity of species



Human rights



Water consumption



Hazardous waste



High energy consumption



Health and safety of employees



Emissions to water



Off-gases



Responsible taxation



Anti-corruption policy

» Adherence to standards and the pursuit of clear goals will mitigate negative impacts and ensure sustainable development

# The Copper Mark – Aurubis Bulgaria, Hamburg and Lünen smelter certified!

- The Copper Mark launched for copper producers in March 2020
- Basis: UN SDGs & Risk Readiness Assessment
- Review of the 32 sustainability criteria
- Focus on steady improvement of the sector
- Joint Due Diligence Standard enables effective due diligence
- Aurubis Bulgaria, Hamburg and Lünen are certified for meeting The Copper Mark's requirements for responsible production practices
- Aurubis Olen expected in 2023



» The copper value chain demonstrates responsibility to mutually improve and develop.

# Aurubis' main sustainability ratings & initiatives



# Our biggest impact on having less impact



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We are committed to constantly delivering more value with less environmental footprint. Therefore, our understanding of sustainability covers the key areas of business, environment, and people.

» Our mission is to responsibly create value from raw materials with metals for an innovative world.



# Our biggest impact on having less impact



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Tomorrow Metals is our Aurubis promise to stay best in class in all sustainability challenges of today and the future by using our metals.





OUR ENVIRONMENTAL FOOTPRINT



We are committed to  
constantly deliver  
**more value** with  
**less environmental**  
**footprint.**

# Our environmental footprint



## What have we achieved so far?



**96 %** reduction of dust emissions in copper production since 2000.



**88 %** reduction of metal emissions to water since 2000.



**32 %** reduction of acidification for Aurubis cathode copper in kg SO<sub>2</sub> eq./t Cu since 2013.

## How is this made more tangible? **NF Wire Forum**

Investment of more than **€ 730 million** group wide in environmental measures since 2000.

With a new, innovative exhaust system for **Reducing Diffuse Emissions (RDE)** at the Hamburg location, Aurubis is setting standards in environmentally friendly primary copper production.

Aurubis AG has an **environmental management system** which is certified in accordance with ISO 14001 and EMAS.

A **new water use concept** at Aurubis Lünen will optimize the flow of waste water, thus unused waste water can be almost completely avoided in future.

# New, innovative system for Reducing Diffuse Emissions (RDE)



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» Aurubis' RDE is the largest environmental protection installation in Hamburg since the 1980s.

# Sustainability - RDE sets new standards in primary copper production



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## Industry Leadership in Sustainability

Investment  
~ € 85 million

Absorption of  
**diffuse emissions**

Major investment in Hamburg of about € 85 million in suctioning devices and filter facilities.

RDE is an innovative filtering system that can be controlled according to current needs and is hence very energy-efficient.

Expected reduction of diffuse emissions.

Aurubis sets new standards in the copper industry, and with RDE, Aurubis Hamburg will become the most sustainable primary copper smelter.

Start  
of filtration systems  
**October 2021**

~ 6,300 t  
filter elements  
**540,000 Nm³/h**  
air suction capacity

» Aurubis is actively investing to exceed the steadily increasing requirements for environmental protection today to secure the site in the future.



Our ambition:  
To be  
**carbon  
neutral**  
well before 2050.

**Aurubis**  
Goals for Progress

OUR APPROACH TO REDUCE THE CARBON FOOTPRINT



By decarbonizing  
our production, we are  
**contributing to the  
1.5° goal of the  
Paris climate agreement.**

# Our approach to the carbon footprint



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## What have we achieved so far?



**36 %** reduction of our carbon footprint for cathodes from 2,300 in 2013 to **1,460 in 2021** (kg CO<sub>2</sub> eq./t Cu). For five more products LCAs available



Aurubis' **2030 GHG reduction targets** are validated by the Science Based Targets Initiative (SBTi).



**Our commitment:** reduction of absolute scope 1 and 2 GHG emissions by 50 % and scope 3 GHG emissions by 24 % per t copper cathode by 2030 from a 2018 base year.

## What supports our aspiration?

Up to **160 million kWh** CO<sub>2</sub>-free industrial heat from the Aurubis plant in Hamburg each year – equivalent to a **more than 20,000 t reduction in CO<sub>2</sub> emissions**.

Aurubis is testing the use of **hydrogen and ammonia instead of natural gas** on an industrial scale in primary and secondary copper production.

**10 MW photovoltaic installation** project at Aurubis Bulgaria saving **6,600 t CO<sub>2</sub>** per annum.

From 2023, renewable power deal for Aurubis Olen leads to **420,000 t CO<sub>2</sub> reduction** within 10 years and increases the share of renewable energy sources to **more than 90 %** of externally generated power.

# Leading the way with life cycle assessments – and substantially lower carbon footprints than industry averages ...

CO<sub>2</sub> footprint of Aurubis metals vs. global industry average

**Copper cathodes** in kg CO<sub>2</sub> eq./t Cu

Global industry average

2013: 4,027

-5 %

2019: 3,833



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2013: 2,300

-36 %

2021: 1,460



**Tin**

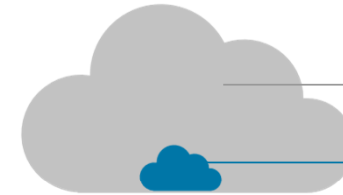
in kg CO<sub>2</sub> eq./t

2020: 6,632

Int'l Tin Association

2021: 1,570

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**Silver**

in kg CO<sub>2</sub> eq./kg

2021: 448

Ecoinvent

2021: 209



**Gold**

in kg CO<sub>2</sub> eq./kg

2019: 36,400

World Gold Council

2021: 16,200



Remark: The environmental profiles have been verified by TÜV Nord Cert in accordance with DIN EN ISO 14040:2021 and DIN EN ISO 14044:2021.

Source: International Copper Association 2019, Aurubis LCA 2021

**Aurubis continuously pursues better energy efficiency: lowering costs, improving CO<sub>2</sub> footprint**

# Aurubis has carried out LCAs for six Aurubis products



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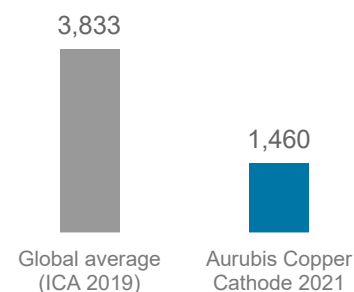
## Carbon footprint in 2021

	<b>Aurubis Copper Cathode</b> in kg CO2 equivalents per t of copper cathode	<b>1,460</b>
	<b>Aurubis ROD  RheinROD</b> in kg CO2 equivalents per t of wire rod	<b>2,290</b>
	<b>Aurubis Shapes</b> in kg CO2 equivalents per t of shapes	<b>2,320</b>
	<b>Aurubis Tin</b> in kg CO2 equivalents per t of tin	<b>1,570</b>
	<b>Aurubis Silver</b> in kg CO2 equivalents per kg of silver	<b>209</b>
	<b>Aurubis Gold</b> in kg CO2 equivalents per kg of gold	<b>16,200</b>

## Aurubis products in global comparison

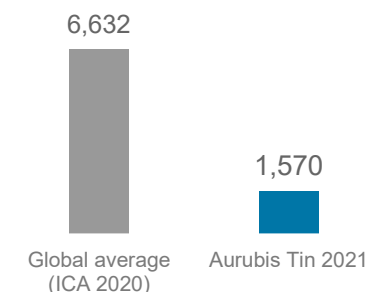
### Carbon footprint of Copper Cathodes

in kg CO2 equivalents per t



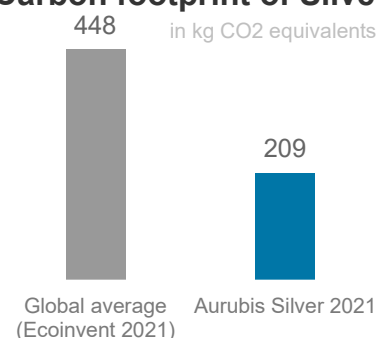
### Carbon footprint of Tin

in kg CO2 equivalents per t



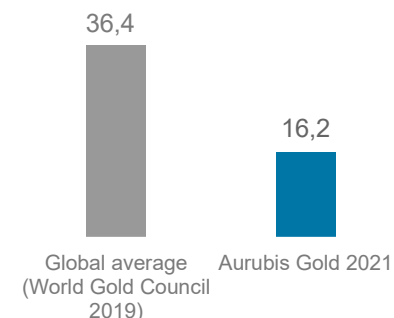
### Carbon footprint of Silver

in kg CO2 equivalents per kg



### Carbon footprint of Gold

in kg CO2 equivalents per kg



Remark: The environmental profiles have been verified by TÜV Nord Cert in accordance with DIN EN ISO 14040:2021 and DIN EN ISO 14044:2021.



OUR CONTRIBUTION TO RECYCLING



We are consequently expanding our **multimetal recycling** efforts to make a significant contribution to the **circular economy** and to conserving natural resources.

# Our contribution to recycling

## What have we achieved so far?



More than **1 million t** recycling capacity.



More than **50 closing the loop partnerships**.



Around **47 % recycled content** in copper cathode for the financial year 2021/22.



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## What supports our aspiration?

Our **State-of-the-Art recycling technology** is used for copper, but also for other recoverable by-elements such as gold, silver, nickel, tin, lead and zinc.

**€ 190 million investment** in the Complex Recycling Hamburg project (CRH) at the Hamburg site with a capacity to process around 30,000 more tons of recycling material and internal, complex smelter intermediary products on a larger scale.

Aurubis starts construction of a **€ 640 million multimetal recycling plant** in Augusta, Richmond County, Georgia (US) with a capacity of up to 180,000 t p.a., scheduled to be operational starting in 2024.

Making use of our **huge network** along the value chain from metal mining to OEM.



We are responsibly transforming raw materials into value to provide metals for an innovative world.

OUR RESPONSIBILITY



Everything we do focusses on a balance of  
**economy,  
environment,  
people.**

# Our responsibility

## What have we achieved so far?



Ecovadis 2022  
Gold rating  
Top 2 %



CDP Score  
2022:  
A-



Aurubis Bulgaria was first in 2021, and now Aurubis Hamburg and Lünen were awarded in July 2022 with  
**'The Copper Mark'**



Aurubis wins the **Responsible Care Competition** of the German Chemical Industry Association (VCI)



Aurubis was awarded a finalist for the  
**15th German Sustainability Award**



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## What supports our aspiration?

We are securing **long-term company success** with responsible business practices and stable growth.

We are **showing responsibility** towards employees, suppliers, customers, and neighbors.

We are **promoting employee's health** and well-being at work following our vision of Zero incidents.

We have implemented our **Aurubis Code of Conduct and Aurubis Human Rights Commitment**.

We are committing our Business Partners on the **Aurubis Business Partner Code of Conduct**.

Thank you for your attention!

