

# Environmental Footprint Declaration Copper Shapes (Aurubis SHAPES)



This document presents an environmental footprint declaration based on the results of a life cycle assessment (LCA) of copper shapes (Aurubis SHAPES), developed in accordance with ISO 14040 and ISO 14044 standards and the principles of ISO 14025. No applicable Product Category Rules (PCR) were available at the time of publication.

## 1. General information

Product name	Copper shapes (Aurubis SHAPES)
Declared unit	1 metric ton of copper shapes (billets and cakes)
Manufacturer	Aurubis
Production site(s)	Aurubis plant in Hamburg, Germany
LCA	Aurubis supported by Sphera
Publication date	13/10/2025
Time coverage	Reference calendar year 2024
Independent verifier	TÜV NORD CERT Prüf- und Umweltgutachtergesellschaft mbH
Review type	Critical review per ISO 14044 (Clause 6)

## 2. Methodology and scope

**Applied standards/guidelines:** The study was conducted in accordance with the ISO 14040 (ISO 14040:2021 Environmental management — Life cycle assessment — Principles and framework) and ISO 14044 (ISO 14044:2021 Environmental management — Life cycle assessment — Requirements and guidelines) LCA standards and the Environmental Footprint impact assessment method (3.1). The study is consistent with the methodology adopted by the International Copper Association.

**Functional unit:** 1 metric ton of copper shapes (billets and cakes) (copper, low alloyed) at plant gate.

**System boundaries:** Cradle-to-gate life cycle inventory from the extraction of copper ore at the mine, the production of copper cathodes to the production of copper shapes. Excludes packaging, downstream use, and end-of-life.

**Allocation procedures:** Filter dust and copper scale generated during shapes production are further processed for copper recovery in the copper smelter and the cut-off approach was therefore applied.

## 3. Product

**Product description:** Aurubis SHAPES form the basis for a wide variety of products that require high electrical or thermal conductivity in combination with excellent strength and outstanding surface properties.

**Technical properties/applications:** Aurubis SHAPES include both oxygen-containing and oxygen-free copper materials ranging from high-purity to low-alloyed copper materials. Aurubis SHAPES are the starting product for the fabrication of high-quality strip, foils, plates, pipes, profiles and forgings made of copper materials.

**Expected service life:** 50+ years (dependent on downstream application, e.g., in construction or electronics)

## 4. Environmental performance — impact results (per 1 ton copper shapes)

Impact category	Unit	Result
Climate change	kg CO <sub>2</sub> eq	1,574
Ozone depletion	kg CFC-11 eq	0.00000001
Human toxicity, cancer effects <sup>1</sup>	CTUh	0.000001
Human toxicity, non-cancer effects <sup>1</sup>	CTUh	0.00003
Particulate matter	Disease incidences	0.0002
Ionizing radiation	kBq U235 eq	51.9
Photochemical ozone formation	kg NMVOC eq	9.6
Acidification	mol H+ eq	15.5
Eutrophication (terrestrial)	mol N eq	36.6
Eutrophication (freshwater)	kg P eq	0.012
Eutrophication (marine)	kg N eq	3.37
Ecotoxicity (freshwater) <sup>1</sup>	CTUe	8,737
Land use <sup>1</sup>	Pt	7,268
Water use	m <sup>3</sup> world eq	1,312
Resource use, energy carriers	MJ	19,922
Resource use, mineral and metals <sup>1</sup>	kg Sb eq	1.04

<sup>1</sup> Impacts are not sufficiently robust and accurate to be used for metals.

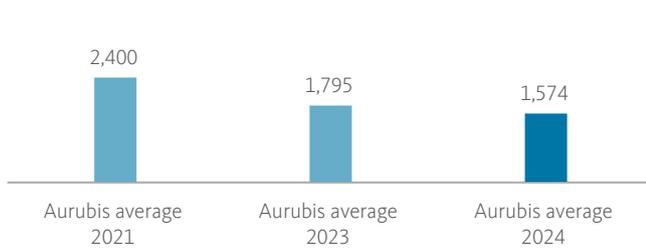
## 5. Environmental performance improvement and comparison with global average

The following graphs show the environmental improvements achieved by the company between 2021, 2023 and 2024 for copper shapes production.

No industry average data is available for comparison.

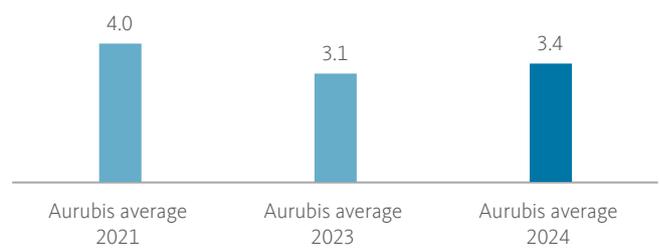
### Carbon footprint

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



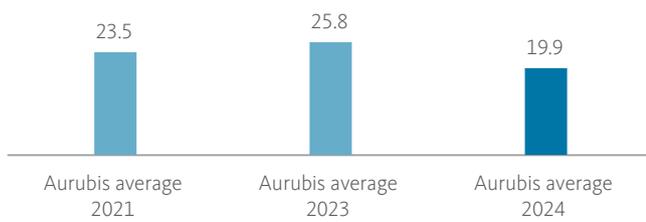
### Eutrophication, marine

in kg N eq/t Cu



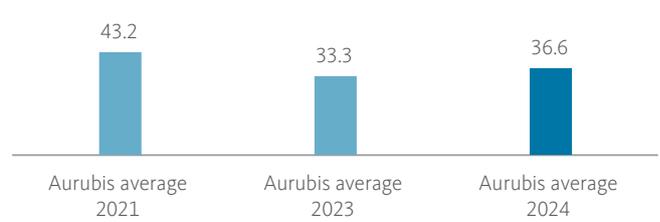
### Resource use, fossils

in GJ/t Cu



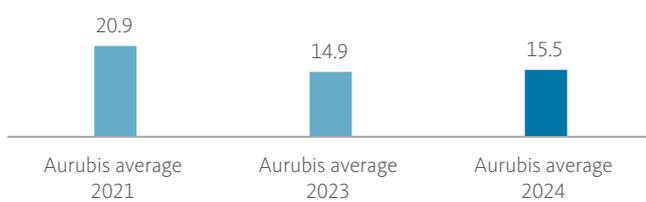
### Eutrophication, terrestrial

in mole N eq/t Cu



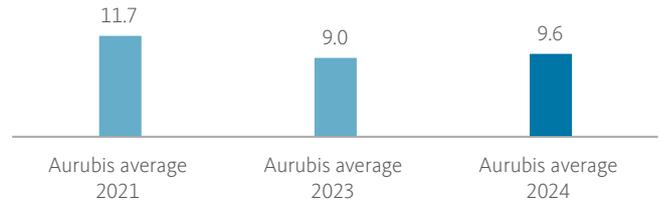
### Acidification

in mole H<sup>+</sup> eq/t Cu



### Summer smog

in kg NMVOC eq/t Cu



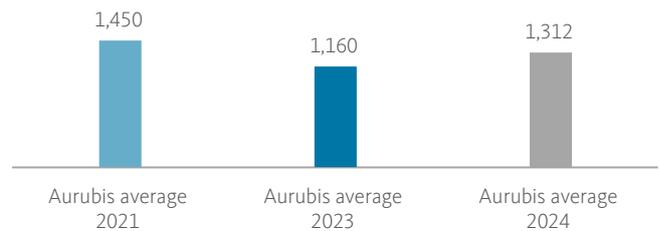
### Eutrophication, freshwater

in kg P eq/t Cu



### Water use

m<sup>3</sup> world eq/t Cu



## 6. Additional environmental information

**Recycled content:** The recycled content of Aurubis SHAPES for calendar year 2024 was 32 %. The recycled content has been verified by TÜV Nord Cert on the basis of ISO 14021.

**Environmental labels/Certifications:** Aurubis Hamburg, the copper shapes producing site, is certified to ISO 14001 and ISO 50001.

## 7. Interpretation and conclusions

The impact of the copper shapes is dominated by the upstream copper cathode. Emissions associated with upstream energy also play a role.

The updated environmental impact of Aurubis SHAPES is lower than the profile from the baseline year 2021 for all impact categories.

This is mainly due to higher recycled content and a lower share of external cathodes.

## 8. Verification

Verification type	Critical review in accordance with ISO 14040 (2021) and ISO 14044 (2021)
Verifier name & organization	Dr. Winfried Hirtz, Michael Sommer TÜV NORD CERT Prüf- und Umweltgutachtergesellschaft mbH Am TÜV 1, 30519 Hannover, Germany Phone +49 (0) 511 986-1172 Email whirtz@tuev-nord.de; micsommer@tuev-nord.de
Date of verification	2/10/2025

The review confirmed that the LCA complies with the applicable standards and is scientifically and technically valid.

## 9. Disclaimer

This declaration has not been issued under a program operator and has not been verified in accordance with a PCR because none is available. The information is provided for transparency and B2B communication purposes.

## 10. Annexes

- A. LCA Report
- B. Results as per ISO 15804

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