

Environmental Footprint Declaration Wire Rod (Aurubis Rod/RheinROD)



This document presents an environmental footprint declaration based on the results of a life cycle assessment (LCA) of copper wire rod (Aurubis ROD/RheinROD, 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 wire rod
Declared unit	1 metric ton of copper wire rod
Manufacturer	Aurubis
Production site(s)	Weighted average of wire rods produced at the Aurubis plants in Hamburg, Olen, Avellino and at Deutsche Giessdraht in Emmerich
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 wire rod at plant gate.

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

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

3. Product

Product description: Aurubis ROD | RheinROD is oxygen-bearing copper rod Cu-ETP1 and low-alloyed copper rod (CuAg and CuSn)

Technical properties/applications: Excellent electrical conductivity, very high surface quality, and extreme formability make copper wire rod the optimal and most sustainable choice for round and flat wires in cables and magnet wires. Applications can be found anywhere electrical power is generated, transmitted or converted in utilities, mobility and infrastructure.

Material grades Cu-ETP1, CuAg0.1 and CuSn0.3 in accordance with DIN EN 1977 & ASTM B 49 standards (where applicable).

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

4. Environmental performance — impact results (per 1 metric ton wire rod)

Impact category	Unit	Result
Climate change	kg CO ₂ eq	2,067
Ozone depletion	kg CFC-11 eq	0.00000001
Human toxicity, cancer effects ¹	CTUh	0.000002
Human toxicity, non-cancer effects ¹	CTUh	0.00005
Particulate matter	Disease incidences	0.0003
Ionizing radiation	kBq U235 eq	91
Photochemical ozone formation	kg NMVOC eq	12.6
Acidification	mol H+ eq	23.6
Eutrophication (terrestrial)	mol N eq	47.9
Eutrophication (freshwater)	kg P eq	0.014
Eutrophication (marine)	kg N eq	4.4
Ecotoxicity (freshwater) ¹	CTUe	12,312
Land use ¹	Pt	7,018
Water use	m ³ world eq	1,558
Resource use, energy carriers	MJ	25,557
Resource use, mineral and metals ¹	kg Sb eq	1.3

¹ Impacts are not sufficiently robust and accurate to be used for metals.

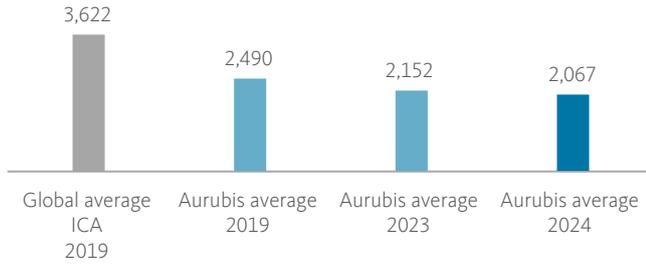
5. Environmental performance improvement and comparison with global average

The following graphs show the environmental improvements achieved by the company between 2019, 2023 and 2024 for copper wire rod production.

They also compare the environmental impact of Aurubis copper wire rod with global average values. Global average data was sourced from the environmental profile of global wire rod published by the International Copper Association.

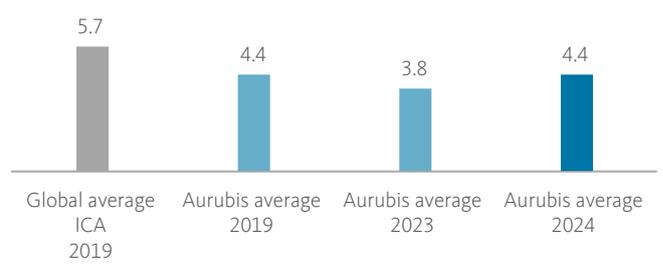
Carbon footprint

in kg CO₂ eq/t Cu



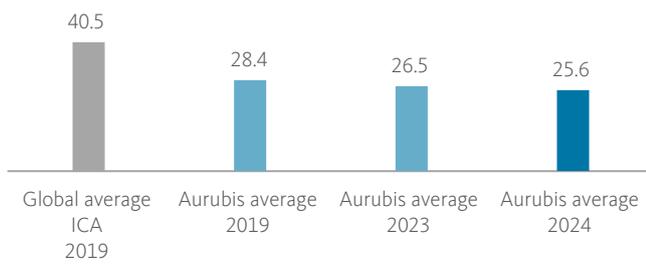
Eutrophication, marine

in kg N eq/t Cu



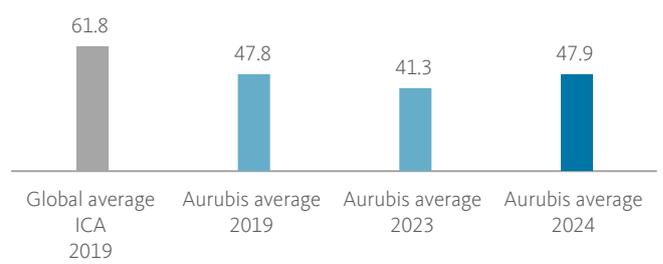
Resource use, fossils

in GJ/t Cu



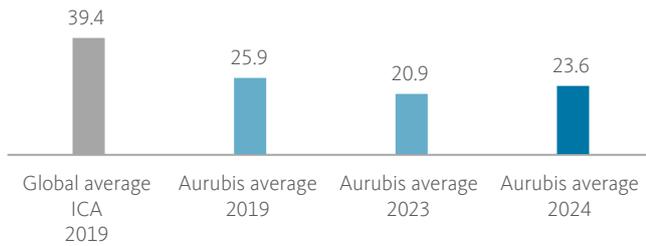
Eutrophication, terrestrial

in mole N eq/t Cu



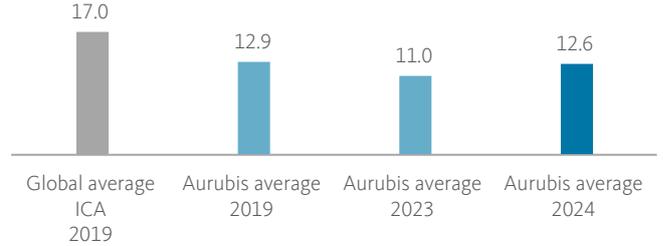
Acidification

in mole H+ eq./t Cu



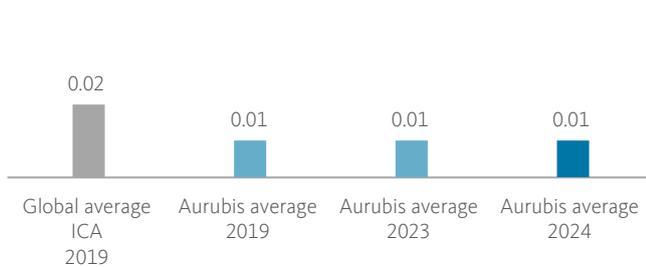
Summer smog

in kg NMVOC eq/t Cu



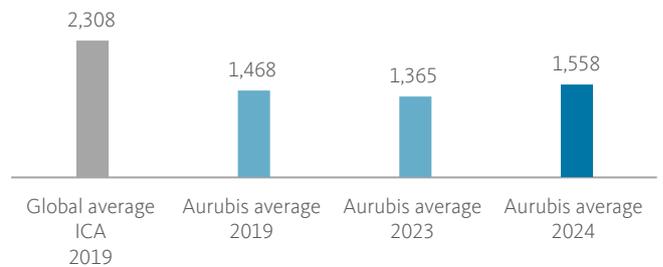
Eutrophication, freshwater

in kg P eq/t Cu



Water use

m³ world eq/t Cu



6. Additional environmental information

Recycled content: The recycled content of copper wire rod for calendar year 2024 was 36 %. The recycled content has been verified by TÜV Nord Cert on the basis of ISO 14021.

Environmental labels/Certifications: All copper wire rod producing sites are certified to ISO 14001 and ISO 50001.

7. Interpretation and conclusions

The impact of the copper wire rod is dominated by the upstream copper cathode. Emissions associated with purchased electricity and grid mix also play an important role.

The environmental footprint of Aurubis ROD I RheinROD is considerably lower than the global industry average from the International Copper Association for all impact categories.

The updated environmental impact of Aurubis wire rod for 2024 is lower than the profile from the baseline year 2019 for most of the impact categories. This is mainly because of the improved profile of Aurubis cathodes and higher recycled content. Operations have made a continuous effort to reduce direct emissions of pollutants such as dust as well as greenhouse gas emissions. We also invested in energy-efficient technologies at all sites across Aurubis Group.

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. Benchmarking Information (Copper and Copper Alloy Semi-Fabricated Products LCA, https://internationalcopper.org/wp-content/uploads/2024/08/ICA-Semi-Cathodes_Page_01.png)
- C. Results as per ISO 15804

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