

Environmental Footprint Declaration Oxygen-free Rod (Aurubis FOXROD)



This document presents an environmental footprint declaration based on the results of a life cycle assessment (LCA) for oxygen-free rod (Aurubis FOXROD), 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	Oxygen-free rod (Aurubis FOXROD)
Declared unit	1 metric ton of oxygen-free rod
Manufacturer	Aurubis
Production site(s)	Aurubis plant in Olen, Belgium
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 conformance 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 oxygen-free rod at plant gate.

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

Allocation procedures: No co-products are generated during oxygen-free copper rod production.

3. Product

Product description: Aurubis FOXROD is a copper wire rod containing less than 4 ppm oxygen. In addition to extremely high conductivity, Aurubis FOXROD is also resistant to hydrogen embrittlement.

Technical properties/applications: Material grade, Cu-OFE, oxygen content: <4 ppm, copper content: > 99.99 % or low alloyed based on Cu-OFE. Excellent electrical conductivity and very good formability with an oxygen content <4 ppm makes OFE copper wire rod the optimal and most sustainable choice for processing and applications in hydrogen-containing atmospheres at elevated temperatures and in very flexible wires and strands in automotive, electrical engineering, and fire-resistant cables. OFE copper wire rod is additionally the best input material for a conform process to produce a wide variety of bars and complex profiles.

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

4. Environmental performance – impact results (per 1 ton oxygen-free rod)

Impact category	Unit	Result
Climate change	kg CO ₂ eq	1,048
Ozone depletion	kg CFC-11 eq	0.000000008
Human toxicity, cancer effects ¹	CTUh	0.0000008
Human toxicity, non-cancer effects ¹	CTUh	0.000009
Particulate matter	Disease incidences	0.0001
Ionizing radiation	kBq U235 eq	89
Photochemical ozone formation	kg NMVOC eq	6.6
Acidification	mol H+ eq	8.7
Eutrophication (terrestrial)	mol N eq	26.7
Eutrophication (freshwater)	kg P eq	0.01
Eutrophication (marine)	kg N eq	2.5
Ecotoxicity (freshwater) ¹	CTUe	6,832
Land use ¹	Pt	3,512
Water use	m ³ world eq	869
Resource use, energy carriers	MJ	15,909
Resource use, mineral and metals ¹	kg Sb eq	0.6

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

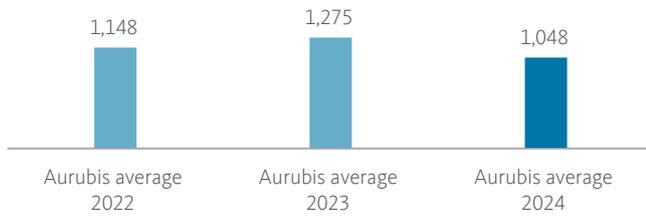
5. Environmental performance improvement and comparison with global average

The following graphs show the environmental improvements achieved by the company between 2022, 2023 and 2024 for oxygen-free rod production.

No industry average data is available for comparison.

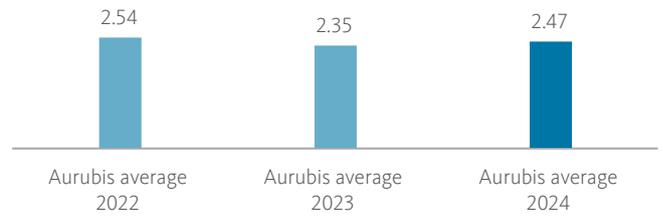
Carbon footprint

in kg CO₂ eq/t Cu



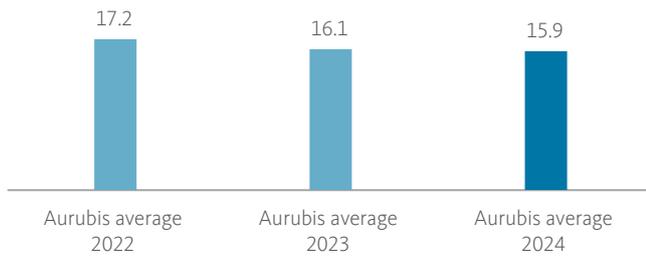
Eutrophication, marine

in kg N eq/t Cu



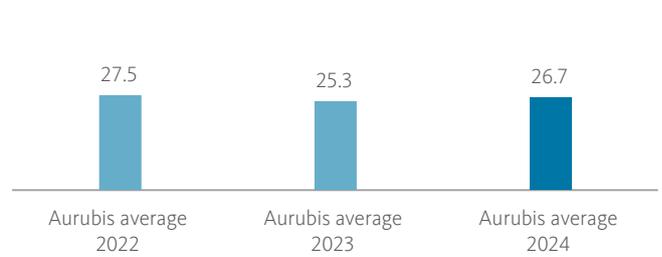
Resource use, fossils

in GJ/t Cu



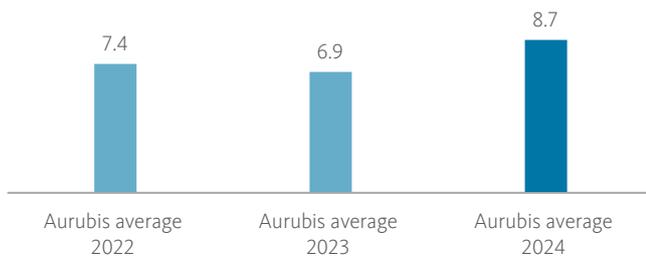
Eutrophication, terrestrial

in mole N eq/t Cu



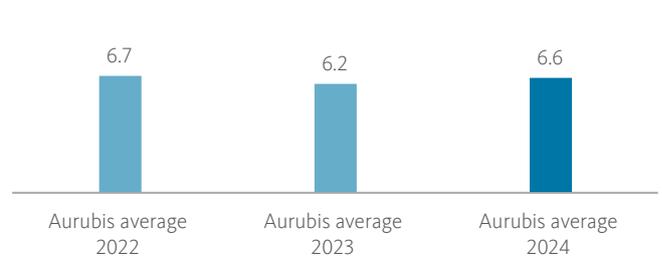
Acidification

in mole H+ eq/t Cu



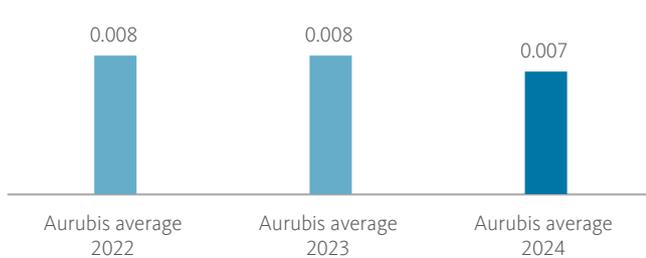
Summer smog

in kg NMVOC eq/t Cu



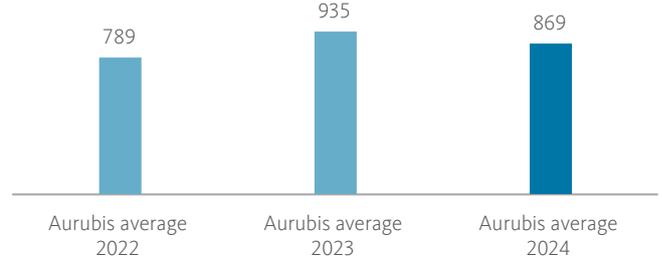
Eutrophication, freshwater

in kg P eq/t Cu



Water use

m³ world eq/t Cu



6. Additional environmental information

Recycled content: The recycled content of Aurubis FOXROD for calendar year 2024 was 68 %. The recycled content has been verified by TÜV Nord Cert on the basis of ISO 14021.

Environmental labels/Certifications: Aurubis Olen, the oxygen-free rod producing site, is certified to ISO 14001 and ISO 50001.

7. Interpretation and conclusions

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

The updated environmental impact of Aurubis FOXROD for 2024 is lower than the profile from the baseline year 2022 for most of the impact categories. This is mainly due to the lower profile of the Olen cathode, driven by higher recycled content.

Olen site operations have made a continuous effort to reduce direct emissions of pollutants such as dust as well as greenhouse gas emissions from cathode production and copper processing. Measures were implemented to save energy and switch to renewable energies.

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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