

Environmental Footprint Declaration

Aurubis Silver



This document presents an environmental footprint declaration of the results of the life cycle assessment (LCA) of silver, 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	Silver
Declared unit	1 kg of 99.99 % silver (granules, bars)
Manufacturer	Aurubis
Site(s) of production	Aurubis plant in Hamburg, Germany
LCA	Aurubis supported by Sphera
Date of publication	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).

Functional unit: 1 kg of 99.99 % silver (granules, bars) at plant gate.

System boundaries: Cradle-to-gate life cycle inventory from the extraction of raw materials to the production of silver, based on allocated inputs from copper electrolysis and lead refining. Excludes packaging, downstream use, and end-of-life.

Allocation procedures: Economic allocation was applied in the life cycle inventory of silver to fairly account for the wide range of co-products.

3. Product

Product description: Aurubis silver is a high-purity silver product (99.99 % Ag granules and 99.9 % Ag bars). It serves as a premium input material for industrial applications requiring excellent electrical conductivity and material purity.

Technical properties/applications: Aurubis silver meets ASTM B413–97 specifications and is suitable for use in electronics, photovoltaics, batteries and other high-tech sectors. Its outstanding conductivity and corrosion resistance make it ideal for demanding applications in energy and electrical engineering.

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

4. Environmental performance — impact results (per 1 kg silver)

Impact category	Unit	Result
Climate change	kg CO ₂ eq	158
Ozone depletion	kg CFC-11 eq	0.000000002
Human toxicity, cancer effects ¹	CTUh	0.0000001
Human toxicity, non-cancer effects ¹	CTUh	0.000002
Particulate matter	Disease incidences	0.00002
Ionizing radiation	kBq U235 eq	7.97
Photochemical ozone formation	kg NMVOC eq	1.02
Acidification	mol H+ eq	1.52
Eutrophication (terrestrial)	mol N eq	4
Eutrophication (freshwater)	kg P eq	0.001
Eutrophication (marine)	kg N eq	0.37
Ecotoxicity (freshwater) ¹	CTUe	864
Land use ¹	Pt	719
Water use	m ³ world eq	190
Resource use, energy carriers	MJ	1,869
Resource use, mineral and metals ¹	kg Sb eq	0.13

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

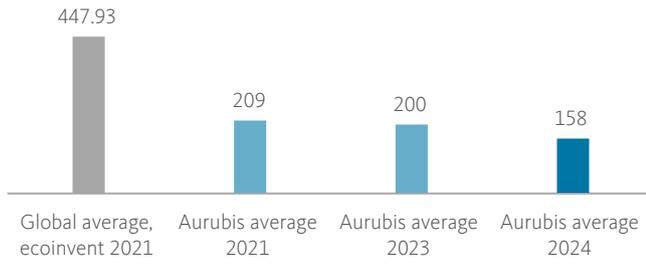
5. Environmental performance improvement and comparison with global average

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

They also compare the carbon footprint of Aurubis silver with global average values. Global average data was sourced from the ecoinvent database.

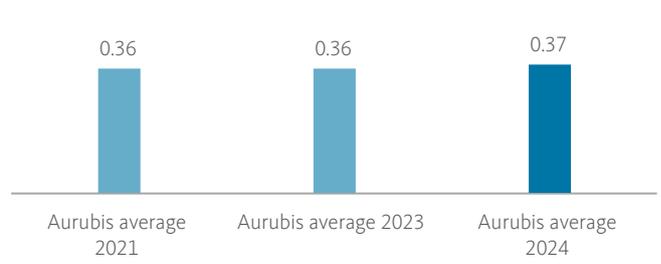
Carbon footprint

in kg CO₂ eq/kg Ag



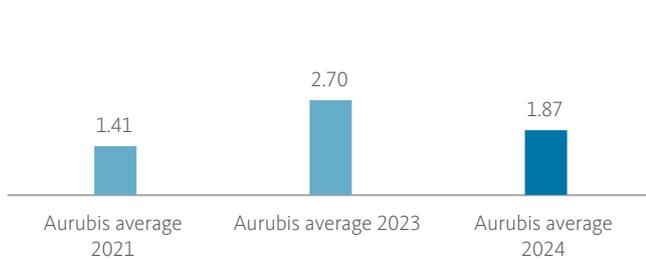
Eutrophication, marine

in kg N eq/kg Ag



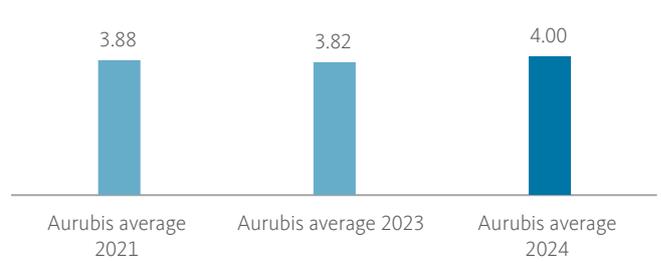
Resource use, fossils

in GJ/kg Ag



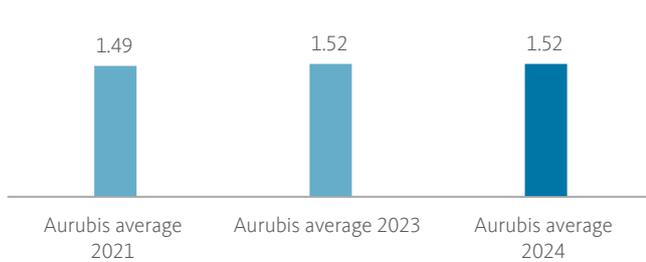
Eutrophication, terrestrial

in mole N eq/kg Ag



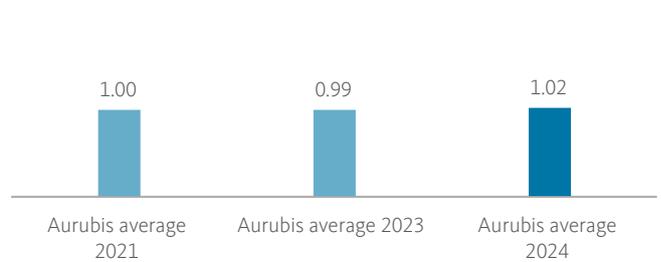
Acidification

in mole H⁺ eq/kg Ag



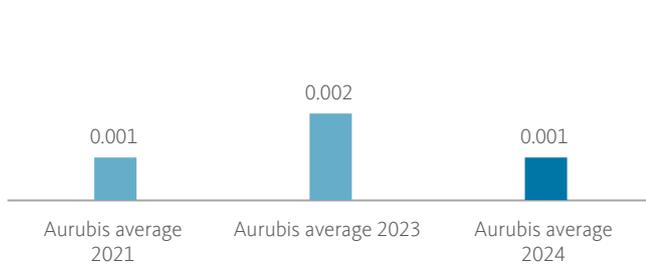
Summer smog

in kg NMVOC eq/kg Ag



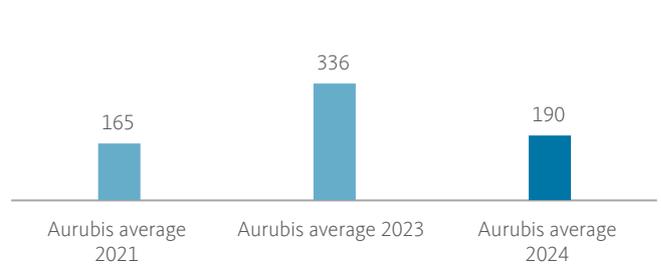
Eutrophication, freshwater

in kg P eq/kg Ag



Water use

m³ world eq/kg Ag



6. Additional environmental information

Recycled content: The recycled content of the Aurubis product silver for calendar year 2024 was 51 %. The recycled content has been verified by TÜV Nord Cert on the basis of ISO 14021.

Environmental labels/Certifications: Aurubis Hamburg, the silver producing site, is certified to ISO 14001 and ISO 50001. Aurubis is certified for compliance with the London Bullion Market Association (LMBA) Responsible Silver Guidance.

7. Interpretation and conclusions

The environmental impact of Aurubis silver is primarily driven by anode slime, with minor contributions from lead bullion, purchased materials, and energy use. Aurubis silver has a significantly lower carbon footprint compared to the global average. The updated environmental impact of Aurubis silver for 2024 is lower than the profile from 2023 for most of the impact categories.

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: ecoinvent, 2021 database

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