FACTSHEET

Environmental Profile of Aurubis SHAPES

Tomorrow Metals

Copper's contribution to sustainable development

Copper is a key material enabling important technological developments, such as generating and transmitting renewable energy and enhancing the energy efficiency of motors and transformers. These developments are essential to reach the objectives of the European Green Deal, particularly for a clean energy transition. Aurubis SHAPES (billets and cakes) are the optimal starting product for fabricating high-quality cable strip, molds for foundry technology, lead frames, and industrial tube for air conditioners. With its uniform high electrical and thermal conductivity, Aurubis SHAPES ensure the highest possible efficiency in converting and transmitting electrical power or heat.

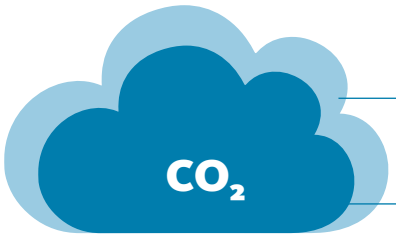
The environmental footprint of Aurubis SHAPES

As the EU places more and more emphasis on green technologies needed to meet its climate targets, it is increasingly important to understand the life cycles of the underlying products. As a sustainably oriented multimetal company, Aurubis takes responsibility for the global challenges of climate change, environmental protection, and resource conservation. Improving the environmental performance of products, along with enhancing sustainability throughout the entire supply chain, is of great importance for Aurubis. In 2021 we introduced our label 'Tomorrow Metals' that encompasses the many measures we are taking to enhance our sustainability performance. Hence, Aurubis is at the forefront of industries committed to reducing the environmental impact of its operations: We have set the objective of achieving carbon-neutral production well before 2050.

From 2023 on, the environmental impacts of Aurubis' products are only calculated via the Environmental Footprint impact assessment method (3.0) to align with best scientific and industry reporting practices. The results based on the CML (Centre for Environmental Studies at Leiden University in the Netherlands) method will not be used anymore.

Carbon footprint of Aurubis SHAPES

in kg CO_2 equivalents per t of shapes[1]



2,400
Aurubis SHAPES (data reference 2021)

1,800
Aurubis SHAPES (data reference 2023)

Note: The Environmental Footprint method (3.0) is the most advanced impact assessment method adopted by the European Commission. The previous version of our LCA study used the now-outdated characterization method from the Centre for Environmental Studies (CML) at Leiden University in the Netherlands.

Life cycle assessment for Aurubis SHAPES

Responding to requests from end-users, along with our own sustainability goals, Aurubis conducted a life cycle assessment (LCA) of our copper shapes. In this holistic approach, we considered all steps involved in the production of shapes, starting from the extraction of the copper ore (cradle) through the manufacturing of the copper cathode and its further processing into shapes (gate). The assessment includes impacts from all activities related to raw materials, direct emissions, transport, energy consumption, and auxiliary materials. The study was conducted in compliance with the ISO standards 14040 and 14044 for life cycle assessment.[2]

[1] Aurubis, supported by Sphera, Report: Life Cycle Assessment of Shapes, Oct. 2022 and Sept. 2024.
[2] ISO 14040:2021 Environmental management — Life cycle assessment — Principles and framework.
ISO 14044:2021 Environmental management — Life cycle assessment — Requirements and guidelines.

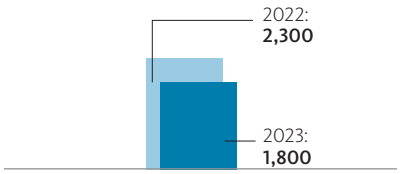
The results

The results of the environmental footprint of Aurubis copper shapes are directly related to the copper cathode.

The key environmental aspects were assessed with the Environmental Footprint impact assessment method (3.0) along 16 impact categories. The main impact categories reported in this factsheet were selected because they represent a broad range of environmental impacts. Results for all 16 indicators are available upon request. However, it is important to note that 'abiotic depletion potential' and 'toxicity' impacts are not sufficiently robust and accurate to be used for metals.

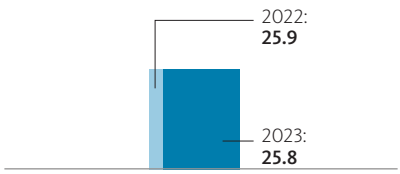
Carbon footprint (climate change), EF 3.0

in kg CO_2 eq./t shapes



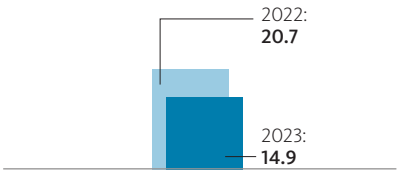
Resource use, fossils EF 3.0

in GJ/t shapes



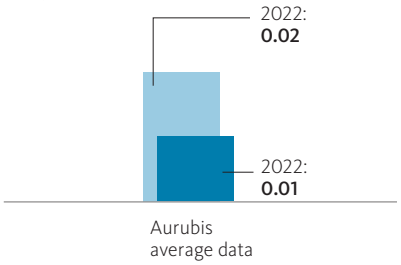
Acidification EF 3.0

in Mole of H+ eq./t shapes



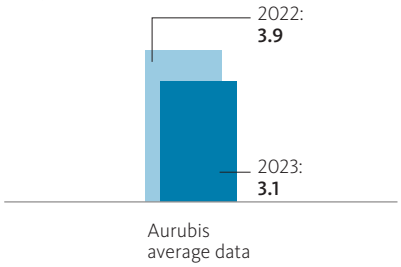
Eutrophication, freshwater EF 3.0

in kg P eq./t shapes



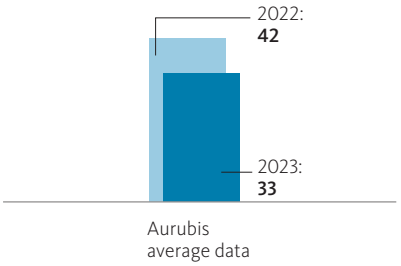
Eutrophication, marine EF 3.0

in kg N eq./t shapes



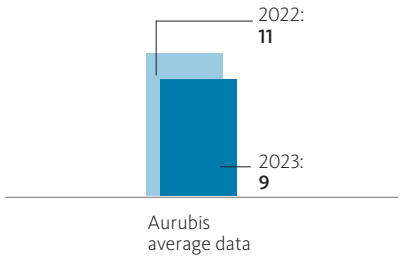
Eutrophication, terrestrial EF 3.0

in Mole of N eq./t shapes



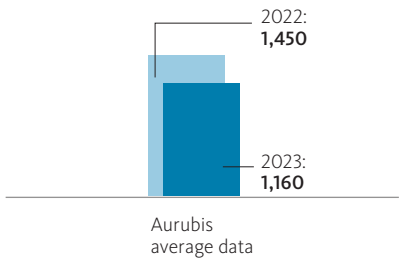
Summer smog (photochemical ozone formation) EF 3.0

in kg NMVOC eq./t shapes



Water use EF 3.0

in m³ world equiv./t shapes



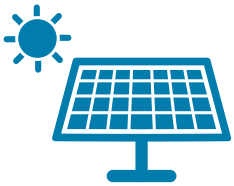
No data for global average available.

How we got there

In the LCA, our goal was to evaluate the environmental profile of the copper shapes and allow the progress and further improvement to be tracked. Aurubis produces shapes from its own cathodes as well as from third parties. The LCA results of copper shapes strongly depend on the environmental profile of the upstream copper cathode. The carbon footprint of the copper cathode has decreased by 40 % since 2013 and is more than 60 % below the global average for all copper smelters and refiners. The results achieved were only possible with major investments in measures that reach ambitious environmental standards.

Emission reduction

We have made continuous efforts to reduce direct emissions of pollutants such as dust as well as greenhouse gas emissions.



Energy-efficient technologies

We invested in energy-efficient technologies for copper cathode and shapes production at all sites across the Aurubis Group, implemented measures to save energy, facilitated the switch to renewable energies, and enabled decarbonization.

Recycling

Shape products are primarily manufactured from cathodes because of the very high purity specifications needed to deliver high electrical conductivity. The extension of Aurubis' recycling capacities contributed to the improvements of our overall footprint on the environment. The recycled content of the shapes for the Aurubis Group for calendar year 2023 was 30 %.

The use of copper shapes improves the efficiency and environmental performance of multiple applications

Copper has a good environmental profile compared to potentially competing materials. Copper is the best conductor of electricity and heat, after silver, and improves the efficiency and performance of relevant applications. Using more copper saves energy and reduces CO_2 emissions. Copper also improves the operating efficiency of all forms of renewable energies, such as wind turbines, photovoltaic panels, tidal generation, and solar thermal systems.

Aurubis AG
Corporate Environmental Protection

Daniela Cholakova
Director Environmental Protection
Corporate Environmental Protection
d.cholakova@aurubis.com

Tom Stückemann
Environmental Manager
Corporate Environmental Protection
t.stueckemann@aurubis.com