

# Environmental Profile of Aurubis Silver and Aurubis Gold

## The contribution of silver and gold to sustainable development

It is not only about jewellery or investments – silver and gold are used in a range of applications, especially for electronics such as smartphones, motherboards, or connectors. They are also essential for green technologies: solar panels, rapid charging, batteries and many more. These applications make use of the unique properties of silver and gold, most importantly their high electrical and thermal conductivity, and their corrosion-resistance.

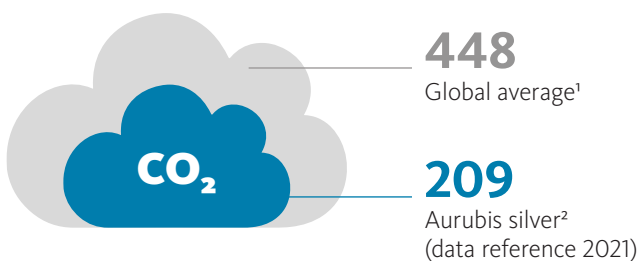
## The environmental footprint of silver and gold from Aurubis

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. 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. To underline our commitment to stay best in class in all sustainability challenges, we introduced our label “Tomorrow Metals by Aurubis” in 2021 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. And the results of our life cycle assessment confirm that our efforts bear fruit: The carbon footprints of our silver and gold are both more than 50 % below the global average<sup>1 3</sup>. Our recycling as well as the efficiency of metal recovery has an important role in the results of our life cycle assessment. The recycled content of silver and gold from Aurubis Group for the financial year 2019/20 was 58 % for silver and 27 % for gold.

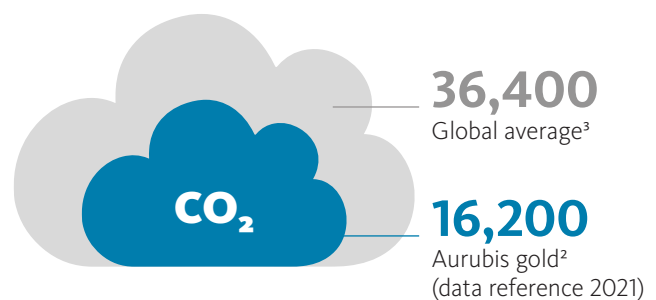
## Carbon footprint of Aurubis silver

in kg CO<sub>2</sub> equivalents per kg of silver



## Carbon footprint of Aurubis gold

in kg CO<sub>2</sub> equivalents per kg of gold



## Life cycle assessment for Aurubis silver and Aurubis gold

Responding to requests from end-users, along with our own sustainability goals, Aurubis conducted a life cycle assessment (LCA) of our products silver and gold. In this holistic approach, we considered all steps involved in the production of these precious metals - starting from the upstream processes to produce the raw materials, such as anode slime from copper

production, to the manufacturing of the pure metals. The assessment includes impacts from all activities related to raw materials, direct emissions, transport, energy consumption and auxiliary materials. The study was conducted in conformance with the ISO standards 14040 and 14044 for life cycle assessment<sup>4</sup>.

<sup>1</sup> Ecoinvent, 2021 database.

<sup>2</sup> Aurubis, supported by Sphera, Report: Life Cycle Assessment of Silver and Gold, Oct. 2022; results according to Environmental Footprint impact assessment method (EF 3.0); data reference 2021.

<sup>3</sup> World Gold Council, Gold and climate change: Current and future impacts, Oct. 2019.

<sup>4</sup> 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 key environmental aspects were assessed along a set of impact categories. These impact categories were selected because they represent a broad range of environmental impacts and are each determined by a well-established scientific approach. The results below are based on the **Environmental Footprint impact assessment method (EF 3.0)**.



## Verification

The environmental profile of silver and gold from Aurubis has been verified by TÜV Nord Cert in accordance with DIN EN ISO 14040:2021 and DIN EN ISO 14044:2021.

## CML impact assessment methodology

The environmental profile of Aurubis silver and gold (reference year 2021) was also calculated based on the CML impact assessment methodology (CML 2001, update August 2016).

The Environmental Footprint impact assessment method reported above is considered the most appropriate, therefore the results obtained with this method will be used in the future.

<b>Aurubis silver (CML)</b>		<b>2021</b>
Carbon Footprint	kg CO <sub>2</sub> eq./kg Ag	202
Primary Energy Demand	MJ/kg Ag	1,170
Acidification	kg SO <sub>2</sub> eq./kg Ag	1.2
Summer smog	kg ethene eq./kg Ag	0.1
Eutrophication	kg phosphate eq./kg Ag	0.2
Blue water consumption	kg/kg Ag	3,500

<b>Aurubis gold (CML)</b>		<b>2021</b>
Carbon Footprint	kg CO <sub>2</sub> eq./kg Au	15,742
Primary Energy Demand	MJ/kg Au	90,300
Acidification	kg SO <sub>2</sub> eq./kg Au	96
Summer smog	kg ethene eq./kg Au	5
Eutrophication	kg phosphate eq./kg Au	12
Blue water consumption	kg/kg Au	271,000

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