FACTSHEET

Environmental Profile of Aurubis Tin

The contribution of tin to sustainable development

Tin is used in many ways in everyday life today and can be found in electronics, food products, energy, and transport applications. Tin has excellent properties for electrical conductivity and is an essential element in solder products. Solders are needed for 5G-based electronics technologies as well as for interconnection in electric vehicles and related infrastructure. Refined tin is also used in chemicals, glass, copper alloys, plating, and energy storage devices.

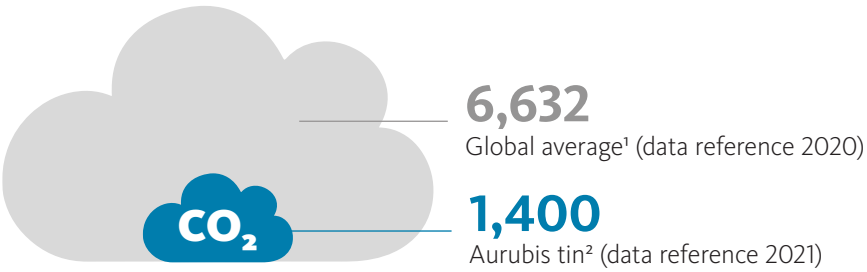
The environmental footprint of Aurubis tin

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 supply chain, is of great importance for Aurubis. In 2021 we introduced our label 'Tomorrow Metals by Aurubis' that encompasses the many measures we are taking to enhance our sustainability performance. Aurubis is at the forefront of industries committed to reducing the environmental impact of their 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 are successful: The carbon footprint of tin from Aurubis is more than 75 % below the global average.

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 values based on the CML (Centre for Environmental Studies at Leiden University in the Netherlands) method will not be used anymore.

Carbon footprint of Aurubis tin

in kg CO_2 equivalents per t of tin



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 The previous version of our LCA study used the now-outdated characterization method from the Centre for Environmental Studies (CML) at Leiden University in the Netherlands.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 tin

Responding to requests from end-users, along with our own sustainability goals, Aurubis conducted a life cycle assessment (LCA) of our tin ingot. In this holistic approach, we considered all steps involved in the production of tin from the extraction of the raw materials to the production of tin ingot. Tin ingot is produced at Aurubis Beerse almost completely from secondary raw materials. 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.[3]

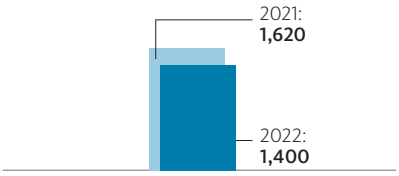
[1] International Tin Association, Life cycle assessment of average tin production, reference year 2020. Please note that the ITA data is reported using the CML impact assessment method, which is only comparable to a imited extent.
[2] Aurubis, supported by Sphera, Report: Life Cycle Assessment of Tin, Oct. 2023.
[3] 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 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' are not sufficiently robust and accurate to be used for metals.

Carbon footprint (climate change), EF 3.0

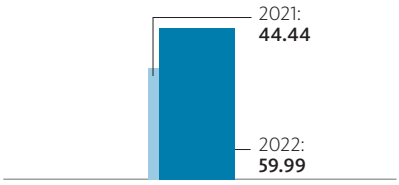
in kg CO_2 eq./t Sn



Aurubis average data

Resource use, fossils EF 3.0

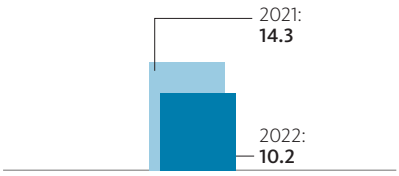
in GJ/t Sn



Aurubis average data

Acidification EF 3.0

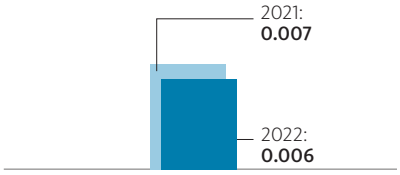
in Mole of H+ eq./t Sn



Aurubis average data

Eutrophication, fresh water EF 3.0

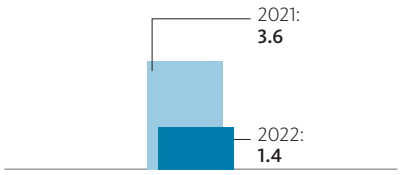
in kg P eq./t Sn



Aurubis average data

Eutrophication, marine EF 3.0

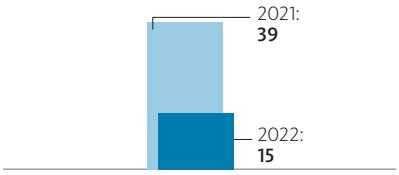
in kg N eq./t Sn



Aurubis average data

Eutrophication, terrestrial EF 3.0

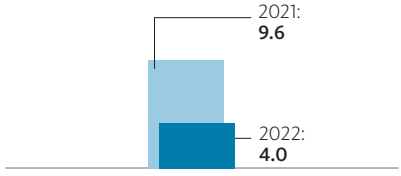
in Mole of N eq./t Sn



Aurubis average data

Summer smog (photochemical ozone formation) EF 3.0

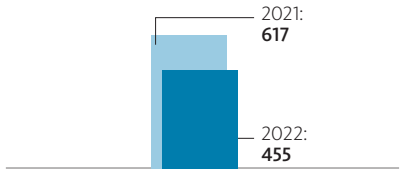
in kg NMVOC eq./t Sn



Aurubis average data

Water use EF 3.0

in m³ world equiv/t Sn



Aurubis average data

How we got there

The recycling process at Aurubis Beerse enables the plant to valorize complex non-ferrous materials by returning tin and other metals back into the value chain. We combined innovative technology and know-how to minimize the impact of our activities on the environment and climate and to preserve natural resources.

We invested in energy-efficient and low-carbon technologies, implemented measures to save energy, and facilitated the switch to renewable energy. We have made continuous efforts to reduce direct emissions of pollutants such as dust, SO_2, as well as greenhouse gas emissions.

At the same time, our recycling and the efficiency of metal recovery have an important role in the results of our life cycle assessment.

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