

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Aurubis AG is a company in the basic materials industry that operates worldwide. Aurubis AG is the parent company of the Aurubis Group and is based in Hamburg, with production sites in Hamburg and Lünen. As an integrated group, Aurubis processes complex metal concentrates, scrap metals, organic and inorganic metalbearing recycling raw materials, and industrial residues into metals of the highest purity.

In addition to the main metal, copper, Aurubis' metal portfolio also includes gold, silver, lead, nickel, tin, zinc, minor metals such as tellurium and selenium, and platinum group metals. Sulfuric acid, iron silicate, and synthetic minerals round off the product portfolio. In the course of our production processes, we convert copper concentrates and recycling materials into copper cathodes. This is the standardized product format that is traded on the

international metal exchanges. We produce more than 1 million t of copper cathodes per year. Copper cathodes are the starting product for fabricating additional copper products, but they can also be sold directly. Our product portfolio mainly comprises standard and specialty products made of copper and copper alloys. When it comes to processing, we have manufacturing capabilities for continuous cast copper wire rod, continuous cast shapes, rolled products, strip, specialty wire, and profiles. Additional products result from processing the elements that accompany copper in the feed materials, elements that are in some cases purchased on purpose as part of our multimetal approach. In particular, these include different metals such as gold, silver, lead, nickel, tin, zinc, minor metals like tellurium and selenium, and platinum group metals. We also produce iron silicate and synthetic minerals. Sulfuric acid (> 2 million t p.a.) forms as a by-product of copper concentrate processing. Sulfuric acid customers are very diverse and include international companies from the chemical, fertilizer, and metal processing industries. The company's headquarters, which is also home to one of our two primary smelters, is located in Hamburg, Germany. Most of our sites are located in Europe, with larger production centres in Germany, Belgium, Bulgaria, and Spain as well as cold-rolling mills for flat rolled products, slitting centres, and rod plants in Germany and elsewhere in Europe. Outside Europe, Aurubis also has a production site in the US, and a global sales and service network. The company purchases the necessary feed materials, as it doesn't own any mines or stakes in mines. 7,135 employees worked for the Aurubis Group worldwide as of September 30, 2021. Of this number, 92% worked at the European plants and 8% worked in the USA. The sales markets for our products are varied and international. Aurubis' direct customers include companies from the copper semis industry, the cable and wire industry, the electrical and electronics sector, and the chemical industry, as well as suppliers from the renewable energies, construction, and automotive sectors.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2021	December 31 2021	No	<Not Applicable>

C0.3

(C0.3) Select the countries/areas in which you operate.

- Belgium
- Bulgaria
- Finland
- Germany
- Italy
- Netherlands
- Slovakia
- Spain
- United Kingdom of Great Britain and Northern Ireland
- United States of America

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

EUR

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Operational control

C-MM0.7

(C-MM0.7) Which part of the metals and mining value chain does your organization operate in?

Row 1

Mining

Processing metals

Copper

Gold

Platinum group metals

Silver

Nickel

Zinc

Lead

Other ferrous metals, please specify (Selenium, Tellurium, Tin)

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	DE 000 67 66 504

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Chief Executive Officer (CEO)	The CEO and the Executive Board define the strategy for Aurubis Group and afterwards align the strategy with the Supervisory Board. One key pillar of Aurubis' strategy is Sustainability incl. climate-related projects and targets. The CEO and the Executive Board approve the investment budget which is a cornerstone of each years Mid Term Planning prior to final submission for approval by Supervisory Board. On top of that, each Capital Expenditure project of > 2 Mio. € has to be individually approved by the Executive Board with projects > 10 Mio. € to be forwarded to Supervisory Board for final approval. Investment budget and individual project approvals also cover climate-related issues. Each quarter, an in-depth review by the CEO and Executive Board takes place on every major plant's financial and operating performance which also covers sustainability and climate-related issues. One example for such a climate-related investment is the decision in December 2021 to expand the industrial heat project in Hamburg with anticipated investments of approximately € 100 million. The project has, after completion, the ability to prevent up to 100,000 t of CO2 in Hamburg each year.
Board Chair	The Supervisory Board gives the final approval for the strategy defined by the Executive Board, that includes climate-related issues. The Audit Committee - being Supervisory Boards mandatory committee focusing on financial topics – has a standard agenda which includes Sustainability and Risk Management on a quarterly basis. Both functions regularly address climate-related issues and risks. The Supervisory Board approves the investment budget which is a cornerstone of each year's Mid Term Planning. This investment budget contains all Capital Expenditure volumes for the following four financial years. On top of that, each Capital Expenditure project of > 10 Mio. € has to be individually approved by the Supervisory Board. Investment budget and individual project approvals also cover climate-related issues.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	<ul style="list-style-type: none"> Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues 	<Not Applicable>	<p>Climate related issues are part of the many governance mechanisms at Aurubis. Example 1: On a quarterly basis, the Corporate Risk Report and once a year, the Strategic Risk Portfolio is presented by Corporate Risk Management. Both reporting formats regularly contain climate-related risks and corresponding risks mitigating measures. Based on review by Executive Board, further appropriate risk mitigating measures or projects might be initiated. In addition, the CEO and the CFO participate in the weekly Group Financial Meeting (GFM) together with - among others - managers from Finance and Energy & Climate Affairs. The purpose of the GFM is to monitor price and cost driver evolution (incl. USD, metal prices but also climate-related risk drivers such as energy and CO2 prices) and to decide on hedge positions if deemed appropriate.</p> <p>Example 2: Strategic projects are being reviewed in the Strategic committee. Strategic projects cover all projects that contribute to achieve our Aurubis strategy "Metals for Progress: Driving Sustainable Growth", incorporating carbon reducing projects, like the industrial heat project. After being reviewed by the Strategic committee, these projects are presented and reviewed by the Executive Board in the Executive Board Strategy Meeting.</p>

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	Yes	Supervisory Board: One member is expert in sustainability and climate change: consultant in sustainability and lecturer of Sustainable Finance at Munich Business School; from 2018 – 2019 director of NKI Institut für nachhaltige Kapitalanlagen GmbH (Munich) CFO: author of scientific article: "Risk Management and Climate Change: challenges in risk reporting following the recommendations by TCFD with a special focus on energy-intensive industry", published in WPG 2021, pages 1485 – 1493.	<Not Applicable>	<Not Applicable>

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

CEO:

Position within the company: The CEO represents the highest responsibility for overall governance for climate related topics. The Senior Vice President Corporate Energy & Climate Affairs and the Head of Sustainability both reports directly to the CEO.

Responsibilities: The CEO approves, together with the other board members, all strategic targets including the climate targets and major strategic projects.

Monitoring of climate-related issues: The SVP Corporate Energy & Climate Affairs and the Head of Sustainability have weekly meetings with the CEO to report on current developments and are part of management committee meetings. The CEO, together with the Executive Board, reviews strategic climate-related projects in the Executive Board Strategy Meeting.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Chief Executive Officer (CEO)	Monetary reward	Emissions reduction project Other (please specify) (Compliance with sustainability strategy)	

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	3	
Medium-term	3	10	
Long-term	10	30	

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

Definition of "substantive financial or strategic impact":

In general, Aurubis Group defines substantive financial or strategic impact as an impact which limits or delays future possibilities for strategic actions and therefore may require strategy adjustments. This could be the case for risks that bear the potential for a major shareholder or customer concern (e.g. impact on reputation), for risks that pose a physical threat for one of our major sites (e.g. flooding) or for risks that negatively impact two or more major sites in parallel.

Description of the quantifiable indicator:

A substantive financial or strategic impact on our business is defined in our risk management process as follows: either the impact on EBT is more than € 50 million and the probability of occurrence is at least "medium" (about as likely as not) or the impact on EBT is above € 20 million and the probability is high (more likely than not).

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.**Value chain stage(s) covered**

Direct operations

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term

Medium-term

Long-term

Description of process

The Aurubis risk management process covers the direct operations, climate related topics are integrated into multi-disciplinary company-wide risk management process, and it covers all time horizons up to 30 years. Our objective in risk management is to manage and monitor the risks associated with our business with the help of a risk management system (RMS) suited to our activities. Identifying and observing risk development early on is of major importance. Furthermore, we strive to limit negative effects on earnings caused by risks by implementing appropriate and economically sound countermeasures. Risk management is an integral component of the centralized and decentralized planning, management, and monitoring processes and covers all of the Aurubis Group's main sites, business sectors, and central functions. The planning and management system, risk reporting, open communication culture, and risk reviews at the sites create risk awareness and transparency with regard to our risk situation and promote our risk culture. Identification: Risk management officers (who are by definition the risk owners) have been appointed for all sites, business sectors and central functions, and they form a network within the Group (Risk Management Organization). The Group headquarters (Corporate Risk Management = CRM) supports the plants. The Risk Management System (RMS) is documented in a corporate policy. Standard risk reporting takes place bottom-up each quarter using a Group-wide uniform reporting format. Within this format, the identified risks (incl. climate-related risks) and risks beyond a defined threshold - included are risks with a substantive financial or strategic impact - are explained and evaluated based on their probability of occurrence and their business significance (incl. possible interdependencies). Measures to manage them are outlined. Assessment: Within this format, the identified risks (incl. climate-related risks) and risks beyond a defined threshold - included are risks with a substantive financial or strategic impact - are explained and evaluated based on their probability of occurrence and their business significance (incl. possible interdependencies). Measures to manage them are outlined. The risks registered with Group headquarters are qualitatively aggregated into significant risk clusters by CRM and reported to the entire Executive Board. The report also establishes the basis for the report to the Audit Committee of the Supervisory Board as well as external risk reporting. In the quarterly report to the Executive Board and the Audit Committee, the qualitatively aggregated risk clusters are assessed with due regard to risk management measures (net perspective) based on their probability of occurrence and the potential effect on earnings. On top, once a year a strategic risk portfolio is reported to Executive Board and Audit Committee focusing on risks with a time horizon up to 30 years (incl. initiated or proposed mitigating measures). Currently, the strategic risk portfolio is amended by climate-related physical risks – applying a 2° C scenario and a climate stress scenario of 4° C. Process for responding: As stated above, we strive to limit negative effects on earnings caused by risks by implementing appropriate and economically sound countermeasures. These countermeasures focus on the different options for risk response: accepting the risk, transferring the risk, avoiding the risk or reducing the risk. The individual risk owner (= Risk management officer) is responsible for selecting the appropriate countermeasure in his / her sphere of responsibility. For the majority of physical and transition climate risks, the risk owners of Aurubis choose to either avoid the risk or to reduce the risk. Parallel to these above-mentioned risk reporting processes, communication and organisation, CRM is engaged in regular Jour Fixes with Corporate Energy & Climate Affairs, Environmental Protection and Sustainability for early and overarching risk identification and corresponding countermeasures in terms of climate-related risks. For the risk report section in the annual report, climate-related risks are structured according to the Task Force on Climate-Related Financial Disclosures (TCFD) framework to provide transparency on this important aspect.

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & Inclusion	Please explain
Current regulation	Relevant, always included	Inclusion in risk assessment: Aurubis systematically includes regulation risks into the risk assessment process. Aurubis receives compensation for at least 50% of the indirect CO2 emissions which are part of the electricity cost. However, this also means that close to 50% of these indirect emissions are costs which are not compensated. Aurubis actively takes part in the political dialogue to counter the challenges that regularly arise from changes to regulatory requirements. Corporate Energy and Climate Affairs and Corporate External Affairs monitor on behalf of the plants the regulatory situation and create regular updates in exchange with trade associations. Based on this is a quarterly risk assessment done by the plants to quantify the impacts and estimate the likelihood. Example: Referring to the approx. 50% of indirect CO2 emissions which are currently not covered by compensation, any further price increase of CO2 is considered to be a risk (increase in cost) for Aurubis.
Emerging regulation	Relevant, always included	Inclusion in risk assessment: Aurubis assesses and values the risk quarterly. For the current trading period the copper sector kept the Carbon Leakage status for direct emissions, but also for the CO2 electricity price compensation. However, we closely monitor ideas by the EU commission for the periods beyond 2030 in terms of e.g. Carbon Border Adjustment Mechanism (CBAM). These ideas could result in much lower or even no free Emission Trading allowances and CO2 electricity price compensation. Hence, Aurubis actively takes part in the political dialogue to counter the challenges that regularly arise from changes to regulatory requirements. Corporate Energy and Climate Affairs and Corporate External Affairs monitor the regulatory situation on behalf of the plants and create regular updates in exchange with trade associations. Example: If free Emission Trading allowances and CO2 electricity price compensation are reduced Aurubis would have to bear the risk of rising financial burden. This burden could be further increased by an expected rise in CO2 prices resulting from supply shortage of available CO2 certificates.
Technology	Relevant, sometimes included	Inclusion in risk assessment: One of the biggest challenges for many industries will be the decarbonisation of their core production processes. It is expected that this shift towards electrification could create electricity supply issues and these supply issues could have the potential to cause blackouts, which could harm production processes like those of Aurubis. As it is at this stage sometimes unclear how decarbonisation of a production process could be achieved, the risk can also be in the technology applied. For example, the decarbonisation technology can be much more expensive than the fossil-burning technology. Example: As Aurubis takes the blackout risk serious, site by site reviews displayed certain investment needs into e.g. emergency backup generators. It is planned that these investments will be done in the coming two years.
Legal	Relevant, always included	Inclusion in risk assessment: Aurubis assesses and values the risk quarterly. We are closely monitoring the increasing numbers of climate litigation against German industrial companies following the judgement of the Federal Constitutional Court (24/03/2021) and the correspondingly updated Climate Protection Act. Meeting our own CO2 emission reduction targets by 2030 (reduction of scope 1 and scope 2 emissions by 50% and scope 3 by 24% compared to 2018 emissions) is therefore the most important measure to prevent possible litigation. Example: Aurubis already started initiatives for decarbonization (e.g. industrial heat utilization, power to steam, pilot program on using H2 instead of gas in one of our anode furnaces or the installation of a solar park in Pirdop). Due to the assessment of future demands in a low carbon future, decisions are made to approve these projects, fuelled also by taking these climate related risks into account (higher CO2 costs, fluctuating electricity supply by renewables). However, it has to be stated that Aurubis currently cannot offset its own CO2 emissions against the amount of CO2 reduction resulting from projects like "Industrial heat".
Market	Relevant, always included	Inclusion in risk assessment: Aurubis systematically includes market risks into the risk assessment process. The focus on CO2 emissions in world-wide supply chains is growing (Scope 3). Thus, for Aurubis' customers it is important to keep their CO2 emissions in copper products, that they purchase (carbon footprint), as low as possible. There is a risk that these customers turn to other suppliers in order to reduce their carbon footprint if e.g. a competitor would be able to offer carbon-free copper. Counteracting this risk is one of the reasons why Aurubis works on energy efficiency and decarbonisation goals. Example: We monitor customer expectations through close contact and exchange with customers and general market surveys. Several customers ask us to answer CDP Climate Change questionnaire. As another step of counter measures we do the annual climate reporting and the evaluation of this reporting by means of the CDP.
Reputation	Relevant, always included	Inclusion in risk assessment: Aurubis systematically includes reputation risks into the risk assessment process. The biggest reputational risk would arise from not meeting our own CO2 emission reduction targets which we set ourselves for 2030 (reduction of scope 1 and scope 2 emissions by 50% and scope 3 by 24% compared to 2018 emissions). Hence, our responsible departments monitor the expectations of different stakeholders closely and engage in dialogues. Our departments External Affairs, Sustainability and Environmental Protection monitor the reputation especially in the local surrounding of the plants and report any emerging risk to Corp. Risk Management. Example: We work towards a good relationship with local authorities. Therefore, we work together with the local authorities in initiatives (like Hamburger Klimabündnis) and monitor emissions more than legally required. Additionally, we engage in projects like low carbon industrial heat for municipal heat supply. Not only investors, also our customers are paying heightened attention to whether Aurubis participates in climate reportings, such as the CDP and the Sustainability Report according to the GRI Standards.
Acute physical	Relevant, always included	Inclusion in risk assessment: Aurubis has started to assess the physical risk impacts from climate change onto our operations and sites applying scenario analysis (2° and 4° C) with a time horizon until 2050. While this is currently done for two pilot sites, it will then be further rolled out to the remaining sites. As an outcome of this exercise, we expect to better understand the possible vulnerability of our operations regarding climate change impacts and to identify possible investment ideas to strengthen the resilience of our operations and business model. Example: Aurubis headquarter and its biggest plant are located in the Hamburg port area which is vulnerable to the influence of tides of the North Sea via the river Elbe. Thus, the Hamburg port area is also vulnerable to storm surges caused by major storms in the North Sea area. Climate change models predict these storms can likely grow in intensity. The whole port area of Hamburg as well as the cities along the river Elbe are protected against these floods by a system of well-maintained dams and levees and this also includes the Hamburg plant of Aurubis. The recent flooding of plant Stolberg is another indication and example for acute physical risks.
Chronic physical	Relevant, always included	Inclusion in risk assessment: Aurubis has started to assess the physical risk impacts from climate change onto our operations and sites applying scenario analysis (2° and 4° C) with a time horizon until 2050. While this is currently done for two pilot sites, it will then be further rolled out to the remaining sites. As an outcome of this exercise, we expect to better understand the possible vulnerability of our operations regarding climate change impacts and to identify possible investment ideas to strengthen the resilience of our operations and business model. Example: A substantial rise in sea level can also cause flooding of plant Hamburg (see above under "acute physical risks"), hence scenario analysis described above also supports here.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation	Carbon pricing mechanisms
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Primary potential financial impact

Increased direct costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Six of our European sites are in the scope of the EU emissions trading system (EU-ETS). Under the EU-ETS, industrial installations considered to be at significant risk of carbon leakage receive special treatment to support their competitiveness. For the current trading period 2021 – 2030 – as copper sector is on the Carbon Leakage lists –

Aurubis receives free allocations of CO2 certificates and gets approximately 50% of its indirect CO2 emissions compensated. As part of our strategy published in 2021 Aurubis has committed to reduce scope 1 and scope 2 emissions by 50% by 2030 to reach an emissions level of 800,000 t. As it is considered very likely that free allocations of CO2 certificates and indirect CO2 compensation will be cut or at least reduced, the risk Aurubis has to face is how big the impact of the remaining 800,000 t of CO2 emissions will be on its P&L, depending on the evolution of CO2 prices of course.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

40000000

Potential financial impact figure – maximum (currency)

120000000

Explanation of financial impact figure

The financial impact depends very much on the evolution of CO2 prices. CO2 prices have climbed from 50 €/t a year ago to levels around 90 €/t in May 2022. Hence, price forecasts for the year 2030 are difficult to predict but a range of 100 – 150 €/t should be a reasonable approach. Therefore, the potential financial impact of changes in ETS legislation after 2030 – if no free allocations or compensations are assumed – is derived as follows: 800,000 t CO2 x price range of 100 – 150 €/t CO2-price = € 80 – 120 million per year (maximum) Assuming that, due to ongoing Carbon Leakage protection up to 50% of scope 1 and 2 emissions will be as free allocations or compensations, the potential financial impact of changes in ETS legislation after 2030 is derived as follows: 800,000 t CO2 x price range of 100 – 150 €/t CO2-price x 50% = € 40 – 60 million per year (minimum).

Cost of response to risk

100000000

Description of response and explanation of cost calculation

Situation: We are currently receiving free allocations of CO2 certificates to cover our direct CO2 emissions according to copper being on the Carbon Leakage list. Plus, we are receiving compensation to cover our indirect CO2 emissions in electricity price. However, considering the political goals of the Paris Agreement, we consider a regime change beyond 2030 to be expected. Very likely there will be a sharp decline or even a complete stop in the free allocation of allowances. We would expect similar developments to happen in CO2 price compensation. This change in regulation combined with a likely increase in CO2 prices would create significant annual financial burdens for Aurubis related to its 800,000 t CO2 emissions for 2030. Task: We set ourselves emission reduction targets towards 2030 as part of our new strategy published in 2021 and following our commitment to Science Based Targets which had been approved by the SBTi in June 2021. As we recognise the risk, we initiated further steps. Action: Based on the SBTi approach explained above we have started already, as part of our decarbonisation roadmap, to work on further emission reduction plans for the remaining 800,000 t of scope 1 and 2 emissions. The first project ideas have already been evaluated but are still too early to be further elaborated into. Further analysis and R&D work has to be done. Result: To achieve the SBT Aurubis initiated, commenced and implemented projects in 2021 to reduce carbon, for example the Industrial Heat project in Hamburg, the PV plant in Pirdop or the improvement of energy efficiency in buildings at our sites. The investment costs of these projects sum up to over EUR 100,000,000. EUR 97,000,000 are allocated to the Industrial Heat project in Hamburg. The rest of the investment costs are allocated between a variety of projects. We are also working on feasibilities how to use ammonia as a blending option for natural gas burners to reduce our emissions on a wider scale, especially as an alternative to hydrogen. Hydrogen, in particular green hydrogen, will not be available in sufficient quantities in the near future. We also monitor new technologies like e.g. Carbon Capture and Storage as a means to capture the carbon emissions which are released from the raw materials which we process in our smelters. However, both project ideas are in a very early stage and therefore it is not possible to provide a meaningful cost estimate.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical	Flood (coastal, fluvial, pluvial, groundwater)
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Primary potential financial impact

Decreased revenues due to reduced production capacity

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Aurubis headquarters and its biggest plant is located in the Hamburg port area which is vulnerable to the influence of tides of the North Sea via the river Elbe. Thus, the Hamburg port area is also vulnerable to storm surges caused by major storms in the North Sea area. Climate change models predict these storms can likely grow in intensity. The whole port area of Hamburg as well as the cities along the river Elbe are protected against these floods by a system of well-maintained dams and levees and this also includes the Hamburg plant of Aurubis. Flooding of site Hamburg bears the risk to cause longer production shutdowns and complete breakdown of major equipment and production facilities, plus the flood and corresponding mud can cause major disruptions in the plant infrastructure incl. stability of buildings. A similar event happened last year in one of our smaller plants in Stolberg where - due to torrential rain - water levels of 1.5 - 2 meters incl. mud swept through the plant leaving the whole site devastated. Adopting this lesson learned effect onto plant Hamburg the severity of such a flood event and the impacted facilities, major disruption can last for 3 months or even longer for some facilities.

Time horizon

Long-term

Likelihood

Very unlikely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

110000000

Potential financial impact figure – maximum (currency)

130000000

Explanation of financial impact figure

Flooding of site Hamburg bears the risk to cause longer production shutdowns and complete breakdown of major equipment and production facilities, plus the flood and corresponding mud can cause major disruptions in the plant infrastructure incl. stability of buildings. A similar event happened last year in one of our smaller plants in Stolberg where - due to torrential rain - water levels of 1.5 - 2 meters incl. mud swept through the plant leaving the whole site devastated. Adopting this lesson learned effect onto plant Hamburg the severity of such a flood event and the impacted facilities, major disruption can last for 3 months or even longer for some facilities. We would estimate the risk for a three-month production downtime of Hamburg site to be approximately € 90 million as one day of full production loss grosses up to ~ € 1 million. This € 1 million is a combination of margin losses due to production standstill and fixed costs for e.g. personnel, overhead, etc. On top of that comes repair, clean-up and remediation costs which can only be roughly guessed and are estimated to be in the range of € 20 to 40 million. Major Capex volumes for collapsed buildings are not included in this estimate. It has to be stated here that this is the gross risk which for the mid-term perspective (next 10 years at least) is minimized to a low net risk by the existence of dams and levees as also described below. These dams and levees are high enough to withstand current projected storm surge levels. However, on a long-term perspective (20-30 years) it is very certain that these dams and flood prevention systems will have to be fundamentally upgraded and improved to protect Hamburg site. Calculation of financial figure: 90 days production standstill x margin losses and fixed costs of one lost production day of € 1 million = € 90 million - plus € 20 million (minimum) clean-up, remediation, repair of machinery and infrastructure = € 110 million (minimum) - plus € 40 million (maximum) clean-up, remediation, repair of machinery and infrastructure = € 130 million (maximum)

Cost of response to risk

30000

Description of response and explanation of cost calculation

The membership contribution of Aurubis to the "Polder" community grosses up to approx. € 30,000 p.a. It takes care of maintenance and repair of dam and levees to protect the Peute peninsula where Hamburg plant is located. Further costs are those for the Hamburg plant firefighting department. However, as its existence is a legal prerequisite for operations, the costs related to flood response cannot be directly allocated. Capital expenditures for a possible increase of levees and dams to protect against higher future flood levels are not planned for this decade. As this risk has a long-term horizon, the Capex will be invested probably in the late 2030s. Situation: Hamburg plant is situated in the port area along River Elbe. The area is subject to flooding risk caused by high tides and storm surges due to heavy storms over the North Sea. Flooding would very likely cause production standstills. It is our understanding from communication with the relevant port authorities (Hamburg Port Authority (HPA)), that the plant is currently protected against flooding by dams and levees which are high enough to sustain even the highest possible flood levels that current estimates provide. Task: The impacts of global warming on the rise of sea levels and intensity of storms are carefully monitored: Communication channels to HPA have been set up to initiate further protection investments like increases of dams and levees in good time, if deemed appropriate. Further to that, we will apply scenario analysis including a 2' and a 4' C scenario to get a second opinion on the impact of global warming on sea level rise and intensity of storms. Action: At this stage, with dams and levees being sufficiently high, seasonal flood alarm trainings and emergency plan tests to be prepared for the very unlikely event of flooding belong to core activities. However, these costs are not separately recorded, as e.g. the Hamburg plant fire department is involved with all its staff and equipment. Capital Expenditures for a most probably needed increase of levees to protect against higher flood levels are not planned at this stage. However, they must be kept in mind for the late 2030s. Result: No immediate investment response required but Aurubis needs to closely monitor possible impacts of global warming on the rise of sea levels and intensity of storms via communication channels to authorities and own scenario analysis to initiate flood protection investments in good time, if deemed appropriate.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Technology	Transitioning to lower emissions technology
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Primary potential financial impact

Decreased revenues due to reduced production capacity

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Aurubis is an energy-intensive company, but Aurubis has already gone a long way decarbonising its core processes. This is validated by carbon footprint of Aurubis cathodes of 1,69 t CO2 per ton of produced copper cathode while the average benchmark on the market is 4,03 t CO2 per ton of copper cathode. This result is primarily driven by higher energy efficiency, but also by electrifying some of Aurubis processes. Hence, the production processes at Aurubis require a stable supply of electricity which is even growing with the embarkment on our decarbonization path in alignment with our new strategy. At the same time the electricity supply in Germany is impacted by government-led coal phase out to support the Paris climate agreement and the German specific nuclear phase out which implies shutdown of the last nuclear power plants by 2022. These electricity supplies shall be replaced by mainly renewables. Parallel to this, many other industries – e.g. steel, aluminium, chemical, cement – have embarked on similar decarbonization paths most of which require additional volumes of electricity to replace fossil fuelled processes. The increase in electricity demand and the shift towards renewables on the supply side bears the risk of an imbalanced situation which could lead to blackouts. Such blackouts are risks for an energy-intensive company like Aurubis.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

3000000

Potential financial impact figure – maximum (currency)

41000000

Explanation of financial impact figure

Aurubis initiated blackout studies at major production sites. The impact of a blackout varies and depends very much on the production process. As a possible scenario we applied a power blackout of 2-24 hours. Based on these studies we estimate the financial risk of a power blackout for Hamburg to be € 25 million, for Pirdop to be € 13 million and for Lünen to be € 3 million. The main components of our estimate are explained using the case of Hamburg plant: Depending on weather and outside temperatures such a blackout can cause liquid metals in our furnaces and sulfuric acid in cooling towers to freeze and thereby to trigger a shutdown of up to 4 weeks. One day of shutdown for these facilities would cost us a lost margin of ~ € 0.6 million (4 weeks = € 17 million). On top of that we estimate costs to repair the expected damages to be ~ € 6 million. Smaller impact in other parts of Hamburg plant, mainly electrical infrastructure amount to € 2 million. Cost of a 24h blackout in Hamburg: € 17 million lost margin from production standstill + € 8 million damage and repair cost = € 25 million. The minimum impact would be from a blackout in the area of Lünen: € 3 million The maximum impact would be from such a blackout that affects Hamburg, Lünen, Pirdop at the same time: € 25 + 3 + 13 million = € 41 million.

Cost of response to risk

15000000

Description of response and explanation of cost calculation

Situation: Following the increased CO2 reduction targets set by EU commission and German climate change law which sharply increases the demand for renewable electricity and simultaneously lowers the stable supply of electricity through e.g. coal-phase out regulation combined with the approach to shutdown nuclear power plants and at the same time a slow speed of needed electricity grid expansion and storage for renewable energy the risk for secured electricity supplies is increasing. An unanticipated interruption of electricity supply could have a major impact on the operations as metals could freeze in the smelters and acid could freeze in cooling towers causing shutdowns of more than just a few days. Task: Aurubis did a plant-by-plant study for major operating sites to evaluate the local electricity supply situation and the already in place measures like emergency power generators or options of adapting operations to more flexibility. This also includes options to switch to other available electricity sources like nearby renewables to secure critical volumes. Action: The impact without countermeasures is estimated to be € 25 million for site Hamburg alone. For more insights into cost composition please see above. Result: Considering the outcome of the studies so far, we estimate investments for Hamburg to be approx. € 10 million, for Pirdop € 5 million. After these investments – e.g. emergency power generating units – have been made for Hamburg and Pirdop we aim to reduce the financial impact in case of risk occurrence to a level of € 4 to 5 million for Hamburg and even below € 1 million for Pirdop. Hence, total cost of response to risk is Capital Expenditure of € 5 – 6 million.

Comment

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of lower-emission sources of energy

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

i) DESCRIPTION of operational impact: We operate in 10 countries worldwide, 8 of them in the European Union. Therefore, we are strongly affected by the EU Green Deal. With the Green Deal, the EU has an ambitious target for 2050: a resilient economy and society that achieves carbon neutrality through high innovative strength and competitiveness. This corresponds to Aurubis' goal, as is apparent in Aurubis' affirmation to the Science-Based Targets initiative and the corresponding company targets in line with the 1.5°C goal of the Paris Climate Agreement, Aurubis is able to extract residual heat from its production processes. The use of residual heat replaces fossil fuels in the heat and steam production and therefore not only increases the level of energy efficiency, but also reduces carbon emissions. ii) EFFECT on Aurubis: In October 2018, Aurubis commissioned a 3.7-km-long pipeline that transfers excess heat from our Hamburg plant to our partner enercity Contracting Nord GmbH, who then supplies the neighbourhood HafenCity East with heat. This first stage of the Aurubis industrial heat supply saves about 20,000 t of CO2 emissions annually. In December 2021, Aurubis and Wärme Hamburg sign long-term heat supply contract. As of the 2024/25 heating period, about 20,000 more households in Hamburg will be supplied with CO2-free industrial heat from a sub-process of Aurubis copper production. This is part of a heat supply contract that the two companies signed. This follow-up project makes a significant contribution to achieving the city of Hamburg's climate goals and supports Aurubis' sustainability ambition through a further reduction of the carbon footprint. The use of CO2-free industrial heat in the Wärme Hamburg heating network will replace heat that is currently generated from fossil fuels. This can save up to 100,000 t of CO2

emissions annually in Hamburg starting in 2025. The planned heat supply represents the biggest use of industrial heat in Germany. Following renovations in summer 2024, the heat will be produced in Aurubis' contact acid plant in Hamburg, a part of copper refining in which sulfuric acid is formed in multiple process steps. This process is an exothermic chemical reaction that generates CO₂-free heat at a temperature suitable for carbon-neutral district heating.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

3000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Start of production following ramp-up phase will be in the second half of 2024. At full production, Aurubis expects EBITDA contribution of ~€ 3 million coming from this project.

Cost to realize opportunity

97000000

Strategy to realize opportunity and explanation of cost calculation

CASE STUDY Situation: With the Green Deal, the EU has an ambitious target for 2050: a resilient economy and society that achieves carbon neutrality through high innovative strength and competitiveness. At the Aurubis plant in Hamburg we show how industry can be a valuable partner in combating climate change. As an industrial plant located near the city centre of Hamburg, we wanted to make our industrial excess heat usable for the households in Hamburg. Task: Aurubis is able to extract residual heat from its production processes. The use of residual heat replaces fossil fuels in the heat and steam production and therefore not only increases the level of energy efficiency, but also reduces carbon emissions. Aurubis takes a close look at all types of waste heat produced from its processes. Action: In October 2018, Aurubis commissioned a 3.7-km-long pipeline that transfers excess heat from our Hamburg plant to our partner enercity Contracting Nord GmbH, who then supplies the neighbourhood Hafencity East with heat. This first stage of the Aurubis industrial heat supply saves about 20,000 t of CO₂ emissions annually. In December 2021, Aurubis and Wärme Hamburg signed long-term heat supply contract. As of the 2024/25 heating period, about 20,000 more households in Hamburg will be supplied with CO₂-free industrial heat from a sub-process of Aurubis copper production. This is part of a heat supply contract that the two companies signed. Result: The use of CO₂-free industrial heat in the Wärme Hamburg heating network will replace heat that is currently generated from fossil fuels. This can save up to 100,000 t of CO₂ emissions annually in Hamburg starting in 2025. The planned heat supply represents the biggest use of industrial heat in Germany. To facilitate the expansion of the CO₂-free industrial heat supply in Hamburg and thus reduce the use of fossil fuels, Aurubis and Wärme Hamburg joined forces with the German Federal Ministry for Economic Affairs and Climate Action and found an optimal model for implementation. This includes funding from the ministry for both partners. COST CALCULATION: Estimated investment volume for the project is € 97 million.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Use of recycling

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

i) DESCRIPTION of operational impact: Metals are the foundation for progress. With the Aurubis strategy, we are providing a clear answer to how we will continue solidifying and expanding our position as the most efficient and sustainable multimetal producer in the world: as a high-performance smelter network with a strong core business and new drivers of growth in recycling. Global market trends such as digitalization, the increase in renewable energies, and more sustainable business are driving the circular economy and therefore the reprocessing of valuable materials containing metals. We are taking advantage of this at Aurubis with a sense of purpose in order to significantly expand our recycling capacities in the years to come, penetrating new markets in a targeted way at the same time. ii) EFFECT on Aurubis: On November 10th, 2021, Aurubis Supervisory Board approved the construction of a recycling plant in the US state of Georgia. In the future, a state-of-the-art plant in Augusta (Richmond County) will process about 90,000 t of complex recycling materials annually. The plant is a key contribution to Aurubis' commitment to the circular economy and to the company's goal of being carbon-neutral well before 2050. The start of construction is planned for mid-2022.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

80000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

The Aurubis Group expects Aurubis Richmond to generate an annual contribution to earnings of € 80 million EBITDA at full production capacity starting in fiscal year 2025/26.

Cost to realize opportunity

300000000

Strategy to realize opportunity and explanation of cost calculation

CASE STUDY Situation: Metals are the foundation for progress. With the Aurubis strategy, we are providing a clear answer to how we will continue solidifying and expanding our position as the most efficient and sustainable multimetal producer in the world: as a high-performance smelter network with a strong core business and new drivers of growth in recycling. Task: Aurubis is already enthusiastically shaping the circular economy, processing about 1 million t of recycling materials per year as a leading company for multimetal recycling. With the recycling plant in the US, Aurubis is now sending another important signal as the most sustainable integrated smelter network in the world and building on recycling as a driver of growth. The investment supports the ambitious goals to protect the environment and conserve resources while simultaneously contributing to the company’s growth targets. Action: The new site in Augusta (Richmond County), named “Aurubis Richmond, USA,” will have a capacity of about 90,000 t of complex recycling materials. Construction will start in summer 2022. The state-of-the-art plant will be commissioned in the first half of 2024. Result: With this step, the company is tapping a market with strong growth potential and expanding its international integrated smelter network. The Aurubis Group expects Aurubis Richmond to generate an annual contribution to earnings of € 80 million EBITDA at full production capacity starting in fiscal year 2025/26 The investment of about € 300 million also contributes to the company’s ambitious sustainability targets. COST CALCULATION: Estimated investment volume for the project is € 300 million.

Comment

C3. Business Strategy

C3.1

(C3.1) Does your organization’s strategy include a transition plan that aligns with a 1.5°C world?

Row 1

Transition plan

No, but our strategy has been influenced by climate-related risks and opportunities, and we are developing a transition plan within two years

Publicly available transition plan

<Not Applicable>

Mechanism by which feedback is collected from shareholders on your transition plan

<Not Applicable>

Description of feedback mechanism

<Not Applicable>

Frequency of feedback collection

<Not Applicable>

Attach any relevant documents which detail your transition plan (optional)

<Not Applicable>

Explain why your organization does not have a transition plan that aligns with a 1.5°C world and any plans to develop one in the future

Aurubis set climate protection targets in line with the 1,5°C target. To achieve the targets set for 2030 site-specific transition plans were developed to identify specific measures to reduce emissions according to the SBTi. In a second step these transition plans will be extended to 2045.

Explain why climate-related risks and opportunities have not influenced your strategy

<Not Applicable>

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy	Primary reason why your organization does not use climate-related scenario analysis to inform its strategy	Explain why your organization does not use climate-related scenario analysis to inform its strategy and any plans to use it in the future
Row 1	Yes, quantitative	<Not Applicable>	<Not Applicable>

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenario		Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios	IEA NZE 2050	Company-wide	<Not Applicable>	Scenario: 1.5° C (Paris agreement path): Scenario assumes worldwide CO2 emissions to be drastically reduced by ~40% from 2020 to 2030 and further down to net zero by 2050. This path will be mainly achieved via accelerated transition to e.g. green energy and electrification in industrial processes plus implementation of governmental regulations to limit use of fossil fuels and increased carbon pricing regimes in major global economies Political and economic development: Global population set to grow to 9.7 billion by 2050 Most countries meet announced CO2 reduction targets Development of energy and energy prices: Assumes GHG emissions will be net zero in many developed countries in 2050 with wind and solar energy being the number one global electricity source already by 2030 and providing 70% of all electricity generated by 2050. Development of Carbon Prices: After 2030 >EUR 100 By 2050 EUR 250€
Physical climate scenarios	Customized publicly available physical scenario	Company-wide	4.1°C and above	Scenario: 4 - 5° C (Climate crisis scenario): Scenario is based on a publication by McKinsey Institute "Climate risk and response" and assumes lack of worldwide CO2 emissions to be drastically reduced and main efforts in legislative attempts to fail on a global scale. We believe this scenario is the one which must be avoided by all means. Temperatures will rise substantially and cause changes in weather patterns resulting in extended heat waves covering large areas, more frequent and wide-spread torrential rain events, a rise in sea level (up to 7 m by 2100), more powerful hurricanes and tornadoes. Water will become scarce in many areas of the world and resulting droughts will trigger migration of millions of people. Social unrest and military conflicts over water supplies are likely to happen, plus the sea level rise results in less land available for a growing global population. Political and economic development Global population set to grow to 9.7 billion by 2050. Most countries fail to meet announced CO2 reduction targets. Global GDP expected to decrease (nonlinear), partly due to o Military conflicts over water and food supplies o Large waves of migration and climate refugees o infrastructural damage resulting from severe weather Development of energy and energy prices Scenario assumes continued dependency on fossil fuels and thereby increased CO2 emissions worldwide. On the contrary, much lower global investments into renewable energy than in Paris path scenario. Development of CO2 price CO2 prices globally would reflect the lack of ambition in global policies fighting climate change. We estimate that EU and German policies would stick to the already announced paths and would differ from other less ambitious economic regions of the world. (EU CO2 price: 200 €/t in 2050; Rest of the world: 50 €/t)

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

The focal questions Aurubis seeks to address concern: Risks - Which physical risks arise in the different scenarios? - Which political/ regulatory risks arise in the different scenarios? - Which technological risks arise in the different scenarios? - Which measures have to be implemented to tackle severe risks? Opportunities - Which economic opportunities arise in the different scenarios? - Which decisions have to be made in order to benefit from those opportunities?

Results of the climate-related scenario analysis with respect to the focal questions

Risks of 1.5° C (Paris agreement path): Political risks: Arising from worldwide CO2 tax regimes or CBAM (likely to include disadvantageous regulation for Aurubis) but also other factors in energy prices which are politically driven. Technological risks: Arise from the transformation of all carbon emitting production processes in order to fulfil our targets of reducing scope 1 and 2 emissions by 50% by 2030 and to be carbon neutral well before 2050 (2045 as required by law in Germany). Our decarbonization roadmap outlines the various technical approaches we see, from the use of hydrogen in our anode furnaces to electrifying production processes, making use of Carbon Capture and Storage (CCS) technology to the installation of solar power plants (Pirdop). However, these investments come with high Capital Expenditures on the one hand and with high operational expenses in the form of hydrogen or electricity costs on the other. We therefore rely on EU politics providing a level playing field for energy intensive industries (e.g. by taking care of sufficient supplies of „green“ hydrogen) Reputational and market risks: Not meeting these decarbonization targets could generate reputational and market risks which would directly have a negative impact on e.g. our sales campaigns for our copper products and other metals because we would then be a scope 3 emission risk for our customers. Opportunities of 1.5° C (Paris agreement path): Economic opportunities: In a 1.5 C scenario the demand for copper and other metals like will rise as these metals are important enablers of the green energy transformation. This demand rise will likely increase the prices for these metals. Aurubis sees itself well positioned to benefit from this trend via extended metal recovery on the one hand and via increased recycling trends as recycling provides a lower carbon footprint than primary sourcing. In addition, projects like industrial heat in plant Hamburg provide solutions for our direct neighbors and supports them to meet their decarbonization targets. Unfortunately, Aurubis does not receive credit for this project which helps saving / reduces 140.000 t of CO2 of the city of Hamburg. For comparison, our plant in Hamburg has direct CO2 emissions (Scope 1) of 165.000 t. With our science-based targets approach of reducing scope 1 and 2 emissions by 50% by 2030 we directly support our customers by being the partner / supplier of choice to reduce their scope 3 emissions.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Recycling is a driver of growth for Aurubis. Our copper cathodes already contain about 45% recycling material. We want to achieve a recycling rate of 50% by 2030. North America and Europe in particular provide us with significant growth opportunities that we will leverage with our scalable Aurubis modular system to develop new recycling plants. This will kick off with our new recycling plant in Augusta, located in the US state of Georgia. On November 10th, 2021, Aurubis Supervisory Board approved the construction of this recycling plant.
Supply chain and/or value chain	Yes	Thanks to our multimetal recycling activities and proximity to our copper product customers, we consider ourselves to be in a position to offer expanded "closing the loop" solutions. The processing industry is part of both our customer base and our supplier base. Production waste accumulates during these companies' production processes. This includes materials with very high copper contents, which can be used again immediately as input material in copper production. However, we also return other substances to the value cycle in a meaningful way. Establishing and developing "closing the loop" systems as a result of new or intensified cooperation with original equipment manufacturers (OEMs), retailers, or copper product customers is one of the measures defined in the Aurubis Sustainability Strategy 2018-2023. Over the past several years, over 50 "closing the loop" arrangements have been established in which customers also became suppliers of secondary materials.
Investment in R&D	Yes	As a sub-area of sustainability, environmental protection is a top priority for Aurubis. As a result, we are continuously developing our processes and methods to reduce emissions of all kinds. For instance, during the fiscal year 20/21, an R&D team at the Pirdop site developed a wastewater treatment process, among other things. This will lead to reduced waste volumes and lower chemical consumption at the site in the future. Furthermore, the impact of each strategic CAPEX project is assessed along a set of key sustainability KPIs at very early stage of the project development process. Thereby, Aurubis ensures that its pipeline of strategic projects is in full alignment with Aurubis' sustainability ambition. In the fiscal year 2020/2021 the Aurubis Group's R&D expenditures amounted to € 12 million. During the reporting period, R&D work primarily focused on Group's capabilities in multimetal processing. Yet another R&D focus during the past fiscal year was battery recycling. With the mobility shift in Europe, the number of hybrid and electric vehicles will continue to surge. The necessary lithium-ion batteries will create a stark increase in demand for metals such as nickel, cobalt, manganese, copper, and lithium over the next several years. In addition to the importance of battery recycling in and of itself, demand for these important raw materials will be partially covered by recycling. The battery of an electric car consists of different components, such as the case, busbars, control electronics, cooling, and the actual electrochemical cells. Aurubis can already process materials from these types of batteries. In the lab, the Hamburg R&D team developed a hydrometallurgical process to recycle black mass, the core of the battery cell, and applied for a patent. In March 2022, Aurubis commissioned an innovative pilot plant for battery recycling at the Hamburg site.
Operations	Yes	Sustainable conduct and business activity are integral components of our strategy. We want our production to be carbon-neutral well before 2050 – with measurable targets and concrete measures to reduce emissions. Through our responsible approach to resources, we're already making a notable contribution to the energy transition with our production techniques – just as we do with our products. We want to reduce our absolute Scope 1 and Scope 2 emissions by 50% compared to reference year 2018. This applies to CO2 emissions from burning fuels in our own facilities (Scope 1) and from bought-in energy (Scope 2). We also want to reduce the emissions that arise in the upstream and downstream stages of the value chain (Scope 3) at the same time – by 24% per ton of copper cathode output. We are currently developing a detailed roadmap to help us achieve our climate goals. Regarding scope 1 and scope 2 emissions, we rely on technical measures such as decarbonizing plant facilities by using green hydrogen instead of fossil fuels, electrifying our production, utilizing waste heat, and expanding the purchase of green electricity. Approaches for reducing Scope 3 emissions include cooperation in the supply chain and increased recycling activities, for example. In 2021, Aurubis was the first company in the copper industry to test the use of hydrogen on an industrial scale. In a pilot project at the Hamburg plant, Aurubis successfully tested the use of hydrogen in the anode furnace. CO2 reduction potential was estimated to 6,200 t p.a. for anode furnace in Hamburg and 15,000 t p.a. for all anode furnaces across the Aurubis Group.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Access to capital	Revenues: Aurubis is one of the world's leading recyclers of copper and complex recycling raw materials. This applies to its own sustainability efforts under ecological, social, and ethical criteria as well. In light of the rising importance of resource efficiency, we expect demand for recycling solutions and low-loss metal production and recovery to continue growing. This is also supported and promoted by increasingly strict national and international legislation and initiatives such as the European Green Deal. More and more, customers and suppliers are also making higher sustainability demands at the same time, which can also benefit Aurubis. Thanks to our multimetal recycling activities and proximity to our copper product customers, we consider ourselves to be in a position to offer expanded "closing the loop" solutions. Following the acquisition of the Metallo Group, Aurubis has been able to extend its recycling capabilities even further. More than 500,000 t or 45% of Aurubis Group cathode output come from reprocessed copper containing scrap. Considering Aurubis copper premium of USD 96/ t in calendar year 2021, we are speaking here about more than € 48 million Euro revenue impact. Moreover additional financial impact results from scrap refining charges. Direct Costs: In June 2021, Aurubis Bulgaria started building a 10 MW solar plant on the premises of the site in Pirdop. With this project, Aurubis is taking the next step towards sustainable multimetal production: the project contributes to our strategic objective of making our production carbon neutral by 2050. The solar plant will reduce the smelter's external electricity consumption by 11,000 MWh annually, and for the period of 15 years, the total renewable energy production will amount to nearly 170,000 MWh. Compared, this will save up to 4,500 t of CO2 emissions p.a. The current CO2 price is 60 €/t (as of 2021). Total savings regarding saved CO2 emissions amount up to € 270,000/ a (€ 60/ t CO2 x 4,500 t CO2 per year). This project contributes to the green energy goal for Aurubis Bulgarian site: covering 20% of energy needs with own renewable sources by 2030. Access to capital: In December 2021, Aurubis and Wärme Hamburg signed long-term heat supply contract. As of the 2024/25 heating period, about 20,000 more households in Hamburg will be supplied with CO2-free industrial heat from a sub-process of Aurubis copper production. The use of CO2-free industrial heat in the Wärme Hamburg heating network will replace heat that is currently generated from fossil fuels. This can save up to 100,000 t of CO2 emissions annually in Hamburg starting in 2025. The planned heat supply represents the biggest use of industrial heat in Germany. To facilitate the expansion of the CO2-free industrial heat supply in Hamburg and thus reduce the use of fossil fuels, Aurubis and Wärme Hamburg joined forces with the German Federal Ministry for Economic Affairs and Climate Action and found an optimal model for implementation. This includes funding from the ministry for both partners.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

- Absolute target
- Intensity target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Year target was set

2021

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

<Not Applicable>

Base year

2018

Base year Scope 1 emissions covered by target (metric tons CO2e)

565989

Base year Scope 2 emissions covered by target (metric tons CO2e)

987513

Base year Scope 3 emissions covered by target (metric tons CO2e)

<Not Applicable>

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

1553502

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

100

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

<Not Applicable>

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2030

Targeted reduction from base year (%)

50

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

776751

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

563939

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

1002681

Scope 3 emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

1566620

% of target achieved relative to base year [auto-calculated]

-1.68882949619634

Target status in reporting year

New

Is this a science-based target?

Yes, and this target has been approved by the Science Based Targets initiative

Target ambition

1.5°C aligned

Please explain target coverage and identify any exclusions

This carbon reduction target is a SBT, covering all Scope 1+2 emissions.

Plan for achieving target, and progress made to the end of the reporting year

Aurubis communicated the overall emission reduction target to the sites and developed a roadmap that identifies site specific targets and projects to reduce carbon emissions by 2030. We plan to achieve the target through the following actions: PV Plant Pirdop. Improvements in energy efficiency in buildings. Usage of process waste heat to increase efficiency.

List the emissions reduction initiatives which contributed most to achieving this target

<Not Applicable>

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Year target was set

2021

Target coverage

Company-wide

Scope(s)

Scope 3

Scope 2 accounting method

<Not Applicable>

Scope 3 category(ies)

Category 1: Purchased goods and services

Category 2: Capital goods

Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2)

Category 4: Upstream transportation and distribution

Category 5: Waste generated in operations

Category 6: Business travel

Category 7: Employee commuting

Category 9: Downstream transportation and distribution

Intensity metric

Metric tons CO₂e per metric ton of product

Base year

2018

Intensity figure in base year for Scope 1 (metric tons CO₂e per unit of activity)

<Not Applicable>

Intensity figure in base year for Scope 2 (metric tons CO₂e per unit of activity)

<Not Applicable>

Intensity figure in base year for Scope 3 (metric tons CO₂e per unit of activity)

5.6

Intensity figure in base year for all selected Scopes (metric tons CO₂e per unit of activity)

5.6

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

<Not Applicable>

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

<Not Applicable>

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure

100

% of total base year emissions in all selected Scopes covered by this intensity figure

100

Target year

2030

Targeted reduction from base year (%)

24

Intensity figure in target year for all selected Scopes (metric tons CO₂e per unit of activity) [auto-calculated]

4.256

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

24

Intensity figure in reporting year for Scope 1 (metric tons CO₂e per unit of activity)

<Not Applicable>

Intensity figure in reporting year for Scope 2 (metric tons CO₂e per unit of activity)

<Not Applicable>

Intensity figure in reporting year for Scope 3 (metric tons CO₂e per unit of activity)

5.55

Intensity figure in reporting year for all selected Scopes (metric tons CO₂e per unit of activity)

5.55

% of target achieved relative to base year [auto-calculated]

3.72023809523808

Target status in reporting year

New

Is this a science-based target?

Yes, and this target has been approved by the Science Based Targets initiative

Target ambition

2°C aligned

Please explain target coverage and identify any exclusions

Excluded categories 8. Upstream leased assets, 10. Processing of sold products, 11. Use of sold products, 12. End-of-life treatment of sold products, 13. Downstream leased assets, 14. Franchises, 15. Investments are not applicable

Plan for achieving target, and progress made to the end of the reporting year

Our first step to achieve the target is to improve our data base for Scope 3 emissions. For this reason, we started a survey within our concentrate suppliers as well as a new system to calculate the transport related emissions during the reporting year. When the data is validated, we will develop the plan to achieve the target based on this data.

List the emissions reduction initiatives which contributed most to achieving this target

<Not Applicable>

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Net-zero target(s)

C4.2c

(C4.2c) Provide details of your net-zero target(s).**Target reference number**

NZ1

Target coverage

Company-wide

Absolute/intensity emission target(s) linked to this net-zero target

Abs1

Int1

Target year for achieving net zero

2045

Is this a science-based target?

Yes, and this target has been approved by the Science Based Targets initiative

Please explain target coverage and identify any exclusions

Aurubis set itself the target to become carbon-neutral way before 2050. This includes all Scopes 1,2,3 and we work on multiple initiatives to achieve this target. The biggest challenge state process emissions that are not avoidable. CCS and CCU are possible solutions.

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?

Yes

Planned milestones and/or near-term investments for neutralization at target year

We set an intermediate target to reduce our Scope 1+2 emissions until 2030 by 50% and our Scope 3 emissions by 24% per ton of product. In the course of this process we developed a roadmap to identify appropriate measures. The identified measures consist of the switch to green electricity, use of hydrogen, ammonia and the electrification of processes. To achieve the 2030 target, multiple measures have to be implemented by 2030.

Planned actions to mitigate emissions beyond your value chain (optional)

N/A

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	0	0
Implementation commenced*	1	3015
Implemented*	4	8392.8
Not to be implemented	0	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
---	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

2284.5

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

210257

Investment required (unit currency – as specified in C0.4)

1391435

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

Estimated lifetime according to depreciation rules.

Initiative category & Initiative type

Low-carbon energy consumption	Other, please specify (Measures to decrease fossil-based energy consumption)
-------------------------------	---

Estimated annual CO2e savings (metric tonnes CO2e)

64.2

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

19433

Investment required (unit currency – as specified in C0.4)

337122

Payback period

16-20 years

Estimated lifetime of the initiative

16-20 years

Comment

Estimated lifetime according to depreciation rules.

Initiative category & Initiative type

Low-carbon energy generation	Solar PV
------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

4592.3

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

247984

Investment required (unit currency – as specified in C0.4)

5773000

Payback period

21-25 years

Estimated lifetime of the initiative

21-30 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Other, please specify (Collection of several projects to increase energy efficiency in buildings)
--------------------------------	--

Estimated annual CO2e savings (metric tonnes CO2e)

1451.7

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

81269

Investment required (unit currency – as specified in C0.4)

668460

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

Estimated lifetime according to depreciation rules.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Internal price on carbon	When investments in process optimization or new facilities reduce emissions, they are valued with a CO2 price forecast. The resulting savings are taken into account for investment calculations and are therefore a driver for investment decisions.
Compliance with regulatory requirements/standards	Investments in emissions reductions are done in alignment with EU-ETS reduction targets (binding target) to avoid the obligation for additional certificate purchase.
Internal incentives/recognition programs	New ideas could be submitted via a company suggestion system and in case of implementation they are honoured with a bonus depending on the savings. Furthermore, certain managers have individual bonus pay-outs depending on climate related targets that also consist of emission reductions.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Group of products or services

Taxonomy used to classify product(s) or service(s) as low-carbon

No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Heating and cooling	Other, please specify (Industrial Heat)
---------------------	---

Description of product(s) or service(s)

Industrial Heat: Aurubis extracts industrial heat for the heat supply of Hamburg's HafenCity East district, and since 2021 for the Rothenburgsort district as well. This heat forms when sulfur dioxide is converted to sulfuric acid. Each year, up to 160 million kWh of heat can be extracted from the processes, equivalent to a more than 20,000 t reduction in CO₂ annually. We save about half of this quantity on the plant premises since we use waste heat, not natural gas, to produce steam. The other half of the CO₂ reduction is due to the transmission of heat to the HafenCity East neighborhood, where conventional fuels would otherwise generate district heating. In 2021 the decision was made to expand the project: As of the 2024/25 heating period, about 20,000 more households in Hamburg will be supplied with CO₂-free industrial heat from a sub-process of Aurubis copper production. The use of CO₂-free industrial heat in the heating network will replace heat that is currently generated from fossil fuels. This can save up to 100,000 t of CO₂ emissions annually in Hamburg starting in 2025. The planned heat supply represents the biggest use of industrial heat in Germany.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

No

Methodology used to calculate avoided emissions

<Not Applicable>

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

<Not Applicable>

Functional unit used

<Not Applicable>

Reference product/service or baseline scenario used

<Not Applicable>

Life cycle stage(s) covered for the reference product/service or baseline scenario

<Not Applicable>

Estimated avoided emissions (metric tons CO₂e per functional unit) compared to reference product/service or baseline scenario

<Not Applicable>

Explain your calculation of avoided emissions, including any assumptions

<Not Applicable>

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

0.02

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

Yes, an acquisition

Name of organization(s) acquired, divested from, or merged with

Metallo group

Details of structural change(s), including completion dates

The Metallo group was acquired in 2020. The emissions were already taken into account in 2020, but not in the 2018 base year. The recalculated base year emissions including the emissions of the Metallo group are therefore disclosed in question C5.2.

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	Yes, a change in methodology Yes, a change in boundary No, but we have discovered significant errors in our previous response(s)	Scope 3.1: • We have discovered that in the calculation of the base year activity data for several purchased goods categories was missing. The emissions have been retroactively recalculated with activity data from the base year. • In 2021, emission factors of the International Copper Association were used for purchased copper products for which no primary data from suppliers is available. In the past, emission factors from other secondary sources were used that differ from this emission factor. Since the effect of the change of emission factors does not reflect real changes in emissions over time, comparing "like with like" was no longer possible between the reporting year and the previous years. The historical activity data was therefore recalculated using the emission factors from the International Copper Association. Scope 3.4 & 3.9: • More detailed data on upstream and downstream transport is available since 2021. The results differed significantly from the assumptions made previously. Therefore, the emissions calculated in 2021 using the distance-based method were extrapolated back to the previous years based on the purchase volume (3.4) and the output quantity (3.9). As a result of the acquisition of Metallo in 2019, the base year has been recalculated, but not publicly reported. This has been corrected this year.

C5.1c

(C5.1c) Have your organization's base year emissions been recalculated as result of the changes or errors reported in C5.1a and C5.1b?

	Base year recalculation	Base year emissions recalculation policy, including significance threshold
Row 1	Yes	The following cases trigger a recalculation of base year emissions: • Structural changes like mergers, acquisitions, and divestments and outsourcing and insourcing of emitting activities • Changes in calculation methodology or improvements in data accuracy that result in a significant impact • Discovery of significant errors Organic growth or decline does not result in a recalculation. The significance threshold is 5% and applies to our separate targets for Scope 1+2 and Scope 3.

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

565989

Comment

Scope 2 (location-based)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 2 (market-based)

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

987513

Comment

Scope 3 category 1: Purchased goods and services

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

5120869

Comment

Scope 3 category 2: Capital goods

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

91386

Comment

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

191922

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

347169

Comment

Scope 3 category 5: Waste generated in operations

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

5181

Comment

Scope 3 category 6: Business travel

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

2116

Comment

Scope 3 category 7: Employee commuting

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

11650

Comment

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

731749

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 12: End of life treatment of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

563939

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

940098

Scope 2, market-based (if applicable)

1002681

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source

Emissions from driving vehicles are not included from all sites.

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

No emissions excluded

Relevance of market-based Scope 2 emissions from this source (if applicable)

No emissions excluded

Explain why this source is excluded

Not relevant, because below 1% of global emissions.

Estimated percentage of total Scope 1+2 emissions this excluded source represents

1

Explain how you estimated the percentage of emissions this excluded source represents

Emissions from vehicles are reported at sites, but not reported here to follow standard of EU-ETS, that does not consider emissions of vehicles.

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

4681040

Emissions calculation methodology

Supplier-specific method
Average data method
Spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

23

Please explain

Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using supplier-specific emissions factors where available, specific regional emission factors for the remaining primary raw materials from LCA databases, and the spend-based method for other materials.

Capital goods

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

120454

Emissions calculation methodology

Average spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using spend-based emission factors.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

254560

Emissions calculation methodology

Other, please specify (Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using physical emission factors. Including upstream (WTT) emissions of all fuels balanced under Scope 1, as well as upstream (WTT) emissions of purchased electricity.)

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using physical emission factors. Including upstream emissions of all fuels balanced under Scope 1, as well as upstream emissions of purchased electricity.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

410877

Emissions calculation methodology

Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using physical emission factors for the distance-based method. Including transport of primary and secondary input materials and intralogistics.

Waste generated in operations

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

12533

Emissions calculation methodology

Waste-type-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using physical emission factors for each waste type.

Business travel

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

384

Emissions calculation methodology

Supplier-specific method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Calculation based on Greenhouse Gas Protocol Scope 3 Standard using either emission data provided directly from the travel service provider or physical emissions factor for the distance-based method.

Employee commuting

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

6192

Emissions calculation methodology

Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using physical emission factors and average distances and modal splits.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

There are no significant upstream leased assets to be accounted for.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

695350

Emissions calculation methodology

Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using physical emission factors per transport mode. Including transport of main- and by-products.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO₂e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Aurubis is a producer of base materials. Due to the nature of our products and the innumerable variants of processing and end-of-life treatment, it is impossible to make valid assumptions about the related emissions. It is therefore regarded as not relevant based on the criteria established by the Greenhouse Gas Protocol Standard.

Use of sold products

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO₂e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Aurubis is a producer of base materials that do not cause any direct use phase emissions.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO₂e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Aurubis is a producer of base materials. Due to the nature of our products and the innumerable variants of processing and end-of-life treatment, it is impossible to make valid assumptions about the related emissions. It is therefore regarded as not relevant based on the criteria established by the Greenhouse Gas Protocol Standard

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO₂e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

There are no significant downstream leased assets to be accounted for.

Franchises

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

There are no franchises to be accounted for.

Investments

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

There are no significant investments that are not already covered in the other scopes and categories.

Other (upstream)

Evaluation status

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Other (downstream)

Evaluation status

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.000096

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

1566620

Metric denominator

unit total revenue

Metric denominator: Unit total

16300000000

Scope 2 figure used

Market-based

% change from previous year

19

Direction of change

Decreased

Reason for change

Due to several factors, e.g. emission reduction initiatives, mentioned in 4.3b and higher revenues, the intensity number decreased.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

No

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
United States of America	32492
EU28	531447

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By facility

C7.3b

(C7.3b) Break down your total gross global Scope 1 emissions by business facility.

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Hamburg, Germany	166885	53.521576	10.03331
Pirdop, Bulgaria	55732	42.703374	24.177048
Lünen, Germany	162276	51.60646	7.50755
Olen, Belgium	41404	51.177305	4.879092
Stolberg, Germany	1894	50.759048	6.234986
Buffalo, USA	32492	42.948404	-78.892807
Zutphen, Netherlands	4809	52.157565	6.206821
Pori, Finland	8082	61.462226	21.861253
Avellino, Italy	17202	40.914388	14.790612
E.R.N., Hamburg, Germany	30	53.526343	10.029339
Retorte, Hamburg, Germany	1622	49.49038	11.24973
Peute Baustoffe, Hamburg, Germany	10	53.51133	10.05728
Deutsche Giessdraht, Emmerich, Germany	15802	51.82784	6.26501
Metallo, Beerse, Belgium	44554	51.31962	4.81783
Metallo, Berango, Spain	11145	43.36787	2.993

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
----------	--------------------------------------	----------	-----------

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	563939	<Not Applicable>	
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
United States of America	72542	1311
EU28	867556	1001370

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By facility

C7.6b

(C7.6b) Break down your total gross global Scope 2 emissions by business facility.

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Hamburg, Germany	361994	504638
Pirdop, Bulgaria	287894	222959
Lünen, Germany	78868	109947
Olen, Belgium	37032	75747
Stolberg, Germany	11274	15717
Buffalo, USA	72542	1311
Zutphen, Netherlands	23398	29834
Pori, Finland	4106	4816
Avellino, Italy	5841	0
E.R.N, Germany	89	124
Retorte, Germany	896	1249
Peute Baustoffe, Germany	131	183
Emmerich, Germany	6966	6318
Metallo, Beerse, Belgium	27734	26745
Metallo, Berango, Spain	0	0

C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7

(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization’s total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	940098	1002681	
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	4656.5	Decreased	0.3	The % figure has been calculated as follow: (change in scope 1+2 emissions attributed to change in renewable energy consumption / previous year scope 1+2 emissions) X 100, where change in scope 1+2 emissions attributed to change in renewable energy consumption = - 4656.5tCO2e and previous year scope 1+2 emissions = 1563000tCO2e, thus -0.30%.
Other emissions reduction activities	3736.2	Decreased	0.24	The % figure has been calculated as follow: (change in scope 1+2 emissions attributed to change in other emissions reduction initiatives / previous year scope 1+2 emissions) X 100, where change in scope 1+2 emissions attributed to other emissions reduction initiatives = -3736.2 tCO2e and previous year scope 1+2 emissions = 1563000tCO2e, thus -0.24%.
Divestment		<Not Applicable >		
Acquisitions		<Not Applicable >		
Mergers		<Not Applicable >		
Change in output	12012.7	Increased	0.77	Although emission reduction initiatives were implemented there is a slight increase in emissions, there are multiple reasons, like an increase in output, but also changes in the energy/ material feed. For this calculation the following was assumed: Scope 1+2 2020: 1563000 Scope 1+2 2021: 1566620 Total change in emissions: + 3620 (+0.23%) Total Change due to emission reduction initiatives and renewable energy consumption: -0.54% Increase due to output increase, changes in material feed and energy consumption = 0.23%-(-0.54%) =0,77%
Change in methodology		<Not Applicable >		
Change in boundary		<Not Applicable >		
Change in physical operating conditions		<Not Applicable >		
Unidentified		<Not Applicable >		
Other		<Not Applicable >		

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 5% but less than or equal to 10%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	1612	2174811	2176423
Consumption of purchased or acquired electricity	<Not Applicable>	148686	1721478	1870164
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	19651	<Not Applicable>	19651
Total energy consumption	<Not Applicable>	150298	3896289	4046587

C-MM8.2a

(C-MM8.2a) Report your organization's energy consumption totals (excluding feedstocks) for metals and mining production activities in MWh.

	Heating value	Total MWh
Consumption of fuel (excluding feedstocks)	HHV (higher heating value)	2176423
Consumption of purchased or acquired electricity	<Not Applicable>	1870164
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	
Total energy consumption	<Not Applicable>	4046587

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

Heating value

Unable to confirm heating value

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Other biomass

Heating value

Unable to confirm heating value

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Other renewable fuels (e.g. renewable hydrogen)

Heating value

Unable to confirm heating value

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Coal

Heating value

Unable to confirm heating value

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Oil

Heating value

HHV

Total fuel MWh consumed by the organization

336960

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

336960

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Gas

Heating value

HHV

Total fuel MWh consumed by the organization

1795745

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

1795745

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value

HHV

Total fuel MWh consumed by the organization

45330

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

45330

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Total fuel

Heating value

HHV

Total fuel MWh consumed by the organization

2178035

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

2178035

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	19651	19651	19651	19651
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C-MM8.2d

(C-MM8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed for metals and mining production activities.

	Total gross generation (MWh) inside metals and mining sector boundary	Generation that is consumed (MWh) inside metals and mining sector boundary
Electricity	19651	19651
Heat	0	0
Steam	0	0
Cooling	0	0

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero or near-zero emission factor in the market-based Scope 2 figure reported in C6.3.

Sourcing method

Default delivered electricity from the grid (e.g. standard product offering by an energy supplier) from a grid that is 95% or more low-carbon and where there is no mechanism for specifically allocating low-carbon electricity

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Country/area of low-carbon energy consumption

United States of America

Tracking instrument used

Contract

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

125025

Country/area of origin (generation) of the low-carbon energy or energy attribute

United States of America

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Sourcing method

Green electricity products from an energy supplier (e.g. green tariffs)

Energy carrier

Electricity

Low-carbon technology type

Solar

Country/area of low-carbon energy consumption

Spain

Tracking instrument used

Contract

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

11296

Country/area of origin (generation) of the low-carbon energy or energy attribute

Spain

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

C8.2g

(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.

Country/area

United States of America

Consumption of electricity (MWh)

137390

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

137390

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Germany

Consumption of electricity (MWh)

855424

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

855424

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Belgium

Consumption of electricity (MWh)

327101

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

327101

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Bulgaria

Consumption of electricity (MWh)

454092

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

454092

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Italy

Consumption of electricity (MWh)

14567

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

14567

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Netherlands

Consumption of electricity (MWh)

45969

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

45969

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Spain

Consumption of electricity (MWh)

11296

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

11296

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

C-MM9.3b

(C-MM9.3b) Provide details on the commodities relevant to the metals production activities of your organization.

Output product

Copper

Capacity (metric tons)

1114000

Production (metric tons)

1114000

Annual production in copper-equivalent units (thousand tons)

1114

Scope 1 emissions (metric tons CO2e)

563939

Scope 2 emissions (metric tons CO2e)

1002681

Scope 2 emissions approach

Market-based

Pricing methodology for-copper equivalent figure

Production of copper is based on the total production of copper cathodes.

Comment

With our current production output we use nearly 100% of our capacity.

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	Research and development (R&D) at Aurubis is clearly aligned with the multimetal strategy and includes both optimization of existing processes and the development of new processes and products. The key focus is on further developing metallurgical expertise to efficiently, sustainably process complex raw materials and recycling materials. Used in place of natural gas or other fossil reducing agents, hydrogen can reduce CO2 emissions in copper production in the future. R&D is investigating the metallurgical use of hydrogen in Aurubis' processes. A flagship project is the large-scale trial on the use of hydrogen in the anode furnace of the Hamburg primary smelter. We have kicked off additional projects together with universities in order to investigate key metallurgical fundamentals regarding the behavior of hydrogen in complex metallurgy. The entire Aurubis Group's R&D expenditures in fiscal year 2020/21 amounted to € 12 million.

C-MM9.6a

(C-MM9.6a) Provide details of your organization's investments in low-carbon R&D for metals and mining production activities over the last three years.

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Green metals	Pilot demonstration	≤20%		Aurubis performed tests using hydrogen as a reductant in the anode furnace to substitute natural gas. Aurubis is also continuously collaborating with EU innovation and research projects to further investigate the potential offered by iron silicate in new applications and to develop less carbon-intensive construction materials. There are multiple projects in which Aurubis actively takes part in, e.g. DuRSAAM and SOCRATES, both financed by Horizon 2020.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for reporting year – previous statement of process attached

Type of verification or assurance

Third party verification/assurance underway

Attach the statement

AUR_20_21_CDP Letter_AssuranceReport.docx.pdf

Page/ section reference

p. 2

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for reporting year – previous statement of process attached

Type of verification or assurance

Third party verification/assurance underway

Attach the statement

AUR_20_21_CDP Letter_AssuranceReport.docx.pdf

Page/ section reference

p. 2

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category

- Scope 3: Purchased goods and services
- Scope 3: Capital goods
- Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
- Scope 3: Upstream transportation and distribution
- Scope 3: Waste generated in operations
- Scope 3: Business travel
- Scope 3: Employee commuting
- Scope 3: Downstream transportation and distribution

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for reporting year – previous statement of process attached

Type of verification or assurance

Third party verification/ assurance underway

Attach the statement

AUR_20_21_CDP Letter_AssuranceReport.docx.pdf

Page/section reference

p. 2

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Year on year change in emissions (Scope 1 and 2)	International Standard on Assurance Engagements (ISAE) 3000	KPMG checks and verifies sustainability related KPIs energy year for the Non-financial declaration of Aurubis in accordance with the International Standard on Assurance Engagements (ISAE) 3000: Assurance Engagements other than Audits or Reviews of Historical Financial Information, issued by the International Auditing and Assurance Standards Board.
C4. Targets and performance	Year on year change in emissions (Scope 3)	International Standard on Assurance Engagements (ISAE) 3000	KPMG checks and verifies sustainability related KPIs energy year for the Non-financial declaration of Aurubis in accordance with the International Standard on Assurance Engagements (ISAE) 3000: Assurance Engagements other than Audits or Reviews of Historical Financial Information, issued by the International Auditing and Assurance Standards Board.
C8. Energy	Energy consumption	International Standard on Assurance Engagements (ISAE) 3000	KPMG checks and verifies sustainability related KPIs energy year for the Non-financial declaration of Aurubis in accordance with the International Standard on Assurance Engagements (ISAE) 3000: Assurance Engagements other than Audits or Reviews of Historical Financial Information, issued by the International Auditing and Assurance Standards Board.
C6. Emissions data	Year on year change in emissions (Scope 1 and 2)	International Standard on Assurance Engagements (ISAE) 3000	KPMG checks and verifies sustainability related KPIs energy year for the Non-financial declaration of Aurubis in accordance with the International Standard on Assurance Engagements (ISAE) 3000: Assurance Engagements other than Audits or Reviews of Historical Financial Information, issued by the International Auditing and Assurance Standards Board.
C6. Emissions data	Year on year change in emissions (Scope 3)	International Standard on Assurance Engagements (ISAE) 3000	KPMG checks and verifies sustainability related KPIs energy year for the Non-financial declaration of Aurubis in accordance with the International Standard on Assurance Engagements (ISAE) 3000: Assurance Engagements other than Audits or Reviews of Historical Financial Information, issued by the International Auditing and Assurance Standards Board.

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

EU ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

EU ETS

% of Scope 1 emissions covered by the ETS

85.42

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1 2021

Period end date

December 31 2021

Allowances allocated

699409

Allowances purchased

175000

Verified Scope 1 emissions in metric tons CO2e

486653

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

The EU ETS works on the 'cap and trade' principle. A cap is set on the total amount of certain greenhouse gases that can be emitted by the installations covered by the system. The cap is reduced over time so that total emissions fall. The cap is set in line with the Paris Agreement.

By operating state-of-the-art, innovative plant technologies, Aurubis holds a leading position in climate and environmental protection in primary and secondary copper production. Today, continued high capital expenditure for environmental protection leads to relatively small improvements, as a leading global environmental standard has already been achieved and there are technological boundaries in some instances, as in the case of emission reduction.

To be able to comply with target of EU-ETS, Aurubis set Science-based targets and strives to reduce its Scope 1+2 emissions by 50% by 2030.

By implementing carbon emission reduction initiatives Aurubis complies with the EU-ETS and its target to reduce carbon emissions.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Objective for implementing an internal carbon price

Navigate GHG regulations
Stakeholder expectations
Change internal behavior
Drive energy efficiency
Drive low-carbon investment
Stress test investments
Identify and seize low-carbon opportunities

GHG Scope

Scope 1
Scope 2

Application

The internal price of carbon is used for our medium-term planning of energy prices as well as the medium-term planning of our CO2 strategy.

Actual price(s) used (Currency /metric ton)

60

Variance of price(s) used

For short term projections the current EEX price of carbon is used. 60€ is the average price of one ton of carbon in Reporting Year 2021. For projections we use a price trajectory until until 2030.

Type of internal carbon price

Implicit price

Impact & implication

Aurubis is since 2013 part of the EU-ETS. The EU-ETS means direct and indirect carbon costs for Aurubis. With an implicit carbon price we are able to describe this cost burden today, but also in the future. All new projects with relevance to the energy supply and consumption are checked by Corporate Energy and Climate Affairs and/or the responsible energy departments on site. Within the assessment of the project, carbon costs are considered, either as direct costs or as indirect costs in the electricity price or both.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers
Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

0.1

% total procurement spend (direct and indirect)

% of supplier-related Scope 3 emissions as reported in C6.5

23

Rationale for the coverage of your engagement

We selected as a first step our suppliers of copper concentrates, since the mining activities constitute the biggest impact with regards to our Scope 3 emissions.

Impact of engagement, including measures of success

In 2022 we started a project to receive direct emission intensity data of our suppliers of copper concentrates. The answers received relate to approximately 45% of our copper concentrate supply. This is a first success and first step to improve the data for our Scope 3 emissions to then subsequently engage with the suppliers on climate related matters.

Comment

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Strategy for prioritizing engagement:

We see our employees as other partners in the value chain.

At the headquarters in Hamburg, we support alternatives to conventional individual transport of our employees with free, lockable bike boxes at two nearby train/subway stations to improve the connection between the plant premises and local public transport. During the reporting year, two StadtRAD (a bike rental/sharing system) stations started up near the plant premises with the same goal. Additional projects for sustainable mobility are in the planning stage. Increasing flexibility in electricity sourcing (target of 10 % by fiscal year 2022/23). As part of its mobility plan, Aurubis Belgium provides the option of bike leasing, including e-bikes and speed pedelecs. Employees with speed pedelecs can complete the mandatory safety training in sessions organized by the site. At Aurubis Zutphen (Netherlands), employees can buy a bike from their gross salary, which makes the purchase less expensive and promotes biking to work.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

No, but we plan to introduce climate-related requirements within the next two years

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers

Yes, we engage indirectly through trade associations

Yes, we engage indirectly by funding other organizations whose activities may influence policy, law, or regulation that may significantly impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

Environmental Report 2022 (pages A-10, A-13, A 19-24, A 31-33, A 34, A 35)

Aurubis Environmental Report 2022.pdf

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy

As an energy-intensive company, Aurubis feels especially committed to climate protection. We therefore invest in energy-efficient plant technologies at all sites, carry out measures to save additional energy, and implement projects such as the use of industrial heat for heating purposes and the photovoltaic system in Pirdop. This long-term commitment has been successful: we have considerably reduced our CO2 emissions per ton of copper at the sites. The carbon footprint of Aurubis' cathode copper is already an impressive 40 % below the global average of all copper smelters and refineries. We have also committed to the Science Based Targets Initiative setting science-based CO2 reduction targets, contributing to the 1.5 °C goal of the Paris Climate Agreement. We want to reduce absolute scope 1 and 2 GHG emissions 50% by 2030 from a 2018 base year. And the scope 3 GHG emissions by 24% per ton copper cathode by 2030 from a 2018 base year. Also we want to become carbon-neutral well before 2050. At all of the relevant production sites, we have been successfully implementing CO2 reduction projects through different energy efficiency measures for years. Furthermore, we are working on making our electricity uptake more flexible, so that we can react to fluctuating electricity availability and use more renewable energies. Shifting the electricity supply to renewable energies, utilizing hydrogen as a reducing agent in the copper process, and investing in new facilities: this is what the future holds. And we also provide solutions outside of our plants, solutions that save energy and thus CO2 – such as the Industrial Heat project. The individual production steps in the Aurubis value chain are complex and very energy-intensive overall. Accordingly, the effective and efficient use of energy is an issue of ecological and economic responsibility. The use of energy is the main source of CO2 emissions in the Group. Taking the entire value chain into consideration, over half of the CO2 emissions are upstream and downstream – i.e., they originate from our suppliers, customers, and service providers (Scope 3 emissions). Most of the Scope 3 emissions originate from the activities of the mining companies from which we source ore concentrates.

Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

Focus of policy, law, or regulation that may impact the climate

Other, please specify (Cap and trade)

Specify the policy, law, or regulation on which your organization is engaging with policy makers

European Emission Trading System (EU-ETS)

Policy, law, or regulation geographic coverage

Regional

Country/region the policy, law, or regulation applies to

Europe

Your organization's position on the policy, law, or regulation

Support with minor exceptions

Description of engagement with policy makers

Policy Papers Association Work Contact with decision makers

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Aurubis is active in a sector that is considered to be at Carbon-Leakage risk. Aurubis therefore engages to ensure current level of Carbon-Leakage protection. Aurubis engages as well to ensure that there is no double cost burden due to EU-ETS and other climate related policies. Aurubis supports flexibility between technical solutions, market opportunities and the current state of research and technology. Aurubis also strongly supports increase of incentives for frontrunner companies and the application of innovative technologies. Aurubis emphasizes that a drastic reduction in free allocation of ETS certificates with simultaneously sharply rising CO2 prices will tie up a lot of capital in the future. This would make investments in low-carbon technologies more difficult.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Focus of policy, law, or regulation that may impact the climate

Circular economy

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Circular Economy Action Plan

Policy, law, or regulation geographic coverage

Regional

Country/region the policy, law, or regulation applies to

Europe

Your organization's position on the policy, law, or regulation

Support with minor exceptions

Description of engagement with policy makers

Policy Papers Association Work Contact with decision makers

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Aurubis supports the idea of strengthening eco-design measures towards more Circular Economy and the request to Circular Europe Network to develop standards for product recyclability. - Aurubis asks for measures to stop illegal shipments of electrical waste to non-EU countries. - In the framework of the circular economy, some call for banning or substituting hazardous materials to reduce their presence in material loops and recycled materials. In the context of metals recycling however it is often complex or even impossible to substitute them as metals have unique properties which support given functionalities. As new metals cannot be invented substituting a metal is often done by using another metal. In this respect Aurubis supports the Action Plan which proposes the analysis of policy options to address the interface between chemicals, products and waste legislation. - Applying a strictly hazard-based REACH authorization process for substances commonly present in metal production/recycling could then lead to a decrease in the amount of waste recycled in Europe and would most likely trigger disposal and landfill or (illegal) shipment of valuable materials outside the EU. - Aurubis supports the new definition of "final recycling process" which comprises all steps of the recycling value chain as well as we support the proposal for EU standards of material efficient recycling of electronic waste. - Aurubis welcomes the general requirements for Extended Producer Responsibility (EPR) as a step towards more transparency and efficiency of the EPR schemes especially on household electronic goods. - Aurubis is a strong advocate to use industrial synergies in Circular Economy to accelerate decarbonization across different energy-intensive sectors. This includes the application of iron silicate as a substitute material and reductant in the construction which would help decarbonize and increase circularity in this sector.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Focus of policy, law, or regulation that may impact the climate

Other, please specify (Carbon Border Adjustment Mechanism)

Specify the policy, law, or regulation on which your organization is engaging with policy makers

CBAM

Policy, law, or regulation geographic coverage

Regional

Country/region the policy, law, or regulation applies to

Europe

Your organization's position on the policy, law, or regulation

Oppose

Description of engagement with policy makers

Policy Papers Association Work Contact with decision makers

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

CBAM is not a solution for the copper sector. Copper is traded internationally as a commodity on the stock exchange. As a price taker, EU copper producers cannot therefore pass on direct and indirect emission costs to their customers. However, if copper were also included in the CBAM, the copper producers would have to bear the full CO2 costs. In contrast, global producers only pay the CO2 costs for the proportion of their products that are imported into the EU. In addition, copper is not usually imported as a pure metal, but mainly used in products. Due to the large number of individual parts of these products (e.g. electronic devices), which are produced in global value chains, it is not comprehensible which CO2 footprint the contained copper contains.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Focus of policy, law, or regulation that may impact the climate

Other, please specify (Sustainable Finance)

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Taxonomy

Policy, law, or regulation geographic coverage

Regional

Country/region the policy, law, or regulation applies to

Europe

Your organization's position on the policy, law, or regulation

Support with minor exceptions

Description of engagement with policy makers

Policy Papers Association Work Contact with decision makers

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Copper is not included as Taxonomy-eligible yet. Due to the heterogeneity of the copper sector, no product benchmarks were established under the ETS. We have fallback approach. Since there are no ETS product benchmarks, it is more difficult to establish criteria for copper. Thus, there is unequal treatment of sectors with ETS fallback benchmarks compared to sectors with ETS product benchmarks. Currently the EU-Commission is working on technical screening criteria to include sectors not covered. The legislation already obliges companies to report whether they are taxonomy eligible or non-eligible. This creates a problem, as for the time being reporting as non-eligible (even if under assessment) might send wrong signals to the investors. Therefore, the creation of a separate reporting category "under assessment" is essential. Additionally, it will be crucial to define criteria for the substantial contribution of copper production to climate mitigation and the other environmental objectives, based on objective metrics and include copper in the list of sustainable economic activities.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Focus of policy, law, or regulation that may impact the climate

Other, please specify (Funding for Climate Change Investments)

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Carbon Contracts for Difference (CCfD)

Policy, law, or regulation geographic coverage

National

Country/region the policy, law, or regulation applies to

Germany

Your organization's position on the policy, law, or regulation

Support with no exceptions

Description of engagement with policy makers

Policy Papers, Association Work, Contact with decision makers

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

<Not Applicable>

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

Please select

C12.3b

(C12.3b) Provide details of the trade associations your organization engages with which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

Eurometaux

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

Support of the EU Climate protection goals. We encourage them with this.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**Describe the aim of your organization's funding**

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

European Chemical Industry Council (CEFIC)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We are attempting to influence them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

Support of the EU Climate protection goals.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**Describe the aim of your organization's funding**

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Federation of German Industries (BDI)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

Support of the EU Climate protection goals. Support of the EU and national climate protection goals.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Please select

Trade association

German Chemical Industry Association (VCI)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

Support of the EU and national climate protection goals.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify (BDE Bundesverband der Deutschen Entsorgungs-, Wasser- und Kreislaufwirtschaft e. V.)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

Support of the EU and national climate protection goals.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.3c

(C12.3c) Provide details of the funding you provided to other organizations in the reporting year whose activities could influence policy, law, or regulation that may impact the climate.

Type of organization

Trust or foundation

State the organization to which you provided funding

Stiftung Klimawirtschaft

Funding figure your organization provided to this organization in the reporting year (currency as selected in C0.4)

35000

Describe the aim of this funding and how it could influence policy, law or regulation that may impact the climate

Advocacy on behalf of its customers/ supporters towards mainly national decision makers

Have you evaluated whether this funding is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In mainstream reports, incorporating the TCFD recommendations

Status

Complete

Attach the document

Aurubis_Annual Report_FY_20_21.pdf

Page/Section reference

p. 56-63 Sustainability p. 112-113 Combined Management Report p. 34-35 A commitment to climate protection p. 38-39 Hydrogen: Metallurgical purification without emissions p. 44-73 Sustainability p. 116-126 Risk and opportunity report

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

Aurubis Environmental Report 2022.pdf

Page/Section reference

A-08 Environmental Protection in Aurubis Group A-19 Energy and Climate Protection A-25 Risks and Opportunities A-35 Environmental protection – Facts and figures

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication

In voluntary sustainability report

Status

Complete

Attach the document

Aurubis_Nachhaltigkeitszahlen Update_20_21.pdf

Page/Section reference

p. 5 Energy p.6-7 CO2 Emissions

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets

Comment

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	Yes, board-level oversight	Within the executive board, the Chief Operating Officer (COO) has the responsibility to support all large sites in the Aurubis Group. Hence, he is takes on the mentoring for the composition of the investment budget which contains all Capital Expenditure volumes of the plants for the following four financial years. This budget then also includes environmental projects which can be also biodiversity related. Several times throughout a fiscal year the COO hosts the Group Operating Meeting (GOM) with all major sites, Corporate Environmental Protection and – if needed - Sustainability and Corporate Energy & Climate Affairs among others to participate. The purpose of the GOM is to present and review major projects - especially if they are important and relevant for other sites - and to serve as an information exchange on site-relevant topics, both of which also incl. environmental and biodiversity-related issues. In the resort of the Chief Operating Officer (COO) the Head of Corporate Environmental Protection is responsible for the strategic positioning of environmental protection in the Group. Local environmental officers oversee the environmental protection duties at the individual sites following national environmental legislation with technical supervision of Corporate Environmental Protection management.	<Not Applicable>

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Other, please specify (● Environmental Protection Target: Improving nature conservation at the production sites)	Please select

C15.3

(C15.3) Does your organization assess the impact of its value chain on biodiversity?

	Does your organization assess the impact of its value chain on biodiversity?	Portfolio
Row 1	Yes, we assess impacts on biodiversity in our upstream value chain only	<Not Applicable>

C15.4

(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity-related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection

C15.5

(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	No	Please select

C15.6

(C15.6) Have you published information about your organization’s response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Risks and opportunities Other, please specify (Projects on biodiversity)	Environmental report 2022 page 30 Aurubis Environmental Report 2022.pdf

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Chief Executive Officer	Chief Executive Officer (CEO)

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

Aurubis AG is a company in the basic materials industry that operates worldwide. Aurubis AG is the parent company of the Aurubis Group and is

based in Hamburg, with production sites in Hamburg and Lünen. As an integrated group, Aurubis processes complex metal concentrates, scrap metals, organic and inorganic metalbearing recycling raw materials, and industrial residues into metals of the highest purity.

In addition to the main metal, copper, Aurubis' metal portfolio also includes gold, silver, lead, nickel, tin, zinc, minor metals such as tellurium and selenium, and platinum group metals. Sulfuric acid, iron silicate, and synthetic minerals round off the product portfolio. In the course of our production processes, we convert copper concentrates and recycling materials into copper cathodes. This is the standardized product format that is traded on the

international metal exchanges. We produce more than 1 million t of copper cathodes per year. Copper cathodes are the starting product for fabricating additional copper products, but they can also be sold directly. Our product portfolio mainly comprises standard and specialty products made of copper and copper alloys. When it comes to processing, we have manufacturing capabilities for continuous cast copper wire rod, continuous cast shapes, rolled products, strip, specialty wire, and profiles. Additional products result from processing the elements that accompany copper in the feed materials, elements that are in some cases purchased on purpose as part of our multimetal approach. In particular, these include different metals such as gold, silver, lead, nickel, tin, zinc, minor metals like tellurium and selenium, and platinum group metals. We also produce iron silicate and synthetic minerals. Sulfuric acid (> 2 million t p.a.) forms as a by-product of copper concentrate processing. Sulfuric acid customers are very diverse and include international companies from the chemical, fertilizer, and metal processing industries. The company's headquarters, which is also home to one of our two primary smelters, is located in Hamburg, Germany. Most of our sites are located in Europe, with larger production centres in Germany, Belgium, Bulgaria, and Spain as well as cold-rolling mills for flat rolled products, slitting centres, and rod plants in Germany and elsewhere in Europe. Outside Europe, Aurubis also has a production site in the US, and a global sales and service network. The company purchases the necessary feed materials, as it doesn't own any mines or stakes in mines. 7,135 employees worked for the Aurubis Group worldwide as of September 30, 2021. Of this number, 92% worked at the European plants and 8% worked in the USA. The sales markets for our products are varied and international. Aurubis' direct customers include companies from the copper semis industry, the cable and wire industry, the electrical and electronics sector, and the chemical industry, as well as suppliers from the renewable energies, construction, and automotive sectors.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	16300000000

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	The establishment of a common approach to enable the private sector to assess, display and benchmark the environmental performance of products, services and companies based on the comprehensive assessment of environmental Impacts over the life-cycle.

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

Yes

SC1.4a

(SC1.4a) Describe how you plan to develop your capabilities.

Aurubis continues its involvement in the Environmental Footprint project. With the development of the environmental footprint, the EU Commission wants to create a consistent method for calculating the environmental performance of products and organizations throughout Europe, assess them and facilitate comparisons. In 2013 the Commission published the Environmental Footprint (EF) methodology to measure and communicate the life cycle environmental performance of products (Product Environmental Footprint, PEF) and organizations (Organisational Environmental Footprint, OEF), and launched a pilot phase. Aurubis was active in both areas. Aurubis took a leading role in the OEF pilot on "Copper Production", which was coordinated by the research center of the EU Commission (Joint Research Center, JRC). For the PEF pilot phase, Aurubis worked together with the European organization Eurometaux, the European Copper Institute and other companies from the non-ferrous metals and steel industries on the pilot project "Metal Sheet Metal for Various Applications". In 2017 we finalised the OEF sector-specific rules for copper production and tested how to communicate Environmental Footprint information to stakeholders and the effectiveness of the communication vehicle. The OEF sector rules for copper production have been successfully approved by the Steering Committee on 15 February 2018. The Copper OEF develops a harmonized method to measure and communicate the life cycle environmental performance of copper producing companies, and well demonstrates the positive aspects of copper metallurgy and multi-metal recycling. The PEF category rules for metal sheet have been also finalised and were approved in November 2018. The Environmental Footprint pilot phase ended in April 2018 and a transition phase is now established until possible adoption of policies implementing the Product Environmental Footprint (PEF) and Organisation Environmental Footprint (OEF) methods. Aurubis will continue to contribute to the further developments of the EF methodology during the transition phase. As part of its commitment to sustainable Development, the copper industry is committed to providing data and information to enable users of copper to evaluate its impacts and benefits across the life cycle, from raw material extraction to end-of life recycling. Aurubis has been involved for many years in life cycle assessment of copper cathode and contributed to the generation of cradle-to-gate life cycle inventory (LCI) that evaluates the environmental impacts associated with global copper cathode production (in cooperation with the International Copper Association).The latest update of the environmental profile of global copper cathode has been released by the International Copper Association at the beginning of 2018. The LCA for the Aurubis Copper Cathode was also published in that year. An update of this LCA will be published in 2022. Aurubis has also performed life cycle assessment studies with the purpose to conduct Environmental product declarations (EPD) on the basis of EN 15804 and ISO 14025 for copper and copper alloys sheets used for architectural applications. The Environmental Product Declarations (EPD) for six Aurubis Nordic products of copper/ copper alloys sheets are published by the Institut Bauen und Umwelt e.V.. A challenge remains: the yearly update of the database.

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

Please select your submission options	I understand that my response will be shared with all requesting stakeholders	Response permission
	Yes	Public

Please indicate your consent for CDP to showcase your disclosed environmental actions on the European Climate Pact website as pledges to the Pact.

No, we do not wish to pledge under the European Climate Pact at this stage

Please confirm below

I have read and accept the applicable Terms