



# Accounting for our emissions is key to reaching our climate targets

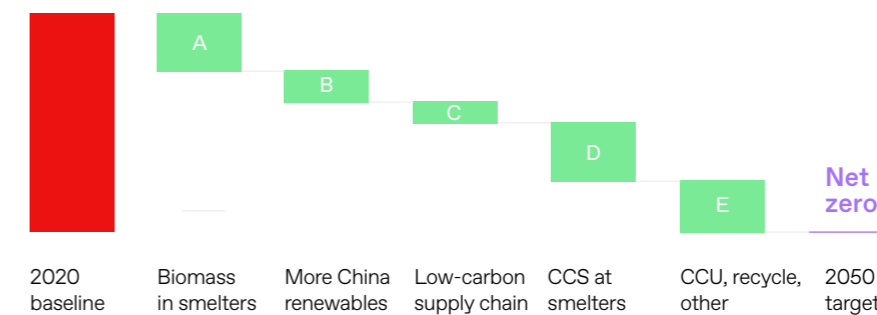
Elkem is committed to reduce emissions in line with the Paris agreement. Elkem's ambition is to reduce the company's fossil carbon footprint by increasing renewable carbon sources and developing innovative production processes.

To be able to reach our ambitions of reducing our footprint, we first need to start with understanding and analysing our emission sources. This report comprise an overview of Elkem's scope 3 emissions. This gives us a scientific fundament to work on efforts to reduce our emissions.

More information about our targets to reduce our scope 1, 2 and 3 emissions can be found in the climate roadmap from 2021. [Take a look ↗](#)

The scope 1, 2 and 3 emissions are reported annually and externally assured in the ESG report. The total GHG emissions went down by 7.5% in 2022, compared to 2021. Both scope 1 and 2 saw an increase of 3-4%. Elkem's scope 3 upstream emissions were reduced by 18%. The reduction was mainly explained by sourcing from lower carbon suppliers, in combination with purchasing fewer raw materials externally. The 2022 numbers can be found on page 37 in the ESG report. [↗](#)

## Our roadmap to climate neutrality



By 2031, we will:

- Reduce absolute emissions\* by 28% - baseline 2020
- Delivering 39% improvement in product footprint\*\*
- By 2050: Achieve full carbon-neutral production (zero fossil emissions) globally.

\* Total global fossil CO<sub>2</sub>e emissions, scope 1 and 2

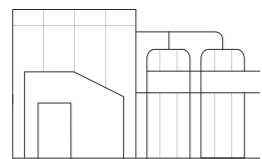
\*\* Main product average fossil CO<sub>2</sub>e emissions, scope 1-3 (to gate).



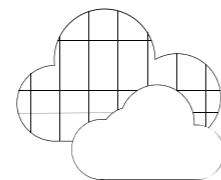
# About Elkem

Elkem is one of the world's leading suppliers of silicon-based advanced material solutions shaping a better and more sustainable future. The company develops silicones, silicon products and carbon solutions by combining natural raw materials, renewable energy, and human ingenuity. Elkem helps its customers create and improve essential innovations like electric mobility, digital communications, health, and personal care as well as smarter and more sustainable cities.

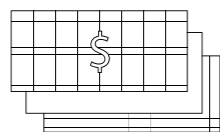
At the core of Elkem is people and safe sustainable operations conducted responsibly and with excellence. Elkem shall be an attractive employer and at the forefront of environmentally friendly operations within our industry.



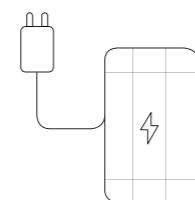
Operations:  
30 plants world-wide and more than 7,300 employees



Total scope 1+2+3 emissions 2022:  
10.74 million tonnes



Operating income 2022:  
45.9 billion NOK



>80% of production based on renewable electricity



# Organisational boundary

When reporting the greenhouse gas emissions (GHG), Elkem defines its organisational boundary on an operational control basis, and our scope 1, 2 and 3 emissions are reported accordingly.

Scope 3 is the term used to describe the indirect GHG emissions resulting from activities in our value chain, but outside of our operational control, according to the GHG protocol.

# The GHG protocol - emission scopes

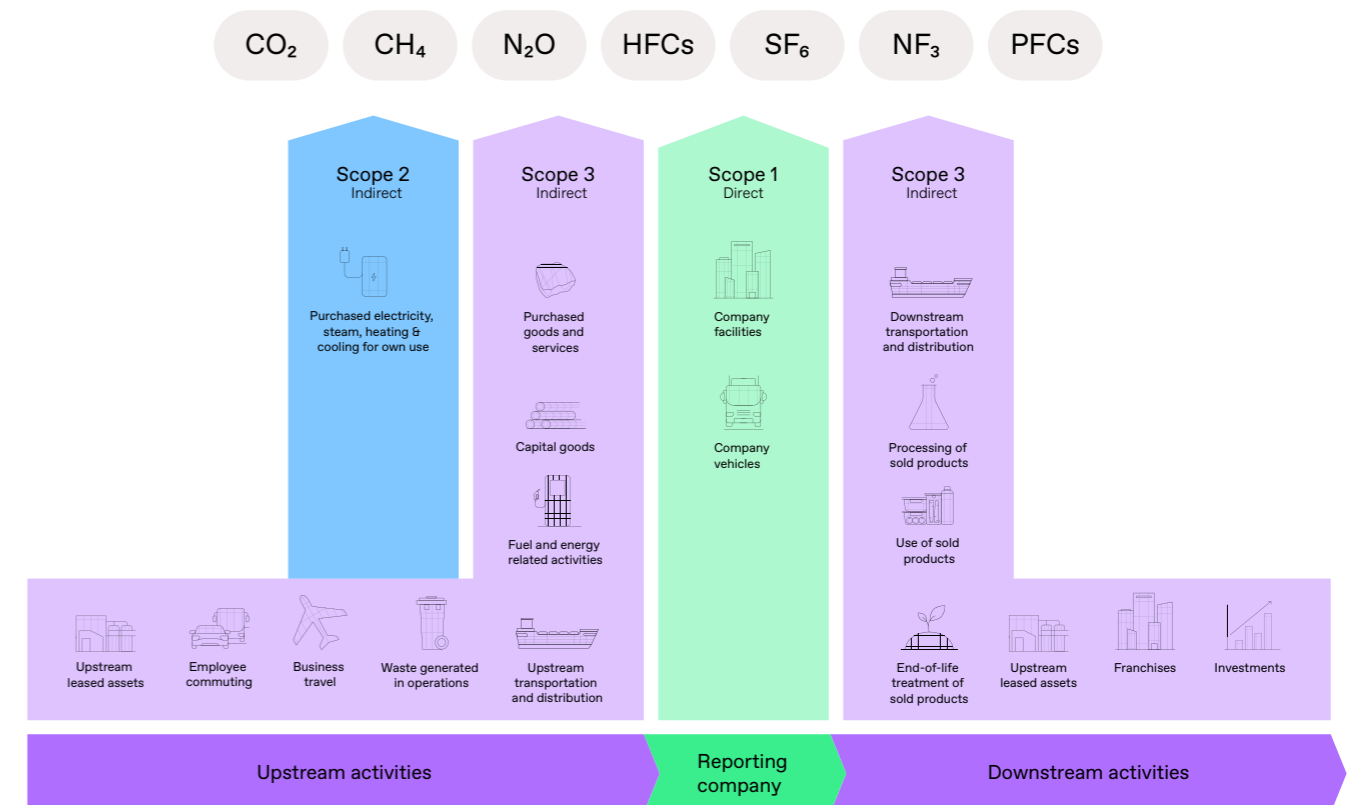
**Scope 1** - All direct emissions that occur from sources that are controlled or owned by an organisation (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles).

Most of the direct CO<sub>2</sub>-emissions from Elkem's production comes from the smelting process, where carbon (C) reacts with oxygen in quartz to produce silicon/ferrosilicon. GHG emissions are calculated based on third party certificates of carbon content in raw materials (coke and coal). CO<sub>2</sub> numbers from other sources, including heating and fuel, are based on standard conversion factors in accordance with the EU Emissions Trading Systems (EU ETS) Guidelines.

**Scope 2** - Indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling. The electricity emission factors used in the calculation are provided by CEMAsys, a specialised consultancy firm, and are based on national gross electricity production mixes from the International Energy Agency's statistics developed for 2020.

**Scope 3** - Indirect emissions are the result of activities from assets not owned or controlled by the reporting organisation, but that the organisation indirectly impacts in its value chain. Scope 3 emissions include all sources not within an organisation scope 1 and 2 boundary.

The Scope 3 Standard divides scope 3 emissions into upstream and downstream emissions, as pictured below.



MtCO<sub>2</sub>e emissions (metric tonnes)

CO <sub>2</sub> e emissions	2022	2021	2020
Scope 1	2 420 262	2 334 868	2 387 915
Scope 2 – location based	941 656	901 058	906 286
<b>Total scope 1+2</b>	<b>3 361 918</b>	<b>3 235 926</b>	<b>3 294 201</b>
Scope 2 – market based	2 637 408	2 825 996	2 703 866
Emissions from biobased sources (carbon neutral)	604 820	550 000	547 000
<b>Total Scope 3</b>	<b>7 383 669</b>	<b>8 350 733</b>	<b>6 954 171</b>
Category 1: Purchased goods and services	2 477 888	3 617 792	2 608 058
Category 2: Capital goods	953 324	759 389	595 442
Category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)	343 161	306 502	228 098
Category 4: Upstream transportation and distribution	242 215	209 275	269 415
Category 5: Waste generated in operations	21 396	12 393	12 633
Category 6: Business travels	4 099	1 081	2 215
Category 7: Employee commuting	13 504	12 950	12 566
Category 11: Use of sold products	1 043 512	1 005 964	733 083
Category 12: End of life treatment of sold products	2 284 570	2 425 426	2 492 661

**Comments:**

Scope 1:

- 2020: The numbers have been corrected and therefore deviate from the CDP report due to double counting.
- 2021: The numbers in the table have been corrected compared to the ESG report for 2021 due to double counting.

Scope 3:

Category 8,9,10,13, 14 and 15 have been evaluated as not relevant. An explanation is provided for each category in the following report.

# About this document

This document describes the calculation boundaries, methodologies, assumptions and key references used in the preparation of the 2022 scope 3 emissions reporting, as published in the ESG report 2022. The full report is available [here ↗](#)

Scope 3 emissions for our business are calculated using methodologies consistent with the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (Scope 3 Standard), and with reference to the additional guidance provided in the GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (Scope 3 Guidance) as appropriate. Detailed description for the methodology for each category is given below.

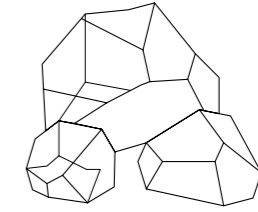
This document meets the disclosure requirements of Global Reporting Initiative (GRI) standard GRI 305 ('Disclosure 305-3 – Other indirect (Scope 3) GHG emissions'). These disclosures are also aligned with the recommendation from the Task Force on Climate-related Financial Disclosures (TCFD).

PwC has provided limited assurance of the 2022 ESG report, including in respect to the scope 3 emissions inventory for our business; a copy of PwC's independent assurance statement can be found at the end of the report.

# Scope 3 GHG emissions 2022

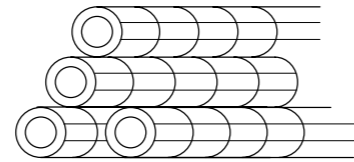


## Purchased goods and service



Category description (GHG Protocol)	Upstream (i.e., cradle-to-gate) emissions from the extraction, production and transportation of goods and services purchased or acquired by the reporting company in the reporting year, where not otherwise included in categories 2 to 8.
Evaluation status (CDP)	Relevant, calculated.
Evaluation status rationale (CDP)	This is a material source of scope 3 emissions in Elkem's value chain.
Metric tonnes CO <sub>2</sub> e	2 477 888
Percentage of emissions calculated	99%
Calculation boundaries (included)	Raw materials for all divisions and plants are included. Elkem owns 50% of Ferrovelde in South-Africa. Because Elkem has management control of Ferrovelde, we report 100% of raw materials purchased. 99% of purchased raw materials are accounted for.
Exclusions	Packaging materials, spare parts, office supplies and other goods not defined as raw materials. Purchased goods and services for investment and re-investment projects are accounted for in category 2.
Activity data	Received Purchase Orders of Raw Materials [MT or kg] for reporting year are the main source of information per item and supplier. The data is mainly collected from ERP systems. Minor plants are not yet included in corporate ERP systems, and report manually by excel.
Emission factors	Emission factors are mainly from the life cycle inventory database Ecolvent, but some supplier specific data is available and used in the calculations. Norsus, an external LCA consultant, is used for selecting appropriate emission factors in cooperation with Elkem's raw material teams. Examples: → Magnesium: 30,40466 kg CO <sub>2</sub> e/kg → Coal USA: 0,13554 kg CO <sub>2</sub> e/kg → Methanol (global): 0,61514 kg CO <sub>2</sub> e/kg
Methodology	The <b>average data method</b> is mainly used in combination with the <b>supplier-specific method</b> when available.
References	→ WRI & WBCSD (2011). GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. <a href="https://ghgprotocol.org/standards/scope-3-standard">https://ghgprotocol.org/standards/scope-3-standard</a> → WRI & WBCSD (2013). GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (v1): Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, <a href="https://ghgprotocol.org/scope-3-technical-calculation-guidance">https://ghgprotocol.org/scope-3-technical-calculation-guidance</a>

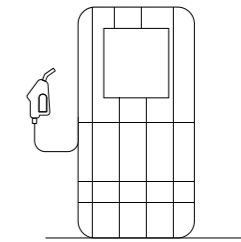
# Capital goods



Category description (GHG Protocol)	Upstream (i.e., cradle-to-gate) emissions from the production of capital goods purchased or acquired by the reporting company in the reporting year.
Evaluation status	Not relevant, calculated.
Evaluation status rationale	The capital goods category is not considered relevant for Elkem because our expenditure has historically varied from year to year based on projects, reinvestments, and expansions. However, we still monitor the category and are looking into efforts to reduce resulting emissions.
Metric tonnes CO <sub>2</sub> e	953 324
Percentage of emissions calculated	100%
Calculation boundaries (included)	100% of capex is accounted for, including reinvestments and investments for expansion. Elkem has taken a conservative approach and included both direct and indirect costs in our calculations. VAT is not included (as this varies from country to country and is dependent on import/domestic purchase).
Exclusions	None.
Activity data	Aggregated Capex figures for Elkem ASA from the corporate finance reporting system.
Emission factors	U.S. Environmental Protection Agency (EPA) Greenhouse Gas Emission Factors for US Industries and Commodities are used: → Concrete: 4,58 kg CO <sub>2</sub> e/USD 2018 → Steel: 1,089 kg CO <sub>2</sub> e/USD 2018
Methodology	The <b>average spend-based method</b> from WBCSD (2013): “If data on the composition of capital goods or their emission factors is not available, companies shall assume the capital good is made out of 25% concrete and 75% steel” (p.24). Elkem has therefore assumed total Capex expenditures are concrete (25%) and steel (75%).
References	<ul style="list-style-type: none"> <li>→ Ingwersen, W. AND M. Li (2020). Supply Chain Greenhouse Gas Emission Factors for US Industries and Commodities. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-20/001. Supply Chain GHG Emission Factors for US Commodities and Industries v1.1, <a href="https://doi.org/10.23719/1524744">https://doi.org/10.23719/1524744</a></li> <li>→ WBCSD (2013). Guidance for Accounting &amp; Reporting Corporate GHG Emissions in the Chemical Sector Value Chain, <a href="https://www.wbcsd.org/contentwbc/download/2831/35596/1">https://www.wbcsd.org/contentwbc/download/2831/35596/1</a></li> <li>→ WRI &amp; WBCSD (2011). GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. <a href="https://ghgprotocol.org/standards/scope-3-standard">https://ghgprotocol.org/standards/scope-3-standard</a></li> <li>→ WRI &amp; WBCSD (2013). GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (v1): Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, <a href="https://ghgprotocol.org/scope-3-technical-calculation-guidance">https://ghgprotocol.org/scope-3-technical-calculation-guidance</a></li> </ul>

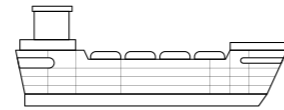
# Fuel-and-energy-related activities

(not included in Scope 1 or 2)



Category description (GHG Protocol)	Emissions related to the production of fuels and energy purchased and consumed by the reporting company in the reporting year that are not included in scope 1 or scope 2. The calculation of emissions from electricity not included in scope 1 and 2 includes well to tank and emissions associated with grid losses.
Evaluation status	Relevant, calculated.
Evaluation status rationale	This is a material source of scope 3 emissions in Elkem's value chain.
Metric tonnes CO <sub>2</sub> e	343 161
Percentage of emissions calculated	100%
Calculation boundaries (included)	All plants in Elkem based on reported scope 1 and 2 emissions.
Exclusions	None.
Activity data	Activity data for Elkem ASA total scope 1 and 2 is included in the calculation. This is mainly electricity, natural gas, diesel, and steam. Allocation is based on the principle of operational control in the GHG Protocol Corporate Accounting and Reporting Standard and is in accordance with scope 1 and 2 as well.
Emission factors	A combination of emission factors from the Department of Environment, Food and Rural Affairs for fuels (DEFRA 2022) and the International Energy Agency for electricity per country (IEA 2022) are used for holistic reporting. For full coverage of well-to-tank (WTT) emissions, the emissions from the production of fuels lost in transmission and distribution (T&D) are also included. Examples: → Natural gas: 0.43259 kg CO <sub>2</sub> e/kg (DEFRA) → Diesel, stationary: 0.62874 kg CO <sub>2</sub> e/litre (DEFRA)
Methodology	<b>Average data method based</b> on scope 1 and 2 reporting across plants.
References	<ul style="list-style-type: none"> <li>→ Department for Environment, Food &amp; Rural Affairs (DEFRA) (2022). UK Government GHG Conversion Factors for Company Reporting, <a href="https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022">https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022</a></li> <li>→ International Energy Agency (IEA) (2022) Emissions Factors 2022.</li> <li>→ WRI &amp; WBCSD (2011). GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. <a href="https://ghgprotocol.org/standards/scope-3-standard">https://ghgprotocol.org/standards/scope-3-standard</a></li> <li>→ WRI &amp; WBCSD (2013). GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (v1): Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, <a href="https://ghgprotocol.org/scope-3-technical-calculation-guidance">https://ghgprotocol.org/scope-3-technical-calculation-guidance</a></li> </ul>

# Upstream transportation and distribution

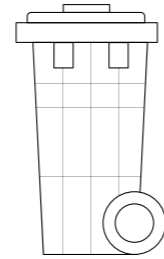


Category description (GHG Protocol)	Emissions from the transportation and distribution of products purchased by the reporting company in the reporting year between a company's tier 1 suppliers and its own operations (in vehicles and facilities not owned or controlled by the reporting company); transportation and distribution services purchased by the reporting company in the reporting year, including inbound logistics, outbound logistics (e.g., of sold products); and transportation and distribution between a company's own facilities (in vehicles and facilities not owned or controlled by the reporting company).
Evaluation status	Relevant, calculated.
Evaluation status rationale	This is a material source of scope 3 emissions in Elkem's value chain.
Metric tonnes CO <sub>2</sub> e	242 215
Percentage of emissions calculated	Approx. 98%
Calculation boundaries (included)	Inbound and outbound where Elkem is responsible for transport. The calculations include bulk vessels, break-bulk vessels, barge, container ships, trucks, air, and rail. Boundaries are drawn from when Elkem takes ownership of the materials/products until the customer takes ownership.
Exclusions	Air freight in ESP and Carbon is excluded due to unavailable data. Storage of products in Elkem's warehouses is not included in the calculation due to insufficient data.
Activity data	52% of the reported emissions in this category are reported directly by carriers/suppliers. The remaining emissions are calculated based on shipped volumes registered in Elkem's ERP systems and Transport Management Systems, transport distance, and emission factors based on fuel or transportation mode.
Emission factors	Emission factors are selected based on transportation mode. Factors are differentiated for regions when available.

Methodology	<p>A combination of <b>actual data from carriers</b>, the <b>fuel-based method</b>, and the <b>distance-based method</b> are applied.</p> <p>Elkem Silicones Division:</p> <ul style="list-style-type: none"> <li>→ Air and rail emissions come directly from carriers.</li> <li>→ Trucking from France comes directly from carriers, while remaining truck volumes are calculated using the distance-base method.</li> <li>→ Barge and container ocean transport are calculated using the distance-based method.</li> <li>→ Due to data unavailability, emissions for units in Germany, USA, Canada and Brazil are based on volume extrapolation using the applied factors from 2021.</li> </ul> <p>Elkem Silicon Products and Elkem Carbon Solutions:</p> <ul style="list-style-type: none"> <li>→ Bulk ocean transport emissions are reported directly from vessel owners/ carriers.</li> <li>→ For overseas container transport where all data is unavailable, the major lanes per region have been calculated using the distance-based method with carrier tools. The remaining shipments are included by extrapolation from major lanes to total transported tonnage for 2022. Baseline is global TEUs.</li> <li>→ Short-sea container transport is reported directly from carriers.</li> <li>→ For trucking, the distance-based method is used. Known distance and tonnage is extrapolated for volumes with unavailable distances using a supplier average emission factor. Four units calculated their emissions directly using the fuel-based method (2 units) and distance-based method (2 units).</li> <li>→ Rail transport is calculated using the distance-based method using transport management system gross volumes and calculated distances.</li> </ul>
References	<ul style="list-style-type: none"> <li>→ WRI &amp; WBCSD (2011). GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. <a href="https://ghgprotocol.org/standards/scope-3-standard">https://ghgprotocol.org/standards/scope-3-standard</a></li> <li>→ WRI &amp; WBCSD (2013). GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (v1): Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, <a href="https://ghgprotocol.org/scope-3-technical-calculation-guidance">https://ghgprotocol.org/scope-3-technical-calculation-guidance</a></li> </ul>

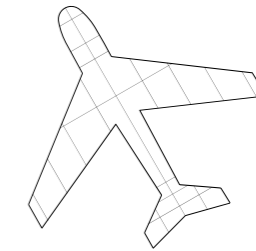


# Waste generated in operations



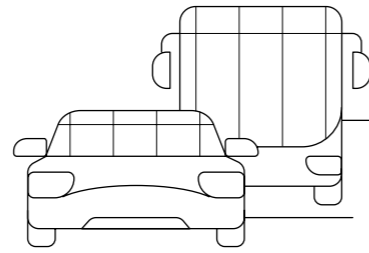
Category description (GHG Protocol)	Emissions from third-party disposal and treatment of waste generated in the reporting company's owned or controlled operations in the reporting year. This category includes emissions from disposal of both solid waste and wastewater. Only waste treatment in facilities owned or operated by third parties is included in scope 3. This category includes all future emissions that result from waste generated in the reporting year.
Evaluation status	Relevant, calculated.
Evaluation status rationale	This is a material source of scope 3 emissions in Elkem's value chain.
Metric tonnes CO <sub>2</sub> e	21 396
Percentage of emissions calculated	100%
Calculation boundaries (included)	All solid process waste is included in calculations.
Exclusions	External water and gas treatment at silicones plants.
Activity data	Detailed reporting of waste streams to suppliers in ESD France (Roussillon and St. Fons). For the rest of Elkem, activity data is gathered from quarterly environmental reporting on waste from the plants. 100% of solid waste is accounted for.
Emission factors	ESD France (Roussillon and St. Fons) use ADEME Emission factors for the different waste streams. The remainder of Elkem plants are calculated with DEFRA Emission Factors 2022. Examples DEFRA 2022: → Commercial and industrial waste / Incineration: 21.280 kg CO <sub>2</sub> e/MT waste → Commercial and industrial waste / Landfill: 467.008 kg CO <sub>2</sub> e/MT waste
Methodology	<b>Waste-type-specific method and Average data method</b> Detailed waste stream analysis at ESD France (Roussillon and St. Fons) using ADEME Emission factors. The waste from the remainder of Elkem plants is calculated based on DEFRA Emission Factors 2022 and activity data from quarterly environmental reporting.
References	<ul style="list-style-type: none"> <li>→ Dept. for Environment, Food &amp; Rural Affairs (DEFRA) and Dept. for Business, Energy &amp; Industrial Strategy (2022). UK Government GHG Conversion Factors for Company Reporting, <a href="https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022">https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022</a></li> <li>→ The French Agency for Ecological Transition (ADEME): <a href="https://bilans-ges.ademe.fr/documentation/UPLOAD_DOC_FR/index.htm">https://bilans-ges.ademe.fr/documentation/UPLOAD_DOC_FR/index.htm</a></li> <li>→ WRI &amp; WBCSD (2011). GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. <a href="https://ghgprotocol.org/standards/scope-3-standard">https://ghgprotocol.org/standards/scope-3-standard</a></li> <li>→ WRI &amp; WBCSD (2013). GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (v1): Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, <a href="https://ghgprotocol.org/scope-3-technical-calculation-guidance">https://ghgprotocol.org/scope-3-technical-calculation-guidance</a></li> </ul>

# Business travel



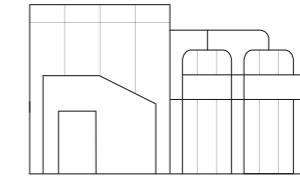
Category description (GHG Protocol)	Transportation of employees for business-related activities during the reporting year (in vehicles not owned or operated by the reporting company).
Evaluation status	Relevant, calculated.
Evaluation status rationale	This category is not a material source of scope 3 emissions for Elkem but can be influenced.
Metric tonnes CO <sub>2</sub> e	4 099
Percentage of emissions calculated	100%
Calculation boundaries (included)	Air travel.
Exclusions	Emissions from bus, rail, car travels and hotel stays are not included.
Activity data	Business travels booked via travel agency. This is company practice in Norway and France and covers 32% of Elkem's personnel in Full Time Equivalents (FTEs).
Emission factors	Emissions related to Elkem's air travels are obtained from travel agencies. The ICAO emission calculator is used in Norway.
Methodology	<b>Distance-based method.</b> Data from the travel agencies in Norway and France covers 32% of FTE. The total emissions for air travel across Elkem are calculated by extrapolating to 100% FTE.
References	<ul style="list-style-type: none"> <li>→ International Civil Aviation Organization (ICAO) Carbon Emissions Calculator: <a href="https://www.icao.int/environmental-protection/CarbonOffset">https://www.icao.int/environmental-protection/CarbonOffset</a></li> <li>→ WRI &amp; WBCSD (2011). GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. <a href="https://ghgprotocol.org/standards/scope-3-standard">https://ghgprotocol.org/standards/scope-3-standard</a></li> <li>→ WRI &amp; WBCSD (2013). GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (v1): Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, <a href="https://ghgprotocol.org/scope-3-technical-calculation-guidance">https://ghgprotocol.org/scope-3-technical-calculation-guidance</a></li> </ul>

# Employee commuting



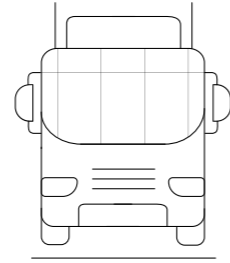
Category description (GHG Protocol)	This category includes emissions from the transportation of employees between their homes and their worksites.
Evaluation status (CDP)	Relevant, calculated.
Evaluation status rationale (CDP)	This category is not material source of scope 3 emissions for Elkem but can be influenced.
Metric tonnes CO <sub>2</sub> e	13 504
Percentage of emissions calculated	100%
Calculation boundaries (included)	All employees included.
Exclusions	None.
Activity data	Distance from home address to work with a +/-5 km margin.
Emission factors	Examples: → Car 0,3 kg CO <sub>2</sub> e/km → Public transport and motorcycle 0,1 kg CO <sub>2</sub> e/km.
Methodology	<b>Distance-based method.</b> A conservative approach is used for the calculation, assuming all employees travel back and forth to work every day. It is also assumed that all employees are using a car, unless otherwise specified. Mapping of approximate travelling distance [km] based on home address has been conducted for 54% of Elkem's FTE. Total emissions are calculated by extrapolating to 100% FTE.
References	→ WRI & WBCSD (2011). GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. <a href="https://ghgprotocol.org/standards/scope-3-standard">https://ghgprotocol.org/standards/scope-3-standard</a> → WRI & WBCSD (2013). GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (v1): Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, <a href="https://ghgprotocol.org/scope-3-technical-calculation-guidance">https://ghgprotocol.org/scope-3-technical-calculation-guidance</a>

# Upstream leased assets



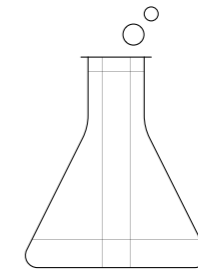
Category description (GHG Protocol)	This category includes emissions from the operation of assets that are leased by the reporting company in the reporting year and not already included in the reporting company's scope 1 or scope 2 inventories. This category is applicable only to companies that operate leased assets (i.e., lessees). For companies that own and lease assets to others (i.e., lessors), see category 13 (Downstream leased assets).
Evaluation status	Not relevant, explanation provided.
Evaluation status rationale	Only 3% of Elkem's total non-current assets are leased assets. These assets are not separated from Elkem owned business operations. Therefore, the leased assets (upstream and downstream) are included in Elkem's total Scope 1 and 2 reporting and are not relevant for scope 3.
Metric tonnes CO <sub>2</sub> e	-
Percentage of emissions calculated	-
Calculation boundaries (included)	-
Exclusions	-
Activity data	-
Emission factors	-
Methodology	-
References	-

## Downstream transportation and distribution



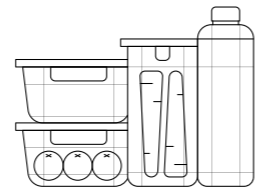
Category description (GHG Protocol)	This category includes emissions that occur in the reporting year from transportation and distribution of sold products in vehicles and facilities not owned or controlled by the reporting company. Outbound transportation and distribution services that are purchased by the reporting company are excluded from category 9 and included in category 4 (Upstream transportation and distribution) because the reporting company purchases the service. Category 9 includes only emissions from transportation and distribution of products after the point of sale.
Evaluation status (CDP)	Not relevant, explanation provided.
Evaluation status rationale (CDP)	Elkem sells most of their products including transportation cost. These emissions are included in category 4.
Metric tonnes CO <sub>2</sub> e	-
Percentage of emissions calculated	-
Calculation boundaries (included)	-
Exclusions	-
Activity data	-
Emission factors	-
Methodology	-
References	-

## Processing of sold products



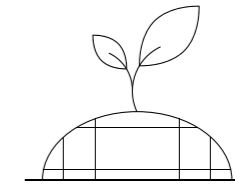
Category description (GHG Protocol)	Category 10 includes emissions from processing of sold intermediate products by third parties (e.g., manufacturers) subsequent to sale by the reporting company. Intermediate products are products that require further processing, transformation, or inclusion in another product before use (see box 5.3 of the Scope 3 Standard), and therefore result in emissions from processing, after sale by the reporting company and before use by the end consumer. Emissions from processing should be allocated to the intermediate product.
Evaluation status	Not relevant, explanation provided.
Evaluation status rationale	Because of diverse applications of intermediate products, downstream emissions are excluded. Justifications below: → WBCSD (2013): "Chemical companies are not required to report scope 3, category 10 emissions, since reliable figures are difficult to obtain due to the diverse application and customer structure" (p.32). → WRI & WBCSD (2011): "In certain cases, the eventual end use of sold intermediate products may be unknown. For example, a company may produce an intermediate product with many potential downstream applications, each of which has a different GHG emissions profile, and be unable to reasonably estimate the downstream emissions associated with the various end uses of the intermediate product. In such a case, companies may disclose and justify the exclusion of downstream emissions from categories 9, 10, 11, and 12 in the report" (p.60).
Metric tonnes CO <sub>2</sub> e	-
Percentage of emissions calculated	-
Calculation boundaries (included)	-
Exclusions	-
Activity data	-
Emission factors	-
Methodology	-
References	<ul style="list-style-type: none"> <li>→ WBCSD (2013). Guidance for Accounting &amp; Reporting Corporate GHG Emissions in the Chemical Sector Value Chain, <a href="https://www.wbcsd.org/contentwbc/download/2831/35596/1">https://www.wbcsd.org/contentwbc/download/2831/35596/1</a></li> <li>→ WRI &amp; WBCSD (2011). GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. <a href="https://ghgprotocol.org/standards/scope-3-standard">https://ghgprotocol.org/standards/scope-3-standard</a></li> <li>→ WRI &amp; WBCSD (2013). GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (v1): Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, <a href="https://ghgprotocol.org/scope-3-technical-calculation-guidance">https://ghgprotocol.org/scope-3-technical-calculation-guidance</a></li> </ul>

## Use of sold products



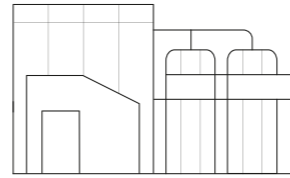
Category description (GHG Protocol)	This category includes emissions from the use of goods and services sold by the reporting company in the reporting year. A reporting company's scope 3 emissions from use of sold products include the scope 1 and scope 2 emissions of end users. End users include both consumers and business customers that use final products.
Evaluation status (CDP)	Relevant, calculated.
Evaluation status rationale (CDP)	This is a material source of scope 3 emissions in Elkem's value chain.
Metric tonnes CO <sub>2</sub> e	1 043 512
Percentage of emissions calculated	100%
Calculation boundaries (included)	All Elkem Carbon's external sales are included and 100% are accounted for. Elkem owns 50% of Ferrovelde in South Africa. Because Elkem has management control, we report 100% of sold products from Ferrovelde.
Exclusions	Silicon, ferrosilicon and silicones are not included since they are intermediate products and therefore have diverse applications. Justification: → WBCSD (2013): "Chemical companies are not required to report scope 3, category 10 emissions, since reliable figures are difficult to obtain due to the diverse application and customer structure" (p.32). → WRI & WBCSD (2011): "In certain cases, the eventual end use of sold intermediate products may be unknown. For example, a company may produce an intermediate product with many potential downstream applications, each of which has a different GHG emissions profile, and be unable to reasonably estimate the downstream emissions associated with the various end uses of the intermediate product. In such a case, companies may disclose and justify the exclusion of downstream emissions from categories 9, 10, 11, and 12 in the report" (p.60).
Activity data	External sales registered in Elkem's financial consolidation software for Elkem Carbon.
Emission factors	Chemical analysis of total carbon content provided by accredited laboratory for main products. When data is not available, a conservative approach is applied which assumes 100% carbon content. Example: → 100% carbon: 3,664 kg CO <sub>2</sub> e/kg product
Methodology	Methodology for <b>direct use phase emissions</b> – Applied to Elkem Carbon's products sold externally. We assume all carbon becomes CO <sub>2</sub> e during use. Converted from carbon to CO <sub>2</sub> e based on molar mass. 100% of Ferrovelde included. 100% accounted for. Remaining products (silicon, ferrosilicon, silicone) are not included in this amount because of the diverse applications of intermediate products.
References	→ WBCSD (2013). Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain, <a href="https://www.wbcsd.org/contentwbc/download/2831/35596/1">https://www.wbcsd.org/contentwbc/download/2831/35596/1</a> → WRI & WBCSD (2011). GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. <a href="https://ghgprotocol.org/standards/scope-3-standard">https://ghgprotocol.org/standards/scope-3-standard</a> → WRI & WBCSD (2013). GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (v1): Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, <a href="https://ghgprotocol.org/scope-3-technical-calculation-guidance">https://ghgprotocol.org/scope-3-technical-calculation-guidance</a>

## End of life treatment of sold products



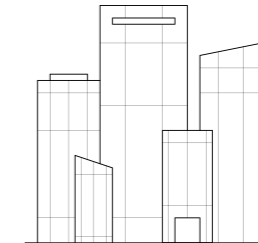
Category description (GHG Protocol)	Emissions from the waste disposal and treatment of products sold by the reporting company in the reporting year at the end of their life.
Evaluation status (CDP)	Relevant, calculated.
Evaluation status rationale (CDP)	This is a material source of scope 3 emissions in Elkem's value chain; however, the calculated amount has a very large uncertainty.
Metric tonnes CO <sub>2</sub> e	2 284 570
Percentage of emissions calculated	100%
Calculation boundaries (included)	Products produced by Elkem Silicones Division (ESD).
Exclusions	All Elkem Carbon products are excluded as they are accounted for in category 11 or in Elkem's scope 1. All silicon and ferrosilicon products are excluded as they contain de minimis values of carbon and are used in a wide range of products, of which we have limited knowledge of their end of life. Justification: "In certain cases, the eventual end use of sold intermediate products may be unknown. For example, a company may produce an intermediate product with many potential downstream applications, each of which has a different GHG emissions profile, and be unable to reasonably estimate the downstream emissions associated with the various end uses of the intermediate product. In such a case, companies may disclose and justify the exclusion of downstream emissions from categories 9, 10, 11, and 12 in the report" (WRI & WBCSD, 2011, p.60).
Activity data	Purchased amount of carbon containing raw materials (methanol, methyl chloride etc.) in ESD.
Emission factors	GWP methane: 28 kg CO <sub>2</sub> e/kg (IPCC 5th Assessment Report)
Methodology	The calculation is based on the <b>carbon content method</b> . The amount of carbon is conservatively estimated based on carbon content in purchased raw materials for the reporting year and assuming all carbon ends up as products. According to WBCSD (2013, p.33), if more specific data is unknown, assume default factors of 80% to landfill and 20% incinerated for the end-of-life treatment of products. In landfills, 50% of the contained carbon is assumed to be converted to methane and 50% to CO <sub>2</sub> e.
References	→ WBCSD (2013). Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain, <a href="https://www.wbcsd.org/contentwbc/download/2831/35596/1">https://www.wbcsd.org/contentwbc/download/2831/35596/1</a> → WRI & WBCSD (2011). GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. <a href="https://ghgprotocol.org/standards/scope-3-standard">https://ghgprotocol.org/standards/scope-3-standard</a> → WRI & WBCSD (2013). GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (v1): Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, <a href="https://ghgprotocol.org/scope-3-technical-calculation-guidance">https://ghgprotocol.org/scope-3-technical-calculation-guidance</a>

## Downstream leased assets



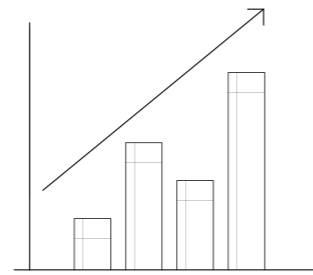
Category description (GHG Protocol)	Emissions from the operation of assets owned by the reporting company (lessor) and leased to other entities in the reporting year, not included in scope 1 and scope 2 reported by lessor.
Evaluation status (CDP)	Not relevant, explanation provided.
Evaluation status rationale (CDP)	Only 3% of Elkem's total non-current assets are leased assets. These assets are not separated from Elkem owned business operations. Therefore, the leased assets (upstream and downstream) are included in Elkem's total Scope 1 and 2 reporting and is not relevant for scope 3.
Metric tonnes CO <sub>2</sub> e	-
Percentage of emissions calculated	-
Calculation boundaries (included)	-
Exclusions	-
Activity data	-
Emission factors	-
Methodology	-
References	-

## Franchises

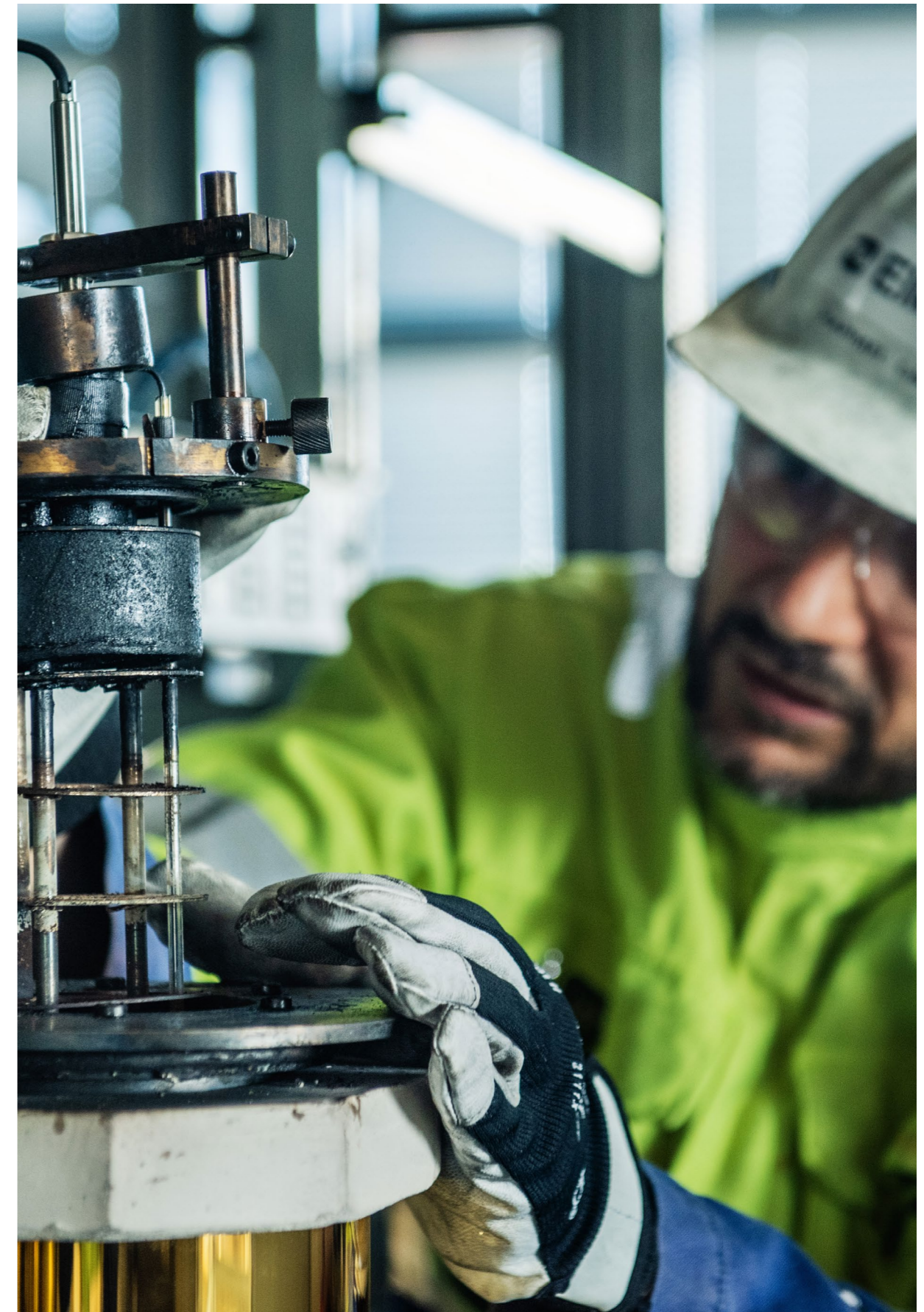


Category description (GHG Protocol)	Emissions from the operation of franchises in the reporting year, not included in scope 1 and scope 2 reported by franchisor.
Evaluation status (CDP)	Not relevant, explanation provided.
Evaluation status rationale (CDP)	Elkem does not engage in franchises activities therefore this category is not relevant.
Metric tonnes CO <sub>2</sub> e	-
Percentage of emissions calculated	-
Calculation boundaries (included)	-
Exclusions	-
Activity data	-
Emission factors	-
Methodology	-
References	-

# Investments



Category description (GHG Protocol)	Emissions associated with the operation of the reporting company's investments (including equity and debt investments and project finance) in the reporting year, not already included in scope 1 or scope 2.
Evaluation status (CDP)	Not relevant, explanation provided.
Evaluation status rationale (CDP)	Elkem does not have any relevant investments without management control to account for, therefore not relevant.
Metric tonnes CO <sub>2</sub> e	-
Percentage of emissions calculated	-
Calculation boundaries (included)	-
Exclusions	-
Activity data	-
Emission factors	-
Methodology	-
References	-





To the Board of Directors of Elkem ASA

### Independent statement regarding Elkem's sustainability reporting

We have examined whether Elkem ASA has prepared a GRI Index for 2022 and measurements and reporting of key performance indicators for sustainability (sustainability reporting) for the year ending 31 December 2022. Our assurance engagement was conducted to obtain limited assurance.

- Elkem's GRI Index for 2022 is an overview of which sustainability topics Elkem considers material to its business and which key performance indicators Elkem uses to measure and report its sustainability performance, together with a reference to where material sustainability information is reported. Elkem's GRI Index for 2022 is available at <https://www.elkem.com/sustainability/policies-and-statements/policies-and-reports/>. We have examined whether Elkem has developed a GRI Index for 2022 and whether mandatory disclosures are presented according to the Standards published by the Global Reporting Initiative ([www.globalreporting.org/standards](http://www.globalreporting.org/standards)) (criteria).
- Elkem has defined key performance indicators for sustainability in their ESG report for 2022. The measurement of the indicators is determined by topic-specific disclosure requirements from GRI or own disclosures as specified by Elkem and explained in the ESG report (criteria). "Supplying the green transition" is based on the criteria as defined in EU Taxonomy. For the following KPIs we have examined the basis for 2022 and examined whether the KPIs are calculated, estimated and reported in accordance with the criteria:
  - "CO2 and other GHG emission reductions, incl. energy management" (see KPIs presented on page 103 and 107)
  - "Local emissions to air" (see KPIs presented on page 118)
  - "Water management" (see KPIs presented on page 113)
  - "Waste management and circularity" (see KPIs presented on page 117)
  - "Health and safety on site" (see KPIs presented on page 127)
  - "Environmental due diligence in the supply chain" (see first KPI presented on page 149)
  - "Social due diligence in the supply chain" (see first KPI presented on page 149)
  - "Responsible economic practices, including anti-corruption and tax strategy" (see first four KPIs presented on page 143)
  - "Supplying the green transition" (see KPIs presented on page 159)

In addition, as part of the key performance indicators in this statement we have examined the indicator product group carbon footprint (PGCF) for 2021 (page 103).

#### Management's responsibility

Management is responsible for Elkem's sustainability reporting and for ensuring that it is prepared in accordance with the criteria described above. Their responsibility includes designing, implementing and maintaining internal controls that ensure the development and reporting of the GRI Index and key performance indicators for sustainability.

#### Our independence and quality control

We are independent of the company in accordance with the law and regulations and the International Ethics Standards Board for Accountants' International Code of Ethics for Professional Accountants (including International Independence Standards) (IESBA Code), and we have fulfilled our ethical obligations in accordance with these requirements. We use ISQM 1 - Quality management for firms that perform audits or reviews of financial statements, or other assurance or related services engagements and maintain a comprehensive system of quality control including documented guidelines and procedures regarding compliance with ethical requirements,

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Statsautoriserte revisorer, medlemmer av Den norske Revisorforening og autorisert regnskapsførerselskap



professional standards and applicable legal and regulatory claim.

#### Auditor's responsibilities

Our responsibility is to express a limited assurance conclusion on Elkem's sustainability reporting based on the procedures we have performed and the evidence we have obtained. We conducted our work in accordance with the Standard on Assurance Engagements ISAE 3000: "Assurance engagements other than audits or review of historical financial information". A limited assurance engagement in accordance with ISAE 3000 involves assessing the suitability in the circumstances of management's use of the criteria as the basis for the preparation of the sustainability reporting, assessing the risks of material misstatement of the sustainability reporting whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the sustainability reporting. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

The procedures we performed were based on our professional judgement and, among others, included an assessment of whether the criteria used are appropriate, as well as an assessment of the overall presentation of the sustainability reporting. Our procedures also included meetings with representatives from Elkem who are responsible for the material sustainability topics covered by the sustainability reporting; review of internal control and routines for reporting key performance indicators for sustainability; obtaining and reviewing relevant information that supports the preparation of key performance indicators for sustainability; assessment of completeness and accuracy of the sustainability reporting; and controlling the calculations of key performance indicators for sustainability based on an assessment of the risk of error.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we do not express a reasonable assurance opinion about whether the sustainability reporting has been prepared, in all material respects, in accordance with the criteria.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

#### Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that

- Elkem's GRI Index for 2022 is not, in all material respects, developed and presented in accordance with the requirements of the Standards published by The Global Reporting Initiative;
- Elkem's key performance indicators are not, in all material aspects, developed, measured and reported in accordance with the definitions and explanations provided in relation to the key performance indicators.

Oslo, 8 March 2023

PricewaterhouseCoopers AS

Anders Ellefsen

State authorized public accountant (Norway)

(2)



Elkem ASA

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