Welcome to your CDP Climate Change Questionnaire 2023

C0. Introduction

C0.1

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

Nouryon is a global specialty chemicals leader, with approximately 8000 employees, and operating in over 80 countries around the world. Markets and consumers worldwide rely on our essential solutions to manufacture everyday products, such as personal care, cleaning goods, paints and coatings, agriculture and food, pharmaceuticals, and building products.

Nouryon's Company Purpose is: Your partner in essential chemistry for a sustainable future. We dedicate ourselves to making progress on our Commitment to a Sustainable Future in our own company and operations, R&D and solutions for customers, and by being a responsible partner to the communities in which we operate. Our continuous effort to improve on key sustainability metrics related to Environment, Labor and Human Rights, Ethics and Sustainable Procurement, is reflected in our 2022 EcoVadis Platinum rating, placing us in the top 1% of companies then rated by the global sustainability provider.

Humankind faces many challenges that present opportunities for Nouryon. Chemistry plays a vital role in solving some of these challenges by providing essential solutions our changing world needs. For example, Nouryon contributes to feeding a growing population; improving health, sanitation, and medicine; and making buildings and infrastructure more sustainable and durable.

In 2022, we continued to grow and make progress on our sustainability commitment. 34% of our revenue came from Eco-Premium Solutions. These are products that deliver a significant sustainability benefit over the most mainstream market alternative. 77% of our R&D product pipeline was focused on solutions with a sustainable benefit versus 69% in 2021. We provide these solutions while mitigating our own greenhouse gas emissions and improving our resource efficiency and energy consumption management, challenging ourselves to reduce impacts, mitigate risks, and harness growth opportunities related to climate change.

To this end, we regularly review our operations and our products that are integral to energy transition. In support of the objectives of the UN's Paris Agreement on climate change, we set 2030 targets to reduce absolute greenhouse gas (GHG) emissions (Scopes 1 and 2) by 40%,

total waste intensity by 10%, and water consumption intensity by 10%, versus a 2019 base year. By 2050, we aspire to be a net zero organization.

We are working to achieve our decarbonization goals through carbon operational excellence, energy transition, innovation, and value chain collaboration.
Our plan to achieve our goals includes Scope 1: Improving efficiency in our operations and optimizing our fuel mix; Scope 2: Increasing our use of renewable energy through power purchase agreements, on-site renewables, and green utility programs; Scope 3: Analyzing and reducing our indirect GHG emissions from activities across our value chains.

In 2022, we established a greenhouse gas (GHG) emission reduction roadmap. We reported our Scope 2 emissions calculations in alignment with the greenhouse gas (GHG) Protocol, including reporting market and location-based emissions and applying the GHG Protocol's emission factor hierarchies. We also reported to GRI for the first year in our 2022 Sustainability Report. Between 2019 and 2022, we decreased our total absolute Scopes 1 and 2 GHG emissions by 1.3%.

In addition, across all scopes, we are exploring collaboration opportunities, including conducting and sharing product carbon footprint life cycle assessments with our customers. We are also evaluating and deploying innovative technologies such as those in the ICOS Capital Fund III, in which we are a strategic investor. Integrating net zero and climate change considerations into our strategy and planning.

Our plans also include growing in new applications and geographies; further expanding and innovating our sustainable product offering; and maximizing the capacity utilization, flexibility, and environmental performance, of our manufacturing plants. Finally, we aim to execute successfully on cost and productivity initiatives that also enable some of our carbon reduction projects.

Throughout the questionnaire, we make forward-looking statements, including statements about our beliefs and expectations. These are subject to and involve risks, uncertainties, and assumptions and you should not place undue reliance on these forward-looking statements or projections. Although we believe that these forward-looking statements and projections are based on reasonable assumptions at the time they are made, you should be aware that many factors could affect our actual results and could cause actual results to differ materially from those expressed in the forward-looking statements and projections.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date

January 1, 2022

End date

December 31, 2022

Indicate if you are providing emissions data for past reporting years

Yes

Select the number of past reporting years you will be providing Scope 1 emissions data for

1 year

Select the number of past reporting years you will be providing Scope 2 emissions data for

1 year

Select the number of past reporting years you will be providing Scope 3 emissions data for

1 year

C0.3

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

Argentina
Belgium
Brazil
Canada
China
Finland
France
Germany
India
Italy
Japan
Mexico
Netherlands
Norway
Singapore
Sweden
Taiwan, China
United States of America

C0.4

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

USD

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.

Financial control

C-CH0.7

(C-CH0.7) Which part of the chemicals value chain does your organization operate in?

Row 1

Bulk organic chemicals

Ethylene oxide & Ethylene glycol

Polymers

Bulk inorganic chemicals

Other chemicals

Specialty chemicals

Specialty organic chemicals

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
No	

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 or committee	Responsibilities for climate-related issues
Board-level committee	The Board has ultimate responsibility for incorporating sustainability and climate-related risks into the strategy and monitoring performance. Our Board has established a Corporate Responsibility Committee, which provides Board-level oversight of sustainability (including climate-related targets), health, safety and environmental (HSE), product quality, social policies and programs, including inclusion and diversity, and other matters that may impact the Company's reputation. The Corporate Responsibility Committee meets every quarter. The Corporate Responsibility dashboard is presented every quarter. In addition, rotating topics are being discussed, including safety, GHG decarbonization and other sustainability-related initiatives. In 2022, the board's Corporate Responsibility Committee was presented with new GHG emissions reduction targets and supported their adoption – specifically, updating our corporate targets and setting new 2030 targets to reduce absolute GHG emissions (scope 1 and 2) by 40%, total waste intensity by 10%, and water consumption intensity by 10%, all compared to base year 2019. The Committee also supported our aspiration to be a net zero organization in 2050. In 2022, the Board received and reviewed the 2022 Sustainability Report. In 2023, our decision to invest in a new PPA in China to deliver our Ningbo site with 100% renewable electricity, was discussed and approved by the Board.

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	Please explain
Scheduled – some meetings	Overseeing major capital expenditures Overseeing acquisitions, mergers, and divestitures Reviewing innovation/R&D priorities	Nouryon's Board of Directors is charged with oversight of the Nouryon Group and its executive management. The Board of Directors' responsibilities include setting and reviewing the company strategy and business plans, supervising our risk management, approving the annual budget, and approving major capital investments or M&A, all of which are generally informed by climate-related issues to some extent. The full Board, led by our Chairman and CEO, is briefed

	Reviewing and guiding strategy	quarterly on our sustainability initiatives and other climate-related issues, including quarterly dashboard and sustainability updates from our General Counsel. The full Board also considers climate-related issues in a variety of other contexts, such as regular briefings by business leaders on their business strategies including commercial sustainability initiatives. In addition, in 2022 the Board was briefed on our carbon strategy by our Global Carbon Business Leader, our new 2030 climate targets and our 2022 Sustainability Report. The Board's committees also oversee certain climate-related issues. The Audit Committee oversees the company's enterprise risk management (ERM) program, which includes risks related to climate change, and is updated on the ERM program quarterly. The Corporate Responsibility Committee also provides Board-level oversight of sustainability initiatives, including climate-related targets, among its other responsibilities. In 2022, the Corporate Responsibility Committee reviewed our annual sustainability report and our new 2030 climate targets. Our sustainability strategy is implemented by the Corporate Sustainability team as well as all business lines of the Company and key functions. Sustainability focal points drive the implementation of our strategy across our organization. We enlist internal and external auditors as part of our ESG governance efforts. In addition, our policies are reviewed annually.

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
Row 1	Yes	As part of our criteria for nominating new directors, we consider the extent of a prospective board member's experience, including previous executive-level roles held, and responsibilities, such as enterprise risk management. In 2021, we welcomed a new independent board member, who was

		appointed as Corporate Responsibility Committee Chair in 2022. She has a strong strategic and operational experience and her expertise in ESG is very valuable to Nouryon's growth trajectory which is closely aligned with a sustainable future. She is the founder and Chief Executive Officer of Inspirion Group, a consultancy that helps organizations manage disruptive risk and accelerate strategic transformation, with deep domain expertise in all elements of Environmental, Social, and Governance (ESG). She has 30 years of experience with companies including PVH Corp., the retail company that owns brands including Tommy Hilfiger, Calvin Klein, and Warner's. At PVH Corp., she was the Global Chief Risk Officer and managed various strategic functions including ESG, cyber security, internal audit, enterprise risk management and crisis management. Prior to her role at PVH Corp., she worked as a management consultant at EY Canada where she founded and built the climate change and sustainability practice. She started her career as a litigator as well as an international policy advisor. She currently serves as a board member at US Ecology, Inc. (NASDAQ: ECOL) and Trillium Health Partners.

C1.2

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

Position or committee

Chief Executive Officer (CEO)

Climate-related responsibilities of this position

Setting climate-related corporate targets
Assessing climate-related risks and opportunities
Managing climate-related risks and opportunities

Coverage of responsibilities

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain

Assessing and managing climate-related risks and opportunities

Position or committee

Chief Operating Officer (COO)

Climate-related responsibilities of this position

Managing major capital and/or operational expenditures related to low-carbon products or services (including R&D)

Integrating climate-related issues into the strategy

Coverage of responsibilities

Reporting line

CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain

Assessing and managing climate-related risks and opportunities

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	No, and we do not plan to introduce them in the next two years	This remains under consideration and ultimate approval would be required by our board's Compensation Committee. Implementing incentives is postponed, which is in line with market conditions and IPO process.This remains under consideration and ultimate approval would be required by our board's Compensation Committee. Implementing incentives is postponed, which is in line with market conditions and IPO process.

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	We consider short-term risks to be anything that impacts our business in the next three years.
Medium-term	3	5	Our medium-term focus is on major risks that may impact achievement of our strategy in the next three-to-five years.
Long-term	5	100	We recognize there are relevant risk factors beyond the five-year horizon that could impact our strategy (long-term) risks.

C2.1b

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

We define substantive financial or strategic impact for climate-related risks in the same way we define a material impact within our financial reporting which suggests significant material concerns of an item to users of a company's financial statement. A matter is "material" if there is a substantial likelihood that a reasonable person would consider it important. Therefore, there is no specific value or percentage or earnings but rather a consideration of the impact, financial or strategic, on the valuation of the company or on our reputation.
When evaluating climate-related financial impacts, we consider a Critical impact to have an impact > USD 100M to EBIT, High impact from >USD 50 and <USd 100M to EBIT, and Medium impact from > USD 10M and < USD 50M to EBIT. Health, Safety, Environment, and Security impacts have additional metrics related to environmental incidents that would result in regulatory actions or penalties. All these impacts are considered substantive.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations
Upstream
Downstream

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

Climate-related risks are included in our overall enterprise risk management (ERM) process, which is overseen at the Board level by the Audit Committee. In addition, our Corporate Risk Committee, which is comprised of senior management, identifies the top risks facing our company, oversees mitigation actions and remains informed on the latest developments.
We completed a Taskforce for Climate-related Disclosure (TCFD) climate scenario analysis in 2021, including risk and opportunities and scenario analysis for both transition and physical risks. We are using the scenarios to assess risks over all time horizons, short, medium, and long term, and the analysis covers all areas of our value chain - upstream, downstream, and direct operations. The results of this analysis help inform Nouryon's understanding of substantive climate-related risks and opportunities and will help support planning, resource allocation, investment, and management decisions.

The scenario analysis process was structured around: 1) assessing the significance of climate related risks in relation to market shift, technology changes, reputation, policy and legal; 2) identifying and defining a range of scenarios for transitional risk scenarios and physical risk scenario; 3) mapping business impact for operating costs, revenues, business interruption and timing; 4) identifying potential response to changes in business models and investments in capabilities and technologies.

These impacts were assessed based on a review of: expert judgment (e.g., input from climate experts/consultants), literature review of reports relevant to the sector, transition scenarios (e.g., IEA), existing risk disclosures from suppliers, peers and customers (e.g., CDP and other disclosures).

See 3.2b for more information.

C2.2a

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Globally, our operations are increasingly subject to regulations that seek to reduce emissions of greenhouse gases (“GHGs”), such as carbon dioxide and methane, which are contributing to changes in the earth’s climate. For example, we are already managing and reporting GHG emissions, as required by law for our sites in locations subject to U.S. federal and state requirements, EU requirements and/or ETS requirements. Although these sites are subject to existing GHG legislation, few have experienced or anticipate significant cost increases because of these programs, although it is possible that GHG emission restrictions and costs from regulations may increase over time. Potential consequences of such restrictions include capital requirements to modify assets to meet GHG emission restrictions and/or increases in energy costs above the level of general inflation, as well as direct compliance costs.
Emerging regulation	Relevant, always included	New climate-related regulations may impact direct and indirect costs. For example, new potential carbon pricing mechanisms such as the carbon border adjustment mechanism (CBAM) in the EU or potential carbon taxes or cap and trade programs in the U.S. could impact some of our products negatively, such as products shipped from the U.S. to the EU, or positively, such as some of our products covered by the EU ETS currently. This is relevant and always included, because climate-related policy developments could affect suppliers in the oil and gas sector and could increase our raw material prices - specifically ethylene, one of our most significant raw materials. We consistently monitor emerging regulations such as these carbon policy examples that have the potential to impact our business. We also foresee potential increases in expenses for new and proposed sustainability reporting requirements related to the proposed SEC Climate Change Disclosure Rules, the EU Corporate Sustainability Reporting Directive (CSRD) and EU Taxonomy.
Technology	Relevant, always included	As concern over climate change grows, there is the potential for our customers to substitute products with lower emissions alternatives, which is why the risk type is relevant and always included. However, the risk of our customers shifting to lower emitting products also presents opportunities for Nouryon. For example, our Eco-Premium Solutions are products that offer significant sustainability benefits over mainstream alternatives in the market while providing the same or better functionality. In 2022, 34% of

		revenue came from our Eco-Premium Solutions. When developing these solutions, we put special focus on delivering environmental benefits as well as direct benefits to our customers' operations. As another example, Nouryon published a worldwide Environmental Product Declaration for our product Sodium Chlorate. hydrogen peroxide in 2022. By measuring and tracking the environmental performance of our products, we can compare ourselves to our competitors and guide innovation to keep our products competitive from both a performance and greenhouse gas emissions perspective. We regularly perform analysis to determine the product carbon footprint of our technologies and products and seek to constantly reduce the overall product footprint of our portfolio of products. In 2022, we have delivered roughly 50 Life Cycle Assessments (LCA) due to increased customer demand driven by an increasing number of customers with carbon targets.
Legal	Relevant, always included	Our global footprint exposes us to increasingly stringent laws and regulations on a broad range of subjects, such as safe use of hazardous compounds, environmental releases, greenhouse gas emissions, and product liability. As a chemicals company, we have extensive experience with mandates and regulations of our products. These risks are mitigated by monitoring compliance with climate-related laws and regulations through our internal subject matter experts, who provide guidance and training to the company and employees as necessary.
Market	Relevant, always included	Nouryon operates in highly competitive markets, and as a global manufacturer of chemicals we rely on certain readily available raw materials. Our internal stakeholders have identified potential fluctuations in raw material pricing and availability due to physical or transition impacts to our supply chain as a potential risk to our business going forward. To mitigate this risk, we work with multiple suppliers and build strong relationships with key suppliers and as part of our innovation process, we explore opportunities to diversify our material supply through bio-based renewable materials, circular economy principles, and recycling. We consider potential supply and demand shifts in our raw materials and products continually in our market and production planning efforts as a part of our business activity.
Reputation	Relevant, always included	With increased scrutiny and focus on ESG and climate-related issues from the investor community, and the inherent carbon intensity of the chemicals sector, we face many of the same risks as others in our industry due to increased stakeholder concern and the potential for negative feedback if we are not seen to be making the necessary progress toward our climate goals. These can affect our license to

		operate. We are working extensively to make significant progress and provide improved disclosures – in line with the proposed SEC rule and EU CRSD requirements - to meet the growing demands from the investor community and external stakeholders. The EcoVadis Platinum rating has a positive impact on our reputation. We completed a TCFD climate scenario analysis in 2021, including risk and opportunities and scenario analysis for both transition and physical risks. We are continuing to incorporate the recommendations of the TCFD within our business strategies and improving disclosures and mitigating risks.
Acute physical	Relevant, always included	Nouryon is committed to evaluating the risk of each of our facilities from acute physical risks. The evaluation of this risk is included in the Enterprise Risk Management (ERM) annual risk assessment process. Physical risks, including acute risks, are also considered in our climate-related scenario analysis. We own and operate large-scale manufacturing facilities with a wide geographic spread in the U.S., Latin America, Western Europe, Sweden, China, and India. We have large operations at warehouses in the U.S. and Sweden and various global ports that are vital to the transport and storage of Nouryon's supplies and products; the three most profitable warehouses (by product revenue) and six most relevant global ports were included in ERM's risk assessment. Interruptions at these facilities may materially reduce their productivity, or the profitability of our business. Our operations and those of our contract manufacturers are subject to hazards inherent in chemical manufacturing and the related storage and transportation of raw materials, products, and wastes. Example: Climate change can result in an increased frequency or severity of hurricanes, resulting in flooding or wind damage, causing costly production outages, downtime, or damage to equipment. Specifically, our production sites in Houston, U.S., have a historically high exposure to tropical storms and hurricanes. Mitigations for these risks have been implemented, resulting in increased capital expenditures but help to increase the resiliency of our operations. See C2.3a for more information. Approximately 1/3 of screened sites register flood inundation risk that is at least 1 meter (for a 500-year return period event or a relatively severe flood). Weather serves as one of the primary inputs of forward supply for raw materials used in our surfactants products – natural oils and fats (NOFA) - globally - and climate change is an important price driver. For

		acute physical climate risk, extreme weather, such as hurricanes or floods could negatively impact crop production. It is mitigated in part by safety stock held by our preferred suppliers, and our standard sourcing strategy typically avoids spot (30 days forward) raw material price exposure.
Chronic physical	Relevant, always included	Climate-related chronic physical risks have the potential to impact both our direct operations as well as the customers and markets we serve. Given the susceptibility of the agriculture industry to physical risks, and because agriculture is a core market that we serve, these physical risks represent a material issue for us and therefore, the evaluation of this risk is included in the ERM annual risk assessment process. Example: extreme heat was deemed relevant due to Nouryon's international presence with a number of facilities operating in equatorial temperature zones. In particular, an increase in extreme heat may lead to an increase in energy costs to cool indoor environments. Extreme heat also could impact the health and safety of staff, particularly those operating outside, through heat exhaustion. For example, Nouryon has multiple assets that face increased exposure to extreme heat intensity and duration, for example assets located in Brazil like Eunapolis, Imperatriz, and Tres Lagoas or in Singapore. The effects of climate change such as rising sea levels, drought, flooding and general volatility in seasonal temperatures could also adversely affect our operations globally. Extreme weather events attributable to climate change may result in, among other things, physical damage to our property and equipment, and interruptions to our supply chain. Nouryon has emergency response and business continuity plans in place to mitigate the impact from such physical risks. The physical risk screening of Nouryon's assets showed a number of sites with high baseline and future water stress with high inter-temporal variability among the sites. Site-specific water needs and costs are considered in our analysis. We consider increased indirect (operating) costs (SG&A), Increased direct costs (COGS) and decreased revenues due to reduced production capacity.

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

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Because Nouryon conducts international operations, we are exposed to a variety of risks of which many of them are beyond our control or which could adversely affect our business. For example, new potential carbon pricing mechanisms such as the carbon border adjustment mechanism (CBAM) in the EU or potential carbon tariffs in the U.S. and China, could impact some of our products negatively.

Though neither potential regulation is currently aimed at our sector, some chemicals do have a relatively high GHG intensity, so it's possible some of our products could be covered by such carbon tariffs in the future. For example, our bleaching chemical product lines represent larger portions of our scope 1 and 2 emissions relative to other product lines. We consistently monitor emerging regulations such as these carbon pricing examples that have the potential to impact our business.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

32,642,910

Potential financial impact figure – maximum (currency)

48,964,365

Explanation of financial impact figure

This estimated range is based on carbon pricing values from the IEA's 2022 STEPS and APS scenarios. The lower figure is based on the IEA STEPS 2030 carbon price for the European Union of US$ 90/ metric ton. The higher figure is based on the IEA APS 2030 carbon price for advanced economies of US$ 135 / metric ton. We applied these figures to the sum of our 2022 scope 1, scope 2 emissions in Europe, which is 362,699 tons to calculate our potential financial impact for 2022. The financial impact will depend on several factors, including: the volume of our emissions, market prices in the EU Emissions Trading System (EU ETS), and the volume of free allocations we receive. These factors are all subject to uncertainty. The figures also do not account for reductions in emissions and energy use through projects for example.

Cost of response to risk

482,000

Description of response and explanation of cost calculation

We calculate an annual emissions inventory, which allows us to confirm our scope 1 and scope 2 carbon emissions. To support this process, including reporting of energy and emissions data from our manufacturing sites, we use software (Enablon), which requires licensing fees. In addition, we work with consultants to support the calculation of our scope 3 emissions. Calculating emissions across our operations and value chain helps us to be aware of potential costs and where they may occur across our value chain due to emerging regulation. The cost of response to this risk is the total of these costs (software fees plus consulting fees) being USD 482,000.

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?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development of new products or services through R&D and innovation

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

Our innovation philosophy is centralized around our Eco-Premium Solutions which offer significant sustainability benefits over mainstream alternatives in the market while still providing the same of better functionality. In 2022, 34% of our total revenue came from Eco-Premium Solutions. The sustainability benefits can include lower toxicity, lower energy use for improved energy efficiency, lower emissions to air and waste, less land use, improved health effects, more efficient use of natural resources as raw materials or improved safety.

With the increased focus on improving the energy efficiency of buildings, Nouryon has a major opportunity. One example of a Nouryon solution for buildings is our cool roof coatings. Keeping buildings cool is an increasing challenge amid climate change and the higher frequency of heatwaves. There is a drive to find ways to keep buildings cool while reducing energy usage due to air conditioning), which is a contributor to climate change. According to studies, air conditioning in urban areas accounts for up to 70% of residential energy consumption in warm areas of the world. This impacts peak energy demand and puts high stress on power distribution systems. One proven approach to reducing temperatures in buildings is via the use of highly solar reflective ‘cool’ roof coatings. Traditional dark-colored roofing materials absorb sunlight, which in turn transfers heat to a building. Cool roof coatings use light-colored (usually white), highly reflective materials to regulate building temperatures while reducing electricity demand, which in some cases can result in energy consumption savings of more than 40 percent. This aligns with energy efficiency building code requirements in the US and other regions. Cool roofs can also reduce the "heat island" effect in cities, reducing temperatures, smog and emissions.

Nouryon introduced a new solution to address these challenges by combining our Expancel and Levasil technologies to create a concept for cool roof coatings that resist dirt and are highly reflective. The higher reflectivity reduces absorption of heat into buildings, which means less need for cooling, increased energy efficiency, and lower greenhouse gas emissions. These coatings can reduce heat absorption by 80% and decrease roof temperatures by roughly 30 degrees Celsius vs traditional dark roofs. We have already made this offering globally available.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

19,700,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

In 2022, 34% of our revenue came from the sale of Eco-Premium Solution which represents net sales of US$ 1.97 billion. We aim to maintain or grow Eco Premium Solutions by constantly innovating and growing with our customers. Increasing our Eco-Premium Solutions revenue by 1% means an increase of approximately US$ 19.7 million per year. (1.97 billion multiplied with 0.01 gives 19.7 million).

The 1% financial impact figure includes all Eco-Premium Solutions. Cool roof coatings are included in this, along with many others with high growth potential.

The Eco-Premium Solutions portfolio is dynamic, and we pro-actively challenge our assessments to reflect our latest understanding of markets. Solutions may stop being classified as eco-premium if similar competitive offerings become available. At the same time, new eco-premium solutions are continually introduced to the portfolio through innovation and new product launches which constantly contribute to our financial benefits.

Cost to realize opportunity

0

Strategy to realize opportunity and explanation of cost calculation

Eco-Premium Solutions help to create value for our businesses and customers. They provide top line growth opportunities. These solutions demonstrate improvements in our own operations and across the entire value chains in which we operate. We seek to offer solutions that allow our customers, their customers, or the end-users, to minimize their environmental and climate impacts. Activities to increase these sales are among others: 1. Customer visits to identify improvement programs 2. Integration in new commercial excellence processes to ensure sustainability is an integral element of the product propositions 3. Training and marketing materials explaining our strategy for marketing and sales. While these activities involve investments (time, R&D resources, marketing, etc.), we estimate their value to be positive and thus assume zero cost.

Eco-Premium Solutions are a fundamental driver of our growth strategy at company level, monitored by the Nouryon Leadership Team. We now focus on downstream benefits that our products and services deliver to customers. This includes improving their resource efficiencies, as well as the environmental impact of their manufacturing processes and products or services in use and end-of-life. We have implemented criteria linked to Eco-Premium Solutions in our R&D innovation process.

Eco-Premium Solutions are a strong driver in R&D projects and stage gate processes – so this is the product development direction and not an add-on activity. Costs to develop new products and solutions with customer benefit are integrated in R&D costs (no additional costs). Climate change related opportunities are one of several beneficial properties.

In 2022, 77% of our R&D product pipeline focused on solutions with sustainability benefits versus 69% in 2021.

Comment

C3. Business Strategy

C3.1

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

Row 1

Climate transition plan

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

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

We have developed a decarbonization roadmap, with many elements of a robust transition plan already in place. Specifically:
• Annual Scope 1, 2 and 3 emissions inventories verified by third-party limited assurance
• A carbon business strategy that includes emission reduction initiatives with considerations for customers and suppliers, financial planning (CAPEX, OPEX), and partnerships across the value chain
• Lower carbon products through use of renewable energy and R&D innovation
• Board oversight

In 2022, we set new clear targets to reduce our carbon footprint. By the end of 2030, we have targeted reducing our absolute Scope 1 & 2 Greenhouse Gas (GHG) emissions by

40%, vs. the 2019 base year. In addition, by the end of 2030, we have targeted reducing our both total waste and water intensity 10%, vs. the 2019 base year. By 2050, we aspire to be a net zero organization.

As we develop plans to decarbonize that align with a 1.5 world, we also completed several steps in 2021:
1. We established board-level governance: see responses in C1
2. We completed a TCFD climate scenario analysis, including risk (transitional and physical) and opportunities, over all time horizons, covering our full value chain – upstream, downstream, and direct operations.
3. Consistent with prior years, we completed an accurate and transparent annual emissions inventory.
4. We expanded our scope 3 emissions inventory to cover our full value chain.

As we further develop our transition plan, we will focus on:
* Achieving our Scope 1 and Scope 2 goals. See 4.3c for more information.
* Analyzing scope 3 GHG emissions across our value chains to inform our plans
* Developing plans to engage our suppliers for more primary carbon footprint data
* Exploring collaboration opportunities with customers and suppliers.
* Evaluating and deploying new innovation technologies such as those in the ICOS Capital Fund III, where we are a strategic investor.
* Integrating net zero, climate and decarbonization considerations into our strategic planning
* Engaging with industry associations
* Further analyzing potential substantive climate-related risks and opportunities, aligned with TCFD.

On this pathway towards net zero, the execution of our goals is dependent on several factors, including the outcomes of site assessments, our progress in securing renewable electricity, emerging technologies, the progress within the value chain and regulatory frameworks impacting our investment decisions.

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
Row 1	Yes, qualitative and quantitative

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

Physical climate scenarios RCP 7.0	Company-wide		Nouryon conducted its first in-depth qualitative scenario analysis with the support of ERM (consulting firm) in 2021. The results of scenario analysis help inform Nouryon's understanding of substantive climate-related risks and opportunities and will help support planning, resource allocation, investment, and management decisions. Through a series of workshops, discussions were conducted to better understand climate-related impacts, categorized according to the TCFD guidance: Transition Risks: Market, Policy, Technology, Reputation and Physical Risks: Acute, Chronic. Physical Scenario: Nouryon conducted a climate-related scenario analysis by drawing upon publicly available data from the IPCC's peer reviewed climate models to extract indicators for future climate exposure across a range of site locations. SSP3-RCP7 is the scenario that Nouryon considered for this analysis, which represents a pessimistic outlook of both a 4°C warming by 2100 as well as global demographic projections that are unfavourable for climate mitigation and adaptation efforts. Nouryon used geographic system modelling to extract climate indicators for each site, warehouse, or port. Time Horizon: This analysis extracted data and identified trends to 2050. This time horizon was chosen to provide a sufficiently long-term horizon to incorporate all potential risks and opportunities into Nouryon's risk management strategy. Area of Organization: The chosen locations were deemed as both critical to Nouryon's key enterprise while additional sites were included that represented three priority outplant warehouses. Also included in the analysis were six global ports that are vital to the transport and storage of Nouryon's products. The scenario analysis covered all parts of Nouryon's business including products and services, operations, and the value chain. Eight priority risk topics were identified through research and engagement with Nouryon: 1) Carbon pricing mechanisms; 2) regulation of end markets, 3) raw material prices and availability 4) high investment cost of transition technology, 5) flooding, 6) hurricanes 7) water stress 8) extreme temperatures. Three priority

			climate-related opportunity areas were identified through research and engagement 1) Products and services: helping customers achieve climate goals; 2) Markets: access to new markets; 3) Resource efficiency: circular economy.
Transition scenarios IEA NZE 2050	Company-wide		Transition Scenario: Nouryon conducted its first transition scenario analysis. Following the guidance of the TCFD, the company has assessed different IEA Climate scenarios: Incremental 2.5° to 3°C warming STEPS Intermediate Scenario, Transformative 1.65°C warming Sustainable Development Scenario SDS Ambitious scenario and Net Zero 1.5°C NZE Most ambitious scenario to identify potential risks and opportunities to the company. The scenarios are the basis for the review of how potential climate-related risks and opportunities might impact Nouryon. We have used the scenarios to assess risks over all time horizons, short, medium, and long term. The analysis covered all areas of our value chain, upstream, downstream, and direct operations. We have also assessed the physical climate risk of the most critical sites in our direct operations and supply chain. The transition risks and opportunities included: carbon pricing mechanisms, regulation of end markets, policy risks, market risks of raw material price and availability, cost of transition technology, product and service opportunities related to customer goals, circular economy resource efficiency opportunities and access to new markets opportunity.

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

What are the priority risks and opportunities for Nouryon?
What are the primary drivers for climate risks and opportunities?
What variables and data are needed to support decision making?

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

What are the priority climate risks and opportunities for Nouryon?
Eight priority risk topics were identified: 1) carbon pricing mechanisms 2) regulation of end markets 3) raw material prices and availability 4) high investment cost of transition technology 5) flooding, 6) hurricanes 7) water stress 8) extreme temperatures.
Opportunity areas include 1) products and services: helping with climate goals 2) access to new markets 3) resource efficiency: circular economy.
As an example, the Gulf Region, where several Nouryon sites are located, experienced more than 20 hurricanes (measured since 1840), and potential financial damages and risks are assessed, and each facility is prepared for increased wind speeds and flooding (for example dikes and water collection basins).

What are the primary drivers for climate risks and opportunities?
The drivers include: A) Carbon pricing mechanism may impact Nouryon by increasing tax liability, emissions credit prices, and/or the costs of inputs. B) Mandates on Existing Products and Services: Regulations that limit the geographies of fossil fuel extraction, increase costs of production, or support competing technologies may decrease Nouryon's business by reducing energy supply activities. C) Increased Cost of Raw Materials: Competing demands for materials in low carbon transition applications, carbon pricing, and high investments costs. D)Transitioning to Lower Emissions Technology: Costs for transition technologies may not meet internal hurdle rates. E) Development of low emission goods and services - Customer emissions targets, specifically relating to scope 3, will require both the expansion of existing technologies and the new developments. F) Access to new markets: Increasing renewables and grid investments will significantly increase market size for products supporting electrification. As grids modernize and expand to accommodate new renewables, Nouryon's polymer specialties may experience substantial growth for wire insulation with increased grid investment.

As an example, Nouryon has sites located in tropical climates (Brazil, Asia) which have projected at least 100 days of abnormal "heat wave" by 2050.

What variables and data are needed to support decision making?
The following variables are important for strategic climate decisions: GHG accounting and associated costs; global fossil fuel production data for the STEPS, SDS and NZE scenarios; CO2 costs of raw materials; costs of transition technologies, such as carbon capture, hydrogen, and electrified steam crackers; marginal costs of carbon abatement; recycling rates of plastics; infrastructure investment costs; historical flood events: number of days of business interruptions, damage costs, impacts to the electricity and water supply; financial damages from hurricanes; daily quantification of water interruptions; site surveys.

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	Sustainability is a key business driver for Nouryon and integral to our product offerings. In 2022, we created a decarbonization roadmap, as part of our Carbon Business Strategy which is an integral part of our company's strategy development and annual review process and outlines our decarbonization path to achieve our 2030 target and included all time horizons - short, medium, and long-term, including to 2050. This was informed by risks and opportunities related to Carbon Pricing Mechanisms, Regulation of End Markets, Raw Material Prices and Availability, and Investment Cost of Transition Technology, among others. We also identified opportunities where Nouryon can contribute to the global decarbonization effort with new products and partnerships. We work together with customers, suppliers, universities, and other partners to develop innovative and sustainable solutions (our Eco-premium Solutions) where we put special focus on delivering environmental benefits like improving our customers' operations by decreasing their energy consumption, lowering the product carbon footprints of our solutions and providing sustainable solutions (which for example lower the end customer carbon footprint), all contributing to a lower carbon economy aligned with climate-related opportunities in all time horizons - short, medium, and long-term. For example, our polymer catalysts contributed to creating over 20 million standard solar panels (ca. 8.600 MW) and creating roughly 70.000 km of high voltage power cable (almost twice around the world) – supporting low carbon energy transitions in electrical power grids and renewable energy growth. Nouryon partnered with technology venture-capital company Icos Capital on the Swedish cross-sector Innovation Summit Accelerating Sustainability in Gothenburg, Sweden. Our Eco-Premium Solutions are products that offer significant sustainability benefits over mainstream alternatives in the market while providing the same or better

		functionality. These benefits can apply to several specific criteria (e.g., toxicity, use of energy and natural resources, emissions and waste, land use, risks, health). In 2022, 34% of our revenue came from the sale of Eco-Premium Solution which represents net sales of US$ 1.97 billion. 77% of our R&D product pipeline was focused on solutions with sustainable benefits versus 69% in 2021.
Supply chain and/or value chain	Yes	We see sustainability not only as the right thing to do, but also as a true business opportunity by providing new solutions that have smaller footprints or deliver other benefits in order to mitigate climate change. We believe that striving for a sustainable future also means being a safe and reliable partner for customers, employees, business partners, and communities, and we ask all our suppliers to work with us as we strive to lower our emissions in the short, medium and long-term. For example, in the near and medium term, we are evaluating the carbon performance of our outbound logistics and incorporating this in our carbon reduction roadmap. In another example, for logistic suppliers in Europe, we are increasingly doing business with transporters using low emissions diesel engines or companies using low emissions ships as much as possible. As part of our strategic planning in the near-term, we are considering potential scope 3 targets, in collaboration with suppliers. Using EcoVadis, we measure and track the sustainability performance of suppliers based on their policies, actions, and results. The assessment covers topics related to environmental, ethics, labor practices, and human rights, as well as sustainable procurement. Specific to climate, EcoVadis assessments include checks on supplier actions related to energy efficiency, GHGs, renewable energy, offsets, waste heat recovery/CHP, fuel switching, CCS, response to CDP- and employee training on these topics – as well as activities to reduce GHG emissions in suppliers' own supply chains (actions to engage suppliers, select suppliers based on GHG emissions, and partnering) Suppliers scoring below Bronze or lower will be asked to provide improvement plans to demonstrate continuous improvement. Suppliers declining to make a self-assessment will be informed that such refusal will be

		considered as part of supplier selection decisions. Suppliers scoring below Bronze or with no score who are assessed as high risk and either critical or strategic in IQ will be required to improve within 12 months. Such suppliers failing to show improvement will be placed in the 'Phase Out' segment of Nouryon's supplier segmentation and Nouryon will reduce business as far as is consistent with business objectives including where possible exit from the supplier.
Investment in R&D	Yes	A number of societal trends are driving demand and presenting opportunities for Nouryon's sustainable solutions. These include a growing and aging population, a rising and increasingly health-conscious middle class, climate change, and natural resource preservation. For example, our solutions help increase crop yields and improve crop quality; make products more biodegradable and easier to recycle; make buildings and vehicles more energy efficient; and increase the durability of bridges and wind turbines. Our segments, Performance Formulations, and Technology Solutions, use their expertise and collaboration with customers and other partners to develop sustainable, innovative, and high performing new products that meet the needs of our customers and society in an increasingly sustainable way. Within Performance Formulations, we base our sustainable innovations on a range of biodegradable and bio-based products, including chelating agents, surfactants, and polymers based on natural materials. We work to extend our product platforms through partnerships, acquisitions, and technology innovation. For example, acquiring the Äänekoski CMC business in 2020 enhanced our portfolio and technical capabilities in the field of cellulosic derivatives. In January 2023, Nouryon has completed the acquisition of ADOB. This acquisition allows Nouryon to further strengthen our offerings in chelated micronutrients and expand our portfolio of products in crop nutrition and other specialty agricultural solutions. Our Technology Solutions business contributes positively to sustainability through both product and process innovations. Our new product innovations promote benefits for our customers and the environment. Our process innovations reduce waste, wastewater, and emissions to air, and we continually strive to increase yields and reduce energy consumption to mitigate climate related risks of our customers.

Operations	Yes	Nouryon is committed to reducing our carbon footprint and energy use. We do this by increasing operational efficiency to reduce our energy consumption and expanding the sourcing of renewable energy. Thanks to ongoing improvement and innovation efforts, we reduced our absolute carbon footprint (scope 1 and 2) between 2019 and 2022 by 1.3%. In support of the objectives of the UN's Paris Agreement on climate change, we set a goal to further reduce carbon emissions from our operations and energy use. In 2022, this target was revised to our new 2030 target, which provides a longer-term point in time to show continued progress toward our aspiration toward becoming a net zero organization by 2050. Our 2030 target aims to reduce our scope 1 and scope 2 absolute greenhouse gas emissions by 40% vs. 2019. See more information in 4.1a. Furthermore, by 2050, we aspire to be a net zero organization. Nouryon has a strong drive to embed continuous improvement in manufacturing, energy efficiency and consumption across the supply chain. We track and report our eco-efficiency performance on a quarterly and annual basis. The input is checked and validated twice a year. To strengthen our sustainable energy sourcing capabilities, we established the Nouryon Energy Team (NET) has cross-functional expertise in Energy and, Procurement, and works in close collaboration with Finance, Business, Sustainability, and Carbon Business Strategy teams to continuously develop and implement strategic plans for low-carbon energy solutions globally.

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	We consider climate risks and opportunities as we build our strategy around new market opportunities – including aligning investments in products that serve markets that will expand to meet the transition to a

		low carbon economy. These include sales into renewable energy markets (wind turbines) and crop solutions to improve yields to battle potential soil depletion). One example is sales of our amine related products such as piperazine used in carbon capture. Piperazine / MDEA formulations are recognized as a preferred gas treatment solution for capturing CO2 in industrial applications. Thus, carbon capture solutions to mitigate climate change, presents a business opportunity. For our financial planning, we work with our customers and align future production to the estimated growing demand for piperazine and amine related products that is foreseen for the coming years. Piperazine helps our customers capture several million metric tonnes of carbon annually. The time horizon for this planning is short and medium term. We actively plan investments around Eco-Premium Solutions both in product development as well as facility investments and production capability to meet market demand, including consideration of low carbon and emission reduction policies impacting our customers and affecting potential market demand. We also consider raw material sourcing plans as part of these market strategies.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition
Row 1	No, and we do not plan to in the next two years

C4. Targets and performance

C4.1

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

Absolute target

C4.1a

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

Target reference number

Abs 1

Is this a science-based target?

No, and we do not anticipate setting one in the next two years

Target ambition

Year target was set

2022

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Base year

2019

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

544,908

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

905,718

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)

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

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

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

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

1,450,626

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, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO2e)

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO2e)

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO2e)

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO2e)

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)

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

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 (%)

40

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

870,375.6

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

583,261

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

849,065

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)

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

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

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

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

1,432,326

Does this target cover any land-related emissions?

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

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

3.1538108375

Target status in reporting year

Underway

Please explain target coverage and identify any exclusions

Nouryon has set the aspiration to be a net zero organization by 2050. Our current carbon reduction target is a key milestone in the transition plan towards net zero.

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

We aim to achieve our GHG reduction target through a wide range of actions that include energy efficiency measures and increasing our renewable energy usage. We are working to achieve our decarbonization goals with focus on: carbon operational excellence, energy transition, innovation, and value chain collaboration.

Our plan to achieve our goals includes:
* Scope 1: Improving efficiency in our operations and optimizing our fuel mix.
* Scope 2: Increasing our use of renewable energy through power purchase agreements, on-site renewables, and green utility programs.
* Scope 3: Analyzing and reducing our indirect GHG emissions from activities across our value chains.

In addition, across all scopes:
* Exploring collaboration opportunities with our customers, suppliers and potential partners, including for example conducting life cycle assessments with our customers.
* Evaluating and deploying innovative technologies such as those in the ICOS Capital Fund III, in which we are a strategic investor.
* Integrating net zero and climate change considerations into our strategy and planning.

Our solutions can also contribute to GHG reductions for our customers. For example, making packaging lighter with our Expancel® thermoplastic microspheres, which drives transportation fuel efficiency and reduces transportation-related emissions. Similarly, our solutions are essential to renewable energy related products such as lightweight

composite parts in wind turbines and insulation for high-quality, high-voltage cables, and for helping to make solar panels durable and highly efficient.

We have a strong drive to embed continuous improvement in manufacturing, energy efficiency and consumption across our supply chain. This includes tracking and reporting our energy and environmental data on a quarterly and annual basis. In 2022, our total GHG absolute scope 1 and scope 2 shows a decrease of 1.3% compared to our base year 2019. This is mainly due to energy reduction projects, grid changes and reduction of our production.

Renewable energy refers to energy generated using processes such as solar, wind, hydro, and biomass, which result in substantially lower greenhouse gas emissions than fossil fuel-based processes. In 2022, 34% of our energy came from renewable sources such as hydro, wind, solar, biomass for power, and steam from bio-waste. In 2022, 39% of our electricity consumption was renewable.

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

C4.2

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

No other climate-related targets

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	61	484,530
To be implemented*	6	132,060
Implementation commenced*	8	6,890
Implemented*	12	7,700
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)

5,099

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)

620,000

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

499,000

Payback period

<1 year

Estimated lifetime of the initiative

11-15 years

Comment

We have an overview of all our projects being implemented in 2022 with CO2 savings, Capex and yearly savings.

Initiative category & Initiative type

Low-carbon energy consumption

Other, please specify

Renewable energy consumption with Wind, Hydro and Solar as sources

Estimated annual CO2e savings (metric tonnes CO2e)

600

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)

0

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

0

Payback period

No payback

Estimated lifetime of the initiative

11-15 years

Comment

We are constantly exploring opportunities for renewable energy using sources like solar, wind, hydro and biomass energy, which result in substantially lower greenhouse gas emissions than conventional processes. In 2022, 34% of our energy came from renewable sources such as hydro, wind, solar, biomass for power, and steam from bio-waste. In 2022, 39% of our electricity consumption was renewable.

Initiative category & Initiative type

Other, please specify

Other, please specify

Replacement by more efficient equipment

Estimated annual CO2e savings (metric tonnes CO2e)

2,000

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

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

90,000

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

390,000

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

We often explore for opportunities to improve efficiency, including with replacing equipment where heat integration is applied or motors, with higher efficiency units.

This example shows additional benefits by reducing VOC coming from waste water as pre-treatment for our Ningbo bio waste water treatment plant. By using a natural gas fired incinerator, steam is generated on site. In this way, less coal-based, external steam is needed which results in CO2e savings.

C4.3c

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

Method	Comment
Compliance with regulatory requirements/standards	Many of our capital investments drive emission reductions by improving the effectiveness and efficiency of our operations. Also, our capital investments are compliant with regulatory requirements, and safety standards in every region in which we operate. We are in the process of putting a carbon tax into our financial models for relevant capital investments. In partnership with our customers, we also develop and invest in innovative, sustainable solutions designed to meet end-use application performance specifications, sustainability requirements such as bio-based, regulatory requirements, and environmental laws and regulations. Our long-term plan to achieve our emission reduction goals includes: • Scope 1: Improving efficiency in our operations and optimizing our fuel mix. • Scope 2: Increasing our use of renewable energy through power purchase agreements, on-site renewables, utility programs and green utility programs. • Scope 3: Analyzing and reducing indirect GHG emissions from activities across our value chains. In addition, across all scopes, we intend to: • Explore collaboration opportunities with our customers and suppliers. • Evaluate and deploy innovative technologies such as those in the Icos Capital Fund III, in which we are a strategic investor. • Integrate net-zero and climate-change considerations into our strategy and planning.

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

Other, please specify

Life Cycle Assessments

Type of product(s) or service(s)

Road

Other, please specify

Low-density fillers

Description of product(s) or service(s)

Nouryon Engineered Polymers creates extremely low-density fillers that are commonly used in plastics and paper for reducing the amount of raw material needed to create products and are very small in size and weight but displace a significant amount of material (such as plastic or wood) used in manufacturing when expanded to their full size. Low density fillers help displace material but are bulky and expensive to ship. For large volume end users, the number of trucks needed to transport filler from the production facility to the end using facility can be significant. For improved Environmental Protection, Nouryon has created an onsite expanding machine and process for shipping unexpanded fillers, in microsphere form, to customers and leases the equipment, which enables customers to take advantage of the product quickly and easily without large capital expense. Nouryon also sends an experienced technician to set up and install the equipment so there is minimal learning, expense, or effort invested by the end user. When installed and operational, the onsite equipment takes unexpanded microspheres and expands them on demand. Typical expansion creates a filler volume equivalent to 40 – 60x the original unexpanded microsphere size. This new approach significantly reduces the need for transporting low density fillers resulting in fuel and emission reductions and reduces the number of trucks on the road.

Mainstream alternative: transport of expanded Expancel to the customer.

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

Yes

Methodology used to calculate avoided emissions

Other, please specify

Life Cycle Assessments

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

Cradle-to-gate

Functional unit used

1 kg of unexpanded Expancel deliverd to customer

Reference product/service or baseline scenario used

Expansion of Expancel at the manufacturing site

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

Cradle-to-gate

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

1,981

Explain your calculation of avoided emissions, including any assumptions

Shipping unexpanded microspheres vs. the full-size expanded version results in high fuel efficiency, which reduces emissions. Since onsite volume increase is 40 to 60 times the unexpanded microsphere volume, we conservatively estimate only 1/40th of the energy and packaging supplies is what is consumed in the improved process. Environmental savings results in only a fraction of the fuel and oil used to power those fleets, 1/40th the amount of packaging that would be used, and 1/40th the amount of greenhouse gas released from shipping material to those consuming end locations. The CO2 avoidance by transporting unexpanded Expancel instead of expanded is 1.68 ton CO2_eq per ton sold Expancel. In 2022 we sold 1,179 ton in this segment so avoiding 1,179 times 1.68 makes 1,981 ton.

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

0.4

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?

No

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	In 2022, we reported our Scope 2 emissions calculations in alignment with the greenhouse gas (GHG) Protocol. This includes reporting market and location-based emissions and applying the GHG Protocol's emission factor hierarchies. For market-based Scope 2 emission factors, in cases where energy attribute certificates, renewable contracts or supplier-based emissions factors were not available, we used eGrid for grid average emission factors in the US and for Europe, we used the residual grid factors from the Association of Issuing Bodies. Where residual grid factors were not available and in other regions, we used national electricity emission factors from the International Energy Agency (2020 estimate data). In further alignment with the GHG Protocol, Sustainable Accounting Standards Board (SASB), and leading reporting standards, we updated our renewable energy percentage calculation of electricity to no longer be based on utility fuel mix data. Instead, we only track electricity from verifiable sources, for example: certified with renewable energy certificates (RECs), Guarantees of Origin (GO) retired on our behalf, direct connection, or onsite generation. For Scope 3, we made significant improvements to the methodology vs. our estimates using 2020 data. The result is that 2022 data is not comparable vs. prior periods. For further context to organizational boundaries, GHG Protocol Alignment, and GHG calculation methodology, refer to our Nouryon Reporting Principles: https://www.nouryon.com/globalassets/nouryon/4.-company/4.-sustainability/downloads/reporting-principles.pdf

C5.1c

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

	Base year recalculation	Scope(s) recalculated	Base year emissions recalculation policy, including significance threshold	Past years' recalculation

Row 1	Yes	Scope 1 Scope 2, location-based Scope 2, market-based	For calculation of our Scope 1 emissions, we have updated our fuel emission factors for the years 2019 until 2022. Based on the guidelines in the GHG protocol, we have updated our base year emission data reported Scope 2 emissions calculations in alignment with the GHG Protocol. This includes reporting market and location-based emissions and applying the GHG Protocol's emission factor hierarchies for our base year. For market-based Scope 2 emission factors, in cases where energy attribute certificates, renewable contracts or supplier-based emissions factors are not available, we use eGrid for grid average emission factors in the US and for Europe, we use the residual grid factors from the Association of Issuing Bodies. Where residual grid factors are not available and in other regions, we use national electricity emission factors from the International Energy Agency (2020 estimate data).	Yes

C5.2

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

Scope 1

Base year start

January 1, 2019

Base year end

December 31, 2019

Base year emissions (metric tons CO2e)

544,908

Comment

The base year number includes scope 1 emissions from our own operations and is updated compared to our submission in 2022 (over 2021), with updated fuel emission factors for the years 2019 until 2022.

Scope 2 (location-based)

Base year start

January 1, 2019

Base year end

December 31, 2019

Base year emissions (metric tons CO2e)

1,267,276

Comment

Based on the guidelines in the GHG protocol, we have updated our base year emission data for Scope 2 emissions calculations in alignment with the GHG Protocol. We started reporting our location-based scope 2 emissions starting with our base year 2019 until 2022.

Scope 2 (market-based)

Base year start

January 1, 2019

Base year end

December 31, 2019

Base year emissions (metric tons CO2e)

905,718

Comment

The base year 2019 number includes scope 2 emissions from our own operations and is updated compared to our submission in 2022 (over 2021), with updated Scope 2 emissions calculations in alignment with the GHG Protocol.

Scope 3 category 1: Purchased goods and services

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

2,702,666

Comment

This category includes upstream emissions from the production of products purchased by Nouryon as raw materials in the reporting year as well as packaging and services. The upstream emissions are related to the extraction, production, and transportation of goods and services purchased by Nouryon in the reporting year, not otherwise included in Categories 2– 8:

Primary data:
• Raw materials – Average-data Method – Mass of purchases
• Packaging – Spend-based Method – Spend on purchases
• Services – Spend-based Method – Spend on purchases

Secondary data:

• Raw materials – Average-data Method – Mass-based ecoinvent and Sphera Emission Factors (Global focused, based on 2022 analysis of emission factors)
• Packaging – Spend-based Method – US EPA Supply Chain Emission Factors (2016)
• Services – Spend-based Method – US EPA Supply Chain Emission Factors (2016)

Nouryon's Category 1 footprint is calculated as the sum total of raw materials, packaging and services.

Our raw materials emissions are estimated by multiplying the mass of raw material purchases by material-specific emission factors. Our Packaging and services emissions are estimated by and multiplying packaging and services spend by sector-specific emission factors.

Scope 3 category 2: Capital goods

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

40,049

Comment

This category includes upstream emissions from the production of capital goods (for example, plant equipment used in manufacturing) purchased by Nouryon in the reporting year.

Primary data:
• Spend-based Method – Spend on capital projects

Secondary data:
• Spend-based Method – US EPA Supply Chain Emission Factors

Nouryon's Category 2 footprint is calculated by multiplying spend by sector-specific emission factors.

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

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

411,366

Comment

This category includes emissions related to the production of fuels and energy purchased and consumed by Nouryon in the reporting year that are not included in scope 1 or scope 2.
From the GHG Protocol:
• Upstream emissions of purchased fuels – Extraction, production, and transportation of fuels consumed by the reporting company
• Upstream emissions of purchased electricity – Extraction, production, and transportation of fuels consumed in the generation of electricity, steam, heating, and cooling that is consumed by the reporting company
• Transmission and distribution (T&D) losses – Generation (upstream activities and combustion) of electricity, steam, heating, and cooling that is consumed (i.e., lost) in a T&D system.

Primary data:
• Quantity of fuels and electricity used

Secondary data:
• T&D Losses for Electricity – Average-data Method – Country specific Emission Factors from IEA (from 2019)
• Well to tank (WTT) for Fuel – Average-data Method – DEFRA Emission Factors by fuel type (from 2022)
• WTT for Electricity – Average-data Method – DEFRA Emission Factors by country and grid loss from IEA (from 2019)

Nouryon's Category 3 footprint is calculated by multiplying fuel and electricity use by emission factors for upstream fuel extraction and transmission & distribution losses. For fuel related calculations, the most commonly used fuels (natural gas, LPG, fuel oil) are included. Calculations for biomass fuel and other smaller use fuels (gasoline) are excluded as their contributions is minor.

The impact of purchased steam is not included in category 3 reporting.

Scope 3 category 4: Upstream transportation and distribution

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

199,267

Comment

This category includes upstream emissions from the transportation and distribution of products by Nouryon in the reporting year.

Primary data:
• Spend-based Method – Spend on transportation, distribution, and logistics
Secondary data:
• Spend-based Method – US EPA Supply Chain Emission Factors (2016) assuming all transport by truck

Nouryon's Category 4 footprint is calculated by multiplying spend by mode-specific emission factors, with an assumption that all transport is done by truck.

Scope 3 category 5: Waste generated in operations

Base year start
January 1, 2022

Base year end
December 31, 2022

Base year emissions (metric tons CO2e)
61,306

Comment
Primary data:
• Waste-type Specific Method – Mass, region, and waste stream of waste generated
Secondary data:
• Waste-type Specific Method Mass-based ecoinvent Emission Factors (from 2021)

Nouryon's Category 5 footprint is calculated by multiplying mass of waste generated by treatment-route-specific emission factors.

Scope 3 category 6: Business travel

Base year start
January 1, 2022

Base year end
December 31, 2022

Base year emissions (metric tons CO2e)
5,708

Comment
Primary data:
• Spend-based Method – Spend broken down by travel category – Public transit and food.
• Distance-based Method – Mileage broken down by flights, personal car, and rental car.
• Hotel broken down by nights.

Secondary data:
• Spend-based Method – US EPA Supply Chain Emission Factors for spend-based category (from 2016)

• Distance-based Method – DEFRA Emission Factors used for activity/mileage based categories (from 2022)

Nouryon's Category 6 footprint is calculated by multiplying distance travelled or number of nights stayed by activity-specific emission factors, which are then added to the spend based activity data multiplied by sector-specific emission factors.

This category includes 171 tons CO2 for food for 2022, which is also included in category 1 as part of Services. This instance of over reporting will be corrected in future reporting.

Scope 3 category 7: Employee commuting

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

13,062

Comment

Primary data:
• Number of employees by country.

Secondary data:
• Average-based Method – Average country commute data and DEFRA activity-based Emission Factors (from 2022).

Nouryon's Category 7 footprint is calculated by multiplying average commute distance travelled (country data) by an activity-based emission factor (DEFRA). Countries with less than 10 employees are grouped under rest of world which uses average commute distance from other countries.

For 2022, we assume all commuting is done via car. The contribution of the category is less than 1 % compared to the total scope 3.

Scope 3 category 8: Upstream leased assets

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

1,482

Comment

Primary data:
• Average-data Method – List of warehouses, storage size, location, and activity.

Secondary data:
• Average-data Method – Energy intensity factors (from 2022) and Country specific Emission Factors from IEA (from 2019).

Nouryon's Category 8 footprint is calculated by multiplying storage square footage by energy intensity factor and country specific emission factors.

For the calculations for category 8 only warehouses are taken into consideration, and we have excluded administrative spaces and tank terminals.

This category is based on estimates from limited, best available data, and is included the total reported Scope 3 but excluded from the assurance scope.

Scope 3 category 9: Downstream transportation and distribution

Base year start
January 1, 2022

Base year end
December 31, 2022

Base year emissions (metric tons CO2e)
400,621

Comment
While outbound transportation and distribution services are typically excluded from category 9 and included in category 4, because we include the transport costs in the delivered selling price to our customers, we include transport emissions in this category.

Primary data:
• Spend-based Method – Spend on transportation, distribution and logistics by mode

Secondary data:
• Spend-based Method – US EPA Supply Chain Emission Factors (from 2016)

Nouryon's Category 9 footprint is calculated by multiplying spend by mode- and sector specific emission factors.

Scope 3 category 10: Processing of sold products

Base year start
January 1, 2022

Base year end
December 31, 2022

Base year emissions (metric tons CO2e)

0

Comment

This category is not included in our scope 3 calculations. Given the wide variety of intermediate products sold, data is impractical to collect with confidence. Results would be based on broad assumptions, that could result in potential inaccuracies.

Scope 3 category 11: Use of sold products

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

0

Comment

Primary data:
• Direct use-phase Emissions – Sales volume by region and description of product end uses
Secondary data:
• Direct-used Phase Emissions – IPCC AR6 global warming potentials Nouryon's Category 11 footprint is calculated by multiplying emitted product volumes and volumes of combustion products from combusted products by the latest available global warming potentials.

Considering potential end-use applications of our product lines, we consider that no sold products are combusted, nor are used as blowing agents or otherwise emitted during use. One product (DME) is used as an aerosol propellant but does not have a global warming potential (GWP) according to IPCC AR6 (2021). Thus, we assume no emissions from direct use-phase.

The full product line of Nouryon is consisting of intermediates and indirect use phase of certain chemicals is unknown. Therefore, this category has been excluded from reporting.

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

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

558,150

Comment

Primary data:
• Waste-type Specific Method – Sales volume by region and description of product end use

Secondary data:
• Waste-type Specific Method – Average regional waste fate from World Bank and mass-based ecoinvent Emission Factors. Recycling and Wastewater treatment
• (WWT) pathways added for EOL.

Nouryon's Category 12 footprint is calculated by multiplying product sales volumes by waste fate by region and by treatment-route-specific emission factors.

Scope 3 category 13: Downstream leased assets

Base year start
January 1, 2022

Base year end
December 31, 2022

Base year emissions (metric tons CO2e)
0

Comment
Nouryon does not have downstream leased assets.

Scope 3 category 14: Franchises

Base year start
January 1, 2022

Base year end
December 31, 2022

Base year emissions (metric tons CO2e)
0

Comment
Nouryon does not own or operate any franchises.

Scope 3 category 15: Investments

Base year start
January 1, 2022

Base year end
December 31, 2022

Base year emissions (metric tons CO2e)
32,904

Comment

Primary data:
• Average-data Method – Investment value and ownership stake. For those controlled by Nouryon, included.

Secondary data:
• Average-data Method – US EPA Supply Chain Emission Factors.

Nouryon's Category 15 footprint is calculated by multiplying investment value by sector specific emission factors.

Our Scope 3 reporting contain estimates for this category which contribute to the total Scope 3 but is excluded from the assurance scope.

Scope 3: Other (upstream)

Base year start
January 1, 2022

Base year end
December 31, 2022

Base year emissions (metric tons CO2e)
0

Comment
Not other scope 3 upstream emissions.

Scope 3: Other (downstream)

Base year start
January 1, 2022

Base year end
December 31, 2022

Base year emissions (metric tons CO2e)
0

Comment
No other downstream scope 3 emissions.

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)
The Greenhouse Gas Protocol: Scope 2 Guidance
The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Standard

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)

583,264

Start date

January 1, 2022

End date

December 31, 2022

Comment

The base year number and reporting year 2022 included emissions from our own operations.

Past year 1

Gross global Scope 1 emissions (metric tons CO2e)

568,687

Start date

January 1, 2021

End date

December 31, 2021

Comment

The base year number and reporting year 2021 included emissions from our own operations.

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

In 2022, we reported our Scope 2 emissions calculations in alignment with the greenhouse gas (GHG) Protocol. This includes reporting market and location-based emissions and applying the GHG Protocol's emission factor hierarchies. For market-based Scope 2 emission factors, in cases where energy attribute certificates, renewable contracts or supplier-based emissions factors are not available, we use eGrid for grid average emission factors in the US (2020) and for Europe, we use the residual grid factors from the Association of Issuing Bodies (2021). Where residual grid factors are not available and in other regions, we use national electricity emission factors from the International Energy Agency (2020 estimate data).

Purchased RECs or GOs (Guarantee of Origin) are included in the final CO2 reporting.

C6.3

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

Reporting year

Scope 2, location-based

1,243,899

Scope 2, market-based (if applicable)

849,066

Start date

January 1, 2022

End date

December 31, 2022

Comment

The reporting year number 2022 included emissions from our own operations.

In 2022, we reported our Scope 2 emissions calculations in alignment with the greenhouse gas (GHG) Protocol. This includes reporting market and location-based emissions and applying the GHG Protocol's emission factor hierarchies. For market-based Scope 2 emission factors, in cases where energy attribute certificates, renewable contracts or supplier-based emissions factors are not available, we use eGrid for grid average emission factors in the US (2020) and for Europe, we use the residual grid factors from the Association of Issuing Bodies (2021). Where residual grid factors are not available and in other regions, we use national electricity emission factors from the International Energy Agency (2020 estimate data).

Purchased RECs or GOs are included in the final CO2 reporting.

Past year 1

Scope 2, location-based

1,190,203

Scope 2, market-based (if applicable)

834,534

Start date

January 1, 2021

End date

December 31, 2021

Comment

The reporting year number 2021 included emissions from our own operations.

In 2022, we reported our Scope 2 emissions calculations in alignment with the greenhouse gas (GHG) Protocol. This includes reporting market and location-based emissions and applying the GHG Protocol's emission factor hierarchies. For market-based Scope 2 emission factors, in cases where energy attribute certificates, renewable contracts or supplier-based emissions factors
are not available, we use eGrid for grid average emission factors in the US and for Europe, we use the residual grid factors from the Association of Issuing Bodies. Where residual grid factors are not available and in other regions, we use national electricity emission factors from the International Energy Agency (2020 estimate data).

Purchased RECs or GOs are included in the final CO2 reporting.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

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)

2,702,666

Emissions calculation methodology

Average data method
Spend-based method

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

0

Please explain

This category includes upstream emissions from the production of products purchased by Nouryon as raw materials in the reporting year as well as packaging and services. The upstream emissions are related to the extraction, production, and transportation of goods and services purchased by Nouryon in the reporting year, not otherwise included in Categories 2– 8:

Primary data:
• Raw materials – Average-data Method – Mass of purchases
• Packaging – Spend-based Method – Spend on purchases
• Services – Spend-based Method – Spend on purchases

Secondary data:
• Raw materials – Average-data Method – Mass-based ecoinvent and Sphera Emission Factors (Global focused), based on 2022 analysis of emission factors)
• Packaging – Spend-based Method – US EPA Supply Chain Emission Factors (2016)
• Services – Spend-based Method – US EPA Supply Chain Emission Factors (2016)

Nouryon's Category 1 footprint is calculated as the sum total of raw materials, packaging and services. Our raw materials emissions are estimated by multiplying the mass of raw material purchases by material-specific emission factors. Our Packaging and services emissions are estimated by and multiplying packaging and services spend by sector-specific emission factors.

Capital goods

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

40,049

Emissions calculation methodology

Spend-based method

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

0

Please explain

This category includes upstream emissions from the production of capital goods (for example, plant equipment used in manufacturing) purchased by Nouryon in the reporting year.

Primary data:

• Spend-based Method – Spend on capital projects

Secondary data:
• Spend-based Method – US EPA Supply Chain Emission Factors (from 2022)

Nouryon's Category 2 footprint is calculated by multiplying spend by sector-specific 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)

411,366

Emissions calculation methodology

Average data method

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

0

Please explain

This category includes emissions related to the production of fuels and energy purchased and consumed by Nouryon in the reporting year that are not included in scope 1 or scope 2. From the GHG Protocol:
• Upstream emissions of purchased fuels – Extraction, production, and transportation of fuels consumed by the reporting company
• Upstream emissions of purchased electricity – Extraction, production, and transportation of fuels consumed in the generation of electricity, steam, heating, and cooling that is consumed by the reporting company
• Transmission and distribution (T&D) losses – Generation (upstream activities and combustion) of electricity, steam, heating, and cooling that is consumed (i.e., lost) in a T&D system.

Primary data:
• Quantity of fuels and electricity used

Secondary data:
• T&D Losses for Electricity – Average-data Method – Country specific Emission Factors from IEA (from 2019)
• Well to tank (WTT) for Fuel – Average-data Method – DEFRA Emission Factors by fuel type (from 2022)
• WTT for Electricity – Average-data Method – DEFRA Emission Factors by country and grid loss from IEA (from 2019)

Nouryon's Category 3 footprint is calculated by multiplying fuel and electricity use by emission factors for upstream fuel extraction and transmission & distribution losses.

For fuel related calculations, the most commonly used fuels (natural gas, LPG, fuel oil)are included. Calculations for biomass fuel and other smaller use fuels (gasoline) are excluded as their contributions is minor.

The impact of purchased steam is not included in category 3 reporting.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

199,267

Emissions calculation methodology

Spend-based method

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

0

Please explain

This category includes upstream emissions from the transportation and distribution of products by Nouryon in the reporting year.

Primary data:
• Spend-based Method – Spend on transportation, distribution, and logistics

Secondary data:
• Spend-based Method – US EPA Supply Chain Emission Factors assuming all transport by truck (from 2016)

Nouryon's Category 4 footprint is calculated by multiplying spend by mode-specific emission factors, with an assumption that all transport is done by truck.

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

61,306

Emissions calculation methodology

Waste-type-specific method

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

0

Please explain

Primary data:
• Waste-type Specific Method – Mass, region, and waste stream of waste generated

Secondary data:
• Waste-type Specific Method Mass-based ecoinvent Emission Factors (from 2021)

Nouryon's Category 5 footprint is calculated by multiplying mass of waste generated by treatment-route-specific emission factors.

Business travel

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

5,708

Emissions calculation methodology

Spend-based method
Distance-based method

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

0

Please explain

Primary data:
• Spend-based Method – Spend broken down by travel category – Public transit and food.
• Distance-based Method – Mileage broken down by flights, personal car, and rental car.
• Hotel broken down by nights.

Secondary data:
• Spend-based Method – US EPA Supply Chain Emission Factors for spend-based category (from 2016).
• Distance-based Method – DEFRA Emission Factors used for activity/mileage based categories (from 2022).

Nouryon's Category 6 footprint is calculated by multiplying distance travelled or number of nights stayed by activity-specific emission factors, which are then added to the spend based
activity data multiplied by sector-specific emission factors.

This category includes 171 tons CO2 for food for 2022, which is also included in category 1 as part of Services. This instance of over reporting will be corrected in future reporting.

Employee commuting

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

13,062

Emissions calculation methodology

Average data method

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

0

Please explain

Primary data:
• Number of employees by country.

Secondary data:
• Average-based Method – Average country commute data and DEFRA activity-based Emission Factors (from 2022).

Nouryon's Category 7 footprint is calculated by multiplying average commute distance travelled (country data) by an activity-based emission factor (DEFRA). Countries with less than 10 employees are grouped under rest of world, which uses average commute distance from other countries.

For 2022, we assume all commuting is done via car. The contribution of the category is less than 1 % compared to the total scope 3.

Upstream leased assets

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

1,482

Emissions calculation methodology

Average data method

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

0

Please explain

Primary data:
• Average-data Method – List of warehouses, storage size, location, and activity.
Secondary data:
• Average-data Method – Energy intensity factors (from 2022) and Country specific Emission Factors from IEA (from 2019).

Nouryon's Category 8 footprint is calculated by multiplying storage square footage by energy intensity factor and country specific emission factors.

For the calculations for category 8 only warehouses are taken into consideration, and we have excluded administrative spaces and tank terminals.

Our Scope 3 reporting contain estimates for this category which contribute to the total Scope 3 but is excluded from the assurance scope.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

400,621

Emissions calculation methodology

Spend-based method

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

0

Please explain

While outbound transportation and distribution services are typically excluded from category 9 and included in category 4, because we include the transport costs in the delivered selling price to our customers, we include transport emissions in this category.

Primary data:
• Spend-based Method – Spend on transportation, distribution and logistics by mode
Secondary data:
• Spend-based Method – US EPA Supply Chain Emission Factors (from 2016).

Nouryon's Category 9 footprint is calculated by multiplying spend by mode- and sector specific emission factors.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain

This category is not included in our scope 3 calculations. Given the wide variety of intermediate products sold, data is impractical to collect with confidence. Results would be based on broad assumptions, that could result in potential inaccuracies.

Use of sold products

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

0

Emissions calculation methodology

Methodology for direct use phase emissions, please specify

Nouryon's Category 11 footprint is calculated by multiplying emitted product volumes and volumes of combustion products from combusted products by the latest available global warming potentials.

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

0

Please explain

Primary data:

• Direct use-phase Emissions – Sales volume by region and description of product end uses

Secondary data:

• Direct-used Phase Emissions – IPCC AR6 global warming potentials

Nouryon's Category 11 footprint is calculated by multiplying emitted product volumes and volumes of combustion products from combusted products by the latest available global warming potentials.

Considering potential end-use applications of our product lines, we consider that no sold products are combusted, nor are used as blowing agents or otherwise emitted during use. One product (DME) is used as an aerosol propellant but does not have a global warming potential (GWP) according to IPCC AR6 (2021). Thus, we assume no emissions from direct use-phase.

The full product line of Nouryon is consisting of intermediates and indirect use phase of certain chemicals is unknown. Therefore, this category has been excluded from reporting.

End of life treatment of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

558,150

Emissions calculation methodology

Waste-type-specific method

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

0

Please explain

Primary data:
• Waste-type Specific Method – Sales volume by region and description of product end use

Secondary data:
• Waste-type Specific Method – Average regional waste fate from World Bank and mass-based ecoinvent Emission Factors. Recycling and Wastewater treatment (WWT) pathways added for EOL.

Nouryon's Category 12 footprint is calculated by multiplying product sales volumes by waste fate by region and by treatment-route-specific emission factors. This also includes intermediate products.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Nouryon does not have downstream leased assets.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Nouryon does not own or operate any franchises.

Investments

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

32,904

Emissions calculation methodology

Average data method

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

0

Please explain

Primary data:
• Average-data Method – Investment value and ownership stake. For those controlled by Nouryon, included.

Secondary data:
• Average-data Method – US EPA Supply Chain Emission Factors

Nouryon's Category 15 footprint is calculated by multiplying investment value by sector specific emission factors.

Our Scope 3 reporting contain estimates for this category which contribute to the total Scope 3 but is excluded from the assurance scope.

Other (upstream)

Evaluation status
Not relevant, explanation provided

Please explain
No other scope 3 upstream emissions.

Other (downstream)

Evaluation status
Not relevant, explanation provided

Please explain
No other scope 3 downstream emissions.

C6.5a

(C6.5a) Disclose or restate your Scope 3 emissions data for previous years.

Past year 1

Start date
January 1, 2021

End date
December 31, 2021

Scope 3: Purchased goods and services (metric tons CO2e)
2,492,244

Scope 3: Capital goods (metric tons CO2e)
158,454

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)
399,106

Scope 3: Upstream transportation and distribution (metric tons CO2e)

48,400

Scope 3: Waste generated in operations (metric tons CO2e)

54,884

Scope 3: Business travel (metric tons CO2e)

11,111

Scope 3: Employee commuting (metric tons CO2e)

12,750

Scope 3: Upstream leased assets (metric tons CO2e)

0

Scope 3: Downstream transportation and distribution (metric tons CO2e)

147,619

Scope 3: Processing of sold products (metric tons CO2e)

0

Scope 3: Use of sold products (metric tons CO2e)

0

Scope 3: End of life treatment of sold products (metric tons CO2e)

1,168,787

Scope 3: Downstream leased assets (metric tons CO2e)

0

Scope 3: Franchises (metric tons CO2e)

0

Scope 3: Investments (metric tons CO2e)

129,723

Scope 3: Other (upstream) (metric tons CO2e)

0

Scope 3: Other (downstream) (metric tons CO2e)

0

Comment

In support of our Carbon Business Strategy, and with the support of an external consultant agency, we further enhanced our methodology for our Scope 3 emissions inventory covering estimated emissions across the value chain. We reviewed primary and secondary data sources and refined our approach to build more rigor in our calculations and methodology.

In general, we strive to utilize data sources that are temporally relevant and geographically representative.

Where possible, we prioritized physical quantities (mass of purchased raw materials and generated waste, miles travelled) over spend-based data. Specifically:
• For Purchased goods and services (category 1), specifically raw materials, and waste generated in operations (category 5) – we identified emission factors that represent our global operations and supply chain
• For end of life of sold products (category 12) – we added recycling and wastewater treatment pathways and based calculations on sales volume instead of production volume to better approximate regional waste fates for our products.
• For business travel (category 6) – we moved to using a distance-based method for flights, rental cars and personal cars, and number of nights for hotel stays – vs. generic spend-based estimates.
• For employee commuting (category 7) – we used average country commute data and applied the specific DEFRA emission factor for traveling by car.
• For multiple categories – we used more recent database sources.

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

0.000247

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

1,432,326

Metric denominator

unit total revenue

Metric denominator: Unit total

5,791,000,000

Scope 2 figure used

Market-based

% change from previous year

13.3

Direction of change

Decreased

Reason(s) for change

Change in renewable energy consumption
Other emissions reduction activities
Change in revenue
Change in methodology

Please explain

The intensity number for 2021 was 0.000285 based on 4,917 billion US$ and 1,403,221 ton CO2 scope 1 and 2. The intensity number for 2022 is 0.000247 based on 5,791 billion US$ and 1,432,326 ton CO2 scope 1 and 2. The emissions in 2022 were higher compared to 2021 (plus 5.1%) mainly as a result of portfolio effects and changes in production volume off set by process efficiency improvements. The main driver for the decrease in emissions intensity is higher revenues. Our 2022 revenue was 18% higher versus 2021.

In 2022, we reported our Scope 2 emissions calculations in alignment with the greenhouse gas (GHG) Protocol. This includes reporting market and location-based emissions and applying the GHG Protocol's emission factor hierarchies. For market-based Scope 2 emission factors, in cases where energy attribute certificates, renewable contracts or supplier-based emissions factors are not available, we use eGrid for grid average emission factors in the US and for Europe, we use the residual grid factors from the Association of Issuing Bodies. Where residual grid factors are not available and in other regions, we use national electricity emission factors from the International Energy Agency (2020 estimate data).
This resulted in lower Scope 1 and 2 CO2 emissions for 2021 (1,403,222 tons instead of 1,434,196 tons). Therefore, the 2021 emission intensity as reported in this CDP submission is lower compared to the 2021 emission intensity figure as reported last year (0.00285 versus 0.000292, so 2.3% lower).

Our emission reduction activities are included in C4.3b.

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/area/region.

Country/area/region	Scope 1 emissions (metric tons CO2e)
United States of America	175,412

Brazil	13,802
Mexico	4,253
Canada	963
Argentina	15,731
Japan	655
China	80,440
Singapore	815
Taiwan, China	1,047
Italy	1,298
Sweden	223,033
Netherlands	17,479
Germany	33,336
India	470
Belgium	14,457
France	73
Finland	0
Norway	0

C7.3

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

By business division

C7.3a

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

Business division	Scope 1 emissions (metric ton CO2e)
Performance Formulations Segment	421,662
Technology Solutions Segment	161,602

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	Comment

Chemicals production activities	583,264	All production activities world wide.

C7.5

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

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
United States of America	583,061	432,981
Brazil	145,822	582
Mexico	8,451	8,451
Canada	84,029	1,043
Argentina	4,031	4,031
Japan	2,222	2,222
China	323,630	322,876
Singapore	697	697
Taiwan, China	1,131	1,131
Finland	16,613	0
Italy	1,041	1,789
Sweden	23,422	5,932
France	8,603	8,295
Netherlands	20,841	21,082
Germany	13,445	11,253
India	2,028	2,028
Belgium	4,393	0
Norway	439	24,673

C7.6

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

By business division

C7.6a

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

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)

Performance Formulations Segment	389,598	376,775
Technology Solutions Segment	854,301	472,291

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

Not relevant as we do not have any subsidiaries

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
Chemicals production activities	1,243,899	849,066	All production activities world wide.

C-CH7.8

(C-CH7.8) Disclose the percentage of your organization's Scope 3, Category 1 emissions by purchased chemical feedstock.

Purchased feedstock	Percentage of Scope 3, Category 1 tCO2e from purchased feedstock	Explain calculation methodology
Ammonia	8.6	Based on spend volumes for 2022 derived from SAP data and cross referenced with ecoinvent 3.7 and Sphera raw materials emission factors. See C6.5.
Aromatics extraction	1.9	Solvents were classified under Aromatics Extraction. Based on spend volumes for 2022 derived from SAP data and cross referenced with ecoinvent 3.7 and Sphera raw materials emission factors. See C6.5.
Ethanol	0.6	Based on spend volumes for 2022 derived from SAP data and cross referenced with ecoinvent 3.7 and Sphera raw materials emission factors. See C6.5.

High Value Chemicals (Steam cracking)	18.4	Ethylene and ethylene-derived chemicals were classified under high-value chemicals. Based on spend volumes for 2022 derived from SAP data and cross referenced with Ecoinvent 3.7 and Sphera raw materials emission factors. See C6.5.
Methanol	1.1	Based on spend volumes for 2022 derived from SAP data and cross referenced with ecoinvent 3.7 and Sphera raw materials emission factors. See C6.5.
Other base chemicals	52.3	Elements and simple molecules were classified as other base chemicals. Based on spend volumes for 2022 derived from SAP data and cross referenced with ecoinvent 3.7 and Sphera raw materials emission factors. See C6.5.
Polymers	0.1	Based on spend volumes for 2022 derived from SAP data and cross referenced with ecoinvent 3.7 and Sphera raw materials emission factors. See C6.5.
Solid biomass	1.3	Cellulose was classified as solid biomass Based on spend volumes for 2022 derived from SAP data and cross referenced with ecoinvent 3.7 and Sphera raw materials emission factors. See C6.5
Specialty chemicals	1.3	Fats, Oils, Tallow, and complex chemicals that did not fit into other categories were classified as specialty chemicals. Based on spend volumes for 2022 derived from SAP data and cross referenced with ecoinvent 3.7 and Sphera raw materials emission factors. See C6.5.
Adipic acid	0.04	Based on spend volumes for 2022 derived from SAP data and cross referenced with ecoinvent 3.7 and Sphera raw materials emission factors. See C6.5.
Natural gas	0.7	Based on spend volumes for 2022 derived from SAP data and cross referenced with ecoinvent 3.7 and Sphera raw materials emission factors. See C6.5.

C-CH7.8a

(C-CH7.8a) Disclose sales of products that are greenhouse gases.

	Sales, metric tons	Comment
Carbon dioxide (CO2)	5,126	Sales in 2022 to a third party from our Ethylene Oxide plant in Stenungsund. Other sites do not sell CO2.
Methane (CH4)	0	
Nitrous oxide (N2O)	0	
Hydrofluorocarbons (HFC)	0	

Perfluorocarbons (PFC)	0	
Sulphur hexafluoride (SF6)	0	
Nitrogen trifluoride (NF3)	0	

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 in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	90,516	Increased	6.45	All manufacturing units report their fuel and electricity consumption in our Enablon HSE system quarterly. Data on use and purchase of renewable energy is available. In 2022 the total share of renewable energy has decreased to 34% compared to 2021 where we reported 38%. Hence 4 % decrease compared to 2021. The expected CO2 emission change due to a lower percentage renewable energy for 2022, was determined by calculating the Scope 1 + 2 CO2 emission per % non-renewable energy in 2021 multiplied by the % non-renewable energy in 2022 minus the Scope 1 + 2 emissions in 2021. The non-renewable % for each year was calculated by 100% - minus renewable %. The non- renewable % for 2021 is 100% minus renewable % being 38% makes 62%. The non- renewable %

				for 2022 is 100% minus renewable % being 34% makes 66%. The difference between the 2022 emission due to change in the renewable percentage is 1,403,000 ton Scope 1+2 2021 divided by 62% as non-renewable % 2020 times 66% as non- renewable % 2021 minus 1,403,000 ton Scope 1+2 2021 makes 90,516 ton which is 6.45% of the total scope 1+2 for 2021 (90,516 ton divided by 1,403,000 ton Scope 1 + 2 in 2021).
Other emissions reduction activities	7,700	Decreased	0.5	This number includes the effects from all energy efficiency projects at our sites and replacement by high efficiency motors. Also mentioned at chapter 4.3a. So 7,700 ton improvement compared to 2021 divided by scope 1+2 2021 being 1,403,000 ton is 0.5%.
Divestment	0	No change	0	No divestestments in 2022. So, zero change compared to 2021 makes 0 divided by scope 1+2 2021 being 1,403,000 ton is 0%
Acquisitions	0	No change	0	In 2022, there were no acquisitions . So, zero change compared to 2021 makes 0 divided by scope 1+2 2021 being 1,403,000 ton is 0%
Mergers	0	No change	0	Nouryon did not have any mergers in 2022. So, zero change compared to 2021 makes 0 divided by scope 1+2 2021 being 1,403,000 ton is 0%
Change in output	25,184	Decreased	1.8	All manufacturing units in Nouryon report in the corporate Enablon HSE system quarterly. This allows us to do detailed analysis. Although overall production decreased, there was no significant change in production of the energy intensive units, which is confirmed by a stable overall energy use. The 2022 expected CO2 emission due to production change was determined by calculating the specific CO2 emission per ton of products in

				2022 multiplied by the production in 2021. The difference between the 2022 emission due to growth and 2021 emissions gives the CO2 change due to change in output. So, 1,403,000 tons CO2 in 2021 divided by 3,454,000 tons of product in 2021 times tons of product in 2022 gives 1,377,816 tons CO2 in 2022 due to growth. The change in output is the 2022 tons CO2 being 2,377,816 minus the CO2 emissions in 2021 is 25,184 ton decrease. Divided 25,184 tons decrease by the CO2 emissions in 2021 so 25,184 tons CO2 divided by 1,403,000 tons gives a decrease of 1.8%.
Change in methodology	0	No change	0	In 2022, we reported our Scope 2 emissions calculations in alignment with the greenhouse gas (GHG) Protocol. This includes reporting market and location-based emissions and applying the GHG Protocol's emission factor hierarchies. For market-based Scope 2 emission factors, in cases where energy attribute certificates, renewable contracts or supplier-based emissions factors are not available, we use eGrid for grid average emission factors in the US and for Europe, we use the residual grid factors from the Association of Issuing Bodies. Where residual grid factors are not available and in other regions, we use national electricity emission factors from the International Energy Agency (2020 estimate data). The base year number includes scope 1 and 2 emissions from our own operations and is corrected compared to our submission in 2022 (over 2021) because we have updated our fuel emission factors for the years 2019 until 2022.
Change in boundary	0	No change	0	No change in boundary.

Change in physical operating conditions	0	No change	0	No change in physical operation conditions.
Unidentified	0	No change	0	No unidentified effects.
Other	28,632	Decreased	2	This is the effect of production portfolio changes compared to 2020. We made more carbon intensive products. This is calculated by subtracting the increase of 29,000 ton in 2022 compared to 2021 by all other effects: Portfolio effects is 29,000 ton minus effect of renewable energy, improvements, and production delta: 29,000 + 90,518 - 7,700 - 25,184 = 28,632 ton. Divided by the CO2 emissions in 2020 so 28,632 tons CO2 divided by 1,403,000 tons gives a decrease of 2.0%.

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	Yes
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)	LHV (lower heating value)	15,806	2,011,418	2,027,224
Consumption of purchased or acquired electricity		2,114,460	3,342,827	5,457,288
Consumption of purchased or acquired steam		926,445	686,223	1,612,668
Consumption of self-generated non-fuel renewable energy		0		0
Total energy consumption		3,056,711	6,040,468	9,097,180

C-CH8.2a

(C-CH8.2a) Report your organization's energy consumption totals (excluding feedstocks) for chemical production activities in MWh.

Consumption of fuel (excluding feedstocks)

Heating value

LHV (lower heating value)

MWh consumed from renewable sources inside chemical sector boundary

15,806

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

2,011,418

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

2,027,224

Consumption of purchased or acquired electricity

MWh consumed from renewable sources inside chemical sector boundary

2,114,461

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

0

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

5,457,288

Consumption of purchased or acquired steam

MWh consumed from renewable sources inside chemical sector boundary

926,445

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

686,223

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

1,612,668

Consumption of self-generated non-fuel renewable energy

MWh consumed from renewable sources inside chemical sector boundary

0

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

0

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

0

Total energy consumption

MWh consumed from renewable sources inside chemical sector boundary

3,056,711

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

6,040,468

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

9,097,180

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	No
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
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

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Comment

Unknown if Nouryon does consume biomass which is defined as Sustainable.

Other biomass

Heating value

LHV

Total fuel MWh consumed by the organization

15,806

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

15,806

Comment

Nouryon does consume biomass for heat generation.

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 heat

0

MWh fuel consumed for self-generation of steam

0

Comment

Nouryon does not consume other renewable fuels.

Coal

Heating value

Unable to confirm heating value

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Comment

Nouryon did not consume coal in 2022.

Oil

Heating value

LHV

Total fuel MWh consumed by the organization

138,944

MWh fuel consumed for self-generation of heat

122,917

MWh fuel consumed for self-generation of steam

16,028

Comment

Nouryon did consume fuel oil for generation of steam or direct heat.

Gas

Heating value

LHV

Total fuel MWh consumed by the organization

1,872,473

MWh fuel consumed for self-generation of heat

1,144,001

MWh fuel consumed for self-generation of steam

728,473

Comment

Nouryon did consume natural gas for generation of steam or direct heat.

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

Heating value

Unable to confirm heating value

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Comment

Nouryon does not consume other non-renewable fuels.

Total fuel

Heating value

LHV

Total fuel MWh consumed by the organization

2,027,223

MWh fuel consumed for self-generation of heat

1,266,917

MWh fuel consumed for self-generation of steam

760,305.78

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	0	0	0	0
Heat	1,266,917	1,266,917	0	0
Steam	760,306	760,306	15,806	15,806
Cooling	0	0	0	0

C-CH8.2d

(C-CH8.2d) Provide details on electricity, heat, steam, and cooling your organization has generated and consumed for chemical production activities.

Electricity

Total gross generation inside chemicals sector boundary (MWh)

0

Generation that is consumed inside chemicals sector boundary (MWh)

0

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

Heat

Total gross generation inside chemicals sector boundary (MWh)

1,266,917

Generation that is consumed inside chemicals sector boundary (MWh)

1,266,917

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

Steam

Total gross generation inside chemicals sector boundary (MWh)

760,306

Generation that is consumed inside chemicals sector boundary (MWh)

760,306

Generation from renewable sources inside chemical sector boundary (MWh)

15,806

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

15,806

Cooling

Total gross generation inside chemicals sector boundary (MWh)

0

Generation that is consumed inside chemicals sector boundary (MWh)

0

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

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.

Country/area of low-carbon energy consumption

Brazil

Sourcing method

Direct line to an off-site generator owned by a third party with no grid transfers (direct line PPA)

Energy carrier

Electricity

Low-carbon technology type

Sustainable biomass

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

1,520,972

Tracking instrument used

Other, please specify

Electricity is provided from customers using sustainable biomass (supported by FSC certification).

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

Brazil

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

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

Comment

Electricity is provided from customers using biomass supported by FSC certification to show the origin. For example, our plants in Brazil which are delivering Bleaching Chemicals to co-located customer pulp mills (Bahia, Imperatriz, Jacarei, Jupia, and Tres Lagoas), are receiving nearly 100% of their electricity from the pulp mills via a direct connection without grid transfer (generated by Bio-mass which is FSC certified, mostly from waste bio-mass from Eucalyptus trees like bark and rejects). All wood from our major customer in Brazil, is FSC® or PEFC/CERFLOR certified in origin or that still meet the criteria of FSC® controlled wood or PEFC/CERFLOR controlled courses. The wood used in their production originates exclusively from forest plantations located at our own areas and do not compromise recognized areas of high conservation value. In limited cases, one of our plants may purchase additional electricity beyond their contracted amount, and to account for these, we purchase an equivalent amount of certified RECs.

Country/area of low-carbon energy consumption

Brazil

Sourcing method

Other, please specify

Physical power purchase agreement (physical PPA) and a grid connection contract with the local grid operator.

Energy carrier

Electricity

Low-carbon technology type

Sustainable biomass

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

424,111

Tracking instrument used

I-REC

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

Brazil

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

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

Comment

Electricity is provided from customers using biomass supported by FSC certification to show the origin. For example, our Sodium Chlorate plant in Brazil (Jundiai) supplies our customer pulp mill and receives 100% electricity generated by the pulp mill via a grid transfer certified by I-RECs (generated by Bio-mass which is FSC certified, mostly from waste bio-mass from Eucalyptus trees like bark and rejects). All wood from our major customer in Brazil, is FSC® or PEFC/CERFLOR certified in origin or that still meet the criteria of FSC® controlled wood or PEFC/CERFLOR controlled courses. The wood used in their production originates exclusively from forest plantations located at our own areas and do not compromise recognized areas of high conservation value.

Country/area of low-carbon energy consumption

Sweden

Sourcing method

Retail supply contract with an electricity supplier (retail green electricity)

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify

Combined renewable sources based on Solar, Wind and Hydro.

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

545,651

Tracking instrument used

Contract

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

Sweden

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

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

Comment

Electricity provided by utility company supported by GOs to show the origin.

Country/area of low-carbon energy consumption

Finland

Sourcing method

Default delivered electricity from the grid (e.g. standard product offering by an energy supplier), supported by energy attribute certificates

Energy carrier

Electricity

Low-carbon technology type

Nuclear

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

226,194

Tracking instrument used

Contract

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

Finland

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

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

Comment

Electricity provided by utility company supported by GOs to show the origin in this case 100% Nuclear.

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area

Argentina

Consumption of purchased electricity (MWh)

13,944

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

6,778

Consumption of self-generated heat, steam, and cooling (MWh)

77,889

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

98,611

Country/area

United States of America

Consumption of purchased electricity (MWh)

1,393,806

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

139,833

Consumption of self-generated heat, steam, and cooling (MWh)

850,084

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

2,383,723

Country/area

Brazil

Consumption of purchased electricity (MWh)

1,530,833

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

479,500

Consumption of self-generated heat, steam, and cooling (MWh)

64,750

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

2,075,083

Country/area
Mexico

Consumption of purchased electricity (MWh)
24,111

Consumption of self-generated electricity (MWh)
0

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
14,833

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

38,944

Country/area
Canada

Consumption of purchased electricity (MWh)
731,917

Consumption of self-generated electricity (MWh)
0

Consumption of purchased heat, steam, and cooling (MWh)
3,944

Consumption of self-generated heat, steam, and cooling (MWh)
4,722

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

740,583

Country/area
Japan

Consumption of purchased electricity (MWh)

4,583

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

2,361

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

6,944

Country/area

China

Consumption of purchased electricity (MWh)

227,222

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

455,639

Consumption of self-generated heat, steam, and cooling (MWh)

223,417

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

906,278

Country/area

Singapore

Consumption of purchased electricity (MWh)

1,833

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

2,917

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

4,750

Country/area

Taiwan, China

Consumption of purchased electricity (MWh)

2,056

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

5,167

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

7,223

Country/area

Finland

Consumption of purchased electricity (MWh)

226,194

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

308,472

Consumption of self-generated heat, steam, and cooling (MWh)

0

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

534,666

Country/area

Italy

Consumption of purchased electricity (MWh)

3,917

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

6,417

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

10,334

Country/area

Sweden

Consumption of purchased electricity (MWh)

985,694

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

47,917

Consumption of self-generated heat, steam, and cooling (MWh)

468,334

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

1,501,945

Country/area

France

Consumption of purchased electricity (MWh)

170,722

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

250

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

170,972

Country/area
Netherlands

Consumption of purchased electricity (MWh)
42,583

Consumption of self-generated electricity (MWh)
0

Consumption of purchased heat, steam, and cooling (MWh)
116,222

Consumption of self-generated heat, steam, and cooling (MWh)
74,361

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

233,166

Country/area
Germany

Consumption of purchased electricity (MWh)
19,667

Consumption of self-generated electricity (MWh)
0

Consumption of purchased heat, steam, and cooling (MWh)
55,472

Consumption of self-generated heat, steam, and cooling (MWh)
158,500

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

233,639

Country/area
India

Consumption of purchased electricity (MWh)

2,806

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

1,750

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

4,556

Country/area

Belgium

Consumption of purchased electricity (MWh)

27,250

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

71,195

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

98,445

Country/area

Norway

Consumption of purchased electricity (MWh)

60,917

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

0

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

60,917

C-CH8.3

(C-CH8.3) Does your organization consume fuels as feedstocks for chemical production activities?

Yes

C-CH8.3a

(C-CH8.3a) Disclose details on your organization's consumption of fuels as feedstocks for chemical production activities.

Fuels used as feedstocks

Natural gas

Total consumption

61,535

Total consumption unit

thousand cubic metres

Inherent carbon dioxide emission factor of feedstock, metric tons CO2 per consumption unit

2.26

Heating value of feedstock, MWh per consumption unit

11.3

Heating value

LHV

Comment

Natural gas is used as feed stock for manufacturing of CS2 and HCN as well as for making Hydrogen by applying steam reforming.

Fuels used as feedstocks

LPG

Total consumption

8,211

Total consumption unit

metric tons

Inherent carbon dioxide emission factor of feedstock, metric tons CO2 per consumption unit

3.16

Heating value of feedstock, MWh per consumption unit

13.2

Heating value

LHV

Comment

LPG used as feed stock for manufacturing making Hydrogen by applying steam reforming.

C-CH8.3b

(C-CH8.3b) State the percentage, by mass, of primary resource from which your chemical feedstocks derive.

	Percentage of total chemical feedstock (%)
Oil	1
Natural Gas	99
Coal	0
Biomass	0
Waste (non-biomass)	0
Fossil fuel (where coal, gas, oil cannot be distinguished)	0
Unknown source or unable to disaggregate	0

C9. Additional metrics

C9.1

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

Description

Waste

Metric value

17.4

Metric numerator

Total waste generated in 2022 being 59,040 kg.

Metric denominator (intensity metric only)

Total production in 2022 being 3,392 ktons

% change from previous year

13

Direction of change

Increased

Please explain

Our waste intensity increased from 15.4 kg per ton of production in 2021 to 17.4 in 2022 due to higher waste generation (59,040 tons in 2022 compared to 53,068 ton in 2021) compared to a decrease of our production (3,392,000 ton in 2022 compared to 3,454,000 ton in 2021).

Decreasing waste will lower three Scope 3 impact categories which are category 1 Purchased Goods and Services (Raw Materials efficiency), category 5 Waste Generated in Operations and category 12 End of Life of Sold products (Raw Materials efficiency).

Description

Energy usage

Metric value

9.7

Metric numerator

Total energy consumed in 2022 being 32,9 mln GJ.

Metric denominator (intensity metric only)

Total production in 2022 being 3,392 ktons

% change from previous year

4

Direction of change

Increased

Please explain

Our energy intensity increased from 9.33 GJ per ton of production in 2021 to 9.70 in 2022 due to a higher energy consumption (32.9 mln GJ in 2022 compared to 32.2 mln GJ tons in 2021) compared to a decrease of our production (3,392 kton in 2022 compared to 3,454 kton in 2021).

Decreasing our energy consumption intensity will lead to lower Scope 1 and 2 GHG emissions per ton of product.

C-CH9.3a

(C-CH9.3a) Provide details on your organization's chemical products.

Output product

Specialty chemicals

Production (metric tons)

3,392,000

Capacity (metric tons)

3,571,000

Direct emissions intensity (metric tons CO2e per metric ton of product)

0.172

Electricity intensity (MWh per metric ton of product)

1.61

Steam intensity (MWh per metric ton of product)

0.69

Steam/ heat recovered (MWh per metric ton of product)

0

Comment

On average our plants are operating on 95% of their capacity. This was the basis for calculation the overall capacity of the company. So, the capacity is 3,392,000 divided by 95% gives 3,571,000 tons of capacity. Our electricity intensity for 2022 is based on our total electricity consumption (5,470,056 MWh in 2022) divided by the production (3,392,000 tons in 2022), Our steam intensity for 2022 is based on our total steam purchased and generated (2,358,279 MWh in 2022) divided by the production (3,392,000 tons in 2022),

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	"Low carbon " (indicators used to measure low carbon) is a strong driver in R&D projects and stage gate processes – so this is the product development direction and not an add-on activity. Costs are integrated in R&D costs. "Low carbon" related opportunities are one of several beneficiary properties. Costs due to this cannot be separated from total R&D costs. We have used the main drivers for our carbon footprint reduction as indicators for low carbon products like renewable energy, renewable raw materials or energy efficient production processes. Examples of low carbon products are chemicals produced with renewable energy, chemicals produced from renewable raw materials or products produced in more energy-efficient production processes compared to mainstream.

C-CH9.6a

(C-CH9.6a) Provide details of your organization's investments in low-carbon R&D for chemical production activities over the last three years.

Technology area

Other, please specify

Cradle to Gate Carbon footprint reduction

Stage of development in the reporting year

Pilot demonstration

Average % of total R&D investment over the last 3 years

1

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)

Average % of total R&D investment planned over the next 5 years

2

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

Design of new processes resulting in a lower product carbon footprints.

Technology area

Other, please specify

Development of low carbon products based on bio-based raw materials

Stage of development in the reporting year

Applied research and development

Average % of total R&D investment over the last 3 years

9

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)

Average % of total R&D investment planned over the next 5 years

18

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

We will develop more low carbon products with lower GHG emissions decreasing GHG emissions when applied in our customer end solutions.
Therefore, our product innovations are increasingly focused on biobased, biodegradable, and circular solutions. Other innovations include our range of biodegradable and biobased products. Many of the products we offer are recognized in our industry for product safety and sustainable benefits, including by EU Ecolabel, Nordic Swan, COSMOS approved, and US EPA Safer Choice.

Technology area

Other, please specify

Development of a new generation rheology modifiers for Decorative paints

Stage of development in the reporting year

Small scale commercial deployment

Average % of total R&D investment over the last 3 years

1

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)

Average % of total R&D investment planned over the next 5 years

1

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

We are constantly improving our natural alternative to associative synthetic thickeners for rheology control of decorative paints. Our innovative technology enhances application and finished paint properties while providing sustainability benefits and a low-carbon footprint for our customers. We recently introduced our new product, Bermocoll® FLOW cellulose ether, as a natural alternative paint thickener. This product can deliver little to no spatter through proper flow behavior and is well suited for low-volatile organic-compound paint formulations and airless spray applications.

Based on a comparative LCA, where we compared Bermocoll® FLOW to a conventional fossil based mainstream product, it was concluded that the Cradle to Gate

product carbon footprint of Bermocoll® FLOW is 40% lower than the fossil-based product.

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

Complete

Type of verification or assurance

Limited assurance

Attach the statement

sustainability-report-2022-english.pdf

ERM CVS - Assurance Statement for Nouryon 2022 3-MAY-2023 Signed.pdf

Page/ section reference

Attached is Nouryon's ERM Assurance report which is an independent audit company. Please refer to Pages 1 – 2 of the attached Assurance Statement.

Additionally, Nouryon's Sustainability Report 2022 has been attached which identifies our Environmental data sheet and metrics. Please reference page 76 to 78.

Relevant standard

Other, please specify

ISAE 3000 (Revised), "Assurance Engagements other than Audits or Reviews of Historical Financial Information" and in accordance with ISAE 3410 for Greenhouse Gas data issued by the International Auditing and Standards Board

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

Complete

Type of verification or assurance

Limited assurance

Attach the statement

sustainability-report-2022-english.pdf

ERM CVS - Assurance Statement for Nouryon 2022 3-MAY-2023 Signed.pdf

Page/ section reference

Attached is Nouryon's ERM Assurance report which is an independent audit company. Please refer to Pages 1 – 2 of the attached Assurance Statement.

Additionally, Nouryon's Sustainability Report 2022 has been attached which identifies our Environmental data sheet and metrics. Please reference page 76 to 78.

Relevant standard

Other, please specify

ISAE 3000 (Revised), "Assurance Engagements other than Audits or Reviews of Historical Financial Information" and in accordance with ISAE 3410 for Greenhouse Gas data issued by the International Auditing and Standards Board

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: 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
Scope 3: End-of-life treatment of sold products

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

sustainability-report-2022-english.pdf
ERM CVS - Assurance Statement for Nouryon 2022 3-MAY-2023 Signed.pdf

Page/section reference

Attached is Nouryon's ERM Assurance report which is an independent audit company. Please refer to Pages 1 – 2 of the attached Assurance Statement. Only Scope 3 GHG emissions from purchased raw materials were checked [kton CO2_eq].

Additionally, Nouryon's Sustainability Report 2022 has been attached which identifies our Environmental data sheet and metrics. Please reference page 76 to 78.

Relevant standard

Other, please specify

ISAE 3000 (Revised), "Assurance Engagements other than Audits or Reviews of Historical Financial Information" and in accordance with ISAE 3410 for Greenhouse Gas data issued by the International Auditing and Standards Board

Proportion of reported emissions verified (%)

98.3

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
C8. Energy	Energy consumption	International Standard on Assurance Engagements ISAE 3000 (Revised) 'Assurance Engagements other than Audits or Reviews of Historical Financial Information' and in accordance with ISAE3410 for Greenhouse Gas data issued by the International Auditing and Standards Board.	Next to GHG emission, also energy consumption in GJ and energy intensity in GJ/ton of production was checked. The energy mix determines the GHG emissions in large extend. Verification is each year for our Sustainability report and conducted over a certain proportion of your operations. 1
C8. Energy	Renewable energy products	ERM CVS' assurance methodology, based on the International Standard on Assurance Engagements ISAE 3000 (Revised) 'Assurance Engagements other than Audits or Reviews of Historical Financial Information' and in accordance with ISAE3410 for Greenhouse Gas data issued by the International Auditing and Standards Board.	Renewable energy (as % of total energy use) were checked. The energy mix determines the GHG emissions to a large extent. See also C8.2c for renewable fuel types. Verification is each year for our Sustainability report and conducted over a certain proportion of your operations 1
C7. Emissions breakdown	Other, please specify Reported emission per production facility.	ERM CVS' assurance methodology, based on the International Standard on Assurance Engagements ISAE 3000 (Revised) 'Assurance Engagements other than Audits or Reviews of Historical Financial Information' and in	• Assessing the appropriateness of the reporting criteria for the Selected information. • Interviews with management representatives responsible for managing the selected issues. • Interviews with relevant staff to understand and evaluate the

		accordance with ISAE3410 for Greenhouse Gas data issued by the International Auditing and Standards Board.	relevant management systems and processes (including internal review and control processes) used for collecting and reporting the selected disclosures. • A review at corporate level of a sample of qualitative and quantitative evidence supporting the reported information. • An analytical review of the year-end data submitted by all locations included in the consolidated 2022 group data for the selected disclosures which included testing the completeness and mathematical accuracy of conversions and calculations, and consolidation in line with the stated reporting boundary. • In-person site visits to Nouryon facilities/production sites Herkenbosch (Netherlands) and Le Moyne (USA), as well as a virtual visit to Alby (Sweden) and desktop reviews of Morris, Magog and Moses Lake (USA), to review source data and local reporting systems and controls. • Confirming conversion and emission factors and assumptions used. • Reviewing the presentation of information relevant to the scope of our work in the Report to ensure consistency with our findings. 1
C7. Emissions breakdown	Other, please specify Total reported scope 3 emissions for the categories included under assurance.	ERM CVS' assurance methodology, based on the International Standard on Assurance Engagements ISAE 3000 (Revised) 'Assurance Engagements other than Audits or Reviews of Historical Financial Information' and in accordance with ISAE3410 for	The total Scope 3 absolute emissions being 4,427 kton CO2_eq has been assured: • Assessing the appropriateness of the reporting criteria for the Selected information. • Interviews with management representatives responsible for managing the selected issues.

		Greenhouse Gas data issued by the International Auditing and Standards Board.	• Interviews with relevant staff to understand and evaluate the relevant management systems and processes (including internal review and control processes) used for collecting and reporting the selected disclosures. • Confirming conversion and emission factors and assumptions used. • Reviewing the presentation of information relevant to the scope of our work in the Report to ensure consistency with our findings. 1

[1]ERM CVS - Assurance Statement for Nouryon 2022 3-MAY-2023 Signed.pdf

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

28

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

48,029

Allowances purchased

87

Verified Scope 1 emissions in metric tons CO2e

163,668

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

Scope 1 emissions covered by Emission Trading Schemes or carbon taxes are related to energy generation.
Allowances allocated and purchased in tons CO2.

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 is an important level of the EU's policy to combat climate change and its key tool for cost efficiently reducing of greenhouse gas emissions.
As one of the world's major carbon markets, it is based on a '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 and is reduced over time. Within the cap, installations buy or receive emissions allowances, which they can trade with one another as needed. The limit on the total number of allowances available ensures that they have a value.
After each year, an installation must surrender enough allowances to cover fully its emissions. If an installation reduces its emissions, it can keep the spare allowances to cover its future needs or sell them to another installation that is short of allowances.
Trading brings flexibility and encourages low-cost emission reductions. A robust carbon price also promotes investment in innovative, low-carbon technologies.
Nouryon complies with the EU ETS through multiple ways since the start of EU ETS. We have a clear focus on improving energy efficiency in our production processes, take CO2 costs into account in our dispatch decisions and actively participate in the EU ETS market. Our European energy intensive sites are all on ETS: MCA Delfzijl, Stenungsund, Stockvik, Mons and Cologne. All these actions result in cost savings and minimize the amount of allowances to purchase.
We use a robust HSE reporting software system Enablon in reporting CO2 emissions per quarter based on fuel and electricity. Reporting is validated and reviewed by members of the corporate sustainability and HSE governance teams. Reporting CO2 is a formal part of our HSE management system and for internal compliance, internal audits are conducted on every

site at least once every 3 years. These audits include emissions data and reporting. Internal audit provides an independent, objective means to evaluate and improve the effectiveness of governance, risk management, and internal controls. We also completed an external limited assurance of our energy and emissions data that assessed the reporting of 2022 data in accordance with the principles of completeness, comparability (across the organisation) and accuracy (including calculations, use of appropriate conversion factors and consolidation). See chapter 10 for more information.

Through the European Chemical Industry council association (Cefic), we engage in policy development, for example with the revision of the EUR Directive for 'phase 4 EU ETS'. We are also closely monitoring the developments on carbon tax and emission trading schemes (ETS) in China, i.e., through participation in the national chemical's associations AICM and CPCIF. In 2016 Nouryon (as part of AkzoNobel) made an analysis of how a Chinese emission trading scheme (ETS) could impact our Specialty Chemicals businesses and sites. In 2022, the Chinese National ETS program only included the power generation industry. The chemical industry has not been included yet, and we will continue to monitor the regulatory landscape. The provincial ETS programs have been already conducted in 9 provinces: Beijing, Tianjin, Shanghai, Guangdong, Shenzhen, Hubei, Chongqing, Sichuan and Fujian. None of Nouryon sites in China has been officially included in one of these provincial ETS programs, but Nouryon's site in Ningbo City, Zhejiang Province has already been required to report their carbon emissions on an annual basis.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

Yes

C11.2a

(C11.2a) Provide details of the project-based carbon credits canceled by your organization in the reporting year.

Project type

Other, please specify

VTRM Renewable Energy 2

Type of mitigation activity

Carbon removal

Project description

Certificate of Verified Carbon Unit (VCU) Retirement
Verra, in its capacity as administrator of the Verra Registry, have certified on March 17 2023, that 200 Verified Carbon Units (VCUs) were retried on behalf of Nouyron Chemicals Brazil.
Project name: VTRM Renewable Energy 2

VCU Serial number: 14552-607923293-607923492-VCS-VCU-1491-VER-BR-1-1903-01102020-31122021-0

These credits were retired to compensate the remaining scope 1 CO2 emissions for our Brazilian sites Eunápolis, Imperatriz, Jacarei, and our two sites at Três Lagoas for the year 2022.

Credits canceled by your organization from this project in the reporting year (metric tons CO2e)

200

Purpose of cancellation

Voluntary offsetting

Are you able to report the vintage of the credits at cancellation?

Yes

Vintage of credits at cancellation

2022

Were these credits issued to or purchased by your organization?

Purchased

Credits issued by which carbon-crediting program

VCS (Verified Carbon Standard)

Method(s) the program uses to assess additionality for this project

Other, please specify

As a part of the VCS standard, projects must meet additionality criteria defined and required, including concepts such as a baseline scenario, positive list, etc. For more information, see the VCS Standard and the VCS Methodology Requirements.

Approach(es) by which the selected program requires this project to address reversal risk

No requirements

Potential sources of leakage the selected program requires this project to have assessed

Not assessed

Provide details of other issues the selected program requires projects to address

Comment

C11.3

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

No, but we anticipate doing so in the next two years

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

Engagement & incentivization (changing supplier behavior)

Details of engagement

Run an engagement campaign to educate suppliers about climate change

% of suppliers by number

8

% total procurement spend (direct and indirect)

60

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

0

Rationale for the coverage of your engagement

Our key supplier management process focuses on suppliers with whom we have:
- Contractual relationships
- Opportunities for meaningful value creation
- Partnerships or joint innovation projects or who have a material impact on our upstream carbon footprint.

We work with our suppliers to create a sustainable supply base and deliver customer benefits. Our Sustainable Supply program continues to evolve. Sustainable procurement is not only about managing risks but also reducing costs and increasing revenue. We have a Supplier Sustainability Framework via EcoVadis and IQ EcoVadis in place. Nouryon's commitment to ethical business practices is outlined in our Code of Business Conduct & Ethics.

The 60% spend mentioned above is covering 252 of the 3,373 in 2022 suppliers for which we measure their CSR performance by the EcoVadis Score (8% of our total number of suppliers).

By the end of 2022, 94% of our suppliers (% of external spend) suppliers were assessed on Risk IQ EcoVadis (96% based on spend in 2021).

Impact of engagement, including measures of success

In 2022, we increased the amount of spend evaluated for sustainability by EcoVadis to 60% compared to 50% in 2021. Of our 60% total spend coverage of EcoVadis rated suppliers, 87% of the spend covered is by suppliers with an EcoVadis score of 45 (Bronze) or higher.

We engage with Key suppliers via the EcoVadis platform to perform sustainability assessments. One of the high-priority areas EcoVadis evaluates is company policies having objectives and targets, including environment. The EcoVadis assessment includes requesting evidence on supplier actions related to energy efficiency, GHGs, renewable energy, offsets, waste heat recovery/CHP, fuel switching, CCS, response to CDP- and employee training on these topics – as well as activities to reduce GHG emissions in suppliers' own supply chains (actions to engage suppliers, select suppliers based on GHG emissions, and partnering). All of these are considered in developing supplier scorecards, improvement areas and scores.

Suppliers scoring below Bronze are engaged directly and may be required to provide improvement plans to demonstrate continuous improvement. Suppliers declining to make a self-assessment will be informed that such refusal will be considered as part of supplier selection decisions. Suppliers scoring below Bronze or with no score who are assessed as high risk and either critical or strategic in IQ will be required to improve within 12 months. Such suppliers failing to show improvement will be placed in the 'Phase Out' segment of Nouryon's supplier segmentation and Nouryon will reduce business as far as is consistent with business objectives including where possible exit from the supplier.

All these actions will lead to the decrease of our carbon related footprint for raw materials, packaging and services. Actions are being developed to include the availability of carbon footprints of raw materials in the negotiations of procurement process.
In another example, for logistic suppliers in Europe, we do business with transporters using low emissions diesel engines or companies using low emissions ships as much as possible.

Comment

We work with our suppliers to create a sustainable supply base and deliver customer benefits. Our Sustainable Supply program continues to evolve. Sustainable procurement is not only about managing risks but also reducing costs and increasing revenue. We have a Supplier Sustainability Framework via Ecovadis and IQ Ecovadis in place. We also use a Business Partner Code of Conduct which informs our business partners what we expect of them with regard to our Core Principles and Values.

C12.1d

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

Nouryon provides solutions that are essential in applications ranging from pharmaceuticals and farming to electric vehicles and building and construction materials. Our goal is to deliver not just the desired functionality but improved sustainability performance as well. We work together with customers, suppliers, universities, and other partners to develop innovative and sustainable solutions that have smaller footprints or enable our customers to be more sustainable. These include a growing share of natural bio-based and biodegradable products. For example, our solutions help increase crop yields and improve crop quality all over the world; make products more biodegradable and easier to recycle; make buildings and vehicles more energy efficient; and increase the durability of bridges and wind turbines.

Our Eco-Premium Solutions are products that offer significant sustainability benefits over mainstream alternatives in the market while providing the same or better functionality. These benefits can apply to several specific criteria (e.g. toxicity, energy use, use of natural resources, emissions and waste, land use, risks, health). When making comparisons, we ensure that our solution does not have adverse effects on any of the other criteria. We believe that a sustainable future also means being a safe and reliable partner for customers, employees, business partners, and communities, and we ask all our suppliers to work with us on this topic. We are a member of the Roundtable on Sustainable Palm Oil (RSPO) and Responsible Care®, and partner with Swedish regional corporate cooperative Hållbar Kemi (Sustainable Chemistry). Furthermore, we are a strategic investor in the Icos Capital Fund III, a fund that supports innovative start-ups, including companies focused on carbon capture, software and process technologies for manufacturing in agriculture, food, and chemical industries.

In 2022, we invested in AGEYE Technologies, a company with offices in Raleigh, North Carolina, US, and Bangalore, Karnataka, India, that is developing an automation platform for indoor farming with potential to transform the sector. AGEYE's next-generation digital platform uses artificial intelligence to turn visual inputs into crop-growth-development insights and autonomous actions that improve the
predictability and profitability of harvests for growers. It combines the principles of plant eco-physiology and precision farming to maximize plant growth rate, development, morphology, physiology, and ultimately improvement of crop yield, phytochemical content, and flavour. We will bring our extensive global reach in serving fertigation and hydroponics applications with micronutrients and specialty fertilizers as well as our expertise in crop protection and crop nutrition to the collaboration. These will further enhance AGEYE's precision farming technology to optimize indoor growing at scale for growers, supported by our shared vision of advancing the sustainability of the rapidly growing market of indoor farming.

Under a 15-year agreement signed in 2022, Nouryon will commission its integrated manufacturing model (IMM) for the world's leading producer of eucalyptus pulp. This will be Nouryon's sixth IMM site in Brazil since 2005, to support the country's fast-growing pulp industry. The new $2.8 billion pulp mill in Mato Grosso do Sul is one of the largest private-sector investments currently under development in the country and anticipated annual production capacity is 2.55 million tons per year. The concept provides Suzano with tailor-made on-site solutions to manage essential raw materials needed in pulp production. Nouryon will invest in a manufacturing facility that uses renewable electricity from Suzano's new pulp mill to

produce sodium chlorate. On-site facilities reduce transportation of raw materials, improve overall safety, and provide for circularity by design. The production process will also generate green hydrogen, which can provide important sustainability benefits.
In 2021, Nouryon signed an agreement with Renewcell, a company with a unique textile recycling technology, for their new plant in Sundsvall, Sweden. Operations began at the facility – which recycles textile waste, including items such as worn jeans and production scraps – in the first half of 2022. We provide Renewcell with specialty chemicals and engineering solutions to help develop their recycling chemistry.

C12.2

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

Yes, suppliers have to meet climate-related requirements, but they are not included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement

Other, please specify

Engage key suppliers with EcoVadis sustainability assessments

Description of this climate related requirement

We are in the process of engaging a portion of our suppliers, prioritized based on various criteria, including spend. 60% of suppliers by spend were invited to submit an assessment via Ecovadis and expected to comply with the criteria in our Procurement Policy, described below. We will continue to invite additional suppliers over time.
We engage with suppliers via the EcoVadis platform to perform sustainability assessments. One of the high-priority areas EcoVadis evaluates is company policies having objectives and targets, including environment. EcoVadis assesses evidence on supplier actions related to energy efficiency, GHGs, renewable energy, offsets, waste heat recovery/CHP, fuel switching, CCS, CDP response, training, and activities to reduce GHGs in suppliers' own supply chains. They are considered in supplier scorecards and improvement areas. Suppliers scoring below Bronze are engaged and may be required to provide improvement plans. Suppliers declining the self-assessment will be informed that such refusal will be considered as part of supplier selection decisions. Suppliers scoring below Bronze or with no score are classified as high risk and either critical or strategic will be required to improve within 12 months. Suppliers failing to show improvement will be placed in the 'Phase Out' segment of Nouryon's supplier segmentation and Nouryon will reduce business as far as is consistent with business objectives including where possible exit from the supplier.

% suppliers by procurement spend that have to comply with this climate-related requirement

60

% suppliers by procurement spend in compliance with this climate-related requirement

50

Mechanisms for monitoring compliance with this climate-related requirement

Supplier scorecard or rating

Response to supplier non-compliance with this climate-related requirement

Retain and engage

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

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers

Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may 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)

Nouryon recognizes that climate change has a fundamental impact on the global environment, society and business economics and we aim to reduce the greenhouse gas emissions of our operations. We recognize and support the UN Paris Climate Agreement as the global framework for combatting climate change. We use carbon footprint as a measure of our resource efficiency. We focus on increasing the energy and raw material efficiency of our operations through continuous improvement of existing processes as well as the adoption of innovative processes and technologies and through the use of low-carbon energy. See page 20 of our attached Sustainability report, as well as our attached position statements on climate change and carbon reduction, circular economy. We hold memberships member of various associations, including: American Chemistry Council (ACC), the China Petroleum & Chemical Industry Federation (CPCIF), the European Federation of the Chemical Industry (CEFIC), the Association for the German Chemical Industry (VCI), the Association of the Dutch Chemical Industry (VNCI), and the Association for Innovation and Chemical Industries in Sweden (IKEM).

In 2021, we completed a comprehensive qualitative analysis using the Task Force on Climate-related Financial Disclosures (TCFD) framework -including scenario analysis for both transition and physical risks - using leading climate models.

Nouryon Position Statements June 2023.pdf

sustainability-report-2022-english.pdf

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan

Nouryon has a Government Affairs team and Corporate Responsibility Council that help ensure we have proper coordination between various functions that impact and guide these issues. In particular, we develop and agree on positions related to climate that accurately characterize our ongoing efforts to reduce our carbon footprint as well as our corporate objectives and commitments. By aligning the various functions, we ensure that our engagement activities and related messaging are consistent with our overall climate strategy.

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?

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

EU Renewable Energy Directive (RED II)

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

Climate change mitigation

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

Renewable energy generation

Policy, law, or regulation geographic coverage

Regional

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

Belgium
Finland
France
Germany
Italy
Netherlands
Norway
Sweden

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

Support with no exceptions

Description of engagement with policy makers

Directly and through our engagement in several associations in the EU, the Netherlands and Sweden, we have engaged with policy makers on creating the right conditions and policy approach for green hydrogen and on implementing legislation for the EU Renewable Energy Directive (RED II).

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

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

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

EU Energy Efficiency Directive (EED)

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

Climate change mitigation

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

Other, please specify

Improve Energy Efficiency

Policy, law, or regulation geographic coverage

Regional

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

Belgium
Finland
France
Germany
Italy
Netherlands
Norway
Sweden

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

Support with no exceptions

Description of engagement with policy makers

Directly and through our engagement in several associations in the EU and the Netherlands, we have also engaged with policy makers on creating the right conditions and policy approach, for example with implementing legislation for the EU Energy

Efficiency Directive (EED) and on innovation funding for more efficient technologies.

Proposed language on improved energy-efficiency performance of buildings. Non-legislative advocacy to make more EU innovation funding available for breakthrough technologies.

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

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

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

Emissions trading schemes

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

Carbon pricing, taxes, and subsidies

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

Other, please specify

Emissions trading schemes

Policy, law, or regulation geographic coverage

National

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

China

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

Support with no exceptions

Description of engagement with policy makers

In China, we are actively engaged in the advocacy efforts of industry and trade associations related to the ongoing development of Chinese legislation on a cap-and-trade system for carbon emissions.

We have shared with the Chinese policy makers our insights and experience with cap and trade schemes elsewhere in the world (in particular in Europe) in reducing CO2 emissions.

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

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

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

Carbon Emissions Reduction.

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

Climate change mitigation

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

Other, please specify

Carbon Reduction

Policy, law, or regulation geographic coverage

National

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

Sweden

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

Support with no exceptions

Description of engagement with policy makers

In Sweden we are actively engaging with authorities to seek financial support to replace our current gas installation by hydrogen electrolyzers in two of our plants.

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

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.3b

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

Trade association

Other, please specify

The Association of the Dutch Chemical Industry (VNCI)

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

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, and they have changed their position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

VNCI is an active participant in the negotiations Dutch Climate Agreement to reduce carbon emission with 49% by 2030, promoting carbon reduction, low- carbon hydrogen, energy efficiency, and carbon capture and storage, while maintaining industrial competitiveness (e.g. a level playing field for energy cost).

We actively participate in working groups via our membership on the board. Our Senior Vice President, Transformation and Strategy, Performance Formulations is board member of the VNCI. By participating in working groups and via the board, Nouryon has actively advocated for and achieved a more pro-active approach of VNCI on energy-efficiency as well as renewable energy like bio-steam. We also led efforts to make better use of residual industrial heat of industry for heating the buildings in neighboring residential areas.

In 2022 the Climate Change Policies of VNCI remained generally consistent to previous years. Nouryon continued to follow and remain in line with those published policies.

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

86,000

Describe the aim of your organization's funding

We engage with legislative and regulatory bodies, industry and trade associations, and non-governmental organizations in our key markets, as well as participate in policy discussions on sustainability within our industry via trade associations. We share our expertise and solutions on topics such as energy, carbon reduction, water, waste, product and process safety, and circular chemistry.

Our engagements involve a diverse set of stakeholders focused on chemicals-related issues, including climate mitigation and adaptation issues. These topics include product design for energy efficiency, material safety, energy management in business and manufacturing operations, and industry collaboration to influence climate policy.

We seek to engage constructively with governments, regulators, and legislators on the development of proposed policy that is relevant to our business. These policies can be relevant to us in a wide range of areas, from tax and employment issues to safety and chemicals management policy. We seek to support policy that is sufficient, clear, stable,

predictable, comprehensive, economically efficient, and well designed to deliver society's goals at the lowest cost. We also seek to support policies that align with and support our positions, including our sustainability ambitions.

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 policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we attempted to influence them but they did not change their position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

The European chemical industry federation (Cefic) and its members supports the Paris Climate Agreement and a strong action on climate change in line with the scientific advice provided by the Intergovernmental Panel on Climate Change (IPCC). Cefic also supports the European Green Deal and Europe's ambition to become climate neutral by 2050. Reaching this goal will only be possible with the help of climate-neutral and circular economy solutions developed by our industry. Nouryon wants to see Europe become a global innovation hub and a hotspot for investments into breakthrough climate-neutral and circular technologies.

Nouryon actively participates in Cefic bodies to influence their position, in particular on energy & climate (energy-efficiency, green hydrogen), and on the EU Chemicals Strategy for Sustainability. We bring our views and experiences and promote a pro-active focus on innovation as a key means to drive climate change while remaining competitive. We stepped up our engagement by taking over the Chairman position of the Cefic Advocacy Forum.

Our Executive Vice President Strategy and Technology Solutions and President of Europe, serves as a board member of the executive committee of the Cefic.

In 2022 the Climate Change Policies of Cefic remained generally consistent to previous years. Nouryon continued to follow and remain in line with those published policies.

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

126,000

Describe the aim of your organization's funding

We engage with legislative and regulatory bodies, industry and trade associations, and non-governmental organizations in our key markets, as well as participate in policy discussions on sustainability within our industry via trade associations. We share our expertise and solutions on topics such as energy, carbon reduction, water, waste, product and process safety, and circular chemistry.

Our engagements involve a diverse set of stakeholders focused on chemicals-related issues, including climate mitigation and adaptation issues. These topics include product design for energy efficiency, material safety, energy management in business and manufacturing operations, and industry collaboration to influence climate policy.

We seek to engage constructively with governments, regulators, and legislators on the development of proposed policy that is relevant to our business. These policies can be relevant to us in a wide range of areas, from tax and employment issues to safety and chemicals management policy. We seek to support policy that is sufficient, clear, stable, predictable, comprehensive, economically efficient, and well designed to deliver society's goals at the lowest cost. We also seek to support policies that align with and support our positions, including our sustainability ambitions.

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

American Chemistry Council

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

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we attempted to influence them but they did not change their position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

The American Chemistry Council (ACC) and its members believe chemistry plays an integral role in solving our world's sustainability challenges. ACC is therefore committed to advancing safe, innovative, effective, and economically viable chemical products and technologies that are key to unlocking sustainability solutions.

We have been involved and have been actively stimulating ACC's efforts to develop key

metrics on sustainability over the last two years and are participating in the pilot phase. We also have been strong supporters of the development of the ACC sustainability principles. We support ACC's commitment to improved environmental, health, and safety performance through the globally recognized Responsible Care® initiative and ACC's sustainability principles.

Our Executive Vice President and President of Performance Formulations and Americas acts as Board member of the American Chemistry Council.

In 2022 the Climate Change Policies of ACC remained generally consistent to previous years. Nouryon continued to follow and remain in line with those published policies.

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

252,555

Describe the aim of your organization's funding

We engage with legislative and regulatory bodies, industry and trade associations, and non-governmental organizations in our key markets, as well as participate in policy discussions on sustainability within our industry via trade associations. We share our expertise and solutions on topics such as energy, carbon reduction, water, waste, product and process safety, and circular chemistry.

Our engagements involve a diverse set of stakeholders focused on chemicals-related issues, including climate mitigation and adaptation issues. These topics include product design for energy efficiency, material safety, energy management in business and manufacturing operations, and industry collaboration to influence climate policy.

We seek to engage constructively with governments, regulators, and legislators on the development of proposed policy that is relevant to our business. These policies can be relevant to us in a wide range of areas, from tax and employment issues to safety and chemicals management policy. We seek to support policy that is sufficient, clear, stable, predictable, comprehensive, economically efficient, and well designed to deliver society's goals at the lowest cost. We also seek to support policies that align with and support our positions, including our sustainability ambitions.

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

C12.4

(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 voluntary sustainability report

Status

Complete

Attach the document

sustainability-report-2022-english.pdf

Page/Section reference

Whole document including assurance statement and reporting according SASB and disclosure requirements with reference to the Global Reporting Initiative (GRI).

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics
Other, please specify

People and process safety figures and targets, diversity and inclusion, our revenue on sustainable products, our % of R&D projects with sustainable benefits.

Comment

Nouryon is a global specialty chemicals leader, with approximately 8000 employees, and operating in over 80 countries around the world. Markets and consumers worldwide rely on our essential solutions to manufacture everyday products, such as personal care, cleaning goods, paints and coatings, agriculture and food, pharmaceuticals, and building products.

Our company purpose is: Your partner in essential chemistry for a sustainable future. We are dedicated to make progress on our Commitment to a Sustainable Future in our own company and operations, R&D and solutions for customers, and by being a responsible partner to the communities in which we operate. Our continuous effort to improve on key sustainability metrics related to Environment, Labor and Human Rights, Ethics and Sustainable Procurement, is reflected in our 2022 EcoVadis Platinum rating, placing us in the top 1% of companies then rated by EcoVadis.

In 2022, we continued to grow and make progress on our sustainability commitment. 34% of our revenue came from Eco-Premium Solutions. These are products that deliver a significant sustainability benefit over the most mainstream market alternative. 77% of our R&D product pipeline was focused on solutions with a sustainable benefit. We provide these solutions while mitigating our own greenhouse gas emissions and improving our resource efficiency and energy consumption management, challenging ourselves to reduce impacts, mitigate risks, and harness growth opportunities related to climate change

We have set 2030 targets to reduce absolute greenhouse gas (GHG) emissions (Scopes 1 and 2) by 40%, total waste intensity by 10%, and water consumption intensity by 10%, versus a 2019 base year. By 2050, we aspire to be a net zero organization.

In 2022, we established a greenhouse gas (GHG) emission reduction roadmap. We reported our Scope 2 emissions calculations in alignment with the greenhouse gas (GHG) Protocol, including reporting market and location-based emissions and applying the GHG Protocol's emission factor hierarchies. We also aligned our Scope 2 reporting with SASB for renewable energy percentages as well as reported to GRI for the first year in our 2022 Sustainability Report. Between 2019 and 2022, we decreased our total absolute Scopes 1 and 2 GHG emissions by 1.3%.

For more information, please visit https://www.nouryon.com/sustainability/

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	UN Global Compact Other, please specify	Among other memberships, Nouryon is a member and signatory of the UN Global Compact, the world's largest corporate sustainability initiative. An international program, it brings companies, U N agencies, and labor and civil society organizations together to support universal principles on human rights, labor, environment, and anti-corruption. Our Company Strategy, sustainability goals and Company Code of Conduct & Ethics are aligned with conducting business in a way that supports these principles. In 2023, Nouryon joined Together for Sustainability (TfS), a global initiative of 47 chemical companies committed to raising sustainability standards throughout the chemical industry. As part of the initiative, members commit to making sustainability improvements within their own – and their suppliers' – operations. TfS is also advancing methodologies and standardization in calculating Scope 3 (upstream) greenhouse gas emissions, which constitute a significant share of the chemical industry's carbon footprint.

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
Row 1	No, but we plan to have both within the next two years

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
Row 1	No, but we plan to do so within the next 2 years

C15.3

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

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment

No, but we plan to within the next two years

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment

No, but we plan to within the next two years

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity-sensitive areas in the reporting year?

Not assessed

C15.5

(C15.5) 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?
Row 1	No, we are not taking any actions to progress our biodiversity-related commitments, but we plan to within the next two years

C15.6

(C15.6) 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	Other, please specify We measure and disclose our NOx emissions which is closely connected to Biodiversity performance.

C15.7

(C15.7) 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	Other, please specify We measure and disclose our NOx emissions which is closely connected to Biodiversity performance.	Page 45: Use of bio-based sources enable a more-circular economy, and can have a lower-carbon footprint vs alternatives across their life cycle, reducing GHG emissions. emissions. Page 73: our use of RSPO palm oil Latest ACOP report (full report). 1, 2

[1]Membership RSPO and Certified Sites.pdf

[2]sustainability-report-2022-english.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	Our Chief Integrated Supply Chain Officer. This role has oversight of all manufacturing operations, procurement, logistics, and energy purchasing.	Chief Operating Officer (COO)

SC. Supply chain module

SC0.0

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

SC0.1

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

	Annual Revenue
Row 1	

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

SC1.4

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

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

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

Please confirm below

I have read and accept the applicable Terms