W.R. Grace & Co. - Climate Change 2022

C0. Introduction

C0.1

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

W. R. Grace & Co. is engaged in the production and sale of specialty chemicals and specialty materials on a global basis through two reportable business segments: Grace Catalysts Technologies, which includes catalysts and related products and technologies used in refining, petrochemical and other chemical manufacturing applications; and Grace Materials Technologies, which includes specialty materials, including silica-based and silica-alumina-based materials, used in consumer/pharma, chemical process, and coatings applications.

W. R. Grace & Co. delivers value through performance. Our catalysts and specialized silicas improve the products and processes of many of the world's best companies. Through world-class knowhow, collaboration, and experience, we help customers in 70 countries achieve some of their most important goals, from high-performing products and high-productivity manufacturing, to improved efficiency, sustainability, and profitability.

C0.2

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

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

C0.3

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

Brazil
Canada
Germany
Malaysia
Philippines
Republic of Korea
Spain
Sweden
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.

Operational control

C-CH0.7

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

Row 1

Bulk organic chemicals

Bulk inorganic chemicals

Other chemicals

Specialty chemicals

Other, please specify (Specialty Materials, Active Pharmaceutical Ingredient)

C0.8

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

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	38388F1084

C1. Governance

C1.1

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

Yes

C1.1a

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

Position of individual(s)	Please explain
Chief Executive Officer (CEO)	The Corporate Responsibility Committee is composed of all members of the board including the chairman, CEO and all other board members. This committee assists the Company's Board of Directors and management in addressing the Company's responsibilities as a global corporate citizen (including its responsibilities to its various stakeholders, such as shareholders, customers, employees and the communities in which the Company operates). The Committee addresses the Company's responsibilities in a wide range of areas, including affirmative action, equal employment opportunity and diversity initiatives; corporate contributions and community service programs; corporate training programs; sustainability; environmental, health and safety matters, and climate-related issues as they rise to the level of importance that would have a substantive impact on the operations or finances of the company. The Board of Directors endorsed our emissions reduction target of 22% over 10 years limiting warming to well below 2°C above pre-industrial levels in line with a science-based target. In September of 2021, Grace became a privately held company. Our response is aligned with the period January through September as it most accurately represents the programs during the reporting period.
Board-level committee	The Corporate Responsibility Committee is composed of all members of the board including the chairman, CEO and all other board members. This committee assists the Company's Board of Directors and management in addressing the Company's responsibilities as a global corporate citizen (including its responsibilities to its various stakeholders, such as shareholders, customers, employees and the communities in which the Company operates). The Committee addresses the Company's responsibilities in a wide range of areas, including affirmative action, equal employment opportunity and diversity initiatives; corporate contributions and community service programs; corporate training programs; sustainability; environmental, health and safety matters, and climate-related issues as they rise to the level of importance that would have a substantive impact on the operations or finances of the company. The Board of Directors endorsed our emissions reduction target of 22% over 10 years limiting warming to well below 2°C above pre-industrial levels in line with a science-based target. In September of 2021, Grace became a privately held company. Our response is aligned with the period January through September as it most accurately represents the programs during the reporting period.
Board Chair	The Board Chair is a member of the Corporate Responsibility Committee and as chairman of the full board, has ultimate responsibility for establishing direction and agenda for 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	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding risk management policies Reviewing and guiding business plans Setting performance objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	The Corporate Responsibility Committee in consultation with management and/or other Committees of the Board: (a) evaluate the Company's procedures, programs, policies and practices with respect to its responsibilities as a global corporate citizen, including the review and development of strategy with respect to climate and its impact on operations and (b) in appropriate circumstances, recommend the amendment of the foregoing and/or the adoption of new procedures, programs, policies and/or practices. For example, the Board reviewed the risks evaluated and prioritized as part of our Enterprise Risk Management system including risks of acute and chronic physical risk associated with climate change.

C1.1d

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

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	No, but we plan to address this within the next two years	<Not Applicable>	Important but not an immediate priority	Grace went private in 2021.

C1.2

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Sustainability Officer (CSO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Half-yearly

C1.2a

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

The Senior Vice President Public Affairs and Environment, Health, and Safety, Chief Sustainability Officer is a corporate officer directly reporting to the CEO and Board of Directors, and oversight of all Environmental, Health, and Safety programs at Grace. This position is responsible for reporting on ESG related issues, including GHG emissions data, and is chairing the Grace Sustainability Leadership Team (SLT) which is composed of business presidents and representatives of Integrated Supply chain. The SLT is responsible for the strategic development, planning, and oversight of climate related issues throughout the organization. These duties were assigned to this position because of its existing oversight of relevant programs and its reporting relationship to the CEO and the Board of Directors.

C1.3

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

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

C1.3a

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

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Chief Sustainability Officer (CSO)	Monetary reward	Behavior change related indicator	The Chief Sustainability Officer is measured on performance based incentives on behavior change related indicators to include increased sustainability reporting capabilities across all corporate support functions and operational aspects of the corporation; Organizational alignment and reporting to disclosure frameworks such as Carbon Disclosure Project (CDP) and the Global Reporting Initiative (GRI) and the integration of sustainability practices within our global functions.
Facilities manager	Non-monetary reward	Emissions reduction project Energy reduction project Efficiency project	Facility Managers have operational control over all production units within the boundary of a facility. Facilities managers are accountable for identifying targets and implementing projects scoped to their facility to meet cascaded targets from the Director of ISC. Performance is assessed annually against project delivery and facility specific targets. Emissions reduction projects may include the installation of combined heat and power systems to meet stricter emissions guidelines. Energy Reduction Projects may include the replacement of old equipment like air compressors, insulation of process equipment, or lighting for more energy efficient equipment. Efficiency projects include debottlenecking and process optimization that reduces scope 1, 2, and 3 emissions by reducing natural gas, electricity, or raw material inputs.
Process operation manager	Non-monetary reward	Emissions reduction project Energy reduction project Efficiency project	Process operation managers have operational control over specific production lines within a facility and are responsible for the tactical day to day operations. Process operation managers identify and implement the emissions, energy and efficiency projects designed to meet relevant targets cascaded from Facilities Managers. Performance is assessed annually against project milestones and targets. Emissions reduction projects may include the modification or installation of new process equipment, pollution control devices, or raw material substitution leading to reduced emissions. Energy Reduction Projects may include the replacement of old equipment like air compressors, insulation of process equipment, or lighting for more energy efficient equipment. Efficiency projects include debottlenecking and process optimization / modification that reduces scope 1, and 2 emissions by reducing natural gas, electricity, or raw material inputs.
Chief Sustainability Officer (CSO)	Non-monetary reward	Behavior change related indicator	The Chief Sustainability Officer is measured on performance based incentives on behavior change related indicators to include increased sustainability reporting capabilities across all corporate support functions and operational aspects of the corporation; Organizational alignment and reporting to disclosure frameworks such as Carbon Disclosure Project (CDP) and the Global Reporting Initiative (GRI) and the integration of sustainability practices within our global functions.

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	2	Grace evaluates its risks and opportunities with respect to climate change according to three separate time scales. Short-Term is 0-2 years. Our Enterprise-wide ERM process looks at a wide variety of risks including climate risks.
Medium-term	2	5	In evaluating potential policy initiatives related to transitional risks, Grace looks to a 2-5 year time horizon.
Long-term	5	20	Our refining technologies sector has looked at the IEA SDS scenario to 20 years.

C2.1b

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

At this time, W.R. Grace & Co. recognizes a ‘substantive impact’ in regard to climate-related issues as one that may significantly affect our profitability or business strategy. For example, risks associated with increased government regulations to limit carbon dioxide and other greenhouse gas emissions as a result of concern over climate change may result in increased compliance costs, capital expenditures, and other financial obligations for us. We rely on natural gas, diesel fuel and electricity in the manufacturing and distribution of our products. Legislation or regulation affecting these inputs could affect our profitability. In addition, climate change could affect our ability to procure needed commodities at the costs and in quantities we currently experience and may require us to make additional unplanned strategic changes or capital expenditures.

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
Grace identifies and assesses risks through an Enterprise Risk Management (ERM) process. As part of this process, Grace considers acute and chronic physical and transitional climate related risks across various timeframes. As part of this analysis we use internal and external data to identify climate related risks to our direct operations, upstream, supply chain, and downstream customers. An example of how the described process is applied to physical risks, would be that we assess the risk of changing weather patterns on our operational resiliency and are taking proactive measures to prevent disruptions. For example, severe weather conditions brought by climate change have the potential to cause significant flooding events in some Grace facilities especially those which have short distance from the coastline. These types of occurrences can negatively affect our manufacturing, logistics, information technology, and communications functions. However, we have leveraged technology and e-commerce tools to make our operations more resilient and allow us to better respond to potential disruptions around the world.

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	Grace is directly affected by current and emerging regulations targeting energy consumption. Access to consistent and reliable energy sources is essential to Grace's production processes. Regulations impacting energy availability, reliability, and costs can result in excess burdens on our ability to produce products meeting our customers' sustainability endpoints. For example, several of Grace's facilities are regulated under the EU ETS. Changes in the prices of emission credits can have a significant impact on production costs at those facilities. Grace continues to monitor the projected costs of emission credits and develop strategies to mitigate these impacts through efficiency upgrades and capital projects.
Emerging regulation	Relevant, always included	The expansion of carbon pricing mechanisms which may create an implicit cost of carbon at regional, national, and international levels are regularly monitored and evaluated. Mechanisms including carbon markets and taxes that may have impacts to the cost of goods sold are routinely evaluated for potential impacts to our operations and those of our upstream and downstream value chain partners. For example, the expansion of carbon pricing mechanisms in North America could potentially lead to higher operational costs to Grace based for emissions that may be covered under that system.
Technology	Relevant, sometimes included	Changes in technologies that includes alternative uses for existing energy sources such as advanced electrification technologies or the continued development and adoption of newer fuel sources including green hydrogen and oxygen may create significant shifts in the competitive environment of the chemical industry. These shifts may create the need for additional investment in capital projects and process optimization to maintain a competitive advantage. Grace has a team of experts charged with advancing the sustainability of our processes including the evaluation, assessment, and scale up of these technologies. For example, Grace has been monitoring new developments in energy management and carbon capture and storage technologies. These technologies are assessed using a stage gate process that incorporates the feasibility of implementation and financial impact. For example, governments have begun mandating the adoption of biodiesels to reduce GHG emissions and achieve energy independence. In order for the technology to become more widespread, scientists must continue to search for ways to make biodiesel manufacturing more efficient and sustainable from both an environmental and economic perspective. TRISYL® silica helps the biodiesel industry achieve higher process efficiency and sustainability by increasing process yield and reducing environmental footprint. The TRISYL® silica-pretreated feedstock can generate 60–90% less solid waste than a comparable clay adsorbent process.
Legal	Relevant, always included	Grace is directly affected by current and emerging regulations targeting energy consumption. Access to consistent and reliable energy sources is essential to Graces production processes. Regulations impacting energy availability, reliability, and costs can result in excess burdens on our ability to produce products meeting our customers sustainability endpoints. For example, several of Graces facilities are regulated under the EU ETS. Changes in the prices of emission credits can have a significant impact on production costs at those facilities. Grace continues to monitor the projected costs of emission credits and develop strategies to mitigate these impacts through efficiency upgrades and capital projects.
Market	Relevant, sometimes included	Grace has been a long-term key strategic supplier to the world's leading energy, petrochemical, and industrial companies. Our products are highly integrated into our customers manufacturing processes including Refining Technologies, Chemical Processing, Plastics and Polymers, Coatings, Pharmaceutical and Nutracautical, Personal Care, Food and Beverage, and Biofuels. Changes in market pressures including consumer preferences may require changes in Grace's product portfolio. Some of these changes may be driven by climate-related regulations, consumer preferences, acute and/or chronic impacts. For example, the pace of electrification for light and heavy duty vehicle fleets globally is regularly monitored as EV pathways are seen as a key pathway to meeting a 2*C target within National Emission Budgets by Governments. Increased adoption of EVs is in part being driven by Governmental Targets and programs such as EIA EV30@30 and UKs Green Industrial Revolution Plan which bans the sale of new diesel and petrol LDVs by 2025. The challenges associated with utility capacity and distribution infrastructure as well as global raw material requirements for battery production, and the need for continued light weighting will impact several of Graces businesses to varying degrees and causing a shift in CO2 emissions upstream. Grace regularly monitors developments in this area.
Reputation	Relevant, sometimes included	Consumer, investor, and governmental pressure on carbon neutrality and carbon footprint reduction to limit warming to well below 2*C or 1.8*C is pushing companies to evaluate the carbon footprint of their operations (Scope 1 and Scope 2) and those of their value chain partners (Scope 3). A substantial portion of an organizations Greenhouse Gas emissions within the manufacturing, pharmaceutical, and chemical industries are Scope 3 emissions. These sectors represent most of Grace's upstream and downstream value chain partners placing increased emphasis on our ability to deliver products that meet or exceed our value chains requirements. Changes in the expectations of our value chain partners are monitored at the enterprise level and integrated into our business, development, organizational, and operational planning processes. For example, the development of new products that meet our value chain partners sustainability endpoints undergo our Product Innovation and Strategic Marketing (PrISM) process.
Acute physical	Relevant, always included	Grace has several facilities located along the gulf coast of the United States which are occasionally subject to extreme weather events such as hurricanes and flooding. For example using a combination of our value chain partners and Graces own experience in responding to extreme weather events, these risks are routinely evaluated at both the enterprise and operational levels to ensure appropriate investments in the safety of our workforce and resiliency of our facilities and supply chain are made. Routine cross-functional scenario planning occurs on an annual basis to identify any potential impacts on the continuity of our operations and supply chain that may inhibit our ability to meet our customers expectations or impact the communities in which our facilities operate.
Chronic physical	Relevant, sometimes included	Grace has operations in 9 countries leveraging a global supply chain to deliver our products to customers around the world. The ability of Grace to produce and deliver its products relies on the availability of raw materials, regional energy distribution systems, and robust global transport networks. Grace conducts biennial risk and criticality reviews of the direct material providers for each of its businesses. These reviews assign "risk" scores to each of Grace's strategic suppliers that incorporate a number of factors. Two of these factors are: Maturity of EHS and sustainability management systems. This assessment, conducted through EcoVadis, is evidence-based and requires suppliers to provide document verification of policies, practices and management systems, and performance related to a number of environmental issues, including climate resiliency and greenhouse gas management. Currently, suppliers representing 70% of Grace direct spend have completed an assessment. Of these suppliers, 71% are currently taking action on climate and greenhouse gases and 14% are part of the Science-Based Targets Initiative. Country of Origin and Supply Path Risk. Grace uses an AI-based risk assessment platform that assigns risk values to its supply country of origins, supply paths and major points of infrastructure. Among the risk indicators integrated are the probability of natural disasters such as extreme weather events at these locations. The probability calculation includes information related to changing climate patterns and the expected likelihood of extreme weather events such as wildlife fires and hurricanes and cyclones, in certain geographies. Grace also conducts a similar risk assessment for its carriers and their delivery routes through its fourth-party logistics provider Odyssey. Based on the total results of these risk and criticality assessments, Grace may take risk mitigating action with regard to the supplier, including seeking diversification and alternate qualification opportunities or assigning corrective actions through EcoVadis to the supplier to improve its own climate resiliency and greenhouse gas policies and management systems.

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 capital expenditures

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Grace has facilities covered by the EU-ETS. Changes to the EU Market Stability Reserve (MSR) to reduce emission allowances in the carbon market in line with proposed climate neutrality in the EU by 2050 and a net 55% reduction in GHG emissions by 2030 will require companies like Grace to invest in new GHG reduction technology within its EU facilities. Grace has attributed 31% of its gross global Scope 1 emissions under EU-ETS. Risk is ETS price increase.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

2250000

Potential financial impact figure – maximum (currency)

6750000

Explanation of financial impact figure

Under current carbon pricing within the revised EU ETS Directive, changes in emission allocation allowances may cause an increase in ETS certificate prices. ETS prices could increase by 30-60% over the mid-term.

Cost of response to risk

10000000

Description of response and explanation of cost calculation

Grace is focused on reducing GHG emissions resulting from our operations through the optimization of energy efficiency through audited energy management systems, and improvement projects, as a means of reducing our spend under the EU-ETS over the coming years. In addition to drive further reductions in GHG emissions and cost reduction under the EU-ETS we have begun implementing an assumed price of carbon in our capital planning process.

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 and/or expansion of low emission goods and services

Primary potential financial impact
Increased revenues resulting from increased demand for products and services

Company-specific description
Improving our customers products: High octane fuels help today's complex, high-efficiency engines run effectively. High efficiency engines are more fuel efficient, burn cleaner, and reduce engine weight allowing automakers to have sufficient room for alternate drivetrains within hybrid vehicles. High efficiency engines are becoming more prevalent and are used in most plugin hybrid and hybrid vehicles today. Increasing fuel efficiency by 1.5% could save 7 billion gallons of gasoline annually by 2030. By improving our customers products. Grace's advanced FCC catalysts are specifically designed to preserve and boost octane content from a refinery enabling automobile fuel efficiency.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
300000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Grace estimates that its FCC catalysts account for roughly 18% of the worlds gasoline supply, and that octane boosting catalysts represent roughly roughly $300 mm in revenue.

Cost to realize opportunity
0

Strategy to realize opportunity and explanation of cost calculation
This opportunity is part of today's business, no incremental costs are required to realize it. Grace continues to invest in the development and acquisition of new fine chemicals and catalyst technologies that will continue to increase the yields of high octane fuels leveraging existing infrastructure and feedstocks. Grace continues to increase the activity of our catalysts giving downstream efficiency benefits to our customers.

Comment

C3. Business Strategy

C3.1

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

Row 1

Transition plan

No, our strategy has been influenced by climate-related risks and opportunities, but we do not plan to develop a transition plan within two years

Publicly available transition plan

<Not Applicable>

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

<Not Applicable>

Description of feedback mechanism

<Not Applicable>

Frequency of feedback collection

<Not Applicable>

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

<Not Applicable>

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

We have established emission goals that are aligned with a well below 2C scenario and are developing transition plans within the next 2 years to meet those goals. A meaningful transition plan to align with a 1.5 C scenario would require significant societal-wide changes beyond our control. We will continue to monitor those developments that would enable us to have a realistic transition plan to 1.5 scenario.

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

<Not Applicable>

C3.2

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

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

C3.2a

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

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios: IEA SDS	Company-wide	<Not Applicable>	Grace has identified several physical and transition risks with climate-related outcomes that are applicable to our business as a result of our climate-related scenario analysis. Specifically, acute physical risks related to more frequent and severe catastrophic weather events such as floods or hurricanes; chronic physical risks such as changing precipitation patterns and rising sea levels; and transition market risks such as demand for our products aimed at their use-phase efficiency, stricter environmental standards, or reduced greenhouse gas emissions. Chronic and acute physical impacts from climate change will likely be felt most tangibly over the long term under our modeling. Grace is taking the necessary steps today to evaluate and prepare our business to respond to these potential impacts. For example: we are using the WRI Aqueduct Tools (including Floods), utilizing scenarios embedded in the tool to assess potential risks to our facilities under various scenarios out to 2040. To ensure continuity of supply for our customers and rest of our supply chain, we have created business continuity plans to redirect manufacturing operations to other facilities in the event of a severe weather event. Additionally, in 2020 we started assessing other chronic physical risks through our enterprise risk management process. Using this process, we will target resilience measures at our facilities to ensure the continuity of our operations in the future. Climate-related transition risks will likely be felt most tangibly over the short to medium term under our modeling as additional emphasis is placed on more energy efficient transportation, buildings, and industrial processes; all segments that Grace supports. For Example: our Refining Technologies group has assessed projected impacts using IEA Sustainable development scenarios and the resulting demand for refined products. Grace is investing heavily into products that promote use-phase efficiency, and we have instituted and refined our Product Innovation and Strategic Marketing (PrISM) process to develop future products through this energy efficiency lens.
Transition scenarios: IEA CPS	Company-wide	<Not Applicable>	Text field [maximum 2,500 characters] Grace has identified several physical and transition risks with climate-related outcomes that are applicable to our business as a result of our climate-related scenario analysis. Specifically, acute physical risks related to more frequent and severe catastrophic weather events such as floods or hurricanes; chronic physical risks such as changing precipitation patterns and rising sea levels; and transition market risks such as demand for our products aimed at their use-phase efficiency, stricter environmental standards, or reduced greenhouse gas emissions. Chronic and acute physical impacts from climate change will likely be felt most tangibly over the long term under our modeling. Grace is taking the necessary steps today to evaluate and prepare our business to respond to these potential impacts. For example: we are using the WRI Aqueduct Tools (including Floods), utilizing scenarios embedded in the tool to assess potential risks to our facilities under various scenarios out to 2040. To ensure continuity of supply for our customers and rest of our supply chain, we have created business continuity plans to redirect manufacturing operations to other facilities in the event of a severe weather event. Additionally, in 2020 we started assessing other chronic physical risks through our enterprise risk management process. Using this process, we will target resilience measures at our facilities to ensure the continuity of our operations in the future. Climate-related transition risks will likely be felt most tangibly over the short to medium term under our modeling as additional emphasis is placed on more energy efficient transportation, buildings, and industrial processes; all segments that Grace supports. For Example: our Refining Technologies group has assessed projected impacts using IEA Sustainable development scenarios and the resulting demand for refined products. Grace is investing heavily into products that promote use-phase efficiency, and we have instituted and refined our Product Innovation and Strategic Marketing (PrISM) process to develop future products through this energy efficiency lens.

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 impacts of various future scenarios on the demand for liquid transportation fuels? Based on that, would be the estimated demand for FCC Catalysts and hydrocracking catalysts?

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

Grace has referenced the IEA CPS and the well below 2C scenarios in assessing future product demand and estimate when peak demand for FCC catalysts might occur in the long term 5-20 year horizon).

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	The value we deliver through customer-driven innovation increasingly is based on how we help our customers meet their sustainability goals. Grace products and technical services improve the efficiency of our customers' processes, reduce energy or water use, cut harmful emissions, conserve material inputs, and reduce waste. The rise in Global automotive fuel economy standards is one example of a strategic decision in this area that has increased demand for lightweight materials for the automotive market, and thus increased demand for our high performance polypropylene catalysts like Polytrack®. Graces EnRich GT Catalysts enable drop in biofuels that can be used in conventional engines and existing refining infrastructure to economically convert renewable feedstocks into transportation fuels. Products and services influenced by climate related risks and opportunities are being realized in short and medium-term time horizons.
Supply chain and/or value chain	Yes	In our supply chain, Grace engages with suppliers on sustainability issues through its Responsible Sourcing Program. We assess the sustainability performance of our suppliers using a 3rd party supply chain rating service. In 2021, suppliers representing approximately 70% of our direct material spend completed a supplier sustainability assessment. We incorporate these sustainability scores into our overall supplier risk assessment process and performance monitoring. We have made an evaluation of the following aspects with respect to climate change: Climate Change impacts to our supply chain and/or value chain, within the short-term time horizon, have been immaterial despite an increasing number of countries where our suppliers operate covered by either Carbon Tax or Carbon Market systems. Our supply chain continues to prove resilient to extreme weather events. However, one example of a strategic decision in this area is that some specific suppliers have been impacted by severe weather events that may potentially be associated with climate change.
Investment in R&D	Yes	Grace continues to invest heavily in R&D and the acquisition of technologies which increase the efficiency of our customers operations and products. One example of a strategic decision in this area is that as our customers increasingly focus on the climate impacts of their operations and products, we expect our investment in R&D to increase in this area in short and medium-term time horizons.
Operations	Yes	We are subject to significant risks from both natural disasters and accidents such as fires, storms, floods, and other disruptive events. Some of our facilities may have been impacted by weather-related events which may be related to climate change. One example of a strategic decision in this area is that some of our facilities have been impacted by emissions trading systems which have increased the costs associated with their operation. This has increased the focus on our productivity program to drive continuous improvement in operational efficiency in the short-term time horizon. In addition, we have established emission reduction goals for operations that are aligned with our long-term time horizon and are implementing plans to achieve those goals.

C3.4

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Capital expenditures Capital allocation Acquisitions and divestments	Over the short term time horizon, Grace has aligned our growth plan based in part on increasingly strict environmental regulations including those related to greenhouse gases. By building on our competitive advantages in products that help our customers, Grace improves the performance and efficiency of their operations and supply products to end users to meet stricter fuel standards. Our projections for operating costs include the continued application and potential expansion of greenhouse gas regulatory programs impacting our manufacturing operations. Facilities subject to emissions trading system are included in the short to medium term horizons. Some of our facilities have been impacted by weather related events which may be related to climate change. Some of our facilities have been impacted by emissions trading systems, which have impacted the costs associated with their operation. This has increased the focus on our productivity program to drive continuous improvement in operational efficiency. Our financial plans include continued achievement of productivity gains at our facilities that will increase operational and energy efficiencies. In addition, climate change risks associated with extreme weather events have impacted capital expenditure decisions for some facilities along the coast and waterways. Our refining technologies group has assessed projected impacts on IEA Sustainable development scenario on the demand for refined products and associated future production needs of our FCC catalysts and hydrocracking catalysts. Grace's approach to M&A focuses on strategic fit with our businesses, manufacturing capabilities, and alignment with the key drivers of our growth plan, including stricter application of environmental regulations by providing our customers with products that increase the efficiency of their operations and products.

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

Year target was set
2019

Target coverage
Company-wide

Scope(s)
Scope 1
Scope 2

Scope 2 accounting method
Market-based

Scope 3 category(ies)
<Not Applicable>

Base year
2019

Base year Scope 1 emissions covered by target (metric tons CO2e)
517327

Base year Scope 2 emissions covered by target (metric tons CO2e)
115349.53

Base year Scope 3 emissions covered by target (metric tons CO2e)
<Not Applicable>

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)
751449

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1
100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2
100

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)
<Not Applicable>

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes
100

Target year
2029

Targeted reduction from base year (%)
22

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]
586130.22

Scope 1 emissions in reporting year covered by target (metric tons CO2e)
517327.46

Scope 2 emissions in reporting year covered by target (metric tons CO2e)
115349.53

Scope 3 emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)
632676.99

% of target achieved relative to base year [auto-calculated]
71.8442333048913

Target status in reporting year
Underway

Is this a science-based target?
Yes, we consider this a science-based target, and the target is currently being reviewed by the Science Based Targets initiative

Target ambition
2°C aligned

Please explain target coverage and identify any exclusions
Grace's emissions reduction target covers all manufacturing plants, corporate support offices, warehouses, mine and silo loading hub. We have excluded leased offices and remediation sites from our target since their emissions have been calculated are below 5% of our manufacturing facilities.

Plan for achieving target, and progress made to the end of the reporting year
Grace has set 22% global GHG Scope 1 and 2 emissions reduction target by 2029, from a 2019 baseline. This goal is broadly aligned with science-based target towards the well below 2C warming scenario, Grace internally monitors progress on all capital planning and productivity projects implemented at its facilities, which include projects focused on reducing energy consumption and GHG emissions.

List the emissions reduction initiatives which contributed most to achieving this target
<Not Applicable>

C4.2

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

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	0	0
To be implemented*	42	345.98
Implementation commenced*	45	143.45
Implemented*	131	1263.55
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 buildings	Other, please specify (Various energy efficiency initiative phases)

Estimated annual CO2e savings (metric tonnes CO2e)

1752.98

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)

50000

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

Payback period

11-15 years

Estimated lifetime of the initiative

21-30 years

Comment

C4.3c

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

Method	Comment
Financial optimization calculations	Grace is focused on investments in the Grace Productivity program that lead to emissions reduction activities that both improve the bottom line and reduce the emissions intensity of our operations.
Internal price on carbon	Grace is focused on investments in the Grace Productivity program that lead to emissions reduction activities that both improve the bottom line and reduce the emissions intensity of our operations. Grace is in the process of implementing a carbon price for capital projects and has already implemented internal price of carbon for some of its operations subject to the EU-ETS.
Compliance with regulatory requirements/standards	Grace is focused on investments in the Grace Productivity program that lead to emissions reduction activities that both improve the bottom line and reduce the emissions intensity of our operations.

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 (Grace has utilized the SASB definition of products designed for use phase efficiency to classify products according to climate change related benefits.)

Type of product(s) or service(s)

Other	Other, please specify (Octane boosting catalysts)

Description of product(s) or service(s)
Grace has refined its product innovation and strategic marketing process to develop new products by looking holistically at the value proposition of products under development, including the environmental and energy impacts and benefits associated with their manufacture as well as their use, to more comprehensively enhance sustainability in the value we deliver. Products in this category enable our customers to be more efficient, requiring fewer resources and energy per unit of production. For example: High octane fuels help today's complex, high-efficiency engines run effectively. High efficiency engines are more fuel efficient, burn cleaner, and reduce engine weight allowing automakers to have sufficient room for alternate drivetrains within hybrid vehicles. High efficiency engines are becoming more prevalent and are used in most plugin hybrid and hybrid vehicles today. Increasing fuel efficiency by 1.5% could save 7 billion gallons of gasoline annually by 2030. By improving our customers products. Grace's advanced FCC catalysts are specifically designed to preserve and boost octane content from a refinery enabling automobile fuel efficiency.

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

Functional unit used

Reference product/service or baseline scenario used

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

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
38700000

Explain your calculation of avoided emissions, including any assumptions
Grace estimates that is FCC catalysts account for roughly 18% of the worlds gasoline supply, and that octane boosting catalysts enable emission savings 38.7 million metric tons of CO2 per year.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
11

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?
No

C5.1a

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

Row 1

Has there been a structural change?

Yes, an acquisition

Yes, other structural change, please specify

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

Acquisition: Fine Chemistry Services (from Albemarle) Merger: Acquired by Standard Industries Holdings Inc.

Details of structural change(s), including completion dates

On February 25, 2021, Grace entered into a definitive agreement to acquire the Fine Chemistry Services business of Albemarle Corporation("Albemarle") for approximately $570 million, including $300 million to be paid in cash at closing and $270 million to be funded through the issuance to Albemarle of non-participating preferred equity of a newly created wholly owned Grace subsidiary. On March 31, 2021, Grace secured financing for the cash portion of the purchase price with a new $300 million senior secured term loan maturing in 2028. This acquisition would strengthen and expand Grace's existing pharma portfolio, within the Materials Technologies segment. The transaction is expected to close in the 2021 second quarter and is subject to customary closing conditions. On April 26, 2021, Grace announced that it had entered into a definitive agreement (the "Merger Agreement") providing for the acquisition of the Company by an affiliate of Standard Industries Holdings Inc. ("Standard Industries"), subject to the terms and conditions contained therein (the "Merger"). Under the terms of the Merger Agreement, Standard Industries, through its affiliates, would acquire all of the outstanding shares of Grace common stock for $70.00 per share in cash. Grace also announced that Standard Industries' related investment platform, 40 North Latitude Master Fund Ltd. ("40 North"), which owns approximately 14.9% of the Company's outstanding common stock, has entered into a voting agreement pursuant to which 40 North has agreed to vote its shares of Grace common stock in favor of the Merger.

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	No	<Not Applicable>

C5.1c

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

	Base year recalculation	Base year emissions recalculation policy, including significance threshold
Row 1	No, because we do not have the data yet and plan to recalculate next year	

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)

571329.53

Comment

Grace has established its base year emissions in alignment with CDP guidance for 2020. In 2020, we improved our data collection and emissions calculation methodologies. This reporting year we are also excluding 'non-industrial buildings'.

Scope 2 (location-based)

Base year start

January 1 2019

Base year end

December 31 2019

Base year emissions (metric tons CO2e)

160648.84

Comment

Grace has established its base year emissions in alignment with CDP guidance for 2020. In 2020, we improved our data collection and emissions calculation methodologies. This reporting year we are also excluding 'non-industrial buildings'.

Scope 2 (market-based)

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
170326.59

Comment
Grace has established its base year emissions in alignment with CDP guidance for 2020. In 2020, we improved our data collection and emissions calculation methodologies. This reporting year we are also excluding 'non-industrial buildings'.

Scope 3 category 1: Purchased goods and services

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
1107132.8

Comment

Scope 3 category 2: Capital goods

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
65176.75

Comment

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

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
152059.71

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
0

Comment

Scope 3 category 5: Waste generated in operations

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
24898.42

Comment

Scope 3 category 6: Business travel

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
785.1

Comment

Scope 3 category 7: Employee commuting

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
6290

Comment

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment
Not relevant

Scope 3 category 9: Downstream transportation and distribution

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
5947.66

Comment

Scope 3 category 10: Processing of sold products

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
678967.84

Comment

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment
Not relevant

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

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
95001.44

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment
Not relevant

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment
Not relevant

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment
Not relevant

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
US EPA Mandatory Greenhouse Gas Reporting Rule
US EPA Emissions & Generation Resource Integrated Database (eGRID)

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)
594480.83

Start date
<Not Applicable>

End date
<Not Applicable>

Comment
In 2021, Grace reported 12% increase in Scope 1 emissions from 2020. Grace's 2021 Scope 1 emissions calculations include carbon footprint from its South Haven and Tyrone facilities, which were acquired by Grace in 2021. We plan to backcast 2020 Scope 1 emissions from these facilities for next year's submission.

C6.2

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

Row 1

Scope 2, location-based
We are reporting a Scope 2, location-based figure

Scope 2, market-based
We are reporting a Scope 2, market-based figure

Comment

C6.3

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

Reporting year

Scope 2, location-based
162256.17

Scope 2, market-based (if applicable)
142961.95

Start date
<Not Applicable>

End date
<Not Applicable>

Comment
In 2021, Grace reported a 37% increase in Scope 2 emissions from 2020. Grace's 2021 Scope 2 emissions calculations include carbon footprint from its South Haven and Tyrone facilities, which were acquired by Grace in 2021. We plan to back-cast 2020 Scope 2 emissions from these facilities for next year's submission.

C6.4

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

C6.4a

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

Source
Leased offices and remediation sites within our operational control.

Relevance of Scope 1 emissions from this source
Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source
Emissions are not relevant

Relevance of market-based Scope 2 emissions from this source (if applicable)
Emissions are not relevant

Explain why this source is excluded
These facilities are not material users of energy within our organization.

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

Explain how you estimated the percentage of emissions this excluded source represents
In 2020, we calculated Scope 1 and 2 emissions at our leased offices and remediation sites and have evaluated them to be less than 5% of Grace's overall GHG emissions. We do not expect this to significantly change in the coming years.

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)
1041162.504

Emissions calculation methodology
Other, please specify (Emissions estimated using WRI Scope 3 Evaluator Tool)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
The WRI/Quantis Evaluator Tool ("Tool") aligns with the Greenhouse Gas Protocol 'spend-based' method to calculate an initial screen of Scope 3 upstream emissions, with industry-average emissions factors applied based on the economic value of the goods and services. This Tool is intended to ONLY provide "a first, rough approximation" of Scope 3 emissions and has several documented limitations, including a time-limited and aggregate use of price-adjustments as well as a reliance on spend data as the emissions calculation basis. Spend data is broken down according to Grace's internal accounting and allocated to the most appropriate product group category available within the Quantis Tool. The corresponding emissions factors from the Quantis tool are then applied to calculate an overall emissions estimate for this category. The Scope 3 results using a cost-based approach is intended to be illustrative and is highly influenced by general market conditions such as inflation and should not be interpreted as a specific indicator of supply chain emissions performance. To help account for inflation in the most recent reporting cycle, we applied an index-based approach to the raw material purchases with 2020 as the baseline. We have provided 2021 purchased goods and services spend as input.

Capital goods

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
51337

Emissions calculation methodology
Other, please specify (Emissions estimated using WRI Scope 3 evaluator tool)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
The WRI/Quantis Evaluator Tool ("Tool") aligns with the Greenhouse Gas Protocol 'spend-based' method to calculate an initial screen of Scope 3 upstream emissions, with industry-average emissions factors applied based on the economic value of the goods and services. This Tool is intended to ONLY provide "a first, rough approximation" of Scope 3 emissions and has several documented limitations, including a time-limited and aggregate use of price-adjustments as well as a reliance on spend data as the emissions calculation basis. Spend data is broken down according to Grace's internal accounting and allocated to the most appropriate product group category available within the Quantis Tool. The corresponding emissions factors from the Quantis tool are then applied to calculate an overall emissions estimate for this category. The Scope 3 results using a cost-based approach is intended to be illustrative and is highly influenced by general market conditions such as inflation and should not be interpreted as a specific indicator of supply chain emissions performance. To help account for inflation in the most recent reporting cycle, we applied an index-based approach to the raw material purchases with 2020 as the baseline. We have provided 2021 capital goods spend as input.

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

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
181071.44

Emissions calculation methodology
Other, please specify (Emissions estimated using WRI Scope 3 evaluator tool)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
The Scope 3 Evaluator tool utilizes total scope 1 and 2 emissions to estimate the emissions associated with Category 3. The Grace team provided total scope 1 and 2 emissions from the 2021 greenhouse gas inventories as input.

Upstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
0

Emissions calculation methodology
Other, please specify (Emissions estimated using WRI Scope 3 evaluator tool)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Grace's suppliers deliver purchased goods to Grace directly and it is common that the cost for delivering goods is included in the cost of goods. Therefore, emissions from upstream transportation and distribution cannot be determined as a separate category and are captured in Category 1 (Purchased Goods & Services).

Waste generated in operations

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
16309.55

Emissions calculation methodology
Other, please specify (Emissions estimated using WRI Scope 3 evaluator tool)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Exact cost basis for waste generated from operations in 2021 was not available at the time of reporting. Reported figure is based on average of 2020 and 2021 figures. Updates and amendments will be provided in subsequent disclosure years, as appropriate.

Business travel

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
593.22

Emissions calculation methodology
Other, please specify (Emissions estimated using WRI Scope 3 evaluator tool)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
The Scope 3 Evaluator tool utilizes total emissions associated with third party business travel as a direct input for emissions associated with Category 6. Grace employs Concur as a third-party service to facilitate third-party business travel and as such, Concur provided emissions associated with all air travel as input.

Employee commuting

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
6290

Emissions calculation methodology
Other, please specify (Emissions estimated using WRI Scope 3 evaluator tool)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
The Scope 3 Evaluator tool utilizes total employee headcount to estimate the emissions associated with Category 7. The Grace team provided total headcount for input.

Upstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
WR Grace does not have any upstream leased assets and therefore this category is not relevant.

Downstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
6429.92

Emissions calculation methodology
Other, please specify (Emissions estimated using WRI Scope 3 evaluator tool)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
Grace employs Odyssey as a third-party service to provide downstream logistics and as such, Odyssey provided emissions associated with downstream logistics. See the Assumptions section for more details.

Processing of sold products

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
2291535.759

Emissions calculation methodology
Other, please specify (Emissions estimated using WRI Scope 3 evaluator tool)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
The Scope 3 Evaluator tool utilizes total weight of product to estimate the emissions associated with Category 10. This approach represents a change of methodology from 2020 when we estimated only a portion of our business.

Use of sold products

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
There are no emissions associated with WR Grace's products after they are sold and therefore this category is not relevant.

End of life treatment of sold products

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
229068.65

Emissions calculation methodology
Other, please specify (Emissions estimated using WRI Scoped 3 Evaluator Tool)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
The Scope 3 Evaluator tool utilizes total revenue to estimate the emissions associated with Category 12. This approach represents a change of methodology from 2020 when we estimated only a portion of our business.

Downstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
WR Grace does not have any downstream leased assets and therefore this category is not relevant.

Franchises

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
WR Grace does not have any franchises and therefore this category is not relevant.

Investments

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
WR Grace does not have any investments and therefore this category is not relevant.

Other (upstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
WR Grace does not have other upstream emission sources and therefore this category is not relevant.

Other (downstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
WR Grace does not have other downstream emission sources and therefore this category is not relevant.

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
0.0002934978

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
756737

Metric denominator
unit total revenue

Metric denominator: Unit total
2512600000

Scope 2 figure used
Market-based

% change from previous year
2

Direction of change
Increased

Reason for change
Grace's 2021 gross Scope 1 and 2 emission intensity metric increased by 2% compared to 2020. In 2021, we began using location-based Scope 2 emissions that have undergone external assurance as the numerator for the emissions intensity metric. We intend to back-cast our 2019 and 2020 emission intensity metrics and will continue to use this methodology in future reporting years. We manufacture our hydroprocessing catalysts through our Advanced Refining Technologies LLC ("ART") joint venture with Chevron Products Company ("Chevron"). We hold a 50% economic interest in ART, which is not consolidated in our financial statements, so ART's sales are excluded from our sales in the 10K. The metric denominator includes all ART revenue to align with graces operational control over all production.

C7. Emissions breakdowns

C7.1

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

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	581097.67	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	720.54	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	608.83	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	11413.58	Other, please specify (California Air Resource Board)
Other, please specify (Mix of various refrigerants, process emissions, and other greenhouse gases)	640.2	IPCC Fifth Assessment Report (AR5 – 100 year)

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
Latin America (LATAM)	3068.3
Europe, Middle East and Africa (EMEA)	172034.98
Asia Pacific (or JAPA)	10496.64
North America	408880.9

C7.3

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

By business division
By facility
By activity

C7.3a

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

Business division	Scope 1 emissions (metric ton CO2e)
Advanced Refining Technologies (ART)	49264.61
Refining Technologies (RT)	299837.42
Specialty Catalysts (SC)	16232.92
Material Technologies (MT)	224698.93
Administrative	4446.94

C7.3b

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

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Abu Dhabi Silo Loading	163.89	24.686845	54.795711
Aiken	3362.88	33.59	-81.7
Albany	1000.11	44.63	-123.1
Baton Rouge	4558.25	30.49	-91.18
Cabot Whse	156.27		
Chattanooga	4020.46	35.09	-85.25
Chicago 71st	20541.69	41.76	87.72
Columbia	4238.07	39.19	-76.91
Curtis Bay	108380.84	39.21	-76.57
Duren	26743.8	50.77	6.49
East Chicago	30121.67	41.62	-87.46
Hesperia	56.96	34.43	-117.28
Houston Whse	44.98	29.81	-95.31
Kuantan	9026.03	3.98	103.38
Lake Charles	157238.68	30.16	-93.34
Norco	23109.19	30	-90.42
Pasadena	14744	29.62	-95.05
Sorocaba	3068.3	-23.4	-47.37
South Haven	4151.73	42.39	-86.28
Stenungsund	9667.07	58.07	11.85
Tarragona	20.86	38.09	-0.97
Tyrone	147.48	40.7	-78.23
Valleyfield	33007.64	45.27	-74.11
Worms	135439.36	49.66	8.36
Yeosu	1470.61	34.84	127.7

C7.3c

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

Activity	Scope 1 emissions (metric tons CO2e)
Administrative	4446.94
Non-Administrative	590033.89

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

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

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	590033.89	<Not Applicable>	
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
North America	113193.81	90137.19
Europe, Middle East and Africa (EMEA)	28532.55	32294.95
Asia Pacific (or JAPA)	18769.83	18769.83
Latin America (LATAM)	1759.98	1759.98

C7.6

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

By business division
By facility
By activity

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)
Advanced Refining Technologies (ART)	13139.42	11774.23
Refining Technologies (RT)	79969.95	71661.05
Specialty Catalysts (SC)	4329.5	3879.66
Material Technologies (MT)	59929.68	53702.98
Administrative	4887.62	1944.03

C7.6b

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

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Aiken	1558.52	1556.66
Albany	2095.96	2136.8
Baton Rouge	8275.99	8270.88
Cabot Whse	164.02	163.28
Chattanooga	4359.77	4333.92
Chicago 71st	8645.16	2778.94
Columbia	4761.99	1814.62
Curtis Bay	20108.71	8604.4
Duren	23817.84	26361.73
East Chicago	3565.54	3545.32
Hesperia	111.19	112.73
Houston Whse	59.88	63.65
Kuantan	15625.73	15625.73
Lake Charles	36877.12	36827.06
Manila	65.76	65.76
Norco	2961.15	2957.13
Pasadena	5466.13	2848.62
Sorocaba	1759.98	1759.98
South Haven	6873.86	6834.88
Stenungsund	365.82	388.39
Tarragona	3549.17	4137.59
Tyrone	4570.24	4549.74
Valleyfield	2738.58	2738.58
Worms	799.72	1407.24
Yeosu	3078.33	3078.33

C7.6c

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

Activity	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Administrative	4887.62	1944.03
Non-Administrative	157368.55	141017.92

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

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

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	157368.55	141017.92	This reporting year we are excluding 'non-industrial buildings' in alignment with CDP guidance for 2020.
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

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
Other (please specify) (Chemicals)		WRI Scope 3 Evaluator Tool used to estimated Scope 3 emissions for all scope 3 categories. Value provided is total emissions from purchase of feedstock chemicals divided by total scope 3 emissions.

C-CH7.8a

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

	Sales, metric tons	Comment
Carbon dioxide (CO2)	0	
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	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	25780.02	Increased	4.07	This is our first year reporting renewable energy consumption at our facilities. In 2021, Grace began using carbon-free energy at its Chicago 71st, Columbia, Curtis Bay and Pasadena facilities through the issuance of Emissions-Free Energy Certificates by the utility provider. This energy is sourced from nuclear, hydroelectric, solar and other renewable energy sources. Grace's Valleyfield, Canada facility also utilizes hydroelectric energy for its operations. We estimated the total impact of our renewable energy consumption on our 2020 emissions as (25,780.02/632,676.99)*100= 4.07%
Other emissions reduction activities	1752.98	Decreased	0.27	The completion of key energy efficiency projects at several facilities resulted in an estimated reduction of 28492.17 MT CO2e in energy consumption based on the projected impacts from these efficiency projects and removing the potential energy impacts from changes in output that resulted from the COVID-19 pandemic. We estimated the total impact of these energy efficiency projects on our 2020 emissions through (1,752.98 /632,676.99)*100 = 0.27%
Divestment	0	No change	0	
Acquisitions	11443.9	Increased	1.8	Grace's 2021 Scope 1 and 2 emissions calculations include carbon footprint from its South Haven and Tyrone facilities, which were acquired by Grace in 2021. We plan to backcast 2020 Scope 1 emissions from these facilities for next year's submission. We estimated the total impact of these acquisitions on our 2020 emissions through (11,444.10 /632,676.99)*100 = 1.80%
Mergers	0	No change	0	
Change in output	0	No change	0	
Change in methodology	0	No change	0	
Change in boundary	0	No change	0	
Change in physical operating conditions	0	No change	0	
Unidentified	0	No change	0	
Other	0	No change	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?

Location-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	No

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	3544913.87	3544913.87
Consumption of purchased or acquired electricity	<Not Applicable>	0	371775.67	371775.67
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	123904.35	123904.35
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Total energy consumption	<Not Applicable>	0	4040593.89	4040593.89

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
HHV (higher heating value)

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)
3520731.03

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
3520731.03

Consumption of purchased or acquired electricity

Heating value
<Not Applicable>

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)
356469.65

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
356469.65

Consumption of purchased or acquired steam

Heating value
<Not Applicable>

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)
123904.35

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
123904.35

Total energy consumption

Heating value
<Not Applicable>

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)
4001105.03

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
4001105.03

C8.2b

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

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	No
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	Yes

C8.2c

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

Sustainable biomass

Heating value

Total fuel MWh consumed by the organization

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

Comment

Other biomass

Heating value

Total fuel MWh consumed by the organization

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

Comment

Other renewable fuels (e.g. renewable hydrogen)

Heating value

Total fuel MWh consumed by the organization

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

Comment

Coal

Heating value

Total fuel MWh consumed by the organization

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

Comment

Oil

Heating value

Total fuel MWh consumed by the organization

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

Comment

Gas

Heating value

Total fuel MWh consumed by the organization
1418.88

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

Comment

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

Heating value

Total fuel MWh consumed by the organization
3543494.99

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
441293.42

Comment

Total fuel

Heating value

Total fuel MWh consumed by the organization

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

Comment

C8.2e

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

Sourcing method
Other, please specify (Emission free energy certificates (EFECs) purchase)

Energy carrier
Electricity

Low-carbon technology type
Nuclear

Country/area of low-carbon energy consumption
United States of America

Tracking instrument used
Contract

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)
64701.64

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

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)
2021

Comment

C8.2g

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

Country/area
Other, please specify (Asia Pacific)

Consumption of electricity (MWh)
0

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

Total non-fuel energy consumption (MWh) [Auto-calculated]
0

Is this consumption excluded from your RE100 commitment?
<Not Applicable>

Country/area
Other, please specify (Europe, Middle East, Africa)

Consumption of electricity (MWh)
0

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

Total non-fuel energy consumption (MWh) [Auto-calculated]
0

Is this consumption excluded from your RE100 commitment?
<Not Applicable>

Country/area
Other, please specify (Latin America)

Consumption of electricity (MWh)
0

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

Total non-fuel energy consumption (MWh) [Auto-calculated]
0

Is this consumption excluded from your RE100 commitment?
<Not Applicable>

Country/area
Other, please specify (North America)

Consumption of electricity (MWh)
64701.64

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

Total non-fuel energy consumption (MWh) [Auto-calculated]
64701.64

Is this consumption excluded from your RE100 commitment?
<Not Applicable>

C-CH8.3

(C-CH8.3) Does your organization consume fuels as feedstocks for chemical production activities?
No

C9. Additional metrics

C9.1

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

Description
Waste

Metric value
112549.98

Metric numerator
MT

Metric denominator (intensity metric only)

% change from previous year
51.68

Direction of change
Increased

Please explain
Grace reported an increase of 51.68% in generated waste in 2021 from 2020. This is due to the inclusion of our South Haven and Tyrone facilities in our 2021 waste inventory. We plan to back-cast 2020 waste generated from these facilities for next year's submission. At Grace, we are committed to the minimization and safe disposal of all waste, including hazardous waste, associated with our processes. We implement this commitment through our global Environment Health and Safety EHS policy, and adherence to the Responsible Care® initiative. Grace has established a target of reducing its waste sent to landfills (in tons) by 5 percent from a 2019 baseline by 2029. This includes reductions in hazardous waste sent to landfills.

C-CH9.3a

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

Output product
Other, please specify (Total weight of final goods and intermediate products we produce)

Production (metric tons)
431442.24

Capacity (metric tons)

Direct emissions intensity (metric tons CO2e per metric ton of product)
1.71

Electricity intensity (MWh per metric ton of product)
8.34

Steam intensity (MWh per metric ton of product)
0.29

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

Comment
At this time, we are not able to publicly disclose weight of specific products, so the values provided in this response represent the total weight of final goods and intermediate products we produce.

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	Grace continues to develop products designed for use-phase efficiency (defined by the Sustainability Accounting Standards Board (SASB) as products that "through their use-can be shown to improve energy efficiency, eliminate or lower greenhouse gas (GHG) emissions, reduce raw materials consumption, increase product longevity, and/or reduce water consumption) that met our customers' sustainability objectives. Here are some examples: Grace Polyltrack® improves our customers products through high performing polypropylene catalysts enabling light weighting of auto parts for downstream customers increasing fuel efficiency for internal combustion engines and extending the range on electric vehicles. Our custom single-site Polyethylene catalysts allow light weighting and downgauging of packaging to reduce the volume of plastic resin required for the shipment and display of consumer goods while maintaining optimal physical properties required by fast moving consumer goods companies. Grace Phonosorb® zeolite desiccants preserve the low dew point in the air space between the inner and outer glass panes of insulated glass by minimizing pressure changes and specifically absorbing water and solvents introduced during the manufacturing process. This increases the lifespan of insulated windows while preserving the sound and heat insulation properties. Makers of renewable diesel, an alternative to petroleum-based diesel fuel, use Grace's EnRich® catalyst to maximize the efficiency of the biomass conversion process from pre-treatment of base oil to final polishing of the fuel leveraging existing refining infrastructure for drop in biodiesel fuels.

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	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Process step integration	Large scale commercial deployment	≤20%		Grace Polyltrack® improves our customers products through high performing polypropylene catalysts enabling light weighting of auto parts for downstream customers increasing fuel efficiency for internal combustion engines and extending range on electric vehicles. Our custom single-site Polyethylene catalysts allow light weighting and downgauging of packaging to reduce the volume of plastic resin required for the shipment and display of consumer goods while maintaining optimal physical properties required by fast moving consumer goods companies. Grace Phonosorb® zeolite desiccants preserve the low dew point in the air space between the inner and outer glass panes of insulated glass by minimizing pressure changes and specifically absorbing water and solvents introduced during the manufacturing process. This increasing the lifespan of insulated windows while preserving the sound and heat insulation properties. Grace's EnRich® line of catalysts maximize the efficiency of biomass conversion leveraging existing refining infrastructure for drop in renewable diesel fuels.

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	No third-party verification or assurance

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
WR Grace RY21 GHG Assurance Review Letter FINAL.docx

Page/ section reference
1-2

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
13

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 location-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
WR Grace RY21 GHG Assurance Review Letter FINAL.docx

Page/ section reference
1-2

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
22

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?
No, we do not verify any other climate-related information reported in our CDP disclosure

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
Québec CaT - 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
28.03

% of Scope 2 emissions covered by the ETS
15.69

Period start date
January 1 2021

Period end date
December 31 2021

Allowances allocated
19335

Allowances purchased
83209

Verified Scope 1 emissions in metric tons CO2e
0

Verified Scope 2 emissions in metric tons CO2e
0

Details of ownership
Facilities we own and operate

Comment

Québec CaT - ETS

% of Scope 1 emissions covered by the ETS
5.71

% of Scope 2 emissions covered by the ETS
2.1

Period start date
January 1 2021

Period end date
December 31 2021

Allowances allocated
25392

Allowances purchased
0

Verified Scope 1 emissions in metric tons CO2e
0

Verified Scope 2 emissions in metric tons CO2e
0

Details of ownership
Facilities we own and operate

Comment

C11.1d

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

Grace is constantly evaluating its regulatory needs and is fully compliant with the rules and regulations of the EU-ETS and Quebec CaT. Grace is making investments in reducing its energy consumption in anticipation of additional carbon tax or emissions trading programs where we operate. These investments include reducing GHG emissions resulting from our operations through the optimization of energy efficiency through audited energy management systems, improvement projects, and the optimization of its allowances. In anticipation of future potential carbon taxes and in line with our energy reduction targets, our Curtis Bay facility has installed a Combined Heat and Power (CHP). It has an engine equipped with an oxidation catalyst and a selective catalytic reduction (SCR) system to meet stringent environmental criteria. The two generator sets produce about 5 MW of electric power, which offsets about 40 percent of the plant's annual power consumption.

In 2021, Grace began using carbon-free energy at its Chicago 71st, Columbia, Curtis Bay and Pasadena facilities through the issuance of Emissions-Free Energy Certificates by the utility provider. This energy is sourced from nuclear, hydroelectric, solar and other renewable energy sources.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?
No

C11.3

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

C11.3a

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

Objective for implementing an internal carbon price
Navigate GHG regulations
Change internal behavior
Drive energy efficiency

GHG Scope
Scope 1
Scope 2

Application
Capital projects

Actual price(s) used (Currency /metric ton)
50

Variance of price(s) used
We began implementation of an internal price of carbon on capital projects in 2021 and as a result, the effective price varied from 0 to 50 euros / MT.

Type of internal carbon price
Implicit price

Impact & implication
Implementation of the internal carbon price has allowed us to identify investments in additional efficiency gains which will help us achieve our carbon reduction goals and insulate us from future increases in the cost of carbon emissions. This initiative is currently focused on our facilities regulated by the EU-ETS.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?
Yes, our suppliers
Yes, our customers/clients

C12.1a

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

Type of engagement
Information collection (understanding supplier behavior)

Details of engagement
Collect climate change and carbon information at least annually from suppliers

% of suppliers by number
5

% total procurement spend (direct and indirect)
35

% of supplier-related Scope 3 emissions as reported in C6.5
0

Rationale for the coverage of your engagement
Annually, Grace engages with our suppliers through the Grace Supplier Code of Conduct, sustainability assessments conducted through EcoVadis, and townhalls. Scope of Engagement: The Grace Supplier Code of Conduct, which includes expectations for environmental responsibility, apply to all Grace suppliers. Grace selects suppliers for an EcoVadis assessment based on their strategic importance to our business.

Impact of engagement, including measures of success
In our supply chain, Grace engages with suppliers on sustainability issues, through its Responsible Sourcing Program. We assess the sustainability performance of our suppliers through EcoVadis, is evidence-based and requires suppliers to provide document verification of policies, practices and management systems, and performance related to a number of environmental issues, including climate resiliency and greenhouse gas management. In 2021, suppliers representing approximately 70% of our direct material spend completed a supplier sustainability assessment. Of these suppliers, 71% are currently taking action on climate and greenhouse gases.

Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Collaboration & innovation	Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number
49

% of customer - related Scope 3 emissions as reported in C6.5
0

Please explain the rationale for selecting this group of customers and scope of engagement
Rationale: Delivering value to our customers along a variety of attributes is core to Graces business model. Grace products and technical services improve the efficiency of our customers' processes, reduce energy or water use, cut harmful emissions, conserve material inputs, and reduce waste. Engagement with our customers across these domains is essential to ensuring our products continue meet the expectations of our customers and upstream value chain participants. Scope of Engagement: The value we deliver through customer-driven innovation increasingly is based on how we help our customers meet their sustainability goals. Where customer specific objectives include direct or indirect climate related aspects such as reduced energy requirements in production processes (Scope 1 & 2) or reduced raw material inputs (Scope 3) Grace has leveraged its significant technical expertise to collaboratively develop, test, and scale products to deliver value to our customers.

Impact of engagement, including measures of success
Grace's measure of success are based on the percent composition of our revenue that meets one of our four sustainability endpoints. Two of these endpoints include climate related measures. ~$0.5 Billion in revenue is derived from products that increase the efficiency of a product during its use phase from products that improve processes by increasing the efficiency of the manufacturing process used to make a product. Here are some examples: During operation of their refinery FCC units, many of Grace's customers withdraw catalyst from operation to keep the FCC running optimally. This spent catalyst, known as equilibrium catalyst, can commonly be reworked, reused or repurposed. Rather than disposing of it, Grace works with its customers to give this catalyst extended life. We may rework the products, or help customers fine suitable outlets to repurpose them. Grace is actively working to extend markets for equilibrium catalyst by taking a "design for recyclability" approach, pairing new innovative products that can operate complimentarily with equilibrium catalyst when our customers need it.

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
Climate-related disclosure through a public platform

Description of this climate related requirement
In our supply chain, Grace engages with suppliers on sustainability issues, through its Responsible Sourcing Program. We assess the sustainability performance of our suppliers through EcoVadis, which is evidence-based and requires suppliers to provide document verification of policies, practices and management systems, and

performance related to a number of environmental issues, including climate resiliency and greenhouse gas management.

% suppliers by procurement spend that have to comply with this climate-related requirement
100

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

Mechanisms for monitoring compliance with this climate-related requirement
Off-site third-party verification

Response to supplier non-compliance with this climate-related requirement
Other, please specify (Supplier will be asked to develop and implement corrective actions prior to engagement)

Climate-related requirement
Implementation of emissions reduction initiatives

Description of this climate related requirement
In our supply chain, Grace engages with suppliers on sustainability issues, through its Responsible Sourcing Program. We assess the sustainability performance of our suppliers through EcoVadis, which is evidence-based and requires suppliers to provide document verification of policies, practices and management systems, and performance related to a number of environmental issues, including climate resiliency and greenhouse gas management.

% suppliers by procurement spend that have to comply with this climate-related requirement
100

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

Mechanisms for monitoring compliance with this climate-related requirement
Off-site third-party verification

Response to supplier non-compliance with this climate-related requirement
Other, please specify (Supplier will be asked to develop and implement corrective actions prior to engagement)

Climate-related requirement
Purchasing renewable energy

Description of this climate related requirement
In our supply chain, Grace engages with suppliers on sustainability issues, through its Responsible Sourcing Program. We assess the sustainability performance of our suppliers through EcoVadis, which is evidence-based and requires suppliers to provide document verification of policies, practices and management systems, and performance related to a number of environmental issues, including climate resiliency and greenhouse gas management.

% suppliers by procurement spend that have to comply with this climate-related requirement
100

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

Mechanisms for monitoring compliance with this climate-related requirement
Off-site third-party verification

Response to supplier non-compliance with this climate-related requirement
Other, please specify (Supplier will be asked to develop and implement corrective actions prior to engagement)

Climate-related requirement
Setting a science-based emissions reduction target

Description of this climate related requirement
In our supply chain, Grace engages with suppliers on sustainability issues, through its Responsible Sourcing Program. We assess the sustainability performance of our suppliers through EcoVadis, which is evidence-based and requires suppliers to provide document verification of policies, practices and management systems, and performance related to a number of environmental issues, including climate resiliency and greenhouse gas management.

% suppliers by procurement spend that have to comply with this climate-related requirement
100

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

Mechanisms for monitoring compliance with this climate-related requirement
Off-site third-party verification

Response to supplier non-compliance with this climate-related requirement
Other, please specify (Supplier will be asked to develop and implement corrective actions prior to engagement)

Climate-related requirement
Waste reduction and material circularity

Description of this climate related requirement
In our supply chain, Grace engages with suppliers on sustainability issues, through its Responsible Sourcing Program. We assess the sustainability performance of our suppliers through EcoVadis, which is evidence-based and requires suppliers to provide document verification of policies, practices and management systems, and performance related to a number of environmental issues, including climate resiliency and greenhouse gas management.

% suppliers by procurement spend that have to comply with this climate-related requirement
100

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

Mechanisms for monitoring compliance with this climate-related requirement
On-site third-party verification

Response to supplier non-compliance with this climate-related requirement
Other, please specify (Supplier will be asked to develop and implement corrective actions prior to engagement)

C12.3

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

Row 1

Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate
Yes, we engage indirectly through trade associations

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)

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy
The global framework for Grace's EHS activities is our EHS Management System. Our US facilities adhere to the chemical industry-specific Responsible Care Management System to evaluate and manage all environmental, health & safety, process safety, product safety and security risks. Grace's commitment towards GHG emission reduction and enhanced energy efficiency is anchored on its global EHS policy and managed on a corporate and facility level through our global EHS Management System. In addition, Our CSO is also the main representative to our primary trade association, the American Chemistry Council

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

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

C12.3b

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

Trade association
American Chemistry Council

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

Has your organization influenced, or is your organization attempting to influence their position?
We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)
The ACC believes that making sustainable progress toward the reduction of greenhouse gas (GHG) emissions, while minimizing the costs to society, requires consistent, predictable policy and regulatory environments that foster innovation, investment, and economic growth. Any new U.S. climate policy should cover all sources of GHG emissions and be developed by the U.S. Congress. Climate change is a global challenge that requires long-term commitment and action by every segment of society. A combination of technology, market-based and policy solutions will be necessary to reduce greenhouse gas emissions (GHG) and achieve climate goals, such as those of the Paris Agreement. The chemical industry – and innovations in chemistry – are critical to achieving efficient and effective climate change solutions. Many low-carbon solutions rely on innovations in chemistry – from lithium-ion batteries that drive electric cars to high-performance building insulation and windows to lightweight plastic packaging and auto parts that reduce energy needs, and carbon emissions, in shipping and transportation. As a significant manufacturing sector, we are continuously improving the energy efficiency and intensity of our own operations. The chemical industry is developing transformational technologies that cut emissions, improve energy efficiency, and enable a socially, environmentally, and economically sustainable future. Source: https://www.americanchemistry.com/ACC-Climate-Policy-Principles.pdf

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

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
European Chemical Industry Council (CEFIC)

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

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

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)
A sound and detailed definition of climate-neutrality provides a signal for long-term investments The path to climate-neutrality must be based on a detailed definition; one which unites and strengthens European national actions and sets out clear rules and mechanisms for operating, including transborder GHG projects for reduction accounting. The EU wants to be climate neutral as a continent but not in isolation from the rest of world. All sectors of the economy need to be on board to reach climate neutrality Besides managing the different global speeds of reducing emissions, different sectors of the economy also reduce emissions at different rates. The chemical industry requires integrated efforts to reduce further greenhouse gas emissions, notably linked to the energy sector. All the sectors of the economy must work together to deliver on climate-neutrality. An enabling framework will be the key to success All Energy Intensive Industries have called for a Clean Industry Package with concrete actions based on three pillars: the creation of markets for climate neutral, circular economy products; developing climate neutral solutions and financing their uptake; and the deployment of the necessary resources. To achieve its transition, the chemical industry will need much more energy than today, and this energy will have to be low-carbon. The EU Industrial Strategy package should create the foundations for deploying radical industrial policies to accelerate the European Green Deal transformation of the EU industry. Moreover, EU policies should not only preserve intra-EU competition but also equip European industry to compete on a global scale.

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

Describe the aim of your organization's funding
<Not Applicable>

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

Trade association
Other, please specify (CIAC)

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

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

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)
Recognize that the chemical industry has been effective in managing climate change for several decades. Address the global competitiveness of the Canadian chemistry industry in the design and implementation of Carbon Policy to allow its member-companies to deliver the products and solutions needed to meet the climate change challenge domestically and abroad. Define sustainable and economically efficient GHG emissions reduction objectives that are balanced with economic-driven growth objectives in the chemistry industry. Provide certainty and predictability for continued operation and growth of the chemistry sector in federal, provincial and cross-border regulatory frameworks. Build upon the Canadian chemistry industry's know-how to maintain our society's ability to innovate and to respond efficiently to climate change pressures and to the changing needs of a low-carbon economy. "We are pleased to see that the federal government listened to industries' challenges and is working to develop carbon policies recognizing emission-intensive, trade-exposed sectors. By stating its intention to eliminate industrial solid and gaseous fuels from the Clean Fuel Standard (CFS) there is increased confidence in Canada's ability to attract investment into this important sector while simultaneously pursuing a low carbon economy," said Bob Masterson, President and CEO of CIAC. The Canadian chemistry industry agrees that climate change is an urgent issue. Achieving Canada's emissions goals will require chemistry-based solutions in housing, transportation, energy storage, clean energy and numerous other applications. Canada's chemistry industry can continue to meet those needs with some of the lowest carbon chemistry pathways currently available and while attracting new investment in innovative products and processes to drive emissions even lower.

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

Describe the aim of your organization's funding
<Not Applicable>

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

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 communications

Status
Underway – previous year attached

Attach the document
W-R-Grace-Co-GRI-Report.pdf

Page/Section reference

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics
Other, please specify (Workforce health and safety, product design for use phase efficiency)

Comment

Publication
In voluntary sustainability report

Status
Underway – previous year attached

Attach the document
W-R-Grace-Co-GRI-Report.pdf

Page/Section reference

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics
Other, please specify (Workforce health and safety, product design for use phase efficiency)

Comment

C15. Biodiversity

C15.1

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

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	No, and we do not plan to have both within the next two years	<Not Applicable>	<Not Applicable>

C15.2

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

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	No, and we do not plan to do so within the next 2 years	<Not Applicable>	<Not Applicable>

C15.3

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

	Does your organization assess the impact of its value chain on biodiversity?	Portfolio
Row 1	Please select	<Not Applicable>

C15.4

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

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Please select	<Not Applicable>

C15.5

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

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Please select	Please select

C15.6

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

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
Please select	<Not Applicable>	<Not Applicable>

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	Senior Vice President Government Relations and Environment Health and Safety, and Chief Sustainability Officer	Chief Sustainability Officer (CSO)

SC. Supply chain module

SC0.0

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

W. R. Grace & Co. is engaged in the production and sale of specialty chemicals and specialty materials on a global basis through two reportable business segments: Grace Catalysts Technologies, which includes catalysts and related products and technologies used in refining, petrochemical and other chemical manufacturing applications; and Grace Materials Technologies, which includes specialty materials, including silica-based and silica-alumina-based materials, used in consumer/pharma, chemical process, and coatings applications.

W. R. Grace & Co. delivers value through performance. Our catalysts and specialized silicas improve the products and processes of many of the world's best companies. Through world-class knowhow, collaboration, and experience, we help customers in 70 countries achieve some of their most important goals, from high-performing products and high-productivity manufacturing, to improved efficiency, sustainability, and profitability.

SC0.1

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

	Annual Revenue
Row 1	2211900000

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.

Requesting member
Braskem S/A

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
605.2

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
Braskem S/A

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
165.18

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
Colgate Palmolive Company

Scope of emissions
Scope 1

Allocation level

Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
11834.46

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
Colgate Palmolive Company

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
3230.07

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
Pirelli

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
1480

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
Pirelli

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
403.95

Uncertainty (±%)

Major sources of emissions

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
SABIC

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
1650.55

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
SABIC

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
450.5

Uncertainty (±%)

Major sources of emissions

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
AstraZeneca

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
1002.71

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
AstraZeneca

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
273.68

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member

Stéarinerie Dubois

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
6.88

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
Stéarinerie Dubois

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
1.88

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
Velux A/S

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
455.28

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
Velux A/S

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
124.26

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
The Dow Chemical Company

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
1187.02

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
The Dow Chemical Company

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
323.98

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The data is based on aggregate scope 1 and 2 emissions across all of the company's operations and does not precisely reflect actual emission associated with a particular product.

Requesting member
Johnson & Johnson

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
75.65

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

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Requesting member
Johnson & Johnson

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
20.65

Uncertainty (±%)

Major sources of emissions
Utilities

Verified
No

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied
Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

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SC1.2

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

SC1.3

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

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	Our major manufacturing plants have comingled production lines across a diverse array of our businesses which makes disaggregating energy and water use by product line extremely challenging.

SC1.4

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

SC1.4a

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

Our customers' appetites for more sustainable products and processes have increased, so too has Grace's focus on integrating sustainability into the design, functionality, and value propositions of our products. Grace will continue to expand its capacity for reporting as our customers appetites for this information continue to increase. In addition, implementation of advanced process control technology is expected to give us additional and more granular data on our processes.

SC2.1

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

Requesting member
Please select

Group type of project
Please select

Type of project
Please select

Emissions targeted
Please select

Estimated timeframe for carbon reductions to be realized
Please select

Estimated lifetime CO2e savings

Estimated payback
Please select

Details of proposal

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?
No

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?
No, I am not providing data

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