

C0. Introduction

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C0.1

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

Orbia is a community of companies bound together by a shared purpose: to advance life around the world. Orbia's business groups have a collective focus on ensuring food security, reducing water scarcity, reinventing the future of cities and homes, connecting communities to data and information services, and expanding access to health and well-being through providing advanced materials, specialty products and innovative, human-centered solutions. Orbia's business groups span the Precision Agriculture, Building and Infrastructure (B&I), Fluorinated Solutions, Polymer Solutions and Data Communication verticals. Products and services cover the following businesses: Polymer Solutions, a PVC resins producer, caustic soda and phosphates, plastic industrial compounds; Fluorinated Solutions, suppliers of fluorine-based compounds, technologies and services; B&I, focused on providing solutions for water management, heating, cooling, and other infrastructure solutions; Data Communication, a leading manufacturer and distributor of conduits for fiber optics and gas pipes; and Netafim, leader in precision irrigation solutions. The company has commercial activities in more than 100 countries and operations in over 50, with global headquarters in Mexico City, Boston, Amsterdam and Tel Aviv and a team of over 21,000 dedicated employees working worldwide.

C0.2

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**(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

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

- Argentina
- Australia
- Belgium
- Brazil
- Canada
- Chile
- China
- Colombia
- Costa Rica
- Czechia
- Denmark
- Ecuador
- Finland
- France
- Germany
- Guatemala
- Hungary
- India
- Ireland
- Israel
- Italy
- Japan
- Lithuania
- Mexico
- Netherlands
- Norway
- Oman
- Peru
- Poland
- Russian Federation
- South Africa
- Spain
- Sweden
- Turkey
- United Kingdom of Great Britain and Northern Ireland
- United States of America
- Venezuela (Bolivarian Republic of)

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

Polymers

Bulk inorganic chemicals

Chlorine and Sodium hydroxide

Other chemicals

Other, please specify ((PVC resins, Fluorine-based compounds and phosphates))

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	MX01OR010004

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
Board-level committee	The Board's Corporate Practices and Sustainability Committee has oversight on our overall Sustainability strategy, including climate issues: - Every Quarter, our VP of Sustainability and VP of Health, Safety and Environment & Engineering report progress on targets to this committee, including our climate change goals. - The Board provides guidance on strategy, for instance they have overseen Orbia's commitment to set Science Based Targets and achieve net zero carbon emissions by 2050 - The Board is also informed of the results of our periodic TCFD-aligned climate risk and opportunity assessments In addition, Orbia's Critical Risk Committee (CRC), reports to the Audit Committee, and is responsible for identifying and assessing enterprise risks, evaluating the appropriate risk profile for the enterprise, developing risk mitigation plans. and overseeing their implementation. These risks include environmental (and climate) risks. Our Sustainability VP, VP of HSE, CFO, General Counsel and Business Group Presidents also participate in this committee and have responsibility for specific sustainability-related topics.

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 – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	The Board is regularly updated with all major risks and opportunities related to social and environmental aspects, including 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	Yes	Juan Pablo del Valle Perochena, Orbia's Chairman has competence on climate-related issues through his active involvement in diverse environment organizations. Some of those include the Latin American Conservation Council and the Latin America Water Funds Partnership, which he has been supporting and advising for a number of years. For instance, he is the co-chairman of the Latin America Conservation Council, which works to mainstream nature-based solutions that protect, restore, and better manage biodiversity to tackle climate change and reach the sustainable development goals (SDGs). He is chairman of Mexico City's first water fund (Agua Capital).	<Not Applicable>	<Not Applicable>

**C1.2**

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Other C-Suite Officer, please specify (Vice President, Sustainability)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Quarterly
Other C-Suite Officer, please specify (Vice President, Health, Safety and Environment & Engineering)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Quarterly

**C1.2a**

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

The VP of Sustainability reports to the CEO and is also part of the Executive Leadership Team (at the same level as the CFO and other key functional roles), influencing our business strategy. All aspects of sustainability, including climate-related, are reported to the VP of Sustainability by the business groups Sustainability leaders. Both roles report progress to the Board on a quarterly basis.

The VP and the Corporate Sustainability team work directly with the Business Group Presidents to identify climate risks and opportunities and embed climate considerations into decision-making and business strategy. Much of this work is based on our periodic TCFD-aligned risk and opportunity assessments (since 2019), as well as our Science Based Targets setting process, and our risk assessments and Sustainability Goals. All Business Groups have a Sustainability team that implements environmental strategies and reports performance on climate-related issues monthly through our reporting platform.

**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	We have incorporated an ESG modifier to senior management compensation that can impact 10% of the annual bonus (positively or negatively). The targets include making progress on our environmental and social ImpactMark metrics. 2 out of those are directly related to climate issues: 1. Reduce Greenhouse Gas emissions 2. Reduce waste sent to landfill

**C1.3a**

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

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Chief Executive Officer (CEO)	Monetary reward	Emissions reduction target	The following objectives are part of the yearly bonus ESG modifier: 1. Reduce Greenhouse Gas emissions 2. Reduce plants that send waste to landfill
Corporate executive team	Monetary reward	Emissions reduction target	The following objectives are part of the yearly bonus ESG modifier: 1. Reduce Greenhouse Gas emissions 2. Reduce plants that send waste to landfill
Other, please specify (All Senior Managers across Orbia)	Monetary reward	Emissions reduction target	The following objectives are part of the yearly bonus ESG modifier: 1. Reduce Greenhouse Gas emissions 2. Reduce plants that send waste to landfill

**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	1	1	Anything that has an impact within one year
Medium-term	1	4	Depending on the issue, it can vary from 1-4 years
Long-term	5		5 years and above with no time limit

**C2.1b**

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

As part of our business processes, we continually identify climate and/or water related risks, including physical, transitional, regulatory, and other risks. The Orbia risk management teams quantify the potential financial impact and timeframe of each risk.

Risks with higher financial impact are prioritized for mitigating action.

A risk with a substantive (high) financial impact on a global Orbia corporate level is one where the potential financial impact was identified as greater than 50 Million USD . However- a risk can be considered substantive for a specific Orbia business group or site with a lower potential financial impact as well. Also- the risk impact can be considered substantive/strategic on a global Orbia level even with a lower potential impact, pending on significant potential influence in terms of safety, environmental or other forms of compliance, business continuity or reputation.

The following are the risk threshold categories as defined by Orbia. The threshold category names have been adjusted to match those used in the CDP reporting requirements.

1. High: \$50MM or greater USD
2. Medium-high : \$37.5MM USD – \$50MM USD
3. Medium : \$22.5MM - \$37.5MM USD
4. Low-medium: \$7.5MM - \$22.5MM USD
5. Low: Less than \$7.5MM USD

**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**

Every three years or more

**Time horizon(s) covered**

Short-term  
Medium-term  
Long-term

**Description of process**

Climate-related risks were first identified through a specific climate-related risk management process carried out in line with the 2019 TCFD recommendations. 2020 onward, our revamped Enterprise Risk Management process integrates climate-related risks alongside other enterprise risks. We identify physical and transition risks as part of this process and quantify their potential financial impact along with their time horizon. Those risks with higher financial impact and likelihood are prioritized for action. For example, our Vestolit site in Henry, IL (which was identified as a key site for our climate-risk assessment) was able to decommission a coal-fired boiler, supporting Orbia's overall decarbonization strategy and providing other business units an example of a cost-effective transition to lower carbon sources, which can lead to savings while contributing to climate risk mitigation.

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**C2.2a**

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Current regulation is included in Orbia's climate-related risk assessments. Compliance to existing regulations in all the geographies where we participate or conduct commercial activities is a requirement for all our businesses. Orbia has considered an evolving environment of climate-related regulations and carbon pricing at international, national and local level that could lead to increased input/operating costs for high carbon activities. Threats to securing licenses to operate for high carbon activities are being evaluated for both current and potential upcoming regulations. For example, the Mexico State in Mexico has adopted a carbon tax effective from April 2022. Direct impact for our operations in Mexico is around 2 USD/ton CO2e. This tax is in addition to the carbon exchange market from the Federal Government that started its pilot process in 2020 for large emitters, which also impacts additional sites in Mexico. The German Fuel Emissions Trading Act has introduced a carbon pricing system for fossil fuels in the heating and transportation sectors, which currently are not covered by the European greenhouse gas emissions trading system (ETS). These 2 regulations together have an impact on 17% of our Scope 1 emissions from our Vestolite site in Germany and applicable sites in Mexico.
Emerging regulation	Relevant, always included	Emerging regulation is included in Orbia's climate-related risk assessments. Orbia identified a risk of financial loss due to business disruption if our operations failed to prepare for emerging regulations. Orbia has considered an evolving patchwork of climate-related requirements and carbon pricing at international, national and state level that could lead to increased input/operating costs for high carbon activities. Threats to securing licenses to operate for high carbon activities are being evaluated for both current a potential upcoming regulations. For example, tightening regulations related to fugitive emissions and other environmental regulations may result in further investment requirements within our fluorinated solutions Business Group, leading to increased CAPEX and OPEX. The European Green Deal, which overarching aim is making Europe climate neutral in 2050, will have an impact on our European operations, as well as the Carbon Border Adjustment Mechanism. Also, we keep monitoring the evolution of potential regulatory bills as a result of the US returning to the Paris Agreement and President Biden's announcement of a carbon tax of around 51 USD/ton of CO2, as well as the US Securities and Exchange Commission (SEC) proposed rule that could guide the future of detailed reporting on climate-related risks, GHG emissions, and net-zero transition plans. According to projections estimated by the IEA for developed economies (IEA WEO, 2019), a carbon price would have a value of 100 USD/ton CO2e by 2030. This would affect our operations in advanced economies. Orbia is aware that several Mexican States such as Coahuila, and Jalisco have started discussing regulation to impose a tax on carbon emissions at their local congress. We are monitoring how these regulations evolve and the potential financial impact on our operations in Mexico. Also, in areas of water stress that could be impacted by more frequent droughts, our operations could be impacted by tougher regulations or limits on water supply, resulting in operational interruptions or closures and therefore, revenue loss. 35% of our operations are in areas of water stress.
Technology	Relevant, always included	We evaluate technology from a risk perspective, across our global business. Not investing in low-carbon technologies could lead to financial impact, like increased costs derived from future carbon pricing schemes and regulations, potentially reduced market share linked to failure to adapt to changing customer behaviour and investors being less interested in Orbia due to climate change concerns not being addressed effectively. Orbia is therefore defining a plan to transition to low-carbon technologies, including identifying alternatives to increasing our use of renewables and exploring hydrogen and carbon capture alternatives. Some examples include: increasing our renewable electricity consumption investing in tri-generation, and energy efficiency projects. Orbia is also constantly looking for climate-friendly technologies through Orbia Ventures, supporting promising startups via funding or partnerships. Details of recent innovation efforts can be found here: <a href="https://www.orbia.com/ventures/portfolio/">https://www.orbia.com/ventures/portfolio/</a>
Legal	Not relevant, included	Regulation and legal risks are always included in Orbia's risk assessments. Orbia has never had climate-related litigation claims and there is no foreseeable risk about it. As there are no foreseeable warning signs of company-specific risk from our assessment, legal risks from climate change are not considered relevant at the moment, however, we understand this might change in the future; therefore, Orbia keeps monitoring trends on this topic.
Market	Relevant, always included	As part of our TCFD- aligned assessment, we evaluate market transition risks in our business, supply chain, and customer geographies. These include changes in markets driven by policy and technology: Reduced market demand for higher carbon products/commodities, increased demand for energy-efficient, lower carbon products and services, disruption of markets by new low-carbon technologies. For example, HFC R-134a is manufactured from hydrogen fluoride (HF) at our Koura plant in St. Gabriel (US) and also in Mihara (Japan). This gas is used as a refrigerant in food preservation, air conditioning, foaming, propellants, and other uses. Fugitive emissions from this gas from AC systems and refrigerators are minimal. Fugitive emissions of this gas, specifically from AC systems and refrigerators during their operation are low. These types of equipment have low-medium refrigerant charge capacity, long lifetime (from 8-12 and 10-15 years respectively) and low annual leakage/loss rates (15% and 10% respectively) compared to parallel equipment designed to utilize other refrigerants. However, once in the atmosphere, R-134a possesses a high Global Warming Potential and so do contribute to global warming. [1]. Under the Kigali Amendment to the Montreal Protocol, developed countries have begun to reduce their use of HFCs already, while developing countries will begin in either 2024 or 2028. The agreement is designed to reduce HFC use by 85% between now and 2047 and reduce the emissions of high-GWP (global warming potential) HFCs by more than 70 billion tons of carbon dioxide equivalent through 2050 [2]. In this context, demand for HFC-related products is expected to be impacted in the coming years due to the implementation of regulations to phase out HFCs. For instance, a new bill in the US titled the American Innovation and Manufacturing (AIM) Act will implement a gradual phase-down of high-GWP products through mechanisms similar to that already employed by the European Union f-gas regulation and pave the way for implementation and adoption of new low-GWP products including fluorinated materials such as HFO and HFO/HFC blends. [1] <a href="http://www.essentialchemicalindustry.org/chemicals/hydrogen-fluoride.html">http://www.essentialchemicalindustry.org/chemicals/hydrogen-fluoride.html</a> [2] <a href="https://www.achnews.com/articles/133992-the-kigali-hfc-amendment-and-its-potential-worldwide-impact">https://www.achnews.com/articles/133992-the-kigali-hfc-amendment-and-its-potential-worldwide-impact</a> <a href="https://www.epa.gov/climate-hfcs-reduction/final-rule-phasedown-hydrofluorocarbons-establishing-allowance-allocation">https://www.epa.gov/climate-hfcs-reduction/final-rule-phasedown-hydrofluorocarbons-establishing-allowance-allocation</a>
Reputation	Relevant, always included	As part of our TCFD-aligned assessment, we evaluate global and business unit reputation risks stemming from growing expectations for low carbon, climate resiliency action from stakeholders, including investors, lenders, host governments and customers. This also includes evaluating implications for company reputation and overall confidence in management, social license to operate, and access to capital. Orbia has demonstrated being a transparent company by increasing data disclosed. Scores on some key ESG Indices has been improving, with a good impact on reputation. Since 2019, Orbia is a member of the DJSI MILA Pacific Alliance Index. In 2021, our total score increased by 5%, reflecting a commitment to continuously improve our ESG performance in all aspects of our business. Our CDP Score has been improving from D to B (2020), we have been awarded a Gold Medal in Ecovadis (2022), and we continuously work on actions to improve our ratings and stakeholders perception. Additionally, we are responding to the rising interest of investors and stakeholders in climate related issues, and have a dedicated section to Climate Transparency on our website: ( <a href="https://www.orbia.com/sustainability/climate/">https://www.orbia.com/sustainability/climate/</a> ), where our TCFD-aligned disclosures are also provided. Our transparency efforts are positively impacting tendering processes for some of our Business Groups.
Acute physical	Relevant, always included	As part of our comprehensive TCFD-aligned risk evaluation, we always assess physical risk to our global operations from existing and climate change-impacted stress for: - Cyclones - Extreme temperatures (hot and cold) - Flooding – including pluvial, fluvial, groundwater and coastal - Landslides (precipitation induced) - Wildfires Some Orbia plants are located in areas at risk of impacts from extreme weather events such as cyclones and flooding. This input informs our global and business unit risk mitigation strategies which are aligned with our overall business planning and risk management processes. For instance, one of our plants in Colombia was impacted a few years ago due to flood. Since then, the site has conducted adaptations to reinforce the site and improved its emergency response plan for flooding which includes an action for the shutdown of operations prior to inundation of crucial assets on site. This type of risks are constantly reviewed and measures are taken to be prepared for future events and ensure minimum impact to the operations and continued production.
Chronic physical	Relevant, always included	As part of our comprehensive TCFD-aligned risk evaluation, we always assess physical risk to our global operations from existing and climate change-impacted stress for: -Extreme temperatures (hot and cold) -Water stress and drought -Human health impacts Some Orbia plants are located in areas at risk of impacts from extreme weather events such as extreme temperatures and water stress. This input informs our global and business unit risk mitigation strategies which are aligned with our overall business planning and risk management processes. For instance, one of our sites in Mexico is in a high water stress area; shortage of process water could result in disruption to manufacturing processes on site. Consequently, this could lead to revenue loss on a short-term scale. Longer term scale events could have a more significant impact on water supply. The site is already discussing plans to guarantee water supply and use this resource more efficiently to ensure continued production and avoid disruptions in the value chain.

**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**

Acute physical	Cyclone, hurricane, typhoon
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**Primary potential financial impact**

Decreased revenues due to reduced production capacity

**Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

**Company-specific description**

2 (1 in Northern Mexico & 1 in the Gulf of Mexico, US) out of 12 of our high priority evaluated sites have a medium risk of potential cyclones and floods, in their location /regions. This means the sites could be partially inundated, resulting in disruption to site operations. Higher intensity events have the potential to result in equipment and infrastructure damage, resulting in temporary shutdown of the site. Roads and other supply line infrastructure can be disrupted or closed, impacting the supply of goods to the site. None of the evaluated sites possess a high physical risk.

**Time horizon**

Medium-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

30350000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

Value calculated is the average of impact on revenue (2021) in case of flood or cyclones affecting our 12 higher risk sites evaluated for this risk. The risk of significant and harmful floods/cyclones materializing is considered to have a medium impact for only 2 of these sites (low for the others).

**Cost of response to risk**

14900000

**Description of response and explanation of cost calculation**

We have invested in making our Cartagena site resilient to potential floods, representing a cost of around 6,000,000 USD in 2011. We used this case to extrapolate the costs and estimate the potential impacts of risks identified in our climate risk assessment (for the 2 medium risk sites). Increase in prices and inflation were considered. We are working with our business units globally to inform our risk mitigation strategies, in alignment with our overall business planning and risk management processes. We expect our external disclosure on risks and their associated costs will further develop as we complete the process. In addition to this, we are planning to kick-off during 2022 an updated climate risk assessment to complement the set of necessary actions to mitigate and adapt to significant potential climate-related risks.

**Comment**

**Identifier**

Risk 2

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type & Primary climate-related risk driver**

Chronic physical	Water scarcity
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**Primary potential financial impact**

Decreased revenues due to reduced production capacity

**Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

**Company-specific description**

1 (located in central Mexico) out of 12 of our high priority evaluated sites has a medium risk due to increased water stress. A shortage of process water could result in disruption to the manufacturing processes on site. Consequently, this could lead to loss of revenue on a short-term scale. Longer term scale events could have a more significant impact on water supply. There could be a lack of available firewater supply which could make the site unable to prevent wider on-site impacts from a fire. In addition to this, we are planning to kick-off during 2022 an updated climate risk assessment to complement the set of necessary actions to mitigate and adapt to significant potential climate-related risks.

**Time horizon**

Short-term

**Likelihood**

More likely than not

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

2660000

**Potential financial impact figure – minimum (currency)**

&lt;Not Applicable&gt;

**Potential financial impact figure – maximum (currency)**

&lt;Not Applicable&gt;

**Explanation of financial impact figure**

Value calculated is the average of impact on revenue in case of water stress affecting our 12 higher risk sites evaluated, although only 1 site has a medium risk of this materializing.

**Cost of response to risk**

122000

**Description of response and explanation of cost calculation**

The calculation covers the estimated cost of buying additional water to supplement our operations at our 1 medium risk site over one year. Based on historical water shortages, we estimate a requirement of at least 1145 m3 of water per day at a cost of 0.29 USD/m3. This is a short-term cost impact and does not consider potential complications associated with the sourcing and availability of supplementary water sources, or related community concerns. In order to come up with a sustainable and longer-term mitigation measure, we continue to engage and work with our business units globally to inform our risk mitigation strategies. This will be aligned with our comprehensive physical and transition climate risk study aligned with the Taskforce on Climate-related Financial Disclosures (TCFD) framework with baseline (2019) risks and as projected through 2030. Our external disclosure on risks and their associated costs will evolve as we complete the process and we will be integrating them into our overall business planning and risk management processes.

**Comment****Identifier**

Risk 3

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type & Primary climate-related risk driver**

Current regulation	Mandates on and regulation of existing products and services
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**Primary potential financial impact**

Decreased revenues due to reduced demand for products and services

**Climate risk type mapped to traditional financial services industry risk classification**

&lt;Not Applicable&gt;

**Company-specific description**

HFC R-134a is manufactured from hydrogen fluoride (HF) at our Koura sites in St. Gabriel (US) and in Mihara (Japan). This gas is used as a refrigerant in food preservation, air conditioning, foaming, propellants, and other uses. Fugitive emissions from this gas from AC systems and refrigerators are minimal. Fugitive emissions of this gas, specifically from AC systems and refrigerators during their operation are low given that this type of equipment has low-medium refrigerant charge capacity, long lifetime (from 8-12 and 10-15 years respectively) and low annual leakage/loss rates (15% and 10% respectively). However, once in the atmosphere, R-134a possesses a high Global Warming Potential (GWP) and therefore, does contribute to global warming. Under the Kigali Amendment to the Montreal Protocol, developed countries have begun to reduce their use of HFCs already, while developing countries will begin in either 2024 or 2028. The agreement is designed to reduce HFC use by 85% between now and 2047 and reduce the emissions of high-GWP HFCs by more than 70 billion tons of carbon dioxide equivalent through 2050. In this context, demand for HFC-related products is expected to be impacted in coming years due to the implementation of regulations to phase out HFCs. For instance, a new bill in the US titled the American Innovation and Manufacturing (AIM) Act will implement a gradual phase-down of high-GWP products through mechanisms similar to those already employed by the European Union F-gas regulation and pave the way for implementation and adoption of new low-GWP, high energy efficiency products, including fluorinated materials such as HFO and HFO/HFC blends.

**Time horizon**

Short-term

**Likelihood**

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)**

&lt;Not Applicable&gt;

**Potential financial impact figure – minimum (currency)**

15000000

**Potential financial impact figure – maximum (currency)**

30000000

**Explanation of financial impact figure**

The value represents the potential decrease of HFC sales, as a result of these regulations. The total annual refrigerant sales for Orbia's Koura business group have been 300 million USD. The exact financial impact is uncertain at this time and is dependent on the scope and timeframe of HFC phase-out regulations. For example, a possible drop of 5%-10% in Koura's total sales (due to lower HFC demand) would have the potential financial impact range mentioned above (approx. 15-30 million USD). This impact could change with the development of the above-mentioned regulations. Koura is actively acting to mitigate this risk and prevent these potential reduced sales, by making significant investments in next generation low GWP refrigerants with the potential to materially increase future revenue. See details below.

**Cost of response to risk**

20000000

**Description of response and explanation of cost calculation**

There are a number of investments our Koura business group is making to develop low-carbon and next generation refrigerants to replace HFCs, as well as phasing out high GWP products. The example cost above is attributed to the estimated cost of setting up a new facility in the UK to develop low GWP leapfrog refrigerants. The estimated range of this investment is 15-25 Million USD, we have used the average value in the field above. (Note that these figures – both income at risk and costs are per annum and do not include the future revenue growth opportunity.)

**Comment**

**Identifier**

Risk 4

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type & Primary climate-related risk driver**

Emerging regulation	Carbon pricing mechanisms
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**Primary potential financial impact**

Increased direct costs

**Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

**Company-specific description**

Some Mexican States are implementing a mandatory carbon tax that will have a direct impact on our operational costs in Mexico . As an example, the state of Mexico, in which we have 1 operation eligible for this carbon tax, is expected to implement this type of tax on emissions and our site could be impacted. This tax is in addition to the carbon exchange market from the Federal Government that started its pilot process in 2020 for large emitters.

**Time horizon**

Short-term

**Likelihood**

Virtually certain

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

12000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

On initial proposals, the cost per ton of CO2e is approximately 2 USD. Final guidelines for calculations are yet to be defined and officially published. The financial figure above is thus an estimation and it can vary depending on the inclusion of direct and/or indirect emissions in the new tax regulation. The impact covers 1 site in the State of Mexico.

**Cost of response to risk**

12000

**Description of response and explanation of cost calculation**

We plan on absorbing this cost initially, while we evaluate alternatives to decarbonize our site.

**Comment**

C2.4

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

Yes

C2.4a

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

**Identifier**

Opp1

**Where in the value chain does the opportunity occur?**

Downstream

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development of climate adaptation, resilience and insurance risk solutions

**Primary potential financial impact**

Increased revenues resulting from increased demand for products and services

**Company-specific description**

Our Wavin brand has been consolidating the Stormwater Management and Indoor Climate Solutions portfolio. Stormwater management solutions help cities build their climate resilience, while reducing the costs and damage from increased flooding, particularly in Europe. They also contribute to relieving heat stress and help alleviate groundwater depletion with infiltration/attenuation units combined with StormHarvester (an all-in-one-tank rainwater reuse and flood drainage system run on smart weather forecasting technology). On the other hand, Indoor Climate solutions include smart temperature controls (Sentio) as well as other related heating and cooling solutions (Underfloor heating, district heating, mechanical ventilation, ceiling cooling) that result in energy consumption reductions for users among other green building characteristics

**Time horizon**

Medium-term

**Likelihood**

Very likely

**Magnitude of impact**

High

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

<Not Applicable>

**Potential financial impact figure – minimum (currency)**

237000000

**Potential financial impact figure – maximum (currency)**

335000000

**Explanation of financial impact figure**

The above are based on estimated revenue forecasts to 2025 for the ranges of solutions mentioned above, expected to grow 30-40% from 2019 revenues. In 2021, revenue from Indoor Climate Solutions grew 38% compared to 2020, while Stormwater management grew 23% vs. 2020.

**Cost to realize opportunity**

58000000

**Strategy to realize opportunity and explanation of cost calculation**

Figure is based on estimated CAPEX to expand the production capacity of certain products, as well as additional headcount needed to expand commercial and R&D capabilities to grow the above ranges of solutions

**Comment****Identifier**

Opp2

**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 through access to new and emerging markets

**Company-specific description**

Following the launch of the first generation of low Global Warming Potential (GWP) propellants and refrigerants, our Koura brand has continue to develop and consolidate the next generation, to deliver a new automotive refrigerant alternative, broadening the sustainable refrigerants portfolio. These efforts are designed to adapt our offered solutions to the new low-carbon economy, and are part of Orbia's overall climate responsibility practices. Koura has already introduced Zephex 152a, a propellant gas that delivers more than 90 percent reduction in Global Warming Potential for pressurized MDIs, as compared to current offerings. Driven by F-gas regulation and phase down of HFCs, Koura is investing in leapfrog refrigerants with significantly lower GWP than current or transitional refrigerants. Koura is exploring 4 ranges of refrigerants, one of them being refrigerants for use in Electric Vehicles (EV). Automakers are preparing to phase out cars powered solely by internal combustion engines (ICEs) as governments look to tackle fuel emissions. EV will perform better with the next generation refrigerants we are developing. We are currently engaged in a 4-year research program with several key car companies. In addition to these efforts, Koura runs a refrigerant recovery plant in Japan to help reduce the global warming impact of older generation refrigerants. In 2021, this plant increased its processing capacity to record over 900 tons of refrigerants since 2018, avoiding around 1.7 million tons of GHG emissions. The site has plans to further grow its recovery capacity in 2022. Following the launch of Klea® 473A, Koura continued to revolutionize the refrigerant gas space with the launch of another of its next-generation refrigerants, Klea® 456A. This lower global-warming-potential (GWP) refrigerant presents an alternative to R-134a for automotive air conditioning systems. Klea 456A refrigerant is non-flammable and has a GWP 46% lower when compared to R-134a. Klea 456A represents a first step as Koura broadens its sustainable refrigerants portfolio for use in a variety of applications. Additional products are in development or undergoing customer testing and are expected to be commercialized in the future.

**Time horizon**

Long-term

**Likelihood**

Likely

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

<Not Applicable>

**Potential financial impact figure – minimum (currency)**

91000000

**Potential financial impact figure – maximum (currency)**

166000000

**Explanation of financial impact figure**

The above is based on forecasted revenues between 2025 and 2030, according to market growth and expected demand for these products and services, driven by shifting consumer behavior and tighter environmental regulations. Electric vehicles (EV) and Hybrid Electric Vehicles (HEV) are expected to account for an estimated 30% of all vehicle sales by 2025 and will continue to grow, demanding in turn, greater volumes of low GWP refrigerants. In 2021, revenue from low GWP propellants grew by 60% and the first sales of low GWP refrigerants surpassed \$100,000 USD.

**Cost to realize opportunity**

115000000

**Strategy to realize opportunity and explanation of cost calculation**

Investments cover 5 years. Koura is investing in new facilities in the UK to develop low GWP propellants and refrigerants. One of them is the first in the world to offer dedicated pharmaceutical grade laboratories specialising in the new low carbon footprint medical propellant Zephex® 152a and will facilitate the commercial development of 152a-based inhaled medicines. This will create several highly skilled scientific and technical roles locally. With an operational date set for late 2021, the new facility will allow pharmaceutical companies to develop and test new formulations for the treatment of respiratory diseases including asthma based on Zephex® 152a. 2021 update: Despite the impact of the COVID-19 pandemic on supply chains, Koura was able to successfully commercialize the product during 2021. Simultaneously, Koura launched a new formulation service designed to support early-stage development studies specializing in Zephex152a. This transition to Zephex 152a required significant regulatory review and approval by medical and environmental regulators. Today, an estimated 50 % to 70% of major commercial formulations for MDIs are undergoing investigation for transition to Zephex152a <https://www.zephex.com/press-release/koura-announces-major-investment-into-new-greener-medical-propellant-production-facility-in-united-kingdom/> <https://www.zephex.com/press-release/koura-to-supply-ground-breaking-low-carbon-footprint-medical-propellant-to-chiesi-farmaceutici-for-inhalation-product-development-and-clinical-trials/>

**Comment**

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**Identifier**

Opp3

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Use of lower-emission sources of energy

**Primary potential financial impact**

Reduced direct costs

**Company-specific description**

Our different Business Groups are implementing resource efficiency projects, including renewable energy projects or transition to lower emission sources. These projects will be translated into cost savings thanks to better contract terms for renewables as well as tax exemptions by using renewables or lower emission sources. In 2021, we decommissioned a coal fired boiler at our Henry site in the US, transitioning to natural gas power, this resulted in both reduced GHG emissions (around 13,000 tons CO2) and financial savings reported below. This is a significant milestone in the journey of our Chemical Business groups who are exploring opportunities to accelerate decarbonization alternatives in spite of limitations of renewable electricity procurement in certain regions. Also, we increased our use of renewable energy by 28%, reducing around 15,000 tons of GHG emissions primarily in our European plants, and bringing our total purchased and generated renewable electricity to 6% of total electricity consumption. Six additional Orbia sites incorporated partial or total renewable electricity in 2021. These new plants acquired renewable electricity through either Power Purchase Agreements (PPAs), renewable energy certificates (RECs), or Guarantee of Origin (GOs) acquisition.

**Time horizon**

Short-term

**Likelihood**

Virtually certain

**Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

1500000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

The above figure represents annual savings for the next few years derived from transition from coal to natural gas.

**Cost to realize opportunity**

820000

**Strategy to realize opportunity and explanation of cost calculation**

About 577,000 USD were invested to switch our coal boiler to natural gas by our Polymer Solutions site in the USA (Henry, IL), and around 243,000 USD have been invested on renewable electricity acquisition.

## Comment

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### Identifier

Opp4

### Where in the value chain does the opportunity occur?

Downstream

### Opportunity type

Products and services

### Primary climate-related opportunity driver

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

### Primary potential financial impact

Increased revenues through access to new and emerging markets

### Company-specific description

As the world transitions to a low carbon economy, the demand for batteries used in electric vehicles and to support renewable energy, will grow significantly. Our Koura business is investing in a range of solutions that enhance energy storage and drive their sustainability. For instance, we are conducting R&D to improve electrolyte performance; we are investing in a new facility to expand our capability to produce a fluorinated component of batteries; and we are partnering with companies to enable the recovery and recyclability of battery components including fluorine and lithium. In early 2021, Orbia led and announced a \$4 million venture capital investment in Ascend Elements to develop a commercial processing facility for converting used lithium-ion batteries directly into cathode materials (<https://www.orbia.com/this-is-orbia/news-and-stories/battery-resourcers/>) and recently developed innovative technology yielding 99.9% pure graphite from used Lithium-ion batteries (<https://www.orbia.com/this-is-orbia/news-and-stories/Ascend-Elements-and-Koura-Unveil-Innovative-Technology-Yielding-Pure-Graphite-from-Used-Lithium-ion-Batteries/>)

### Time horizon

Medium-term

### Likelihood

Likely

### Magnitude of impact

High

### Are you able to provide a potential financial impact figure?

Yes, an estimated range

### Potential financial impact figure (currency)

<Not Applicable>

### Potential financial impact figure – minimum (currency)

30000000

### Potential financial impact figure – maximum (currency)

100000000

### Explanation of financial impact figure

Based on forecasted revenues according to market size and expected demand for these products over the next few years and mainly 2023-2025, driven by shifting consumer behavior and tighter environmental regulations.

### Cost to realize opportunity

50000000

### Strategy to realize opportunity and explanation of cost calculation

We are investing in R&D and production capacity, as well as developing partnerships to grow offer of products and services related to the battery industry mentioned above. Over the past decade, lithium-ion battery production has increased tenfold to meet revved-up electric vehicle (EV) production and deployment demand, according to data from the International Energy Agency. According to the American Chemical Society, less than 10% of lithium-ion batteries are presently recycled, due to economic, technical and market factors. With a predicted 800%+ increase in the number of EVs expected to hit the road by 2030, battery recycling is an area ready for reinvention. In early 2022, Orbia's Fluorinated Solutions brand Koura signed a three-party Letter of Intent with Foosung Co. Ltd. and the Mayor of Kędzierzyn-Koźle, Poland to meet growing demand for inorganic fluorine compounds used in the production of lithium-ion batteries in Europe. (<https://www.orbia.com/this-is-orbia/news-and-stories/Orbias-Fluorinated-Solutions-brand-Koura-signs-a-three-party-Letter-of-Intent-with-Foosung/>)

## Comment

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### Identifier

Opp5

### Where in the value chain does the opportunity occur?

Downstream

### Opportunity type

Markets

### Primary climate-related opportunity driver

Access to new markets

### Primary potential financial impact

Increased revenues through access to new and emerging markets

### Company-specific description

Our Netafim business addresses multiple new opportunities in the precision irrigation landscape: - While the market share of drip irrigation for extensive crops, such as maize and rice, has been historically low, we have had successful commercial-scale efforts in Turkey and India, delivering improved yields, 70% water savings, fertilizer use reduction, >90% reduction of methane emissions and significant reduction of arsenic uptake into rice grains. With rice feeding more than 1.6 billion people around the world (UN) and growers leaning towards sustainable agriculture, the market is growing globally. - According to the UN, more than 660 million live in small urban centers under water and food scarcity. In 2021, Netafim acquired Dutch Greenhouse Company Gakon Horticultural Projects to meet the growing demand for local food production in all climates. Yields in commercial greenhouse projects are increasing by up to 8-10 times in comparison to open field growing. Growers can now produce crops all year round, even in urban areas and fresh local food is available for local markets, while resources like water and fertilizer use is being cut by up to 40%. - Development of Netafim's

Community Irrigation Project model, which organizes smallholders into "irrigation communities" that benefit from regular water supply through improved infrastructure, efficient irrigation equipment, modern farming practices and a hub of technical and commercial assistance that enables farmers to thrive and support their families and communities. - Development of Streamline X EZ (formerly ReGen)<sup>™</sup>, the first drip line made primarily from used recycled material. It is the ultimate single crop application solution that is tough enough to withstand harsh installations with its interior and exterior ribbed structures. Netafim is the only drip irrigation manufacturer committed to a comprehensive recycling program so it's easier than ever to dispose of used dripline at the end of the season. Where available, Netafim collects Streamline X EZ, along with other Netafim products, and recycles the products, which are then used in our manufacturing processes. As climate change regulations continue to address plastic manufacturing and disposal, Netafim is setting itself apart from our competitors with this full cycle solution.

**Time horizon**

Medium-term

**Likelihood**

More likely than not

**Magnitude of impact**

High

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

<Not Applicable>

**Potential financial impact figure – minimum (currency)**

590000000

**Potential financial impact figure – maximum (currency)**

880000000

**Explanation of financial impact figure**

- Extensive crops cover about 88% of irrigated land globally. Nonetheless, micro-irrigation only covers an estimated <1% of this land. Based on the emergence of new incentives such as carbon/water credits, new technological breakthroughs, and wider adoption of sustainability criteria by governments, Netafim predicts a 5% CAGR in sales of irrigation products and solutions for extensive crop cultivation to 2025. - The Greenhouse market is a ~\$3 billion market, with an estimated CAGR of at least 7% for the upcoming years. Netafim accelerated its penetration to this market with the acquisition of Gakon. Together, the combined revenues expected to reach ~\$200M by 2025. In addition, the urban farming market is expected to significantly grow in the upcoming years, due to trends of local food production and food security concerns. This market is a direct fit to Netafim and Gakon capabilities, and estimated to contribute additional revenues by 2025 - Financial estimation of continued growth in community irrigation in India as well as initial penetration to additional geographies - Streamline X EZ forecast is based on recent years CAGR and expectations for upcoming years in the US, as well as expansion to new business units in the world In 2021, our precision irrigation revenues increased by 15% vs. previous year, accounting for 13% of Orbia's sales.

**Cost to realize opportunity**

62000000

**Strategy to realize opportunity and explanation of cost calculation**

Our efforts include: - Dedicated R&D expenses and life cycle assessments in collaboration with academic and government research agencies for further demonstration of the overall environmental benefits of converting to drip irrigation and their contribution to climate resilience will support our work with governments to subsidize drip irrigation conversion. Alternative incentives (carbon/water credits) for farmers who adopt drip irrigation will also drive the growth in new markets. - Scaling greenhouse and urban farming solutions to areas under water stress and/or significantly affected by drought. - Use success of the Community Irrigation project model in India to scale to other nations where small holder farmers are facing affects of climate change. - Increasing recycling capacities in various global markets, including a recycling plant in Mexico that starts operations in 2022. Continue seeking external sourcing of recycled materials and recycling facilities to recycle product at end of life.

**Comment**

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### C3. Business Strategy

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#### C3.1

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

**Row 1**

**Transition plan**

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

**Publicly available transition plan**

<Not Applicable>

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

<Not Applicable>

**Description of feedback mechanism**

<Not Applicable>

**Frequency of feedback collection**

<Not Applicable>

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

<Not Applicable>

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

Orbia is currently developing a robust roadmap that will enable us to align with a 1.5°C decarbonization pathway. We expect to disclose this plan in our upcoming sustainability report. In general, we will focus our efforts on optimizing manufacturing processes, transitioning to low-carbon and renewable energy sources, and exploring opportunities in carbon capture and hydrogen. In parallel, our sites are adapting to physical climate change risks, including risks associated with changing weather and their resulting disruptions.

**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 and quantitative	<Not Applicable>	<Not Applicable>

**C3.2a**

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

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios RCP 8.5	Company-wide	<Not Applicable>	An initial screening on high-priority sites was completed through these 3 steps: 1. Hazard Assessment. Including the following parameters: cyclones, extreme heat, extreme cold, flooding, landslides, water stress & drought, and wildfires. During this step, present and future climate hazard materiality was quantified. For our baseline, data was obtained from publicly available datasets, and for our future scenario RCP 8.5 from IPCC to 2030 was used. 2. Vulnerability assessment. Conducted through the application of a questionnaire to sites focused on collecting financial figures/parameters (revenue, operating costs, etc), site vulnerabilities (exposure, assets, resilience pans, past climate-related events). Vulnerability was then assessed across 3 main aspects: site overview and site value, known risks and past events, and risk factors. 3. Risk Selection. Identified based on hazards data and vulnerability for each site. Hazards were classified as "of concern" or "limited to no concern". Full risk assessment was developed where both vulnerability and hazard were designated "of concern" Finally, our physical risk analysis was summarized in a quantitative way in the form of a matrix
Transition scenarios IEA SDS	Company-wide	<Not Applicable>	The following parameters were included in the assessment: carbon pricing, energy and water costs, raw materials, manufactured products & markets. Assumptions & Analytical Choices: Baseline analysis was conducted through survey responses to sites including the parameters mentioned above. Future Risk was analyzed based on answers provided, projections from databases and research to later develop a view of future risk and opportunity. For example, carbon and energy prices estimated in 2030 were obtained from the UEAT WEO of 2018 for the SDC. No increase in energy use and carbon emissions was assumed during the study. Electricity costs by 2030 were made using historic data from public sources; for example, for the US and countries in the European Union, data from the IEA WEO of 2018 were used. Water-related information was obtained from water suppliers as close to each site to make projections to 2030. Finally, our transition risk analysis was summarized in a quantitative way in the form of a matrix

**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 does most recent science data tell about the current and future exposures of Orbia's Business Groups to climate risks? Will current exposures be material in the future? How significant could be the impact in the worst case scenario for highly relevant sites be? Does Orbia need to strengthen contingency plans in any of its key sites? What should we do to mitigate our impacts, how and when? Do risk management processes, strategy and product portfolio need to be adjusted? Does Orbia track all the relevant variables to support decision-making? Is Orbia in a good position to be compliant with potentially upcoming climate-related regulations? What are the climate-related opportunities that arise for Orbia and its Business Groups? Can we contribute to mitigate and adapt to a changing climate through our solutions? Rationale for choosing RCP 8.5 and IEA Sustainable Development Scenarios: Orbia's first intention was to understand the possible outcomes to 2030 for some of its key sites, based on a 'business as usual' trajectory which would see temperatures increase by around 4.5°C or more by 2100, which is expected to provide some insight of the highest level of effort to adapt to climate change. Based on this, we chose RCP 8.5 from the IPCC. On the transitions risks side, Orbia's intention was to understand the potential effects of current, announced and potential regulations needed to be on a well below 2°C pathway, which are the considerations included in the IEA Sustainable Development Scenario. In order to better assess the challenges ahead of us, we plan to update our previous climate risk analysis during 2022 with state-of-the-art scenarios incorporating new information, expanding our time horizon and scope, beyond Business-As-Usual models, to test and continuously improve our resilience to climate change.

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

Our scenario analysis allowed us to identify climate-related risks for highly relevant Orbia sites for both physical and transition risks to 2030. For physical risks, it was concluded that Orbia's most relevant risk exposures are: 1) increased severity and frequency of cyclones and floods, leading to reduced capacity, decreased production and revenues with a medium-low magnitude of financial impact 2) increased water stress and drought leading to reduced capacity resulting in decreased revenues with a low magnitude of financial impact. For transition risks, it was concluded that Orbia's most relevant risk exposures are: 1) carbon pricing mechanisms leading to increased direct costs, with a low magnitude of impact 2) mandates and regulations of existing products and services leading to reduced demand and decreased revenues from HFCs, with a medium- low impact to 2030. The results of our climate risk and opportunity assessments have triggered internal initiatives to place climate change at the center of the challenges our business groups pursue as we continue to evolve into a low carbon and resilient business. Our Corporate Practices & Sustainability Committee, our thematic and multi-disciplinary working groups, and our businesses analyze how these challenges, and their potential financial implications, may affect the organization's business and strategy. For example, carbon taxes and future increases in energy prices are now part of our financial planning. We also analyze how our solutions contribute to the mitigation and/or adaptation to climate-related challenges. The examples provided below illustrate how we respond to some of the risks and opportunities identified (described above), in line with our climate action framework and Business strategy. 1) Vestolit is developing bio-based PVC options to supply customers around the world with clean water, sanitation and other essential elements for good health. They are also deploying renewable energy, bringing emissions from chlorine production closer to net zero. 2) Koura is expanding its portfolio of low global warming potential (GWP) next-generation refrigerants and propellants, and energy storage technologies that will drive a decarbonized future. 3) Wavin is growing its offering in segments including stormwater management, indoor climate systems, and green building solutions for urban and rural resilience. 4) Netafim has increased integrated precision irrigation offerings and moved into turnkey greenhouse solutions. 5) Duraline has been investing in large-scale fiber optics and conduit projects to improve connectivity while minimizing environmental impacts. 6) Through Orbia Ventures Orbia is exploring new opportunities on carbon capture and hydrogen technology. Orbia has made a first investment in Verdagy, a company innovating on water electrolysis technology for large-scale production of green hydrogen.

**C3.3**

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**(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	Orbia's business groups are connected by a shared purpose: to advance life around the world. The main challenges we have committed to addressing with our products and services are: • How do we feed the world sustainably • How can we better manage our water systems • How do we make our cities more liveable, lovable and resilient • How do we connect and empower communities with data • Can health and well-being be made more accessible? • How do we push beyond sustainability to regeneration? Climate change is at the centre of these challenges as we transform into a future fit and resilient business. Our businesses have taken on these challenges and are regularly developing and adapting their strategy to ensure our products and solutions address risks and opportunities of climate change. Case 1: Buildings are responsible for 40% of energy use. Our Indoor Climate Solutions (ICS) enable heating and cooling of buildings at lower energy use and low carbon emissions compared to existing technologies. Typically, using our ICS, users can save up to 21% of energy by using zone control, up to 20% by using underfloor heating instead of radiators and up to 34% in cooling vs. air-conditioning. This is being driven by the EU, encouraging more energy efficient and low carbon technologies and buildings. Orbia has taken a strategic decision to invest and grow this business over the next 5 years. Case 2: We are experiencing floods and drought more erratically due to climate change. Our Stormwater management solutions (SWM) are key to mitigating and addressing flooding and drought in cities and urban areas, making them climate resilient. SWM solutions are able to capture rain/flood waters and store for reuse when rain is scarce. The business has taken a strategic decision to continue expanding the SWM product line and launch it globally over the next 2 years. Case 3: Agriculture accounts for 45% of methane emissions, which has a GWP 28 times that of CO2. An LCA of our products showed that, used in corn fields, drip irrigation has a carbon footprint at least 52% lower than flood irrigation and at least 38% lower than sprinkler irrigation. Netafim has invested extensively to expand the use of drip irrigation. An example is the growth in India, where adoption of precision irrigation grew from 12,000 ha and 60 million USD (2017) to 106,000 ha and 245 million USD (2020).
Supply chain and/or value chain	Yes	Derived from tighter emerging regulations on fossil fuels, our procurement and logistics teams are constantly looking for alternatives, for instance switching from road to rail, or finding recycled or bio-based raw materials when available. Case 1: We piloted a project in Mexico aimed at reducing greenhouse gas emissions in transportation by more than 90%, by transferring domestic shipments from road to rail transport. Due to the pandemic, we fell short of our plans to switch all shipments (around 450 per year) to rail, which has the potential impact of saving 1,200 tons of CO2e per year. Rail transport varied between 40% and 75% during 2020. Plans to achieve 100% will be resumed once conditions become favorable. This project aligns with our logistics team's strategy targets to reduce our Scope 3 emissions as we work towards carbon neutrality in 2050. Case 2: Wavin operations aim to increase the use of post-consumer recycled PVC to 25% by 2025 in products to reduce dependence on virgin raw materials and avoid carbon emissions. According to UK DEFRA, recycled PVC emits 82% less GHG emissions compared to Virgin PVC. Similarly, Netafim has a target of increasing recycled content in drip lines to 45% by 2030. These are key targets for integrating circularity into our business strategy. Category 1 represents around 7% of Scope 3 emissions for all Orbia operations. This contribution is higher when looking at our extrusion businesses alone, where Category 1 represents around 57% of their Scope 3 emissions. Case 3: Recyclability is a core element in Wavin product design criteria, with a goal to increase recyclability to 90%. We operate a recycling facility in California. We incentivize Netafim customers to return used drip lines, which we recycle to make new products. In 2020, a major expansion of recycling capacity was completed, reaching an annual 12,000 tons per year. Case 4: In 2020, Wavin Colombia implemented logistics solutions to optimize their distribution network, with, among others, a Transportation Management System (TMS). This has improved the route planning process, reducing distance traveled, while delivering the same number of finished products. Results are: a reduction in carbon emissions of 5,087 tons (scope 3, category 4); an average load per truck (ton/truck) change from 2,581 to 2,669; and kilometers per ton (km/ton) 14.6% lower.
Investment in R&D	Yes	Our businesses are constantly investing in developing innovative low global warming potential (GWP) and low carbon products, such as our new medical grade propellant (GWP 90% lower than current propellants), new refrigerants, exploring options for fossil free resin, integrated recycled content and recyclability criteria in design, among others. We are also investing in the development of solutions, such as battery storage innovations, that enable and support the transition to a low carbon economy. Case 1: Conventional PVC production is linear, with fossil crude oil and salt as raw materials. It's also carbon-intensive, where for every kg of PVC produced, about 2.4 kg of CO2e are emitted. In line with business strategy to be future fit and sustainable, our PVC business is exploring options to produce fossil free PVC. See section 2.4 for more examples of R&D
Operations	Yes	Each Orbia business has targets to improve efficiency and transition to cleaner or renewable sources of energy and obtain or maintain an environmental management system. Among other related strategies, several plants have developed plans to adapt to potential extreme weather events. Climate-related risks have influenced our global targets to become carbon neutral by 2050 (reducing Scope 1 and 2 emissions by 47% by 2030, pending validation by the Science Based Target Initiative) and have all plants certified as ISO-14001 or equivalent by 2025. Case 1: Renewable energy consumption increased by 60% in 2020, driven by key projects across most of our Business Groups. As an example, Wavin operations in Europe aim to source 100% of their electricity consumption from renewable sources by 2025, this will enable a 4% reduction of Orbia's GHG emissions. Also, our Dura-Line plant in Goa, India, has formalized a Power Purchasing Agreement to acquire 1,000 MWh per year of solar power starting the second semester of 2021, representing 12-15% of Goa's annual electrical load. Case 2: A trigeneration plant started operating in our Vestolit Altamira I site. Starting in 2021, yearly emissions reductions are predicted at almost 20 thousand tons of CO2e, which would equate to taking over 4,500 cars off the road. Case 3: Technology modification and investments in additional condensers allowed to replace chilled water by cooling water in the PVC process at Altamira I. The projected energy consumption reduction is of 65 KWh per ton of PVC produced.

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 Capital expenditures Capital allocation Acquisitions and divestments	Capital expenditures: Our capital expenditure and allocation process is being revised to accommodate projects that have a sustainability impact. We are working to include additional criteria that would allow us to tag a project as climate-related, where relevant. Through this method, we will ensure that projects that help us achieve our GHG emissions targets are flagged and can be escalated for approval by the VP of Sustainability. The revised capital allocation process will allocate considerable amounts of resources for sustainability-centered projects, allowing for a more robust pipeline of sustainability projects over the upcoming 5-10 years. The proposed initiatives will be evaluated based on their merit to move the needle towards achieving our sustainability targets, in addition to financial and technical consideration. Revenues: Orbia's business groups are connected by a shared purpose: to advance life around the world. The main challenges we have committed to addressing with our products and services are: • Water & food security • Sanitation and access to water • Climate resilience and decarbonization • Data connectivity • Health and well-being Climate change is at the centre of these challenges as we transform into a future fit and resilient business. Our businesses have taken on these challenges and are regularly developing and adapting their strategy to ensure our products and solutions address risks and opportunities of climate change. An initial assessment carried out in 2021 demonstrated that at least 60% of Orbia's revenue is contributing to the above challenges and to corresponding UN Sustainable Development Goals (see results here: <a href="https://www.orbia.com/4ab9cc/siteassets/3.-news--stories/sustainable-solutions-report-unsdg/sus_un-sdg-report_11.11.21_d1v5.pdf">https://www.orbia.com/4ab9cc/siteassets/3.-news--stories/sustainable-solutions-report-unsdg/sus_un-sdg-report_11.11.21_d1v5.pdf</a> ) Below are some examples of key solutions: Case 1: Buildings are responsible for 40% of energy use. Our Indoor Climate Solutions (ICS) enable heating and cooling of buildings at lower energy use and low carbon emissions compared to currently used technologies. This is also being driven by EU legislation encouraging more energy efficient and low carbon buildings. Orbia has taken a strategic decision to invest and grow this business over the next 5 years. Case 2: We are experiencing floods and drought more erratically due to climate change. Our Stormwater management solutions (SWM) are key to mitigating and addressing flooding and drought in cities and urban areas, making them climate resilient. SWM solutions are able to capture rain/flood waters and store for reuse when rain is scarce. The business has taken a strategic decision to continue expanding the SWM product line and launch it globally over the next years. Case 3: Agriculture accounts for 45% of methane emissions which is 28 times more potent than CO2 in GWP. According to a 2020 Lifecycle Assessment (LCA) for our Netafim products, used in corn fields, drip irrigation has a carbon footprint at least 52% lower than flood irrigation and at least 38% lower than sprinkler irrigation. Our irrigation business, Netafim, has invested extensively in expanding the use of drip irrigation. In 2021, Netafim acquired Dutch Greenhouse Company Gakon to meet growing demand for local all-climate food production, and help cities adapt to growing impacts from climate change. Case 4: In 2021, Orbia significantly invested in the development of energy storage technologies through our Fluorinated Solutions brand. Milestones in 2021 include the acquisition of battery tech start-up Silatronix and investment in Ascend Elements, a closed-loop lithium-ion battery recycler. Koura also continued investing in growing its capacity for further developing low GWP refrigerants and propellants.

C4. Targets and performance

## C4.1

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

Absolute target

## C4.1a

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### (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**

2020

**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)**

645300

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

1354235

**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)**

1999535

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

100

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

100

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

<Not Applicable>

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

100

**Target year**

2030

**Targeted reduction from base year (%)**

47

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

1059753.55

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

624317

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

1180795

**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)**

1805112

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

20.6881078574173

**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**

1.5°C aligned

**Please explain target coverage and identify any exclusions**

Our SBT Scope 1 & 2 carbon target covers 100% of Orbia's global emission based on operational control. We have announced 47% reduction of our Scope 1 + 2 by 2030. This is a Science Based Target aligned with the 1.5°C scenario; approval by the SBTi committee still pending.

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

We aim to achieve meaningful Climate Action across three fronts: low impact and resilient operations, solutions for advancing a climate resilient economy, and driving new businesses for a net zero world. Our main actions to reach our goal are condensed in 3 large fronts: 1. Optimizing processes to drive efficiencies 2. Transitioning to renewables and lower carbon energy sources 3. Exploring carbon capture and hydrogen investment opportunities Also, to accelerate progress towards our goals, Orbia has established a Decarbonization working group to identify value-adding partnerships between business groups and functions for implementation of high impact GHG reduction projects. More information in our Sustainability Report. In 2021 we continued to decreased our carbon footprint process optimization projects and transitioning to renewables and lower carbon energy sources

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

<Not Applicable>

---

**Target reference number**

Abs 2

**Year target was set**

2021

**Target coverage**

Company-wide

**Scope(s)**

Scope 3

**Scope 2 accounting method**

<Not Applicable>

**Scope 3 category(ies)**

Category 11: Use of sold products

Category 12: End-of-life treatment of sold products

**Base year**

2019

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

<Not Applicable>

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

<Not Applicable>

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

83381000

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

83381000

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

<Not Applicable>

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

<Not Applicable>

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

93

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

100

**Target year**

2030

**Targeted reduction from base year (%)**

30

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

58366700

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

<Not Applicable>

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

<Not Applicable>

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

75672000

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

75672000

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

30.8183718912782

**Target status in reporting year**

New

**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**

Well-below 2°C aligned

**Please explain target coverage and identify any exclusions**

Our SBT Scope 3 carbon target covers 100% of Orbia's global emissions on use-phase and end-of-life treatment of our products (categories 11 & 12). We have announced 30% reduction of our Scope 3 Category 11 and 12 by 2030. This is a Science Based Target aligned with the Well Below 2°C scenario; approval by the SBTi committee still pending.

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

To achieve our Scope 3 goal, we plan to replace our sales portfolio of our higher Global Warming Potential (GWP) refrigerants and propellants (mainly R-134a), with lower GWP alternatives. Many of these Leapfrog Refrigerants (LFRs) are currently on the market and undergoing evaluation and testing by customers. We aim to increase our production capacity of the LFRs while we engage our current and potential customers. Our goal is to increase LFR market share while at the same time reducing the amount of high GWP sold in the market. These activities will enable Orbia to achieve its Scope 3 target for reducing 30% of GHG emissions from Categories 11 & 12 by 2030.

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

<Not Applicable>

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**C4.2**

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

Net-zero target(s)

Other climate-related target(s)

**C4.2b**

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**(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.**

**Target reference number**

Oth 1

**Year target was set**

2019

**Target coverage**

Company-wide

**Target type: absolute or intensity**

Absolute

**Target type: category & Metric (target numerator if reporting an intensity target)**

Waste management	Percentage of sites operating at zero-waste to landfill
------------------	---

**Target denominator (intensity targets only)**

<Not Applicable>

**Base year**

2019

**Figure or percentage in base year**

24

**Target year**

2025

**Figure or percentage in target year**

100

**Figure or percentage in reporting year**

39

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

19.7368421052632

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

As stated by the GHG Protocol, Scope 3 - Category 5 emissions are related to waste disposed. Progress to reach our Zero Waste To Landfill target will lead to a reduction in indirect GHG emissions.

**Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

**Please explain target coverage and identify any exclusions**

The target was developed internally following discussions with stakeholders in our different business groups. This metric covers all of our production facilities in 2021. We also exclude waste generated from special projects (Non-related to production, for example: construction, demolition, etc.)

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

We moved from 25% to 39% of Orbia sites compliant with our Zero Waste to landfill standard in 2021, meaning that maximum 10% of their total waste is being sent to landfill. Plan to achieve target includes efforts to reduce waste at the source and consolidate partnerships with waste management companies that can support the process of identifying diversion solutions. Overall, waste generated on a per ton basis has been consistently decreasing, and our absolute volume of process-related waste to landfill or incinerated without energy recovery was 19% lower in 2021 than in 2020.

**List the actions which contributed most to achieving this target**

<Not Applicable>

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C4.2c

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

**Target reference number**

NZ1

**Target coverage**

Company-wide

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

Abs1

**Target year for achieving net zero**

2050

**Is this a science-based target?**

No, but we are reporting another target that is science-based

**Please explain target coverage and identify any exclusions**

Our Net-Zero Scope 1 & 2 carbon target covers 100% of Orbia's global emission based on operational control. We have announced 47% reduction of our Scope 1 + 2 by 2030. This is a Science Based Target aligned with the 1.5°C scenario; approval by the SBTi committee still pending. We consider this to be halfway milestone on the longer journey to achieve net-zero emissions.

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

Unsure

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

<Not Applicable>

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

We are not yet at the stage where we can disclose plans to reduce emission beyond our value chain.

**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	2	
To be implemented*	7	90000
Implementation commenced*	1	4000
Implemented*	5	171000
Not to be implemented	0	

**C4.3b**

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

**Initiative category & Initiative type**

Low-carbon energy consumption	Low-carbon electricity mix
-------------------------------	----------------------------

**Estimated annual CO2e savings (metric tonnes CO2e)**

45000

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

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

0

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

243000

**Payback period**

No payback

**Estimated lifetime of the initiative**

>30 years

**Comment**

This reduction corresponds to all the emissions avoided by claiming certified sourcing of renewable zero emission electricity during 2021. Financial figures, payback period and lifetime of initiative are not comprehensive and were estimated based on average renewable electricity sourcing prices across our organization. Further details on our renewable electricity purchased can be seen in answer to question C8.2e.

**Initiative category & Initiative type**

Other, please specify	Other, please specify (Switch of electricity supplier to cleaner alternatives)
-----------------------	--

**Estimated annual CO2e savings (metric tonnes CO2e)**

92000

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

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

0

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

0

**Payback period**

No payback

**Estimated lifetime of the initiative**

1-2 years

**Comment**

This figures correspond to engagement initiatives with our electricity suppliers that offer cleaner energy sources, even if their matrix are not 100% renewable yet. They include data from our operations in Germany and Mexico.

**Initiative category & Initiative type**

Other, please specify	Other, please specify (Reduced consumption of high GHG fuel)
-----------------------	--

**Estimated annual CO2e savings (metric tonnes CO2e)**

25000

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

Scope 1

**Voluntary/Mandatory**

Voluntary

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

1500000

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

577000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

>30 years

**Comment**

This reduction was estimated based on the direct emissions related to reduction of consumption of coal at one of our sites.

**Initiative category & Initiative type**

Energy efficiency in production processes	Process optimization
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**Estimated annual CO2e savings (metric tonnes CO2e)**

8000

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

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

2700000

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

4900000

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

11-15 years

**Comment**

These figures correspond to a process optimization initiative at one of our Vestolit facilities that resulted in lower electricity consumption.

**Initiative category & Initiative type**

Energy efficiency in production processes	Process optimization
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**Estimated annual CO2e savings (metric tonnes CO2e)**

1000

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

Scope 1

**Voluntary/Mandatory**

Voluntary

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

84000

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

186000

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

11-15 years

**Comment**

These figures correspond to a process optimization initiative at one of our Alphagary facilities that resulted in lower demand of steam.

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

Method	Comment
Compliance with regulatory requirements/standards	Our sites in the EU either fall under the ETS or have the ISO 50001 or are subject to the Energy Efficiency directive. In these cases, the sites have the necessary action plan, budgets and responsibility to set and meet the reduction targets as prescribed by their systems. Orbia Corporate is continuously identifying how to enable de-carbonization, while also removing bottlenecks, leaving the specific projects, actions, etc. to the business unit discretion, in such a way that they chose the most cost-effective and emission reduction effective tools.
Dedicated budget for other emissions reduction activities	We are currently working on defining a percentage of our annual capital budget to be dedicated to emission reduction initiatives and other sustainability related projects. Orbia Corporate is continuously identifying how to enable de-carbonization, while also removing bottlenecks, leaving the specific projects, actions, etc. to the business unit discretion, in such a way that they chose the most cost-effective and emission reduction effective tools.
Dedicated budget for energy efficiency	We are currently working on defining a percentage of our annual capital budget to be dedicated to energy efficiency. Orbia Corporate is continuously identifying how to enable de-carbonization, while also removing bottlenecks, leaving the specific projects, actions, etc. to the business unit discretion, in such a way that they chose the most cost-effective and emission reduction effective tools.
Internal incentives/recognition programs	All Senior Manager roles and above now have an ESG modifier in their compensation. Achieving emission and waste reductions can impact +-10% of their annual bonus. Emissions reduction targets have also been added to performance goals of several relevant positions within the different Orbia business groups. In addition, HSE and energy-related positions are regularly evaluated based on their site efficiency performance and their variable compensation is impacted accordingly. Orbia Corporate is continuously identifying how to enable de-carbonization, while also removing bottlenecks, leaving the specific projects, actions, etc. to the business unit discretion, in such a way that they chose the most cost-effective and emission reduction effective tools.

**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 (Products, services, processes or technologies that result in substantially lower net carbon emissions than alternative products or methods, based on Lifecycle Assessments (LCAs).)

**Type of product(s) or service(s)**

Other	Other, please specify (Building and infrastructure development)
-------	---

**Description of product(s) or service(s)**

Our Wavin, Alphagary and Vestolit brands offer a wide range of solutions that contain recycled content. Using the Lifecycle Assessment (LCA) methodology, we can compare products made from virgin raw materials to products with recycled materials, demonstrating that the carbon footprint is lower when using recycled material. In the case of Wavin, several of their business segments have integrated recycled content in existing or new products. Alphagary has a 3 ranges of specialty compounds that contains from 50 to 97% of recycled content. Finally, Vestolit has developed PVC resin using fossil-free feedstock

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

No

**Methodology used to calculate avoided emissions**

<Not Applicable>

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

<Not Applicable>

**Functional unit used**

<Not Applicable>

**Reference product/service or baseline scenario used**

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

**Explain your calculation of avoided emissions, including any assumptions**

<Not Applicable>

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

2

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**Level of aggregation**

Group of products or services

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

Other, please specify (Products or services that allow our clients to reduce their environmental footprint and avoid emissions.)

**Type of product(s) or service(s)**

Other	Other, please specify (Climate solutions, refrigerants, resins and stabilizers.)
-------	--

**Description of product(s) or service(s)**

Through the Indoor Climate Solutions from our Wavin brand, users can save up to 21% energy consumption by using zone control, up to 20% by using underfloor heating instead of radiators and up to 34% in cooling vs. air conditioning. Our Vestolit resins portfolio includes low temperature fusion resins, which allow lower processing (fusion) temperature, resulting in energy saving. Also, our Koura brand has developed low GWP propellants and a new generation of low GWP refrigerants, called Klea®. As part of this series, many products environmentally outperform traditional alternatives: - Klea®473A refrigerant has a GWP of 1830. This is significantly lower than the current low temperature refrigerants R23 and R508, with their respective GWPs of 14,800 and 13,396. - Klea® 456A, which presents an alternative to R-134a for automotive air conditioning systems has a 46% lower GWP when compared to traditional R-134a. The latest product added to the portfolio is LFR3, which is designed to achieve a lower environmental impact and better performance than CO2 across a range of ambient temperatures and it is expected to increase energy efficiency by 20%. Finally, our Alphagary brand has developed the VINASTAB stabilizer series to enable customers to better process recycled feedstock.

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

No

**Methodology used to calculate avoided emissions**

<Not Applicable>

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

<Not Applicable>

**Functional unit used**

<Not Applicable>

**Reference product/service or baseline scenario used**

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

**Explain your calculation of avoided emissions, including any assumptions**

<Not Applicable>

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

3

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C5. Emissions methodology

C5.1

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

No

C5.1a

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

Row 1

**Has there been a structural change?**

No

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

<Not Applicable>

**Details of structural change(s), including completion dates**

<Not Applicable>

C5.1b

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**(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>

C5.2

---

**(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)**

645300

**Comment**

In 2020, figures for 2019 Scope 1 were updated to include process emissions not related to energy.

**Scope 2 (location-based)**

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

1426571

**Comment**

Calculated considering average national CO2 emission factors published by the International Energy Association. In 2020, figures for 2019 Scope 2 were updated to include purchased heating, steam and cooling.

**Scope 2 (market-based)**

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

1354235

**Comment**

Scope 2 market-based electricity emission factors are sourced from the International Energy Agency (IEA) data 2020 version where supplier emission factors are not available. We expect to increase the amount of direct primary data from suppliers going forward. In 2020, figures for 2019 Scope 2 were updated to include purchased heating, steam and cooling.

### Scope 3 category 1: Purchased goods and services

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

5440000

**Comment**

All data was calculated using our internal database to assess the consumption of the different raw materials and other purchased goods and services. Emission factors were sourced from public sources and consultancy services.

### Scope 3 category 2: Capital goods

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

22000

**Comment**

All activity data was sourced from our internal data bases. Emissions were calculated using the Quantis Tool

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

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

182000

**Comment**

All activity data was sourced from our internal data bases. Emission factors were sourced from the IEA (electricity) and DEFRA's WTT (fuels).

### Scope 3 category 4: Upstream transportation and distribution

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

331000

**Comment**

Supplier emissions were sourced where possible (less than 1%). Freight tons and miles were compiled from our internal data base, emissions were calculated with DEFRA emission factors. When freight tons and miles were not available, the calculations were based on internal estimates (less than 30% of this category's emissions).

### Scope 3 category 5: Waste generated in operations

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

4000

**Comment**

We used our internal databases for activity data (mass of waste by disposal method). Emission factors were sourced from DEFRA.

### Scope 3 category 6: Business travel

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

10000

**Comment**

Where possible, data was collected directly from suppliers (travel agencies). Remaining information was calculated using travelled miles and DEFRA emission factors.

### Scope 3 category 7: Employee commuting

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

17000

**Comment**

We extrapolated the findings of a survey conducted by the Institute for Transportation and Development Policy (ITDP) on GHG emissions from the commute of Orbia employees in Mexico City.

### Scope 3 category 8: Upstream leased assets

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

6000

**Comment**

Leased assets in our operation refer mainly to leased vehicles. We estimated an average fuel consumption per car from available data. We extrapolated this to all our company.

### Scope 3 category 9: Downstream transportation and distribution

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

14000

**Comment**

Based on estimated average GHG emission per ton sold and transported where we hold control, we estimated the emissions for the outbound freighted tons we do not control.

### Scope 3 category 10: Processing of sold products

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

0

**Comment**

Our global sustainability team has made an initial analysis of these emissions. The conclusion was that these emissions are not relevant. Orbia's variety of products includes thousands of very different items, with many of which undergoing very different processing methodologies. In addition, the access to data needed for such calculation is very limited, and we believe we would have a very limited possibility to influence any emissions related to the processing. Therefore, the highly considerable efforts required to calculate these emissions have been determined as not cost-effective, and the emission are irrelevant. However, we have been able to estimate a rough figure provided in question 2.5.3, we continue to explore ways to provide a more accurate figure in the future.

### Scope 3 category 11: Use of sold products

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

26499000

**Comment**

Values were calculated based on the GWP of our fluorinated products and required pumping energy for our extrusion products during the use phase. We used publicly available information and internal LCAs.

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

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

56882000

**Comment**

Values were calculated based on the GWP of our fluorinated products. For the rest of our products, we used the Quantis evaluation tool.

**Scope 3 category 13: Downstream leased assets**

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

0

**Comment**

We (as lessors) have not identified relevant lease contract with any third party (lessee)

**Scope 3 category 14: Franchises**

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

0

**Comment**

Orbia does not operate franchises.

**Scope 3 category 15: Investments**

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

526000

**Comment**

We used the cost-based method through the Scope 3 Quantis Evaluation Tool.

**Scope 3: Other (upstream)**

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

0

**Comment**

We do not include any category in our Scope 3 inventory other than the 15 established in the GHG Protocol.

**Scope 3: Other (downstream)**

**Base year start**

January 1 2019

**Base year end**

December 31 2019

**Base year emissions (metric tons CO2e)**

0

**Comment**

We do not include any category in our Scope 3 inventory other than the 15 established in the GHG Protocol.

**C5.3**

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

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

The Greenhouse Gas Protocol: Scope 2 Guidance

**C6. Emissions data**

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**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)**  
624317

**Start date**  
<Not Applicable>

**End date**  
<Not Applicable>

**Comment**  
2021 Scope 1 data includes process GHG emissions, in addition to fuel-combustion related emissions

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**  
Some supplier specific emissions factors (EFs) were used in our calculations. We aim and are working to increase availability of supplier-specific EFs, to continuously improve the accuracy of our GHG database.

C6.3

---

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

**Reporting year**

**Scope 2, location-based**  
1339631

**Scope 2, market-based (if applicable)**  
1180795

**Start date**  
<Not Applicable>

**End date**  
<Not Applicable>

**Comment**  
2021 Scope 2 data includes purchased heating, steam and cooling in Scope 2

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**

Fugitive HFCs releases from refrigeration systems

**Relevance of Scope 1 emissions from this source**

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

No emissions excluded

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

No emissions excluded

**Explain why this source is excluded**

Through our work to set our Science Based Targets, we have conducted a full screening of our GHG emissions extensive database. Refrigeration related emissions were found to be irrelevant and negligible in comparison with Orbia's total scope 1 and scope 2 emissions. The overall value of these excluded emissions was found to be less than 5% of the included GHG emissions. Due to high complexity of gathering this data annually, it was decided that the needed resources of data collection are not justified- due to the negligibility of emissions. This conclusion could be re-evaluated in the future, upon any chance in relevant circumstances.

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

4

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

Where available, we collected data on refrigerant releases from refrigerations systems, for the other sites we extrapolated the results based on the nature of the production processes. The precise value for the figure above is 3.6%, but was reported as 4% as the ORS does not allow mmore decimals.

---

**Source**

Satellite warehouses and offices

**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**

Satellite warehouses and offices are those that are not within the physical boundaries of any Orbia production plant. Through our work to set our Science Based Targets, we have conducted a full screening of our GHG emissions extensive database. These emissions were found to be irrelevant and negligible in comparison to Orbia's total scope 1 and scope 2 emissions. The overall value of these excluded emissions was found to be less than 5% of the included GHG emissions. Due to high complexity of gathering this data annually, it was decided that the needed resources of data collection are not justified- due to the negligibility of emissions. This conclusion could be re-evaluated in the future, upon any chance in relevant circumstances.

**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**

Data on electric and fuel consumption was collected from a small sample of offices and warehouses. The results were extrapolated to the rest of the sites. The precise value for the figure above is 0.9%, but was reported as 1% as the ORS does not allow mmore decimals.

---

**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)**

5647000

**Emissions calculation methodology**

Average data method

Spend-based method

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

0

**Please explain**

For raw material related-emissions, we have used cradle to gate emission factors obtained from public or private recognized databases (e.g. Ecoinvent). For all other purchased goods and services related-emissions, we have used the cost-based method proposed by the Quantis evaluation tool. We conducted a full Scope 3 GHG inventory screening in 2020, using 2019 data. For our 2021 figures, we extrapolated our findings based on production figures.

## Capital goods

### Evaluation status

Not relevant, calculated

### Emissions in reporting year (metric tons CO2e)

22000

### Emissions calculation methodology

Spend-based method

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

0

### Please explain

The emissions related to capital goods purchased were estimated using the Quantis Scope 3 evaluation tool, using the value of the purchased capital goods in the reporting year. The resulting emissions form a negligible part in our overall Scope 3 emissions, and are therefore considered not relevant. We conducted a full Scope 3 GHG inventory screening in 2020, using 2019 data. As this emissions are not relevant to the overall Orbia footprint, we believe the 2019 figure is valid for 2021.

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

### Evaluation status

Not relevant, calculated

### Emissions in reporting year (metric tons CO2e)

194000

### Emissions calculation methodology

Average data method

Fuel-based method

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

0

### Please explain

We used our internal databases for activity data (fuel and electricity consumption). Emission factors were sourced from the IEA (electricity) and DEFRA's WTT (fuels). The resulting emissions form a negligible part in our overall Scope 3 emissions, and are therefore considered not relevant.

## Upstream transportation and distribution

### Evaluation status

Not relevant, calculated

### Emissions in reporting year (metric tons CO2e)

343000

### Emissions calculation methodology

Supplier-specific method

Average data method

Distance-based method

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

0

### Please explain

Supplier emissions were sourced where possible (less than 1%). Freight tons and miles were compiled from our internal data base, emissions were calculated with DEFRA emission factors. When freight tons and miles were not available, the calculations were based on internal estimates (less than 30% of this category's emissions). The resulting emissions form a negligible part in our overall Scope 1+2+3, and are therefore considered negligible. We have conducted a full Scope 3 GHG inventory screening in 2020, using 2019 data. For our 2021 figures, we extrapolated our findings based on production figures.

## Waste generated in operations

### Evaluation status

Not relevant, calculated

### Emissions in reporting year (metric tons CO2e)

3000

### Emissions calculation methodology

Waste-type-specific method

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

0

### Please explain

We used our internal databases for activity data (mass of waste by disposal method). Emission factors were sourced from DEFRA. The resulting emissions form a negligible part in our overall Scope 3 emissions, and are therefore considered not relevant.

## Business travel

### Evaluation status

Not relevant, calculated

### Emissions in reporting year (metric tons CO2e)

0

### Emissions calculation methodology

Average data method

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

0

### Please explain

There was almost no business travel as a result of the COVID pandemic, therefore we are reporting this value as 0.

## Employee commuting

### Evaluation status

Not relevant, calculated

### Emissions in reporting year (metric tons CO2e)

12000

### Emissions calculation methodology

Average data method

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

0

### Please explain

We extrapolated the findings of a survey conducted by the Institute for Transportation and Development Policy (ITDP) on GHG emissions from the commute of Orbia employees in Mexico City. The resulting emissions form a negligible part in our overall Scope 3 emissions, and are therefore considered not relevant. For our 2021 figures we assumed that the corporate employee commuting emissions were 0 due to widespread home office resulting from the covid pandemic. We only included emissions related to production-related employee commuting.

## Upstream leased assets

### Evaluation status

Not relevant, calculated

### Emissions in reporting year (metric tons CO2e)

6000

### Emissions calculation methodology

Average data method

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

0

### Please explain

Leased assets in our operation refer mainly to leased vehicles. We estimated an average fuel consumption per car from available data. We extrapolated this to all our company. The resulting emissions form a negligible part in our overall Scope 3 emissions, and are therefore considered not relevant. We conducted a full Scope 3 GHG inventory screening in 2020, using 2019 data. As this emissions are not relevant to the overall Orbia footprint, we believe the 2019 figure is valid for 2021.

## Downstream transportation and distribution

### Evaluation status

Not relevant, calculated

### Emissions in reporting year (metric tons CO2e)

14000

### Emissions calculation methodology

Average data method

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

0

### Please explain

Based on estimated average GHG emission per ton sold and transported where we hold control, we estimated the emissions for the outbound freighted tons we do not control. The resulting emissions form a negligible part in our overall Scope 3 emissions, and are therefore considered not relevant. We have conducted a full Scope 3 GHG inventory screening in 2020, using 2019 data. For our 2021 figures, we extrapolated our findings based on production figures.

## Processing of sold products

### Evaluation status

Not relevant, explanation provided

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### Please explain

Our global sustainability team has made an initial analysis of these emissions. The conclusion was that these emissions are not relevant. Orbia's variety of products includes thousands of very different items, with many of which undergoing very different processing methodologies. In addition, the access to data needed for such calculation is very limited, and we believe we would have a very limited possibility to influence any emissions related to the processing. Therefore, the highly considerable efforts required to calculate these emissions have been determined as not cost-effective, and the emission are irrelevant. In contrast, we have calculated the emissions from product use, and product end-of-life, and treat these emissions as relevant for current and future reduction efforts. See below.

## Use of sold products

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

23158000

### Emissions calculation methodology

Other, please specify (Estimated refrigerant release at use phase method)

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

0

### Please explain

Values were calculated based on the GWP of our fluorinated products and required pumping energy for our extrusion products during the use phase. We used publicly available information and internal LCAs. We have conducted a full Scope 3 GHG inventory screening in 2020, using 2019 data.

## End of life treatment of sold products

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

52514000

### Emissions calculation methodology

Average data method

Other, please specify (Estimated refrigerant release at end-of-life method)

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

0

### Please explain

Values were calculated based on the GWP of our fluorinated products. For the rest of our products, we used the Quantis evaluation tool. We have conducted a full Scope 3 GHG inventory screening in 2020, using 2019 data.

## Downstream leased assets

### Evaluation status

Not relevant, explanation provided

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### Please explain

We (as lessors) have not identified relevant lease contract with any third party (lessee)

## Franchises

### Evaluation status

Not relevant, explanation provided

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### Please explain

Orbia does not operate franchises.

**Investments**

**Evaluation status**

Not relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

526000

**Emissions calculation methodology**

Spend-based method

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

0

**Please explain**

We used the cost-based method through the Scope 3 Quantis Evaluation Tool. The resulting emissions form a negligible part in our overall Scope 3 emissions, and are therefore considered not relevant. We conducted a full Scope 3 GHG inventory screening in 2020, using 2019 data. As this emissions are not relevant to the overall Orbia footprint, we believe the 2019 figure is valid for 2021.

**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**

We have not identified other relevant emissions in our value chain.

**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**

We have not identified other relevant emissions in our value chain.

**C6.7**

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**(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**

0.21

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

1805112

**Metric denominator**

metric ton of product

**Metric denominator: Unit total**

8566164

**Scope 2 figure used**

Market-based

**% change from previous year**

5

**Direction of change**

Decreased

**Reason for change**

General transition to cleaner energy grids in the regions we operate and increased consumption of certified renewable electricity.

**Intensity figure**

0.21

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

1805112

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

8787000

**Scope 2 figure used**

Market-based

**% change from previous year**

29

**Direction of change**

Decreased

**Reason for change**

Orbia's revenues increased by 37% from 2020 to 2021, partly due to pandemic recovery. On the other hand, our Scope 1 & 2 emissions decreased 3%, mainly from procurement of electricity from cleaner suppliers. These factors combined have resulted in a significantly lower intensity per unit of revenue (USD).

**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	600339	IPCC Fourth Assessment Report (AR4 - 50 year)
CH4	340	IPCC Fourth Assessment Report (AR4 - 50 year)
N2O	478	IPCC Fourth Assessment Report (AR4 - 50 year)
HFCs	23160	IPCC Fourth Assessment Report (AR4 - 50 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)
India	478.37
United Kingdom of Great Britain and Northern Ireland	22130.31
United States of America	105423.45
Germany	73846.92
Colombia	106129.78
Mexico	285920.83
Japan	20016.1
Poland	969.1
Oman	44.06
France	809.31
Czechia	341.45
Peru	634.15
Venezuela (Bolivarian Republic of)	1.67
Argentina	90.17
Ecuador	1190.64
Brazil	2156.95
Costa Rica	157.21
Guatemala	218.31
Belgium	62.72
Denmark	620.37
Finland	208.27
Italy	408.01
Netherlands	1350.41
Norway	90.92
Sweden	156.95
Hungary	195.47
Lithuania	144.67
Russian Federation	65.16
Ireland	175.8
Turkey	12.55
China	7.27
Israel	26.41
Chile	26.51
Spain	0
South Africa	19.14
Australia	12.96
Canada	174.23
Please select	

**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)
Fluorinated Solutions	108242
Polymer Solutions	486698
Data Communication	2354
Precision Agriculture	622
Building & Infrastructure	26401

**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
Melton Mowbray	250.64	52.752347	-0.906794
Chinley	440.45	53.336509	-1.947333
Leominster	569.99	42.533303	-71.708668
Denver	4.44	40.223576	-76.112498
Pineville	810.9	35.102368	-80.886713
Marl	71950.49	51.681563	7.100299
Henry	47345.68	41.133953	-89.34279
Pedricktown	11534.07	10.326719	-75.506137
Cartagena Compuestos	0	10.326722	-75.503948
Cartagena Resinas	105165.54	10.326719	-75.506137
Altamira I Compuestos	39423.13	22.407533	-97.895293
Altamira I Resinas	57441.96	22.407533	-97.897466
Altamira II	25217.5	22.453146	-97.989971
La Presa	11111.23	19.524784	-99.120775
Tlaxcala Compuestos	28.43	19.168273	-98.227892
Tlaxcala Resinas	7680.09	19.168018	-98.228002
Coatzacoalcos	67103.11	18.112317	-94.401488
PMV Minera	47.6	18.00516	-94.744207
Tultitlan - Quimir	14798.19	19.614368	-99.18141
Cajica Derivados	307.06	4.965886	-74.007433
Las Cuevas	11852.15	21.941647	-100.577946
Muzquiz	496.57	27.882263	-101.512374
El Patio	1484.02	22.111257	-100.91655
Rioverde	545.99	21.966143	-100.008897
Matamoros	22741.43	25.90719	-97.55164
St. Gabriel	43512.5	30.235727	-91.099571
Rocksavage	7593.36	53.313628	-2.721378
Mihara	20016.1	34.392411	133.082727
Sochaczew	224.68	52.198125	20.192055
Goa	343.33	15.370961	73.935767
Hyderabad	8.9	17.169561	78.292594
Neemrana	2.23	27.981117	76.39402
Sohar	44.06	24.429516	56.569919
Serrieres	18.8	45.902325	5.837029
Tlumacov	170.32	49.261358	17.497471
Celta - Barranquilla	19.87	4.916205	-74.046668
Pavco Bogota - Tubosistemas	256.66	4.595469	-74.163708
Pavco Bogota - Geosistemas	52.03	4.595469	-74.163708
Guachene - Tubosistemas PVC y GRP	320.77	3.13303	-76.39174
Guachene - Geosistemas	0	3.210059	-76.420308
Lima - Tubosistemas	226.89	-12.05875	-76.948808
Arequipa - Tubosistemas	236	-16.41931	-71.509073
Lima - Geosistemas	148.95	-12.05875	-76.948808
Venezuela - Cua	1.67	10.167855	-66.897998
Argentina - Pablo Podesta	90.17	-34.580023	-58.610246
Ecuador - Duran	1190.64	-2.191214	-79.82391
Anapolis	23.64	-16.402601	-48.937017
Sao Jose dos Campos	1493.04	-27.553411	-48.619858
Suape Brasil	83	-8.398121	-35.060988
Sumare	309.15	-22.82007	-47.246744
Joinville Floresta	87.78	-26.337979	-48.846319
Joinville Gloria	77.66	-26.288632	-48.86484
Ribeirao das Neves	32.51	-19.787366	-44.010545
Costa Rica - Belen	157.21	9.979466	-84.165975
Guatemala - Palin	218.31	14.599499	-90.539061
Cuautitlan - Tubosistemas	192.12	19.652829	-99.191232
Cuautitlan - Geosistemas	0.66	19.652829	-99.191232
Leon	201.87	21.087885	-101.681612
San Luis Potosi	36.58	22.111248	-100.916557
St. Niklaas	62.72	51.149056	4.126486
Hammel	620.37	56.25238	9.850467
Joutsa	0.97	61.759525	26.1079
Kangasala	207.3	61.476556	23.991944
Twist	1546.55	52.641412	7.106509
Westeregeln	349.88	51.957013	11.376339
S.M. Maddalena	408.01	44.904102	11.600488
Hardenberg	1336.47	52.566193	6.631615
Holand	90.92	59.802048	11.444419
Eskilstuna	156.95	59.370968	16.683764
Horni Pocernice	0	50.122406	14.613469
Kostelec nad Labem	171.13	50.234759	14.584053



**(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	594940	<Not Applicable>	Chemical businesses are included: Fluorinated Solutions and Polymer Solutions
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)
India	11485.22	11613.72
United Kingdom of Great Britain and Northern Ireland	3510.86	3510.86
United States of America	106457.19	108434.61
Germany	566472.79	484439.46
Colombia	20777.44	20769.65
Mexico	497405.41	419080.25
Japan	5200.83	5543.44
Poland	33650.12	33650.13
Oman	1691.97	1691.97
France	1034.15	778.83
Czechia	7212.03	5224.63
Peru	5902.62	5897.25
Venezuela (Bolivarian Republic of)	271.83	271.83
Argentina	2722.64	2722.64
Ecuador	3209.44	3209.44
Brazil	11769.09	11769.09
Costa Rica	87.33	87.33
Guatemala	4966.91	4966.91
Belgium	42.73	42.73
Denmark	1263.6	1263.6
Finland	0	0
Italy	1078.59	1078.59
Netherlands	2183.61	2381.65
Norway	0	0
Sweden	122.95	105.66
Hungary	1292.48	1292.48
Lithuania	123	123
Russian Federation	423.12	423.12
Ireland	0	0
Turkey	13095.18	13479.74
China	1895.2	1865.82
Israel	28420.31	29314.56
Chile	1071.65	971.15
Spain	0	0
South Africa	1623.58	1553.2
Australia	2016.19	2087.13
Canada	1150.66	1150.66
Please select		

**C7.6**

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

By business division

By facility

**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)
Fluorinated Solutions	104687	95918
Polymer Solutions	992420	845853
Building & Infrastructure	113013	110714
Data Communication	71537	68147
Precision Agriculture	57973	60163

**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)
Melton Mowbray	46.6	46.6
Chinley	1464.73	1464.73
Leominster	3622.21	3622.21
Denver	1559.4	1559.4
Pineville	3406.21	3406.21
Marl	556083.29	474049.96
Henry	9596.65	12112.56
Pedricktown	11459.71	11459.71
Cartagena Compuestos	968.95	968.95
Cartagena Resinas	9208.17	9208.17
Altamira I Compuestos	11945.92	10823.24
Altamira I Resinas	41521.97	36819.99
Altamira II	31343.51	25712.09
La Presa	7863.29	6546.3
Tlaxcala Compuestos	1786.89	1484.69
Tlaxcala Resinas	6640.69	5516.04
Coatzacoalcos	231365.58	188698.77
PMV Minera	1918.13	1918.13
Tultitlan - Quimir	2416.54	2335.54
Cajica Derivados	1118.8	1118.8
Las Cuevas	24172.94	21421.6
Muzquiz	440.32	440.32
El Patio	545.65	490.89
Rioverde	5627.03	5627.03
Matamoros	50363.54	44058.27
St. Gabriel	16337.25	16337.25
Rocksavage	1999.53	1999.53
Mihara	5200.83	5543.44
Sochaczew	6223.08	6223.08
Goa	4450.29	4450.29
Hyderabad	513.84	513.84
Neemrana	178.25	178.25
Sohar	1691.97	1691.97
Serrieres	433.04	177.72
Tlumacov	2401.26	413.86
Celta - Barranquilla	1561.55	1561.55
Pavco Bogota - Tubosistemas	5371.08	5371.08
Pavco Bogota - Geosistemas	872.61	872.61
Guachene - Tubosistemas PVC y GRP	1322.96	1322.96
Guachene - Geosistemas	305.93	305.93
Lima - Tubosistemas	3629.04	3629.04
Arequipa - Tubosistemas	1156.57	1156.57
Lima - Geosistemas	623.32	623.32
Venezuela - Cua	271.83	271.83
Argentina - Pablo Podesta	2722.64	2722.64
Ecuador - Duran	3209.44	3209.44
Anapolis	551	551
Sao Jose dos Campos	1435.31	1435.31

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Suape Brasil	1240.97	1240.97
Sumare	4115.81	4115.81
Joinville Floresta	2796.84	2796.84
Joinville Gloria	1083.73	1083.73
Ribeirao das Neves	545.43	545.43
Costa Rica - Belen	87.33	87.33
Guatemala - Palin	4966.91	4966.91
Cuautitlan - Tubosistemas	6180.08	5086.27
Cuautitlan - Geosistemas	121.61	121.61
Leon	9802.64	8624.56
San Luis Potosi	1409.51	1409.51
St. Nikolaas	42.73	42.73
Hammel	1263.6	1263.6
Joutsa	0	0
Kangasala	0	0
Twist	5218.74	5218.74
Westeregin	5170.76	5170.76
S.M. Maddalena	1078.59	1078.59
Hardenberg	678.37	678.37
Holand	0	0
Eskilstuna	122.95	105.66
Horni Pocernice	2282.93	2282.93
Kostelec nad Labem	2527.84	2527.84
Zsambek	1292.48	1292.48
Vilnius	123	123
Buk	18144.21	18144.22
Strzelin	9282.83	9282.83
Bykovo	423.12	423.12
Sorgues	266.28	266.28
Varenes	334.83	334.83
Balbriggan	0	0
Chippenham	0	0
Doncaster	0	0
Fareham Southampton	0	0
Forest Works	0	0
Hazlehead	0	0
Adana W	8032.83	8032.83
Foshan	650.94	640.85
Magal	9744.61	10051.23
Hatzerim	12255.39	12641
Yiftach	6420.31	6622.33
Reynosa	4856.61	4964.76
Fresno	6272.29	6747.73
Santiago	1071.65	971.15
Lurin	493.69	488.32
Adana Netafim	5062.35	5446.91
Valencia	0	0
Rucphen	1505.24	1703.28
Chennai	1091.48	1130.41
Vadodara	2510.89	2600.46
Yinchuan	1244.26	1224.97
Cape Town	1623.58	1553.2
Melbourne	2016.19	2087.13
Ribeirao Preto	0	0
Cali - Colpozos	47.39	39.6
Fowler	1757.44	1890.66
El Salto	54437.89	44398.83
Lecheria - Quimir	2645.07	2581.81
Clinton	2246.27	2246.27
Sugar Lane	351.25	351.25
Garden Street	6914.79	6914.79
Erwin	3595.15	2448
Evansville	3924.65	3924.65
Gainesville	4042.61	4042.61
Gravenhurst	1150.66	1150.66
McAlester	6350.16	6350.16
Mountain Grove	8449.3	8449.3
North Salt Lake	4681.31	4681.31
Sandersville	7156.03	7156.03
Sparks	1667.64	1667.64

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Tenille	3066.87	3066.87
Hyderabad - Legacy	1190.75	1190.75
Neemrana - Legacy	1549.72	1549.72

## 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	1113980	941771	These emissions only apply to the chemical operations: Fluorinated Solutions and Polymer Solutions.
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
Polymers	42.05	We have used cradle to gate emission factors obtained from public or private recognized databases (Ex. Ecoinvent). Values. We conducted a full Scope 3 inventory screening in 2019. As this ratios are intensives quantities, we assume the values are the same year over year unless a major change in our raw material mix takes place.
Soda ash	0.59	We have used cradle to gate emission factors obtained from public or private recognized databases (Ex. Ecoinvent). We conducted a full Scope 3 inventory screening in 2019. As this ratios are intensives quantities, we assume the values are the same year over year unless a major change in our raw material mix takes place.
Other (please specify) (Mainly VCM with other chemicals)	48.11	We have used cradle to gate emission factors obtained from public or private recognized databases (Ex. Ecoinvent). We conducted a full Scope 3 inventory screening in 2019. As this ratios are intensives quantities, we assume the values are the same year over year unless a major change in our raw material mix takes place.
High Value Chemicals (Steam cracking)	3.78	We used cradle to gate emission factors obtained from public or private recognized databases (Ex. Ecoinvent). We conducted a full Scope 3 inventory screening in 2019. As this ratios are intensives quantities, we assume the values are the same year over year unless a major change in our raw material mix takes plac

## 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)	51000	Refrigerants
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?**

Decreased

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	7000	Increased	0.4	7,000 tons of net CO2e increase as a result of 2 major sites in areas with highly polluting grids that reverted their purchase of renewable electricity. It is worth noting that Orbia's overall renewable electricity consumption increased 28%, driven from sites in Europe and India. However, it was not enough to offset the impact of the 2 previously mentioned sites. Total Scope 1+2 GHG emissions in the previous year were 1,866,394 tons of CO2e, therefore we arrived at 0.4% through $(7,000/1,866,394)*100 = 0.4\%$ . Further details about our purchased renewable electricity are provided in our response to question 8.2.
Other emissions reduction activities	99500	Decreased	5.3	99,000 tons of CO2e were reduced as a result of shifting to a cleaner electricity suppliers in Europe and North America. Total Scope 1+2 GHG emissions in the previous year were 1,866,394 tons of CO2e, therefore we arrived at 5.3% through $(99,500/1,866,394)*100 = 5.3\%$ .
Divestment	0	No change	0	Not applicable.
Acquisitions	0	No change	0	Not applicable.
Mergers	0	No change	0	Not applicable.
Change in output	32500	Increased	1.7	32,500 tons of CO2e increased as a result of higher production output in our plants. 2020 was an atypical production year due to the COVID pandemic, the 2021 recovery has resulted in many plants increasing their production. 6 plants located in North America and India and Africa actually reduced emissions by around 16,500 tons CO2e as a result of lower production. However, another 12 sites located in North & South America, Asia and Europe increased production significantly, which resulted on an additional 49,000 tons CO2e, giving the net effect of 32,500 tons CO2e. Total Scope 1+2 GHG emissions in the previous year were 1,866,394 tons of CO2e, therefore we arrived at 1.7% through $(32,500/1,866,394)*100 = 1.7\%$ .
Change in methodology	0	No change	0	Not applicable.
Change in boundary	0	No change	0	Not applicable.
Change in physical operating conditions	3000	Decreased	0.2	Energy efficiency projects at some key sites in North America have reduced the amount of GHG emitted by them 3,000 tons CO2e, this reductions have been calculated comparing the real emissions in the year prior to the project and after the project. Total Scope 1+2 GHG emissions in the previous year were 1,866,394 tons of CO2e, therefore we arrived at 0.2% through $(3,000/1,866,394)*100 = 0.2\%$ .
Unidentified	2500	Increased	0.1	Orbia's GHG inventory is vast and comprised of thousands of data inputs in 119 production sites. In our analysis efforts, we have managed to locate the reasons for increased/decrease of emissions for the grand majority of the emission trends. However, despite our efforts, for this small part of the emission reduction- we could not find the specific reason. We will continue to work on and enhance our analysis abilities. Total Scope 1+2 GHG emissions in the previous year were 1,866,394 tons of CO2e, therefore we arrived at 0.1% through $(2,500/1,866,394)*100 = 0.1\%$ .
Other	0	No change	0	Not applicable.

C7.9b

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

Market-based

C8. Energy

C8.1

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

More than 30% but less than or equal to 35%

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	Yes
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	Yes
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	859	2986724	2987583
Consumption of purchased or acquired electricity	<Not Applicable>	169451	2590547	2759998
Consumption of purchased or acquired heat	<Not Applicable>	0	78818	78818
Consumption of purchased or acquired steam	<Not Applicable>	0	802926	802926
Consumption of purchased or acquired cooling	<Not Applicable>	0	913068	913068
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	2347	<Not Applicable>	2347
Total energy consumption	<Not Applicable>	172657	7372083	7544740

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)**

2839658

**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**

2839658

**Consumption of purchased or acquired electricity**

**Heating value**

<Not Applicable>

**MWh consumed from renewable sources inside chemical sector boundary**

50642

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

1867169

**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**

1917812

**Consumption of purchased or acquired heat**

**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)**

70449

**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**

70449

**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)**

802926

**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**

802926

**Consumption of purchased or acquired cooling**

**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)**

913068

**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**

913068

**Consumption of self-generated non-fuel renewable energy**

**Heating value**

<Not Applicable>

**MWh consumed from renewable sources inside chemical sector boundary**

69

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

0

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

0

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

69

**Total energy consumption**

**Heating value**

<Not Applicable>

**MWh consumed from renewable sources inside chemical sector boundary**

50711

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

6493269

**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**

6543980

**C8.2b**

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

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	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**

HHV

**Total fuel MWh consumed by the organization**

0

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

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

0

**Comment**

NA

**Other biomass**

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

0

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

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

0

**Comment**

NA

**Other renewable fuels (e.g. renewable hydrogen)**

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

859

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

859

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

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

0

**Comment**

In this category we are reporting the consumption of Bio LPG

**Coal****Heating value**

HHV

**Total fuel MWh consumed by the organization**

73953

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

73953

**MWh fuel consumed for self-generation of cooling**

&lt;Not Applicable&gt;

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

0

**Comment**

This data refers to a coal boiler we owned in 2021.

**Oil****Heating value**

HHV

**Total fuel MWh consumed by the organization**

92947

**MWh fuel consumed for self-generation of electricity**

10118

**MWh fuel consumed for self-generation of heat**

82309

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

&lt;Not Applicable&gt;

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

0

**Comment**

This data contemplates the consumption of Diesel and gasoline

**Gas****Heating value**

HHV

**Total fuel MWh consumed by the organization**

2820344

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

126768

**MWh fuel consumed for self-generation of steam**

1969882

**MWh fuel consumed for self-generation of cooling**

&lt;Not Applicable&gt;

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

723694

**Comment**

This data contemplates the consumption of natural gas, LPG gas, butane and propane

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

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

0

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

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

0

**Comment**

NA

**Total fuel**

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

2987583

**MWh fuel consumed for self-generation of electricity**

10118

**MWh fuel consumed for self-generation of heat**

209937

**MWh fuel consumed for self-generation of steam**

2043835

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

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

723694

**Comment**

**C8.2d**

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	116855	116855	2347	2347
Heat	0	0	0	0
Steam	1755664	1755664	0	0
Cooling	0	0	0	0

**C-CH8.2d**

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

**Electricity**

**Total gross generation inside chemicals sector boundary (MWh)**

114577

**Generation that is consumed inside chemicals sector boundary (MWh)**

114577

**Generation from renewable sources inside chemical sector boundary (MWh)**

69

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

0

**Heat**

**Total gross generation inside chemicals sector boundary (MWh)**

0

**Generation that is consumed inside chemicals sector boundary (MWh)**

0

**Generation from renewable sources inside chemical sector boundary (MWh)**

0

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

0

**Steam**

**Total gross generation inside chemicals sector boundary (MWh)**

1755664

**Generation that is consumed inside chemicals sector boundary (MWh)**

1755664

**Generation from renewable sources inside chemical sector boundary (MWh)**

0

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

0

**Cooling**

**Total gross generation inside chemicals sector boundary (MWh)**

0

**Generation that is consumed inside chemicals sector boundary (MWh)**

0

**Generation from renewable sources inside chemical sector boundary (MWh)**

0

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

0

**C8.2e**

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

**Sourcing method**

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

**Energy carrier**

Electricity

**Low-carbon technology type**

Renewable energy mix, please specify (Renewable mix)

**Country/area of low-carbon energy consumption**

Brazil

**Tracking instrument used**

Contract

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

3975

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

Brazil

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

**Comment**

Riberao Preto

**Sourcing method**

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

**Energy carrier**

Electricity

**Low-carbon technology type**

Wind

**Country/area of low-carbon energy consumption**

United States of America

**Tracking instrument used**

US-REC

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

22129

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

United States of America

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

Renewable electricity consumed at the Vestolit plant located in Henry Illinois, provided by AEP

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**Sourcing method**

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

**Energy carrier**

Electricity

**Low-carbon technology type**

Wind

**Country/area of low-carbon energy consumption**

United Kingdom of Great Britain and Northern Ireland

**Tracking instrument used**

REGO

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

50824

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

United Kingdom of Great Britain and Northern Ireland

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

Renewable electricity consumed at the following Wavin sites: Balbriggan, Chippenham, Doncaster, Forest Works, Hazlehead, Certificate of origin provided by Ørsted

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**Sourcing method**

Unbundled energy attribute certificates (EACs) purchase

**Energy carrier**

Electricity

**Low-carbon technology type**

Renewable energy mix, please specify (Wind, water and solar )

**Country/area of low-carbon energy consumption**

Finland

**Tracking instrument used**

GO

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

760

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

Finland

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

Renewable electricity consumed at the following Wavin sites: Joutsa and Kangasala. Certificate of origin provided by GREENE

---

**Sourcing method**

Unbundled energy attribute certificates (EACs) purchase

**Energy carrier**

Electricity

**Low-carbon technology type**

Hydropower (capacity unknown)

**Country/area of low-carbon energy consumption**

Norway

---

**Tracking instrument used**

GO

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

4957

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

Norway

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

Renewable electricity consumed at the Wavin site: Holand. Certificate of origin provided by FJORDKRAFT

---

**Sourcing method**

Unbundled energy attribute certificates (EACs) purchase

**Energy carrier**

Electricity

**Low-carbon technology type**

Wind

**Country/area of low-carbon energy consumption**

India

**Tracking instrument used**

Other, please specify (Invoice)

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

810

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

India

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

Renewable electricity purchased at the Netafim site in Chennai, India, from a wind farm.

---

**Sourcing method**

Other, please specify (Generated by community solar panels and purchased by Netafim)

**Energy carrier**

Electricity

**Low-carbon technology type**

Solar

**Country/area of low-carbon energy consumption**

Israel

**Tracking instrument used**

Other, please specify (Invoice)

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

2382

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

Israel

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

Renewable electricity purchased at the Netafim sites in Hatzetim and Yiftach, Israel, from solar panels

---

**Sourcing method**

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

**Energy carrier**

Electricity

**Low-carbon technology type**

Renewable energy mix, please specify (Renewable mix)

**Country/area of low-carbon energy consumption**

Spain

**Tracking instrument used**

Contract

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

4111

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

Spain

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

Renewable electricity purchased at the Netafim site in Valencia, Spain from a mixed renewable source.

---

**Sourcing method**

Purchase from an on-site installation owned by a third party

**Energy carrier**

Electricity

**Low-carbon technology type**

Solar

**Country/area of low-carbon energy consumption**

India

**Tracking instrument used**

Contract

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

1290

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

India

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

**Comment**

Renewable electricity generated at site by a third party in Hyderabad, India (TATA Energy).

---

**Sourcing method**

Unbundled energy attribute certificates (EACs) purchase

**Energy carrier**

Electricity

**Low-carbon technology type**

Renewable energy mix, please specify (Renewable mix)

**Country/area of low-carbon energy consumption**

United Kingdom of Great Britain and Northern Ireland

**Tracking instrument used**

GO

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

70

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

United Kingdom of Great Britain and Northern Ireland

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

**Comment**

Renewable electricity consumed at Fareham Southampton (Wavin). Certificate of origin provided by OPUS ENERGY.

---

**Sourcing method**

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

**Energy carrier**

Electricity

**Low-carbon technology type**

Renewable energy mix, please specify (Renewable mix)

**Country/area of low-carbon energy consumption**

Germany

**Tracking instrument used**

GO

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

17500

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

Germany

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

**Comment**

Renewable electricity consumed at Marl (Vestolit). Certificate of origin provided by MVV Energie

---

**Sourcing method**

Unbundled energy attribute certificates (EACs) purchase

**Energy carrier**

Electricity

**Low-carbon technology type**

Wind

---

**Country/area of low-carbon energy consumption**  
United Kingdom of Great Britain and Northern Ireland

**Tracking instrument used**  
REGO

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**  
11013

**Country/area of origin (generation) of the low-carbon energy or energy attribute**  
United Kingdom of Great Britain and Northern Ireland

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

**Comment**  
Renewable electricity consumed at Melton Mowbray (Alphagary). Renewable Energy Guarantees of Origin (REGO) by E.ON

---

**Sourcing method**  
Other, please specify (Purchased from solar power generator in India)

**Energy carrier**  
Electricity

**Low-carbon technology type**  
Solar

**Country/area of low-carbon energy consumption**  
India

**Tracking instrument used**  
Other, please specify (Invoice)

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**  
2544

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

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

**Comment**  
Renewable electricity purchased at the Netafim in Vadodara, India, from solar panels.

---

**Sourcing method**  
Unbundled energy attribute certificates (EACs) purchase

**Energy carrier**  
Electricity

**Low-carbon technology type**  
Renewable energy mix, please specify (Renewable mix)

**Country/area of low-carbon energy consumption**  
France

**Tracking instrument used**  
GO

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**  
9033

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

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

**Comment**  
Renewable electricity consumed at Varennes and Sorgues (Wavin). Guarantees of Origin by ALPIQ ENERGIE

---

**Sourcing method**  
Unbundled energy attribute certificates (EACs) purchase

**Energy carrier**  
Electricity

**Low-carbon technology type**  
Wind

**Country/area of low-carbon energy consumption**  
Denmark

**Tracking instrument used**  
GO

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**  
14346

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

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

**Comment**

Renewable electricity consumed at Hammel (Wavin). Guarantees of Origin by CENTRICA ENERGY

---

**Sourcing method**

Unbundled energy attribute certificates (EACs) purchase

**Energy carrier**

Electricity

**Low-carbon technology type**

Hydropower (capacity unknown)

**Country/area of low-carbon energy consumption**

Netherlands

**Tracking instrument used**

GO

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

20000

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

Netherlands

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

**Comment**

Renewable electricity consumed at Handerberg (Wavin). Guarantees of Origin by POWERHOUSE

---

**Sourcing method**

Unbundled energy attribute certificates (EACs) purchase

**Energy carrier**

Electricity

**Low-carbon technology type**

Renewable energy mix, please specify (Renewable sources ( Hydroelectric, wind, solar, biomass))

**Country/area of low-carbon energy consumption**

Italy

**Tracking instrument used**

GO

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

3549

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

Italy

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

**Comment**

Renewable electricity consumed at S.M. Maddalena (Wavin). Guarantees of Origin by GREEN ENERGY OPTION

---

**Sourcing method**

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

**Energy carrier**

Electricity

**Low-carbon technology type**

Solar

**Country/area of low-carbon energy consumption**

India

**Tracking instrument used**

Other, please specify (Invoice)

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

157

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

India

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

**Comment**

Renewable electricity purchased at the Duraline in Goa, India, from solar panels.

---

C8.2g

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

---

**Country/area**

Argentina

**Consumption of electricity (MWh)**

9454

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

0

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

9454

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Australia

**Consumption of electricity (MWh)**

2931

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

0

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

2931

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Belgium

**Consumption of electricity (MWh)**

257

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

0

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

257

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Brazil

**Consumption of electricity (MWh)**

116814

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

0

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

116814

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Canada

**Consumption of electricity (MWh)**

8865

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

0

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

8865

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Chile

**Consumption of electricity (MWh)**

2416

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

0

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

2416

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

China

**Consumption of electricity (MWh)**

3029

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

0

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

3029

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Colombia

**Consumption of electricity (MWh)**

107822

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

0

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

107822

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Costa Rica

**Consumption of electricity (MWh)**

14802

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

0

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

14802

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Czechia

**Consumption of electricity (MWh)**

16291

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

0

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

16291

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Denmark

**Consumption of electricity (MWh)**

14346

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

2106

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

16452

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Ecuador

**Consumption of electricity (MWh)**

21354

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

0

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

21354

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

---

**Country/area**

Finland

**Consumption of electricity (MWh)**

760

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

0

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

760

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

---

**Country/area**

France

**Consumption of electricity (MWh)**

28255

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

0

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

28255

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

---

**Country/area**

Germany

**Consumption of electricity (MWh)**

751852

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

1782856

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

2534708

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

---

**Country/area**

Guatemala

**Consumption of electricity (MWh)**

12070

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

0

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

12070

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

---

**Country/area**

Hungary

**Consumption of electricity (MWh)**

5644

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

0

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

5644

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

---

**Country/area**

India

**Consumption of electricity (MWh)**

20620

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

0

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

20620

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Ireland

**Consumption of electricity (MWh)**

4438

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

0

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

4438

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Israel

**Consumption of electricity (MWh)**

61603

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

0

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

61603

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Italy

**Consumption of electricity (MWh)**

7319

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

0

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

7319

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Japan

**Consumption of electricity (MWh)**

10640

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

0

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

10640

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Lithuania

**Consumption of electricity (MWh)**

1884

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

0

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

1884

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Mexico

**Consumption of electricity (MWh)**

1121402

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

0

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

1121402

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Netherlands

**Consumption of electricity (MWh)**

25911

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

0

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

25911

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Norway

**Consumption of electricity (MWh)**

4957

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

0

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

4957

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Oman

**Consumption of electricity (MWh)**

4213

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

0

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

4213

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Peru

**Consumption of electricity (MWh)**

29192

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

0

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

29192

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Poland

**Consumption of electricity (MWh)**

50053

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

3999

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

54052

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Russian Federation

**Consumption of electricity (MWh)**

693

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

721

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

1414

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

South Africa

**Consumption of electricity (MWh)**

1733

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

0

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

1733

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Spain

**Consumption of electricity (MWh)**

4111

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

0

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

4111

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Sweden

**Consumption of electricity (MWh)**

9605

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

0

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

9605

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Turkey

**Consumption of electricity (MWh)**

30236

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

0

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

30236

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

United Kingdom of Great Britain and Northern Ireland

**Consumption of electricity (MWh)**

68637

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

5130

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

73767

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

---

**Country/area**

United States of America

**Consumption of electricity (MWh)**

281422

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

0

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

281422

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

Venezuela (Bolivarian Republic of)

**Consumption of electricity (MWh)**

864

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

0

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

864

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

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**C-CH8.3**

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

No

**C9. Additional metrics**

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**C9.1**

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

**Description**

Energy usage

**Metric value**

0.88

**Metric numerator**

Energy from Scope 1 and Scope 2 in MWh

**Metric denominator (intensity metric only)**

Total production in tons.

**% change from previous year**

1

**Direction of change**

Increased

**Please explain**

Increase was related to higher energy consumption (5%) even though production also increased (around 3%). This was mainly a result from the COVID 19 recovery.

---

**Description**

Waste

**Metric value**

0.01

**Metric numerator**

Total waste disposed in tons

**Metric denominator (intensity metric only)**

Total production in tons

**% change from previous year**

0

**Direction of change**

No change

**Please explain**

Our total waste increased (5%) in a similar proportion to our production (3%), additionally, the decimals we use result in a rounded figure that is the same in 2021 as in 2020.

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C-CH9.3a

---

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

**Output product**

Other, please specify (Chemical products from chemical sites)

**Production (metric tons)**

7355556

**Capacity (metric tons)**

10061200

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

0.08

**Electricity intensity (MWh per metric ton of product)**

0.26

**Steam intensity (MWh per metric ton of product)**

0.11

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

0

**Comment**

Capacity from 2 sites is missing as it was not available at the closure of this response.

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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

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**(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	At Orbia, we believe we will not solve the world's most pressing challenges by doing what we have always done. We will only create a resilient future by pushing the boundaries, not only of science and technology, but also of our own imagination and determination. We need to adopt a mindset of innovation that becomes a natural part of the way we do things across the entire organization. In 2021, we made new strides in advancing our commitment to innovating for long-term positive impact by investing \$68.5 million USD in research and development. Through our \$130 million USD venture capital fund, Orbia Ventures, we invest and collaborate with startups that aspire to advance life around the world. In 2021, we screened over 700 investment opportunities and conducted due diligence on more than 20 promising startups that offer new technologies in one of our defined focus areas: agricultural and food tech, building and infrastructure, circular economy, energy storage, smart cities and climate tech, which all have a focus on decarbonization.

**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
Product redesign	Small scale commercial deployment	≤20%		Our Alphagary brand has invested in the circularity of its portfolio. 2020 includes the development of VINASTAB, calcium-based stabilizers that bring PVC to life for a variety of applications, including healthcare masks and tubing, irrigation systems, electric vehicle charging systems, rainwater harvesting and flood protection products, as well as purpose-designed formulations that support the use of recycled PVC in a variety of applications. In 2021, TPE compound series EVOPRENE included not only recycled content, but also bio-based materials. This compound is finding increased interest with customers as together we seek ecofriendly solutions that do not sacrifice performance or quality. Building upon the sustainable nature of TPE compounds to be easily reclaimed and reprocessed without losing mechanical properties, the EVOPRENE- "green" series of materials crosses a wide variety of applications from automotive to consumer goods, and effectively provides an alternate solution that keeps an eye on the health of our planet and our collective future.
Product redesign	Small scale commercial deployment	21 - 40%		Investments in the development of low GWP medical propellants and refrigerants by Koura
Product redesign	Small scale commercial deployment	≤20%		Our Vestolit innovation team is actively working on three technologies to transform the carbon footprint of PVC: • Carbon capture: PVC manufactured using a process that captures carbon dioxide that would otherwise be emitted into the atmosphere, for example, industrial gas emissions from suitable industries. • Circular: PVC manufactured using carbon derived from post-consumer mixed plastic waste. • Bio: PVC manufactured using carbon sourced from plants. 2021 marked a milestone with the incorporation of bio-based ethylene in vinyl chloride production. The feedstocks' origin being rapeseed oil and used cooking oil. Both feedstocks integrate circularity and do not compete with food production. This form of ethylene enables a 50% reduction in the carbon footprint of PVC compared to conventional fossil-fuel based PVC. The first two orders of bio-based PVC were delivered to customers in 2021 and an increase in production, sales and relevance in our portfolio is expected in 2022. In all three cases, we are actively working with our customers to advance this industry transformation.

**C10. Verification**

**C10.1**

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

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

**C10.1a**

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

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

orbia\_independent-assurance-report\_2021\_eng.pdf

**Page/ section reference**

All

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

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C10.1b

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(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**

orbia\_independent-assurance-report\_2021\_eng.pdf

**Page/ section reference**

All

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

---

**Scope 2 approach**

Scope 2 market-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Please select

**Type of verification or assurance**

Limited assurance

**Attach the statement**

orbia\_independent-assurance-report\_2021\_eng.pdf

**Page/ section reference**

All

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

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C10.1c

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

**Scope 3 category**

Scope 3: Use of sold products

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

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

orbia\_independent-assurance-report\_2021\_eng.pdf

**Page/section reference**

All

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

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**C10.2**

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

Yes

**C10.2a**

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

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C8. Energy	Energy consumption	ISAE3000	All our energy consumption is included in the scope of our assurance process conducted by Deloitte. orbia_independent-assurance-report_2021_eng.pdf

**C11. Carbon pricing**

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**C11.1**

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**(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**

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

EU ETS

Tamaulipas carbon tax

Other carbon tax, please specify (UK UMBRELLA CLIMATE CHANGE AGREEMENT FOR THE PLASTICS SECTOR)

**C11.1b**

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(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**

11

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

January 1 2021

**Period end date**

December 31 2021

**Allowances allocated**

68152

**Allowances purchased**

0

**Verified Scope 1 emissions in metric tons CO<sub>2</sub>e**

71950

**Verified Scope 2 emissions in metric tons CO<sub>2</sub>e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

The figures above represent the Vestolit site in Marl, Germany, which is covered by the EU-ETS and accounts for 11% of Orbia's Total Scope 1 emissions in 2021. The Verified Scope 1 figure reported here has also been extracted from our internal data collection platform and reviewed by Deloitte.

**C11.1c**

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(C11.1c) Complete the following table for each of the tax systems you are regulated by.

**Tamaulipas carbon tax**

**Period start date**

January 1 2021

**Period end date**

December 31 2021

**% of total Scope 1 emissions covered by tax**

6

**Total cost of tax paid**

469185

**Comment**

The carbon tax has been levied at Tamaulipas and applied to some of our Scope 1 emissions in our sites that operate there.

**Other carbon tax, please specify**

**Period start date**

January 1 2021

**Period end date**

December 31 2021

**% of total Scope 1 emissions covered by tax**

0

**Total cost of tax paid**

50935

**Comment**

The Climate Change Levy covers 4 Wavin sites in the UK. This does not include Scope 1 emissions, as these sites are levied for external electricity usage (Scope 2) only.

**C11.1d**

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

Regulatory fines that are incurred at individual sites rapidly accumulate for a company with more than 100 locations. The impacts of non-compliance can be local and direct, but the greater impact will be global.

Many companies leave it to their sites to manage HSE legal compliance locally. However, what we often see is that each site will have a completely different approach – ranging from very basic “legal registers” (no more than Excel files with titles of laws), to very comprehensive in-country solutions with on-site support. This results in not having a consistent global picture and to confidently ensure substantial compliance across all jurisdictions.

Therefore, our HSE and Sustainability structure has been strengthened over the past years to include Environmental compliance experts at Corporate and Business Group level, which among others, are responsible for monitoring carbon-pricing regulations and preparing for compliance standardising environmental compliance and management systems across the organization. During 2021 we formally started a Global Compliance Management process using an external supplier (ENHESA) to have a better understanding of current and future applicable regulations. This platform provides us a global real-time dashboard for follow-up of compliance status of all our Business Groups.

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C11.2

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

No

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C11.3

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

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

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C12. Engagement

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C12.1

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

Yes, our suppliers

Yes, our customers/clients

Yes, other partners in the value chain

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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**

54

**% total procurement spend (direct and indirect)**

80

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

0

**Rationale for the coverage of your engagement**

Our supplier program, enabled by EcoVadis, provides supplier environmental assessment, monitoring, and improvement. Our implementation of this program adopts a risk-aligned, phased approach, and is currently implemented within Wavin, Dura-Line, and Koura UK, with the remaining business groups to adopt this program in upcoming years. As of 2021, our supplier assessment program covers 80% of our total spend across these brand operations.

**Impact of engagement, including measures of success**

In 2021, 60% of the suppliers that took an EcoVadis assessment in 2020 have shown an improvement in their score, and 20% show a stable score. Suppliers are held to a minimum performance score of 35-45, under which we will consider switching to a supplier with a superior sustainability performance. Companies scoring below our threshold are required to present an action plan for improvement. The average score is currently 52.2.

**Comment**

Figure provided for % of suppliers by number only considers the universe of suppliers representing 80% of our spent in the 3 participant Business Groups.

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## C12.1b

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

#### Type of engagement & Details of engagement

Collaboration & innovation	Other, please specify (R&D for circular and low carbon products)
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#### % of customers by number

35

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

35

#### Please explain the rationale for selecting this group of customers and scope of engagement

Engaging with our customers is key given the enabling role our businesses play in helping our customers achieve their climate and environmental strategies. We can help reduce their footprint through innovation of our solutions portfolio. By engaging regularly with our clients, we are actively listening to their concerns and trying to provide solutions to their environmental and climate-related issues. Some examples include: - The development of low GWP propellants and refrigerants by Koura, which require testing quality and product characteristics to meet client expectations. - Development of PVC resin from non-fossil resources, recycled feedstocks and renewable energy, which significantly reduces emissions along the value chain of our Vestolit customers. - Our Building & Infrastructure business group, Wavin, was selected as the best match for tender issued by the city of Rotterdam to replace their sewage system. Since the focus of the city was on minimizing the environmental impact, Wavin established sustainable procurement processes for emissions-free transport of new materials to the downtown area. - Netafim's, our precision agriculture business group, developed a subsurface drip irrigation (SDI) system that recycles organic waste generated by dairy cows and optimizes levels of fresh water to fertilize and irrigate feed crops while eliminating the need for chemical fertilizers. - By understanding market needs and trends, Alphagary has developed the VINASTAB 4000 series, a stabilizer designed for electric vehicle charging systems, among other applications, that enables energy savings by 65% for every ton of stabilizer produced when compared to traditional technology - Dura-Line is continuously running tests to drive circularity within its portfolio, to incorporate recycled content when possible. The above figure represents an estimated percentage of customers based on revenues that came from customers within the engagement strategies previously mentioned, since they represent our biggest customers. Using the same logic, we estimate the same % of Category 11 Scope 3 emissions.

#### Impact of engagement, including measures of success

By supporting our customers' environmental and climate strategies, we have broadened the scope of some of our solutions to work alongside them. Some examples include: - On the refrigerant gas landscape, Koura's new generation of low GWP refrigerant lower global-warming-potential (GWP) some products reach a GWP 46% lower when compared to traditional options. - Vestolit and Alphagary have collaborated with Baxter to collect and recycle IV bags in Colombia as part of their PVC in Motion recycling program. In 2022, we plan to replicate the program in Mexico and close the loop through manufacturing compounds with recycled PVC in Alphagary's operations to offer products with an additional sustainability value. - Netafim's subsurface drip irrigation (SDI) system provides several environmental benefits, including healthier soil and root environment, water conservation, nutrient conservation, energy conservation, GHG emissions reduction and improved crop yield. Applied in pilot projects in Italy and the U.S. over the past 3 years, this presents a major achievement for advancing circularity in the agricultural industry, reducing CO2e emissions of dairy operations by between 70 and 90% compared to traditional methods. Netafim also operates a take back program that expanded from four to eight countries in 2021, resulting in 13,000 tons of end-of-life driplines collected. - Dura-Line's take -back program, which in 2021 allowed the repurposing of 1,754 reels and diverted a quarter million pounds of scrap tape to be recycled resulting in savings of \$80,000 USD. In addition, our businesses are incorporating formal targets to increase recycled content in their portfolios.

## C12.1d

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

2021 was our first full year in partnership with the Resilience Cities Network (R-Cities), a leading city-led network that brings together global knowledge, practice, partnerships, and funding to support building safe, resilient, and equitable cities. Through our brands Wavin, Netafim and Dura-Line, we will work with R-Cities members to develop innovative solutions to ongoing challenges such as transportation infrastructure, water supply, urban food systems, and connectivity design to enhance urban quality of life. These initiatives will aid progress towards three UN SDGs.

Our joint objective is to develop a co-creative space to confront city challenges with company competencies in search of novel solutions. In 2021, we identified pilot cities for a pre-competitive, public-private innovation approach. In 2022, we will engage with three major cities to test this approach: Medellin, Colombia, Oakland, U.S. and Rotterdam, the Netherlands. We plan to capture the results in innovation white papers that will set the stage for further solution building and implementation.

Our \$130 million USD venture capital fund, Orbia Ventures, invests in and collaborates with startups that aspire to advance life around the world. In 2021, we screened over 700 investment opportunities and conducted due diligence on more than 20 promising startups that offer new technologies in one of our defined focus areas, including climate tech. 7 out of 8 transactions made by Orbia Ventures in 2021 were climate-related, including Ascend Elements, a startup transforming the world's lithium-ion battery supply by recycling cathode materials that help meet the needs of battery cell manufacturing. This process contributes to the transition to clean energy, while advancing the circular economy.

## 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 non-public platform

**Description of this climate related requirement**

3 out of our Business Groups request climate-related information to suppliers representing 80% of spent through an Ecovadis questionnaire. Suppliers are held to a minimum performance score of 35-45, under which we will consider switching to a supplier with a superior sustainability performance. Companies scoring below our threshold are required to present an action plan for improvement. The average score is currently 52.2.

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

54

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

80

**Mechanisms for monitoring compliance with this climate-related requirement**

Supplier self-assessment  
Supplier scorecard or rating

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

Other, please specify (Suppliers are held to a minimum performance score of 35-45, under which we will consider switching to a supplier with a superior sustainability performance. Companies scoring below our threshold are required to present an action plan for improvement.)

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

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

Yes

**Attach commitment or position statement(s)**

During 2019, Orbia pledged to an effort to limit the worst impacts of climate change in accordance with the Business Ambition for 1.5°C, which means we are joining the global movement of leading companies aligning their businesses with the most ambitious aim of the Paris Agreement, to limit global temperature rise to 1.5°C above pre-industrial levels. <https://sciencebasedtargets.org/companies-taking-action#table-orbia-2019-global-commitments> (SBT, UNGC) (2).pdf

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

Given the diversity of our operations, we encourage engagement at business group level, when relevant, to advance our net-zero and related commitments. Some examples from our businesses include: - Orbia as a Business Ambition 1.5°C Campaign Partners is showing leadership by committing to announce Science Based Targets, which are currently under review of the SBTi Committee. Orbia also aims to use its voice to spur greater action. - Koura is an active member of the Global FACT (Forum for Advanced Climate Technologies), promoting the development of low GWP propellants and refrigerants alongside other key players in the fluorinated gas market such as Arkema, Chemours and Honeywell. They are also members of the Alliance for Responsible Atmospheric Policy. - Our Wavin Sustainability leaders are very active with the TEPPFA regarding circular economy initiatives and influencing policy around this topic in Europe. Wavin was also active in the 2021 Climate Adaptation Summit. - Vestolit and Alphagary are members of Asociación Colombiana de Plásticos (ACOPLASTICOS), a Colombian association that promotes sustainable development in the sector while serving as a spoke person before the government and society to comply with best-in-class standards. - In the U.S., Vestolit is an active member of The Vinyl Institute, where there are ongoing discussions to promote a per pound tax to fund \$25M of recycling infrastructure investment. This would be an industry led/managed initiative.

**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>

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**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**

Other, please specify (Global Forum for Advanced Climate Technologies (FACT))

**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)**

Global FACT (Forum for Advanced Climate Technologies) is a US-based non-profit membership organization comprised of the world's leaders in advanced climate technologies. This organization promotes education, awareness and policies that support the important role of new-generation low-and reduced-global warming potential (GWP) climate technologies in protecting the environment, while meeting the rapidly increasing demand for sale alternatives. Koura is an active member of FACT to promote the development of low GWP propellants and refrigerants alongside other key players in the fluorinated gas market such as Arkema, Chemours and Honeywell.

**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

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**Trade association**

Other, please specify (The European Plastic Pipes and Fittings Association (TEPPFA))

**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 TEPPFA is committed to sustainability. Plastic pipes have an expected lifetime of more than 100 years (below ground) and save energy during more than 50 years in buildings. At the end of life, they are recyclable. In addition, as part of their sustainability approach, it implements an Environmental Product Declaration (EPD) that offers a standard way of communicating the output from a life cycle assessment, which evaluates global warming potential (CO2 equivalent) among other characteristics. Our Wavin sustainability leaders are very active within the TEPPFA efforts to influence policies about circular economy in Europe.

**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

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**Trade association**

Other, please specify (VinylPlus - European Council of Vinyl Manufacturers (ECVM) )

**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)**

VinylPlus is the Voluntary Commitment to sustainable development by the European PVC industry. The program establishes a long-term framework for the sustainable development of the PVC industry by tackling several critical challenges in the EU-27, UK, Norway and Switzerland. The VinylPlus strategy addresses five key challenges identified for PVC, together with a set of working principles. The first four challenges are technical in nature whilst the fifth challenge addresses raising awareness and understanding of the importance of sustainable development. The fourth challenge has a focus on sustainable energy & climate stability, helping to minimize climate impacts by reducing energy and raw material use, and endeavoring to switch to renewable sources and promoting sustainable innovation. A senior executive from our Vestolit business is member of the Steering Board of VinylPlus, being key to shape the ten-year voluntary commitment and help to move the European PVC industry towards a circular economy. See more: <https://pvc.org/#:-:text=About%20ECVM&text=ECVM%20is%20a%20division%20of,over%20the%20PVC%20life%20cycle>.

**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

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**Trade association**

Other, please specify (Asociacion Nacional de la Industria Química AC (ANIQ))

**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)**

ANIQ is the National Chemical Industry Association in Mexico and it represents 95% of the private production of chemicals in the country, with its 285 members. It has a strong Climate Change working group which participated in the development of the national climate change agenda and goals, including the design of the Mexican Carbon Market. Its mission is to promote the sustainable development and global competitiveness of the chemical industry in Mexico, in harmony with the community and the environment. Through our brands, Alphagary, Vestolit and Koura, we participate in the Climate Change Committee to influence public policy in favor of solutions to reducing the industry's impact on climate change in Mexico. [https://aniq.org.mx/webpublico/cambioClimatico\\_contribuciones.asp](https://aniq.org.mx/webpublico/cambioClimatico_contribuciones.asp)

**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

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**Trade association**

Other, please specify (Alliance for Responsible Atmospheric Policy.)

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**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 Alliance for Responsible Atmospheric Policy is a US-based industry coalition. It addresses the issue of stratospheric ozone depletion. It is the primary voice of manufacturers, businesses and trade associations who make or use fluorinated gases for the global market. It coordinates industry participation in the development of economically and environmentally beneficial international and domestic policies at the nexus of ozone protection and climate change. The Alliance also monitors policy developments at the international, federal, and state governments levels. Its overarching goal is to encourage responsible, reasonable, and cost-effective ozone protection and climate change policies to be determined at the international level.

[\*\*Funding figure your organization provided to this trade association in the reporting year, if applicable \(currency as selected in C0.4\) \(optional\)\*\*](https://climateinitiativesplatform.org/index.php/Alliance_for_Responsible_Atmospheric_Policy#:~:text=AGC%20Chemicals%20Americas%20(USA)%2C,Combs%20Gas%20(USA)%2CConsolidated Koura is a member of the Alliance, promoting regulation to reduce the impact of fluorinated gases on climate change by adopting best practices and collaborating on the development of alternatives.</a></p></div><div data-bbox=)

**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

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**Trade association**

Other, please specify (Alliance Froid Climatisation Environnement (AFCE))

**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 AFCE is a network of HVACR manufacturers concerned with environmental problems related to the implementation and monitoring of the application in the European Union of the United Nations Framework Convention on Climate Change. The aims of the AFCE are to: - Promote a responsible attitude towards the problems of the global and human environment in all professions linked or participating in the refrigeration and air conditioning sectors, - Pool the technical and organizational skills of its members to determine the means and methods allowing the development of refrigeration and air conditioning in compliance with the United Nations Framework Convention on Climate Change Climatic. The goals are to improve the: safety of refrigerants, efficiency of systems, containment of systems and limitation of emissions, and training and monitoring the skills of all operators. These four objectives are applied at all stages of the life of the systems: design and manufacture, installation and maintenance, recovery during operation and after final shutdown. During 2022, Market Development Manager, Stéphanie Reiss, from our Koura business, was appointed to the board of AFCE.

**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

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C12.3c

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

**Type of organization**

Non-Governmental Organization (NGO) or charitable organization

**State the organization to which you provided funding**

United Nations Global Compact

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

20000

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

The UN Global Compact, aims to mobilize a global movement of companies and stakeholders to create a sustainable world. To make this happen, the UN Global Compact supports companies to: - Do business responsibly by aligning their strategies and operations with Ten Principles on human rights, labour, environment and anti-corruption. - Take strategic actions to advance broader societal goals, such as the UN Sustainable Development Goals, with an emphasis on collaboration and innovation. Orbia became a signatory to the UNGC at the participant tier level in 2018, committing to uphold and promote UNGC principles within our spheres of influence. We have endorsed the Ten Principles and develop policies that materialize our commitment, and in 2020, we did our first assessment of contribution to the SDGs.

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

Yes, we have evaluated, and it is aligned

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**Type of organization**

Non-Governmental Organization (NGO) or charitable organization

**State the organization to which you provided funding**

Resilience Cities Network

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

41250

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

The Resilience Cities Network (R-Cities), is a leading city-led network that brings together global knowledge, practice, partnerships, and funding to support building safe, resilient, and equitable cities. 2021 was our first full year in partnership with the network. Through our brands Wavin, Netafim and Dura-Line, we are developing innovative solutions to ongoing challenges such as transportation infrastructure, water supply, urban food systems, and connectivity design to enhance urban quality of life. These initiatives will aid progress towards three UN SDGs. Our joint objective is to develop a co-creative space to confront city challenges with company competencies in search of novel solutions. In 2021, we identified pilot cities for a pre-competitive, public-private innovation approach. In 2022, we will engage with three major cities to test this approach: Medellin, Colombia, Oakland, U.S. and Rotterdam, the Netherlands. We plan to capture the results in innovation white papers that will set the stage for further solution building and implementation.

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

Yes, we have evaluated, and it is aligned

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**C12.4**

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

**Publication**

In voluntary sustainability report

**Status**

Complete

**Attach the document**

orbia\_sustainability\_report\_2021.pdf

**Page/Section reference**

48,49,50,51,52,53,96,97,98

**Content elements**

- Governance
- Strategy
- Risks & opportunities
- Emissions figures
- Emission targets
- Other metrics

**Comment**

**Publication**

In mainstream reports, incorporating the TCFD recommendations

**Status**

Complete

**Attach the document**

orbia\_climate\_report\_2021.pdf

**Page/Section reference**

All

**Content elements**

- Governance
- Strategy
- Risks & opportunities
- Emissions figures
- Emission targets
- Other metrics

**Comment**

**C15. Biodiversity**

**C15.1**

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

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	Yes, executive management-level responsibility	Orbia's VP of Sustainability and Corporate Affairs oversees all environment-related matters, including biodiversity. The relevance of the topic varies across our business groups and might not be material for all of them, so objective related to this topic are specific to each of our businesses and sites.	<Not Applicable>

**C15.2**

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

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Commitment to respect legally designated protected areas Commitment to avoidance of negative impacts on threatened and protected species	SDG

**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	No, but we plan to assess biodiversity-related impacts within the next two years	<Not Applicable>

**C15.4**

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

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Species management Other, please specify (We continue efforts to protect biodiversity, including restoration of the natural habitats, relocation of species, reforestation and compensation for adverse effects based on the findings of environmental impact studies.)

**C15.5**

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

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	No, we do not use indicators, but plan to within the next two years	Please select

**C15.6**

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

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Other, please specify (Biodiversity programs and efforts with local communities)	Page 59 orbia_sustainability_report_2021.pdf

**C16. Signoff**

**C-FI**

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

No comments

**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	Vice President of Sustainability and Corporate Affairs	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.**

No additional comments.