GHG Emissions Report

Reporting Year 2024

Orion S.p.A

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Report prepared in accordance with ISO 14064-1:2018
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Capitolo 1
Description of the Organization's Purpose and Inventory Objectives

1.1 Description of the Organization

Orion S.p.A. is an Italian metalworking company and international leader in the design and production of cast and forged steel valves for heavy industry. Founded and headquartered in Trieste, the company has established itself as a critical reference point for the Oil & Gas, petrochemical and energy sectors, thanks to strong engineering expertise and the ability to manage complex flows under extreme operating conditions. Orion S.p.A. propone una linea di valvole in acciaio basata su design ottimizzati e costantemente aggiornati, specificamente ingegnerizzati per soddisfare i rigorosi requisiti tecnici dell'industria petrolchimica globale. L'azienda opera attraverso una rete di distribuzione internazionale servendo sia primarie società di ingegneria che utenti finali, offrendo una gamma completa di valvole a saracinesca, a globo e di ritegno. La produzione include inoltre soluzioni per applicazioni speciali e critiche, quali valvole con configurazione a Y, modelli a tenuta di soffietto (Bellows Seal) e componenti destinati a servizi di alchilazione, criogenia e servizi letali. Orion products rank at the top of the industry in terms of material quality and processing standards, using selected raw materials identified and rigorously scientifically analysed. Mechanical machining is performed using state-of-the-art equipment and cutting-edge production methodologies, supported by continuous testing and inspection cycles that ensure full compliance with international standards and design tolerances. From a fluid-dynamic perspective, every valve is designed to minimise pressure losses and turbulence, ensuring laminar flow with minimal restrictions.
The company's production infrastructure is technologically advanced and includes high-productivity transfer machines, CNC lathes, milling machines, boring machines and in-house heat treatment plants, as well as a dedicated tool grinding workshop. This operational capability is complemented by strategic agreements with top-tier foundries, ensuring access to the most advanced casting techniques and heat treatments for the most complex materials.
The engineering department uses SolidWorks CAD systems and Cosmos finite element analysis (FEA) software, tools that enable accurate structural validation and digital management of technical data, easily integrated between departments and with customer systems. Over the course of its history, Orion has consolidated its position of industrial leadership through superior design, high and flexible production capacity, and a strong commitment to customer service. The company pursues a strategy of continuous investment in high-precision technologies, aimed at capturing market demand for products characterised by maximum operational reliability and construction quality.

This inventory covers the entire organisation.

Further details on the corporate structure and reporting boundaries are provided in § 2.1.

1.2 Objectives of this Report

The issue of climate change caused by greenhouse gas (GHG) emissions is increasingly relevant and at the centre of attention from the scientific community and international institutions. The European Union has long been proposing targeted measures to mitigate GHG emissions, sharing the objective considered strategic by the scientific community of limiting the increase in atmospheric temperature. The adopted strategy aims to guide European society towards a sustainable development model, developing a low greenhouse gas emissions economy.

In accordance with its sustainability objectives, the Organisation has committed to developing a tool for reporting and monitoring its GHG emissions. For this purpose, the model followed for implementing the inventory is that provided by the ISO 14064-1:2018 standard.

The objectives, and consequently the work plan, can be summarised as follows:

- development of the methodology for calculating the Organisation's GHG Inventory according to the principles and requirements of the ISO 14064-1:2018 standard;
- identification of cost-effective interventions aimed at reducing GHG emissions associated with its activities;
- definition of an emissions management system aimed at monitoring and reducing them;

This document is intended solely for internal use. The inventory results, however, may be used for external communications.

1.2.1 Responsabile e supporto tecnico

The internal person responsible for this report is Elisa Deni, Responsabile Inventario GHG (RI-GHG).

1.2.2 Reporting Period

The reporting period for this report is 2024 (full calendar year).

The reporting period covered by this report, being the first quantification, defines the reference year (i.e., the *base-year* as defined by §6.4 of the ISO 14064-1 standard). The GHG inventory for the *base-year* will be used in the future as a historical reference for monitoring emissions over time (it should be noted, however, that some cases described in §6.4.2 of the standard may lead to the need to revise, and therefore recalculate, the inventory).

1.2.3 Livello di accuratezza raggiunto e verifica

This report and the GHG inventory described therein has been subject to verification by an accredited third-party body (*TUV Sud Italia.*) conducted according to the principles and requirements of the ISO 14064-3 standard, with a confidence level of the GHG statement:

ragionevole, soglia di rilevanza 0%.

1.3 Structure of this Report

This report has been prepared based on the requirements of the ISO 14064-1:2018 standard, in particular using a structure inspired by Annex F of the standard itself:

- Chapter 1: contains a presentation of the company and its objectives
- Chapter 2: contains the description of the organisational boundaries;
- Chapter 3: contains a description of the reporting boundaries, as well as indications on the approach for identifying significant indirect emissions;
- Chapter 4: contains indications on the quantification of the GHG inventory, including a description of the activity data and quantification methods used;
- Chapter 5: results of GHG emissions quantification;
- Chapter 6: contains a description of reduction initiatives and the results of performance tracking against the base year (if applicable);
- Annex A: contains the list of activity data and reference to the relevant emission factors;
- Annex B: contains the list of activity data and the relevant emission factors for direct emissions broken down by GHG type;
- Annex C: methodological references for the Bluegreen software.

1.4 Quantification Methodology Approach

The selected emissions estimation method is based on the activity data and emission factors approach.

The activity data inventory was created using the Bluegreen software, filling in all data collection fields in accordance with ISO 14064-1.

Each activity data item is associated with an emission factor selected from the following databases:

- *Electricity (Ecoinvent) – version: 3.12*
- *Ecoinvent – version: 3.12*
- *Defra – version: 2025.0*
- *Exiobase – version: 3.8.2*
- *Bluegreen – version: 2026.0*

Please refer to Annex C for the methodological references of the databases used.

Capitolo 2
Organizational Boundaries

2.1 Organizational Boundaries

§3.4.7 of the ISO 14064-1 standard defines organisational boundaries as the "*group of activities or installations*[1] *in which an organisation*[2] *exercises operational or financial control, or has a share of participation*".

For this reason, the organisation's boundaries were investigated in order to identify and consolidate the GHG emissions and removals (at installation level) from all possible emission sources over which it can exercise its influence. In Tabella 1 lists the companies in which the organisation holds shares (if any) and their respective owned facilities, briefly describing the activities carried out.

In accordance with Annex A of the standard, and the organisational objectives described in the previous chapter, the consolidation approach chosen is:: **controllo operativo**. This approach is described as follows by §A.2 of the standard: "*In the case of a control-based approach, an organisation accounts for 100% of the GHG emissions or removals from operations over which it exercises some form of control. [...] An organisation has operational control over an operation if it, or one of its subsidiaries, has the full authority to introduce and implement its own policies at the operational level.*"

Tabella 1 Organizational Boundaries, sedi legali

Company	Registered Office	VAT Number	Controlled by	% Ownership
Orion S.p.A	Via Euippa 18, Lecce	IT00654660323		

NOTE: The Registered Office (Lecce) houses the accountant's office (Studio Greco S.A.S).*

Tabella 2 Organizational Boundaries, sedi operative – Orion S.p.A

Reference	Address	Activities Conducted
Workshop - Inverigo (CO)	Via aristide magni 113, 22044 Inverigo	Manufacture of basic metals
Plant - Trieste (TS)	Via Caboto 8, Trieste	Manufacture of machinery and equipment n.e.c.

2.2 Exclusion of Companies and Facilities

This inventory covers the entire organisation and all companies and facilities described in the previous paragraph (with the exception of the Registered Office as it is the accountant's office).

[1] singolo impianto, insieme di impianti o processi produttivi (fissi o mobili), che possono essere definiti all'interno di un unico confine geografico, unità organizzativa o processo produttivo
[2] persona o gruppo di persone che ha funzioni proprie con responsabilità, autorità e relazioni per raggiungere i propri obiettivi

Capitolo 3
Reporting Boundaries

§3.4.8 of the ISO 14064-1 standard defines the organisational reporting boundaries as "*the set of GHG emissions or removals reported from within the organisation's boundaries, and significant indirect emissions that are a consequence of the organisation's operations and activities*". The standard requires the organisation to establish and document its direct and indirect GHG emissions and removals, which can be divided into the following six categories:

1. Category 1. Direct GHG emissions and removals;
2. Category 2. Indirect GHG emissions from imported energy;
3. Category 3. Indirect GHG emissions from transportation;
4. Category 4. Indirect GHG emissions from products used by the organisation;
5. Category 5. Indirect GHG emissions associated with the use of products from the organisation;
6. Category 6. Indirect GHG emissions from other sources.

Emissions and removals can therefore be classified as *dirette* (Categoria 1) e *indirette* (Categories 2 to 6). In accordance with §5.2.2 of the standard, reporting of direct emissions is mandatory (quantification of direct removals is recommended), whilst for indirect emissions the organisation must define a set of criteria in order to identify those that are *significative*. Significant indirect emissions must be quantified and reported, but it is noted that in accordance with §5.2.3 of the standard it is possible to exclude even significant indirect emissions, provided justification is given, as described in the following chapter.

3.1 Materiality Analysis

This section describes the criteria and procedures used to determine the materiality of indirect emissions associated with the organisation's activities. The ISO 14064-1:2018 standard allows the choice of criteria for assessing materiality, which may include the magnitude of the emission (i.e., its size), the level of influence over the source, access to information, and the level of accuracy associated with the data.

In particular, in developing this GHG emissions inventory, the following criteria were considered, for which a specific scoring scale was defined:

- Magnitude. This criterion represents the size/volume of emissions and is assessed on the basis of already published studies for similar entities, or on the basis of qualitative-quantitative assessments that include expert judgement and/or rough estimates. This assessment may be refined in subsequent reporting years. The scoring scale for this criterion is as follows (in cases of uncertainty due to the impossibility of proceeding with a numerical estimate, the magnitude is assigned in a precautionary manner):

    - Magnitude **bassa**, corresponds to a contribution equal to or less than 1% of total emissions;

- Magnitude **media**, corresponds to a contribution greater than 1% but less than or equal to 5%;

- Magnitude **alta**, corresponds to a contribution greater than 5%.

- Level of Influence and Control. This criterion represents the organisation's ability to influence the specific emission source. The objective of this criterion is to circumscribe the indirect emissions over which the organisation can effectively intervene with reduction plans, avoiding efforts in reporting aspects over which its capacity for influence is nil. The scoring scale for this criterion is as follows (note that usually for an emission source there are multiple perspectives for assessing influence, for example for electricity the organisation has direct control over consumption but not over the mix composition. In cases like these, the highest value among those potentially applicable will be assigned):

  - **No influence.** The organisation has no control and/or influence over the emission source;

  - **Influence.** The organisation can only influence the emission source, without exercising direct or indirect control (e.g., *the company can design a product to be recyclable, thus influencing its end-of-life emissions, but actual behaviour will depend on proper disposal by the customer and the efficiency of the waste management system in the country where it will be disposed of*);

  - **Indirect control**. The organisation has indirect control over the emission source (e.g., *with respect to the production of raw materials, the company can change the material and/or supplier but does not directly control the production process*);

  - **Direct control.** The organisation has direct control over the emission source (e.g., *in managing waste generated on site, the organisation can choose the waste recipient, prioritising facilities that carry out recycling over disposal operators*).

- Access to Information. This criterion measures the availability of the information needed to quantify the emissions associated with the source, so as to be able to make an assessment of the effort-to-benefit ratio, cross-referencing it with information on magnitude and capacity for influence. The scoring scale is as follows:

  - **Data available**. The data is already available and can be directly implemented in the inventory (*e.g., electricity consumption reported on the bill*);

  - **Data existing.** The data can be obtained by processing already available information (*e.g., information on the mode of transport used for the procurement of raw materials is available in transport documents but requires digitisation and data processing to be implemented in the inventory*);

  - **Data obtainable.** The information is not available and would need to be collected through targeted activities (*e.g., through questionnaires administered to employees and suppliers*) and/or through calculation procedures based on secondary information.

A scoring system was then defined for each criterion, summarised in Tabella 3.

Tabella 3 Scoring criteria description

Magnitude	Pts.	Level of Influence and Control	Pts.	Access to Information	Pts.
Low	2	No influence	0,5	Data available	1
Medium	4	Influence	1	Data existing	1,5
High	6	Indirect control	1,5	Data obtainable	2
-	-	Direct control	2	-	-

Taking these criteria into account, an emission source is considered significant when:

$$\text{Magnitude} \cdot \frac{\text{Influence}}{\text{Accesso informazioni}} \geq 2$$

In addition to the above criteria, a "**criterio forzante**" that allows inclusion or exclusion of an indirect emission source from reporting. In some cases it may in fact be necessary to force the inclusion of an emission source, for example, to align with sector documents and/or stakeholder requests. In parallel, as mentioned above, it is possible to exclude significant indirect emissions if appropriately justified (cf. §5.3.2 of the standard).

The "forcing criterion" column is therefore filled with an "X" when by default the software, for the indicated sector, provides for the inclusion of the source (if the magnitude differs from "not applicable"), whilst "INC" or "EXC" is reported if the user has made changes to the selection proposed by the software (including an explanatory note justifying the choice made to include or exclude the source from reporting).

Materiality is proposed by the Bluegreen software by analysing the NACE code of each production facility. The list of significant sources for the entire organisational perimeter is therefore the union of all significant sources for at least one sector. The selection of sources based on the sector proposed by the software can then be directly modified by the company to better represent its own reality, for example by removing a non-applicable source or adding one of particular strategic interest. These modifications have been justified.

The list of direct and indirect emissions considered within the reporting boundaries is reported in the tables below. It was deemed appropriate to list direct emissions at this stage as well, even though they are not subject to materiality analysis (where applicable, they are automatically included in the list of sources to be reported).

Tabella 4 Materiality analysis results – Sector: Manufacture of basic metals

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
0	**Direct emissions from owned facilities or vehicles**	CAT 1						
1	Energy carriers produced	CAT 1						
2	Natural gas combustion	CAT 1	High	Direct C.	Available	12	X	X
2	Biogas combustion	CAT 1	n.a.	Direct C.	Available	0		
2	Combustion of liquid propane gas (LPG)	CAT 1	n.a.	Direct C.	Available	0		
2	Combustion of liquefied natural gas (LNG)	CAT 1	n.a.	Direct C.	Available	0		
2	Combustion of compressed natural gas (CNG)	CAT 1	n.a.	Direct C.	Available	0		
2	Butane combustion	CAT 1	n.a.	Direct C.	Available	0		
2	Propane combustion	CAT 1	n.a.	Direct C.	Available	0		
2	Combustion of diesel fuel	CAT 1	Low	Direct C.	Available	4	X	X
2	Combustion of gasoline	CAT 1	n.a.	Direct C.	Available	0		
2	Coal combustion	CAT 1	n.a.	Direct C.	Available	0		
2	Combustion of woody biomass	CAT 1	n.a.	Direct C.	Available	0		
2	Combustion of other gaseous mineral fuels	CAT 1	n.a.	Direct C.	Available	0		
2	Combustion of other liquid mineral fuels	CAT 1	n.a.	Direct C.	Available	0		
2	Combustion of other solid mineral fuels	CAT 1	n.a.	Direct C.	Available	0		
2	Combustion of other bio-fuels	CAT 1	n.a.	Direct C.	Available	0		

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
1	Other direct emissions from owned factories	CAT 1						
2	Emissions from agricultural activities in the field	CAT 1	n.a.	Direct C.	Existing	0		
2	Emissions and removals from Forestry.	CAT 1	n.a.	Direct C.	Existing	0		
2	Direct emissions livestock sector	CAT 1	n.a.	Direct C.	Obtainable	0		
2	Land use and land use change	CAT 1	Low	Direct C.	Existing	2.7	**EXC:** No land use change	
2	Emissions and removals from chemical reactions	CAT 1	Low	Direct C.	Obtainable	4	**EXC:** Activity not present	
2	Other air emissions monitored	CAT 1	Low	Direct C.	Obtainable	2	X	X
2	Fugitive Emissions of F-GAS	CAT 1	Low	Direct C.	Available	4	X	X
1	Combustion from owned mobile sources	CAT 1						
2	Car ownership	CAT 1	Low	Direct C.	Available	4	X	X
2	Owned trucks	CAT 1	Medium	Direct C.	Available	8	**EXC:** Owned trucks not present	
2	Owned boats	CAT 1	n.a.	Direct C.	Available	0		
2	Owned aircraft	CAT 1	n.a.	Direct C.	Available	0		
2	Trains owned	CAT 1	n.a.	Direct C.	Available	0		
2	Owned operating machines	CAT 1	Low	Direct C.	Available	4	**EXC:** Vehicles powered via company electrical grid already accounted for in Scope 2	
0	**Emissions from power purchase**	CAT 2						
1	Purchased energy carriers	CAT 2						
2	Electricity	CAT 2	High	Direct C.	Available	12	X	X

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
2	Other purchased energy carriers	CAT 2	Medium	Direct C.	Available	4	**EXC:** Activity not present	
0	**Emissions from transportation**	CAT 3						
1	Freight transportation	CAT 3						
2	Procurement of raw materials (transportation not paid for by the organization)	CAT 3	High	Influence	Existing	4	X	X
2	Distribution of products sold (transportation paid by the organization)	CAT 3	High	Indirect C.	Existing	6	X	X
2	Other freight (freight paid for by the organization)	CAT 3	Low	Indirect C.	Existing	2	**EXC:** Activity not present	
2	Procurement of raw materials (transportation paid for by the organization)	CAT 3	High	Indirect C.	Existing	6	**EXC:** Activity not present	
2	Distribution of products sold (transportation not paid for by the organization)	CAT 3	High	Influence	Existing	4	**EXC:** Activity not present	
2	Other freight (freight not paid for by the organization)	CAT 3	Low	Influence	Existing	1.3	**EXC:** Activity not present	
1	Moving people	CAT 3						
2	Staff commuting	CAT 3	Medium	Influence	Obtainable	2	X	X
2	Business travel (by non-company vehicle)	CAT 3	Low	Indirect C.	Existing	2	**EXC:** Activity not relevant	
2	Movements of customers and visitors	CAT 3	Low	Influence	Obtainable	1		
1	Indirect emissions from owned mobile sources.	CAT 3						
2	Indirect emissions from owned cars	CAT 3	Low	Direct C.	Available	4	X	X
2	Indirect emissions from owned trucks	CAT 3	Medium	Direct C.	Available	8	**EXC:** Owned vehicles not present	
2	Indirect emissions from owned vessels	CAT 3	n.a.	Direct C.	Available	0		
2	Indirect emissions from owned aircraft	CAT 3	n.a.	Direct C.	Available	0		

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
2	Indirect emissions from owned trains	CAT 3	n.a.	Direct C.	Available	0	X	
2	Indirect emissions from owned operating machinery	CAT 3	Low	Direct C.	Available	4	**EXC:** Not present in Scope 1	
1	Smart Working	CAT 3						
2	Consumption at the employee's home for smart working	CAT 3	Low	Influence	Obtainable	1		
0	**Emissions from the purchase of goods and services**	CAT 4						
1	Materials purchased	CAT 4						
2	Raw materials and semi-finished goods	CAT 4	High	Indirect C.	Existing	6	X	X
2	Packaging of products sold	CAT 4	Medium	Indirect C.	Existing	4	X	X
2	Packaging of purchased goods	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
2	Other goods not directly related to production	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
1	Indirect emissions by energy carriers produced	CAT 4						
2	Indirect emissions from natural gas combustion	CAT 4	High	Direct C.	Available	12	X	X
2	Indirect emissions from biogas combustion	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from combustion of liquid propane gas (LPG)	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from liquefied natural gas (LNG) combustion.	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from compressed natural gas (CNG) combustion.	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from butane combustion	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from propane combustion	CAT 4	n.a.	Direct C.	Available	0		

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
2	Indirect emissions from diesel combustion	CAT 4	Low	Direct C.	Available	4	X	X
2	Indirect emissions from gasoline combustion	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from coal combustion	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from woody biomass combustion	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from combustion of other gaseous mineral fuels.	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from combustion of other liquid mineral fuels	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from combustion of other solid mineral fuels	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from combustion of other bio-fuels.	CAT 4	n.a.	Direct C.	Available	0		
1	Indirect emissions by purchased energy carriers.	CAT 4						
2	Indirect emissions from electricity	CAT 4	Medium	Direct C.	Available	8	X	X
2	Indirect emissions from other purchased energy carriers	CAT 4	Low	Direct C.	Available	4	**EXC:** Activity not present	
1	Durable goods and infrastructure	CAT 4						
2	Machinery and other durable goods	CAT 4	Low	Indirect C.	Obtainable	1.5	**INC:** Activity included for completeness	X
2	Infrastructure	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
2	Electronic Devices	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
2	Other durable goods not directly related to production	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
1	Services	CAT 4						
2	Production processes outsourced data	CAT 4	Medium	Indirect C.	Obtainable	3	**EXC:** Outsourced activities within the plant (consumption reported in S1 and S2)	

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
2	Computer Services	CAT 4	n.a.	Indirect C.	Obtainable	0		
2	Other auxiliary services	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
2	Plant waste treatment	CAT 4	Low	Direct C.	Obtainable	2	X	X
1	Upstream leased assets	CAT 4						
2	Emissions from leased assets	CAT 4	n.a.	Indirect C.	Obtainable	0		
0	**Emissions associated with the use of the organization's products.**	CAT 5						
1	Downstream of products sold	CAT 5						
2	Product use phase	CAT 5	n.a.	Influence	Obtainable	0		
2	Disposal of the product	CAT 5	High	Influence	Obtainable	3	X	X
2	Disposal of product packaging	CAT 5	Medium	Influence	Obtainable	2	X	X
2	Processing of products sold	CAT 5	Medium	Influence	Obtainable	2	**EXC:** Activity not relevant	
1	Financial investments	CAT 5						
2	Consumer loan	CAT 5	n.a.	Influence	Obtainable	0		
2	Project finance	CAT 5	n.a.	Influence	Obtainable	0		
2	Corporate loan	CAT 5	n.a.	Influence	Obtainable	0		
2	Listed and equity bonds	CAT 5	n.a.	Influence	Obtainable	0		
2	Private equity and debts includes venture capital	CAT 5	n.a.	Influence	Obtainable	0		
2	Advisory services, if relevant	CAT 5	n.a.	Influence	Obtainable	0		

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
1	Downstream leased assets	CAT 5						
2	Emissions from downstream leased assets	CAT 5	n.a.	Influence	Obtainable	0		
0	**Other issues**	CAT 6						
1	Other issues	CAT 6						
2	Feeding during working hours (not in the cafeteria)	CAT 6	n.a.	Influence	Obtainable	0		
2	Franchises	CAT 6	n.a.	Indirect C.	Obtainable	0		

Tabella 5 Materiality analysis results – Sector: Manufacture of machinery and equipment n.e.c.

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
1	Other direct emissions from owned factories	CAT 1						
2	Emissions from agricultural activities in the field	CAT 1	n.a.	Direct C.	Existing	0		
2	Emissions and removals from Forestry.	CAT 1	n.a.	Direct C.	Existing	0		
2	Direct emissions livestock sector	CAT 1	n.a.	Direct C.	Obtainable	0		
2	Land use and land use change	CAT 1	Low	Direct C.	Existing	2.7	**EXC:** No land use change	
2	Emissions and removals from chemical reactions	CAT 1	Low	Direct C.	Obtainable	4	**EXC:** Activity not present	
2	Other air emissions monitored	CAT 1	Low	Direct C.	Obtainable	2	X	X
2	Fugitive Emissions of F-GAS	CAT 1	Low	Direct C.	Available	4	X	X

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
1	Combustion from owned mobile sources	CAT 1						
2	Car ownership	CAT 1	Low	Direct C.	Available	4	X	X
2	Owned trucks	CAT 1	Medium	Direct C.	Available	8	**EXC:** Owned trucks not present	
2	Owned boats	CAT 1	n.a.	Direct C.	Available	0		
2	Owned aircraft	CAT 1	n.a.	Direct C.	Available	0		
2	Trains owned	CAT 1	n.a.	Direct C.	Available	0		
2	Owned operating machines	CAT 1	Low	Direct C.	Available	4	**EXC:** Vehicles powered via company electrical grid already accounted for in Scope 2	
0	**Emissions from power purchase**	CAT 2						
1	Purchased energy carriers	CAT 2						
2	Electricity	CAT 2	High	Direct C.	Available	12	X	X
2	Other purchased energy carriers	CAT 2	Medium	Direct C.	Available	4	**EXC:** Activity not present	
0	**Emissions from transportation**	CAT 3						
1	Freight transportation	CAT 3						
2	Procurement of raw materials (transportation not paid for by the organization)	CAT 3	High	Influence	Existing	4	X	X
2	Distribution of products sold (transportation paid by the organization)	CAT 3	High	Indirect C.	Existing	6	X	X
2	Other freight (freight paid for by the organization)	CAT 3	Low	Indirect C.	Existing	2	**EXC:** Activity not present	
2	Procurement of raw materials (transportation paid for by the organization)	CAT 3	High	Indirect C.	Existing	6	**EXC:** Activity not present	
2	Distribution of products sold (transportation not paid for by the organization)	CAT 3	High	Influence	Existing	4	**EXC:** Activity not present	

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
2	Other freight (freight not paid for by the organization)	CAT 3	Low	Influence	Existing	1.3	**EXC:** Activity not present	
1	Moving people	CAT 3						
2	Staff commuting	CAT 3	Medium	Influence	Obtainable	2	X	X
2	Business travel (by non-company vehicle)	CAT 3	Low	Indirect C.	Existing	2	**EXC:** Activity not relevant	
2	Movements of customers and visitors	CAT 3	Low	Influence	Obtainable	1		
1	Indirect emissions from owned mobile sources.	CAT 3						
2	Indirect emissions from owned cars	CAT 3	Low	Direct C.	Available	4	X	X
2	Indirect emissions from owned trucks	CAT 3	Medium	Direct C.	Available	8	**EXC:** Owned vehicles not present	
2	Indirect emissions from owned vessels	CAT 3	n.a.	Direct C.	Available	0		
2	Indirect emissions from owned aircraft	CAT 3	n.a.	Direct C.	Available	0		
2	Indirect emissions from owned trains	CAT 3	n.a.	Direct C.	Available	0	X	
2	Indirect emissions from owned operating machinery	CAT 3	Low	Direct C.	Available	4	**EXC:** Not present in Scope 1	
1	Smart Working	CAT 3						
2	Consumption at the employee's home for smart working	CAT 3	Low	Influence	Obtainable	1		
0	**Emissions from the purchase of goods and services**	CAT 4						
1	Materials purchased	CAT 4						
2	Raw materials and semi-finished goods	CAT 4	High	Indirect C.	Existing	6	X	X
2	Packaging of products sold	CAT 4	Medium	Indirect C.	Existing	4	X	X

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
2	Packaging of purchased goods	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
2	Other goods not directly related to production	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
1	Indirect emissions by energy carriers produced	CAT 4						
2	Indirect emissions from natural gas combustion	CAT 4	High	Direct C.	Available	12	X	X
2	Indirect emissions from biogas combustion	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from combustion of liquid propane gas (LPG)	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from liquefied natural gas (LNG) combustion.	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from compressed natural gas (CNG) combustion.	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from butane combustion	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from propane combustion	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from diesel combustion	CAT 4	Low	Direct C.	Available	4	X	X
2	Indirect emissions from gasoline combustion	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from coal combustion	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from woody biomass combustion	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from combustion of other gaseous mineral fuels.	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from combustion of other liquid mineral fuels	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from combustion of other solid mineral fuels	CAT 4	n.a.	Direct C.	Available	0		
2	Indirect emissions from combustion of other bio-fuels.	CAT 4	n.a.	Direct C.	Available	0		

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
1	Indirect emissions by purchased energy carriers.	CAT 4						
2	Indirect emissions from electricity	CAT 4	Medium	Direct C.	Available	8	X	X
2	Indirect emissions from other purchased energy carriers	CAT 4	Low	Direct C.	Available	4	**EXC:** Activity not present	
1	Durable goods and infrastructure	CAT 4						
2	Machinery and other durable goods	CAT 4	Low	Indirect C.	Obtainable	1.5	**INC:** Activity included for completeness	X
2	Infrastructure	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
2	Electronic Devices	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
2	Other durable goods not directly related to production	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
1	Services	CAT 4						
2	Production processes outsourced data	CAT 4	Medium	Indirect C.	Obtainable	3	**EXC:** Outsourced activities within the plant (consumption reported in S1 and S2)	
2	Computer Services	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
2	Other auxiliary services	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
2	Plant waste treatment	CAT 4	Low	Direct C.	Obtainable	2	X	X
1	Upstream leased assets	CAT 4						
2	Emissions from leased assets	CAT 4	Low	Indirect C.	Obtainable	1.5	X	
0	**Emissions associated with the use of the organization's products.**	CAT 5						
1	Downstream of products sold	CAT 5						
2	Product use phase	CAT 5	Medium	Influence	Obtainable	2	**EXC:** Activity not relevant	

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
2	Disposal of the product	CAT 5	High	Influence	Obtainable	3	X	X
2	Disposal of product packaging	CAT 5	Medium	Influence	Obtainable	2	X	X
2	Processing of products sold	CAT 5	Medium	Influence	Obtainable	2	**EXC:** Activity not relevant	
1	Financial investments	CAT 5						
2	Consumer loan	CAT 5	Low	Influence	Obtainable	1	X	
2	Project finance	CAT 5	Low	Influence	Obtainable	1	X	
2	Corporate loan	CAT 5	Low	Influence	Obtainable	1	X	
2	Listed and equity bonds	CAT 5	Low	Influence	Obtainable	1	X	
2	Private equity and debts includes venture capital	CAT 5	Low	Influence	Obtainable	1	X	
2	Advisory services, if relevant	CAT 5	Low	Influence	Obtainable	1	X	
1	Downstream leased assets	CAT 5						
2	Emissions from downstream leased assets	CAT 5	Low	Influence	Obtainable	1	X	
0	**Other issues**	CAT 6						
1	Other issues	CAT 6						
2	Feeding during working hours (not in the cafeteria)	CAT 6	Low	Influence	Obtainable	1	X	
2	Franchises	CAT 6	Low	Indirect C.	Obtainable	1.5	X	
1	Other direct emissions from owned factories	CAT 1						
2	Emissions from agricultural activities in the field	CAT 1	n.a.	Direct C.	Existing	0		

L	Description	Cat.	Magnitude	Influence e controllo	Data Availability	Score	Forcing Criterion	Sign.?
2	Emissions and removals from Forestry.	CAT 1	n.a.	Direct C.	Existing	0		
2	Direct emissions livestock sector	CAT 1	n.a.	Direct C.	Obtainable	0		
2	Land use and land use change	CAT 1	Low	Direct C.	Existing	2.7	**EXC:** No land use change	
2	Emissions and removals from chemical reactions	CAT 1	Low	Direct C.	Obtainable	4	**EXC:** Activity not present	
2	Other air emissions monitored	CAT 1	Low	Direct C.	Obtainable	2	X	X
2	Fugitive Emissions of F-GAS	CAT 1	Low	Direct C.	Available	4	X	X
1	Combustion from owned mobile sources	CAT 1						
2	Car ownership	CAT 1	Low	Direct C.	Available	4	X	X
2	Owned trucks	CAT 1	Medium	Direct C.	Available	8	**EXC:** Owned trucks not present	
2	Owned boats	CAT 1	n.a.	Direct C.	Available	0		
2	Owned aircraft	CAT 1	n.a.	Direct C.	Available	0		
2	Trains owned	CAT 1	n.a.	Direct C.	Available	0		
2	Owned operating machines	CAT 1	Low	Direct C.	Available	4	**EXC:** Vehicles powered via company electrical grid already accounted for in Scope 2	
0	**Emissions from power purchase**	CAT 2						
1	Purchased energy carriers	CAT 2						

Tabella 6 Materiality summary

L	Description	Cat.	Sign.?
0	**Direct emissions from owned facilities or vehicles**	CAT1	
1	Energy carriers produced	CAT1	
2	Natural gas combustion	CAT1	X
2	Biogas combustion	CAT1	
2	Combustion of liquid propane gas (LPG)	CAT1	
2	Combustion of liquefied natural gas (LNG)	CAT1	
2	Combustion of compressed natural gas (CNG)	CAT1	
2	Butane combustion	CAT1	
2	Propane combustion	CAT1	
2	Combustion of diesel fuel	CAT1	X
2	Combustion of gasoline	CAT1	
2	Coal combustion	CAT1	
2	Combustion of woody biomass	CAT1	
2	Combustion of other gaseous mineral fuels	CAT1	
2	Combustion of other liquid mineral fuels	CAT1	
2	Combustion of other solid mineral fuels	CAT1	
2	Combustion of other bio-fuels	CAT1	
1	Other direct emissions from owned factories	CAT1	
2	Emissions from agricultural activities in the field	CAT1	
2	Emissions and removals from Forestry.	CAT1	
2	Direct emissions livestock sector	CAT1	
2	Land use and land use change	CAT1	
2	Emissions and removals from chemical reactions	CAT1	
2	Other air emissions monitored	CAT1	X
2	Fugitive Emissions of F-GAS	CAT1	X

L	Description	Cat.	Sign.?
1	Combustion from owned mobile sources	CAT1	
2	Car ownership	CAT1	X
2	Owned trucks	CAT1	
2	Owned boats	CAT1	
2	Owned aircraft	CAT1	
2	Trains owned	CAT1	
2	Owned operating machines	CAT1	
0	**Emissions from power purchase**	CAT2	
1	Purchased energy carriers	CAT2	
2	Electricity	CAT2	X
2	Other purchased energy carriers	CAT2	
0	**Emissions from transportation**	CAT3	
1	Freight transportation	CAT3	
2	Procurement of raw materials (transportation not paid for by the organization)	CAT3	X
2	Distribution of products sold (transportation paid by the organization)	CAT3	X
2	Other freight (freight paid for by the organization)	CAT3	
2	Procurement of raw materials (transportation paid for by the organization)	CAT3	
2	Distribution of products sold (transportation not paid for by the organization)	CAT3	
2	Other freight (freight not paid for by the organization)	CAT3	
1	Moving people	CAT3	
2	Staff commuting	CAT3	X
2	Business travel (by non-company vehicle)	CAT3	
2	Movements of customers and visitors	CAT3	
1	Indirect emissions from owned mobile sources.	CAT3	
2	Indirect emissions from owned cars	CAT3	X
2	Indirect emissions from owned trucks	CAT3	

L	Description	Cat.	Sign.?
2	Indirect emissions from owned vessels	CAT3	
2	Indirect emissions from owned aircraft	CAT3	
2	Indirect emissions from owned trains	CAT3	
2	Indirect emissions from owned operating machinery	CAT3	
1	Smart Working	CAT3	
2	Consumption at the employee's home for smart working	CAT3	
0	**Emissions from the purchase of goods and services**	CAT4	
1	Materials purchased	CAT4	
2	Raw materials and semi-finished goods	CAT4	X
2	Packaging of products sold	CAT4	X
2	Packaging of purchased goods	CAT4	
2	Other goods not directly related to production	CAT4	
1	Indirect emissions by energy carriers produced	CAT4	
2	Indirect emissions from natural gas combustion	CAT4	X
2	Indirect emissions from biogas combustion	CAT4	
2	Indirect emissions from combustion of liquid propane gas (LPG)	CAT4	
2	Indirect emissions from liquefied natural gas (LNG) combustion.	CAT4	
2	Indirect emissions from compressed natural gas (CNG) combustion.	CAT4	
2	Indirect emissions from butane combustion	CAT4	
2	Indirect emissions from propane combustion	CAT4	
2	Indirect emissions from diesel combustion	CAT4	X
2	Indirect emissions from gasoline combustion	CAT4	
2	Indirect emissions from coal combustion	CAT4	
2	Indirect emissions from woody biomass combustion	CAT4	
2	Indirect emissions from combustion of other gaseous mineral fuels.	CAT4	
2	Indirect emissions from combustion of other liquid mineral fuels	CAT4	

L	Description	Cat.	Sign.?
2	Indirect emissions from combustion of other solid mineral fuels	CAT4	
2	Indirect emissions from combustion of other bio-fuels.	CAT4	
1	Indirect emissions by purchased energy carriers.	CAT4	
2	Indirect emissions from electricity	CAT4	X
2	Indirect emissions from other purchased energy carriers	CAT4	
1	Durable goods and infrastructure	CAT4	
2	Machinery and other durable goods	CAT4	X
2	Infrastructure	CAT4	
2	Electronic Devices	CAT4	
2	Other durable goods not directly related to production	CAT4	
1	Services	CAT4	
2	Production processes outsourced data	CAT4	
2	Computer Services	CAT4	
2	Other auxiliary services	CAT4	
2	Plant waste treatment	CAT4	X
1	Upstream leased assets	CAT4	
2	Emissions from leased assets	CAT4	
0	**Emissions associated with the use of the organization's products.**	CAT5	
1	Downstream of products sold	CAT5	
2	Product use phase	CAT5	
2	Disposal of the product	CAT5	X
2	Disposal of product packaging	CAT5	X
2	Processing of products sold	CAT5	
1	Financial investments	CAT5	
2	Consumer loan	CAT5	
2	Project finance	CAT5	

L	Description	Cat.	Sign.?
2	Corporate loan	CAT5	
2	Listed and equity bonds	CAT5	
2	Private equity and debts includes venture capital	CAT5	
2	Advisory services, if relevant	CAT5	
1	Downstream leased assets	CAT5	
2	Emissions from downstream leased assets	CAT5	
0	**Other issues**	CAT6	
1	Other issues	CAT6	
2	Feeding during working hours (not in the cafeteria)	CAT6	
2	Franchises	CAT6	

Capitolo 4
Quantification of the GHG Emissions and Removals Inventory

4.1 Quantification Methods and Rationale

The methodology used in this study is based on the collection of activity data for the various selected processes (e.g., litres of diesel, etc.) which are multiplied by specific emission factors, i.e., factors that translate a quantity of matter or energy into an equivalent quantity of greenhouse gas.

The quantification took into account all the main greenhouse gases (namely CO2, CH4, N2O, HFCs, PFCs, SF6 and other fluorinated gases) which were then translated into CO2 equivalent units using characterisation factors communicated by the IPCC (IPCC, 2021), the most authoritative institution on the subject of climate change.

Emission factors were identified taking into account various parameters such as data reliability and completeness, information and its sources, and temporal, geographical and technological correlation.

The choice of this methodology responds to the inability to have direct GHG measurements for the identified and analysed sources. The characterisation factors consider the complete oxidation of the fuels used.

The collection of data, its processing, and the subsequent quantification of GHG emissions are based on the fundamental principles indicated by the reference standard ISO 14064-1:2018, listed below.

- **Relevance**: data and methods used were chosen to ensure a comprehensible and reliable assessment of the elementary flows of the analysed system;
- **Completeness**: the report includes all available inputs and outputs of elementary flows within the pre-established boundaries. To satisfy this principle, all processes connected to the entire studied life cycle were considered, declaring any exclusions;
- **Consistency**: consistency must be guaranteed in the assumptions, methods and data used throughout the study to reach conclusions in accordance with the scope and field of application;
- **Transparency**: compliance with this principle is ensured through the declaration of all assumptions, data sources and databases used to perform the impact quantification.

4.2 Quantification Methods and Emission Factors Used

The following table summarises the emission sources considered, the relevant quantification methodology (including a brief description) and the source of the emission factors used

Tabella 7 Description of the quantification methods used and emission factor sources

Source Code	Categoria	Fonte	Perimetro	Quantification Method and Description
C1-A	CAT1	Energy carriers produced	Orion Valves	Quantity of energy carrier - short list
C1-B-06	CAT1	Other air emissions monitored	Orion Valves	Quantity of pollutant
C1-B-07	CAT1	Fugitive Emissions of F-GAS	Orion Valves	Quantity of F-Gas
C1-C-01	CAT1	Car ownership	Orion Valves	Quantity of fuel
C2-A-01	CAT2	Electricity	Orion Valves	National average mix
C3-A-01	CAT3	Procurement of raw materials (transportation not paid for by the organization)	Orion Valves	Quantity transported and distance (distance indication)
C3-A-01	CAT3	Procurement of raw materials (transportation not paid for by the organization)	Orion Valves	Quantity transported and distance (distance indication)
C3-A-02	CAT3	Distribution of products sold (transportation paid by the organization)	Orion Valves	Quantity transported and distance (distance indication)
C3-B-01	CAT3	Staff commuting	Orion Valves	Days of attendance, distances and means used
C3-C-01	CAT3	Indirect emissions from owned cars	Orion Valves	Quantity of fuel
C4-A-01	CAT4	Raw materials and semi-finished goods	Orion Valves	Automatic material recognition (physical data)
C4-A-02	CAT4	Packaging of products sold	Orion Valves	Quantity of standard pre-configured packaging
C4-B	CAT4	Indirect emissions by energy carriers produced	Orion Valves	Quantity of energy carrier - short list

Source Code	Categoria	Fonte	Perimetro	Quantification Method and Description
C4-C-01	CAT4	Indirect emissions from electricity	Orion Valves	National average mix
C4-D-01	CAT4	Machinery and other durable goods	Orion Valves	Monetary data (Eurostat EEIO)
C4-E-04	CAT4	Plant waste treatment	Orion Valves	EWC code and destination indication
C5-A-02	CAT5	Disposal of the product	Orion Valves	Waste type and recycling percentage
C5-A-03	CAT5	Disposal of product packaging	Orion Valves	Packaging type and recycling percentage

In accordance with Annex E of the ISO 14064-1 standard, as additional information, GHG emissions associated with purchased electricity can also be quantified using a *market-based*. Specifically, for the reference year:

The organisation has decided to report its emissions using a *market*-based approach but does not have specific contractual instruments for energy procurement, therefore the national residual mix was used.

To ensure a correct quantification of greenhouse gas emissions, based on the nature of the primary data available to the Organisation, the following category-specific assumptions were adopted:

- CAT1: Fuel consumption for stationary purposes was reported monthly using point data from utility bills (3 meters for the Trieste site and 1 meter for the Inverigo workshop):
  - **Officina Inverigo – January, February 2024**: due to the new connection made in March 2024, the data relating to consumption in the first two months of 2024 were accounted for using the 2025 proxy values (January February),
  - **Officina Inverigo - March 2024**: Consumption was obtained by re-parametrising the actual daily average (recorded from 12 to 31 March) over the entire month.
- CAT3: Reporting is based on management extracts relating to the procurement of raw materials (MD_Procurement file, distinguished between CBAM-regulated and non-CBAM purchases) and the distribution of finished products (MD_Distribution file). The following assumptions were considered:
  - **Road Transport**: For transports catalogued as "truck only" (non-CBAM purchases), the distance was calculated as the crow flies between origin and destination using Python code (Geopy library). A 30% increase was applied to the obtained value to simulate the actual road distance. This solution was necessary due to the lack of precise kilometre-by-kilometre data for each purchased item.
  - **Train Transport**: Routes were modelled through the Ecotransit portal. Where necessary, road sections ("last mile") between sites and railway stations were integrated. In cases where only the country of origin/destination was indicated, the capital was used as the reference point.

- **Ship Transport**: Calculated through the Ecotransit portal integrating road sections for port-to-site connections. Where geographical data was limited to the State, the Capital was assumed as the departure or arrival node.
- **Air Transport**: Distance was determined as the crow flies (Python/Geopy) with a 30% increase to account for the curvature of air routes. Road sections connecting airports were included and Capitals were used as reference for generic geographical data

.

- CAT4: Materials were categorised based on the management extracts mentioned in CAT 3. The following calculation methodologies were applied:
  - **Unit of Measure Conversion (kg/€)**: in order to ensure full representativeness of values, for raw materials purchased without weight unit of measure, a kg/euro proportionality factor was calculated for each category. This coefficient was determined through a weighted average of the main items purchased for each management category (without weight unit of measure). Where necessary, the specific weight data of the purchased item was requested (whilst the economic data is always present in management extractions for each item). This assumption was deemed necessary because the mass value – for a series of purchased items – was not available for the current reporting year; furthermore, the variability of products purchased within the same management category both in economic and dimensional terms made it necessary to use a proportional factor not limited to the average sample of the weighed materials. Consequently, given the availability of economic expenditure for each item, the kg/euro factor described above was used.
  - **Packaging**: The weight of packaging was obtained by difference between gross and net mass in finished product shipments. The material composition (Wood, Paper, Plastic, Steel) was defined following the parameters of the EPD-IES-0024110:003 study. With the results thus obtained, it was possible to trace back to the impacts associated with the purchase of the material and its disposal. The procurement phase of the packaging material was excluded from reporting because: i) the quantity of material by weight is negligible compared to the remaining volume of purchases; ii) the packaging material supplier for the Organisation is located approximately 100 km from the Trieste site; a distance far lower than the average kilometres of the remaining procurement transports. Transport during the packaging distribution phase is included in the total distribution figure as gross mass was used.
- CAT5: The assumptions for this category derive directly from the model adopted in CAT 4 for packaging. End-of-life management, both for the finished product and for the relevant packaging, reflects the criteria and scenarios provided for by the reference EPD study.

4.3 Activity Data and Emission Factors Employed

As mentioned in the previous paragraphs, the estimation method using activity data and emission factors was adopted for GHG reporting purposes.

The emission factors take into account all the main GHGs (namely CO_2, CH_4, N_2O, HFCs and other GHGs) which were then translated into CO_2e units using the characterisation factors communicated by the IPCC (AR6 2021), the most authoritative institution on the subject of climate change.

Once the data described in the previous section was obtained, emission factors (from various sources) were selected and subsequently matched to activity data directly within the Bluegreen software.

Emission factors were identified taking into account various parameters such as data reliability and completeness, information and its sources, and temporal, geographical and technological correlation. Specifically, in order to accommodate the different type of available activity data (in particular the co-presence of physical and economic data), the use of several databases was required. Specifically, emission factors from the following were used:

- *Electricity (Ecoinvent) – version: 3.12*
- *Ecoinvent – version: 3.12*
- *Defra – version: 2025.0*
- *Exiobase – version: 3.8.2*
- *Bluegreen – version: 2026.0*

Annex A contains information on all emission factors used, as well as the activity data associated with them. Specifically:

- Reference to the emission source and reference scope;
- Activity data and relative unit of measure;
- Name of the emission factor and database of origin;

In Annex B, for all direct emission sources, details of Category 1 emission values broken down by GHG type are provided. Finally, in Annex C, links are provided for any materials useful for describing the methodological approach of the databases used and the software.

Capitolo 5
Results of GHG Quantification

This chapter includes the results of the quantified data derived from the emission or removal category, the description of the methodologies and activity data used, the references and/or explanation and/or documentation of the emission and removal coefficients, the impacts of the degree of uncertainty and accuracy on the results (broken down by category) and the description of planned actions to reduce the degree of uncertainty for the future inventory (if applicable). Unless specifically indicated otherwise, the values reported refer to the approach for quantifying emissions associated with electricity consumption reported using the *location-based*. Any results quantified using the *market-based* are appropriately indicated.

5.1 Study Results

Once the processes and operations giving rise to GHG emissions were identified, the climate change impacts were quantified.

The results of the quantification of GHG emissions attributable to the organisation in the reference year are reported below, indicating the total emissions associated with the activity broken down by category, as well as the percentage contribution relative to the category of belonging, the contribution for each company relating to the various GHG gases and the contribution due to biogenic CO2.

Tabella 8 Total emissions broken down by category

Total emissions [tCO2e] – Analysis by category								
Company	**Categoria 1 [tCO2e]**	**Categoria 2 [tCO2e]**	**Categoria 3 [tCO2e]**	**Categoria 4 [tCO2e]**	**Categoria 5 [tCO2e]**	**Categoria 6 [tCO2e]**	**Total [tCO2e]**	**% per riga**
Orion S.p.A	498.25	429.60	5794.68	32895.09	76.70	0.00	39694.31	100%
Total	**498.25**	**429.60**	**5794.68**	**32895.09**	**76.70**	**0.00**	**39694.31**	
% Cat	1.255%	1.082%	14.6%	82.87%	0.1932%	0%		

Tabella 9 Direct emissions (Category 1) broken down by GHG type

Category 1 Emissions [tCO2e] - Analysis by GHG						
Company	**CO_2 [tCO2e]**	**CH_4 [tCO2e]**	**N_20 [tCO2e]**	**HFC [tCO2e]**	**Other GHGs [tCO2e]**	**Total [tCO2e]**
Orion S.p.A	480.64	0.70	0.59	1.56	14.76	498.25
% Cat	96.47%	0.14%	0.12%	0.31%	2.96%	

Tabella 10 Biogenic CO2 emissions broken down by category

Biogenic emissions [tCO2e] – Analysis by category							
Company	**Categoria 1 [tCO2e]**	**Categoria 2 [tCO2e]**	**Categoria 3 [tCO2e]**	**Categoria 4 [tCO2e]**	**Categoria 5 [tCO2e]**	**Total [tCO2e]**	**% per riga**
Orion S.p.A	0.46	67.32	15.04	1110.63	15.76	1209.20	100%
% Cat	0.03773%	5.567%	1.244%	91.85%	1.303%		

Tabella 11 Total emissions broken down by sub-categories – Orion Valves Group

Total emissions [tCO2e] – Analysis by sub-category	
Sub-category	Total [tCO2e]
Energy carriers produced	442.60
Other direct emissions from owned factories	16.29
Combustion from owned mobile sources	39.36
Purchased energy carriers	429.60
Freight transportation	5364.69
Moving people	420.01
Indirect emissions from owned mobile sources.	9.98
Materials purchased	32371.80
Indirect emissions by energy carriers produced	0.82
Indirect emissions by purchased energy carriers.	183.33
Durable goods and infrastructure	213.90
Services	125.24
Downstream of products sold	76.70

Tabella 12 Total emissions broken down by sub-categories – Orion S.p.A

Total emissions [tCO2e] – Analysis by sub-category	
Sub-category	Total [tCO2e]
Energy carriers produced	442.60
Other direct emissions from owned factories	16.29
Combustion from owned mobile sources	39.36
Purchased energy carriers	429.60
Freight transportation	5364.69
Moving people	420.01
Indirect emissions from owned mobile sources.	9.98
Materials purchased	32371.80
Indirect emissions by energy carriers produced	0.82
Indirect emissions by purchased energy carriers.	183.33
Durable goods and infrastructure	213.90
Services	125.24
Downstream of products sold	76.70

Finally, as additional information in accordance with Annex E of the ISO 14064-1 standard, the results quantified using the *market-based*.

Tabella 13 Total emissions broken down by category – approccio Market based

Total emissions [tCO2e] – Analysis by category using the *Market-based*							
Company	**Categoria 1 [tCO2e]**	**Categoria 2 [tCO2e]**	**Categoria 3 [tCO2e]**	**Categoria 4 [tCO2e]**	**Categoria 5 [tCO2e]**	**Total [tCO2e]**	**% per riga**
Orion S.p.A	498.25	664.87	5794.68	32798.72	76.70	39833.22	100%
% Cat	1.251%	1.669%	14.55%	82.34%	0.1926%		

5.2 Uncertainty Quantification

Uncertainty analysis is a key element of the entire GHG emissions reporting process as it enables the correct interpretation of results.

In the inventory conducted, two main sources of uncertainty were identified:

a. Uncertainty associated with the adopted activity data quantification method. Each quantification method was associated with an uncertainty value (understood as Coefficient of Variation – CV) directly within the Bluegreen software (which can be modified by the user). The uncertainty values associated with the activity data of the various emission sources are available directly within the software documentation.
b. Uncertainty associated with the emission factor used. The estimate of uncertainty associated with emission factors was carried out differently depending on their source. For emission factors derived from Ecoinvent, the CV was quantified using the methodology described in Muller et al[3] (through a Monte Carlo analysis).

The CV associated with the emission value was calculated by aggregating the emission factor value and activity data, according to the formula:

$$CV_E = \sqrt{CV_{EF}^2 + CV_{AD}^2}$$

Dove CV_E represents the CV of the emission, $CV_{EF}$the CV of the emission factor and CV_{AD} the CV of the activity data. The subsequent step provides for the aggregation of uncertainty across all emission sources within a category. For this operation the formula used is as follows:

$$CV_{CAT_j} = \frac{\sqrt{\sum_{i=1}^{n}(E_i \cdot CV_{E_i})^2}}{E_{CAT_j}}$$

[3] Muller, S., Lesage, P., Ciroth, A., Mutel, C., Weidema, B.P., Samson, R., 2016. The application of the pedigree approach to the distributions foreseen in ecoinvent v3. Int J Life Cycle Assess 21, 1327–1337. https://doi.org/10.1007/s11367-014-0759-5

Dove CV_{CAT_j} represents the CV of the aggregated emission associated with category j (whose associated emission is E_{CAT_j}). E_i represents the emission of the i-esima.

The results are reported in Tabella the results of the uncertainty analysis in terms of coefficient of variation (CV) in %, disaggregated by company and by category.

Tabella 14 Uncertainty analysis results (coefficients of variation)

Total emissions [tCO2e] – Coefficients of variation (%)					
Company	**Categoria 1**	**Categoria 2**	**Categoria 3**	**Categoria 4**	**Categoria 5**
Orion S.p.A	4.26	4.32	5.67	6.62	7.61

Annex A

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C1-A	Orion S.p.A	Workshop - Inverigo (CO)	Natural gas combustion (volume)	Scope 1 - Fuels Gaseous fuels Natural gas (100% mineral blend)	27729.74	smc	Defra – v. 2025.0
C1-A	Orion S.p.A	Plant - Trieste (TS)	Natural gas combustion (volume)	Scope 1 - Fuels Gaseous fuels Natural gas (100% mineral blend)	184135.00	smc	Defra – v. 2025.0
C1-A	Orion S.p.A	Workshop - Inverigo (CO)	LPG combustion (volume)	Scope 1 - Fuels Gaseous fuels LPG	0.00	m³	Defra – v. 2025.0
C1-A	Orion S.p.A	Plant - Trieste (TS)	LPG combustion (volume)	Scope 1 - Fuels Gaseous fuels LPG	0.00	m³	Defra – v. 2025.0
C1-A	Orion S.p.A	Workshop - Inverigo (CO)	Diesel fuel combustion (volume)	Scope 1 - Fuels Liquid fuels Diesel (100% mineral diesel)	0.00	m³	Defra – v. 2025.0
C1-A	Orion S.p.A	Plant - Trieste (TS)	Diesel fuel combustion (volume)	Scope 1 - Fuels Liquid fuels Diesel (100% mineral diesel)	0.00	m³	Defra – v. 2025.0
C1-A	Orion S.p.A	Workshop - Inverigo (CO)	Combustion of woody biomass (mass)	Scope 1 - Bioenergy Biomass Wood logs	0.00	t	Defra – v. 2025.0
C1-A	Orion S.p.A	Plant - Trieste (TS)	Combustion of woody biomass (mass)	Scope 1 - Bioenergy Biomass Wood logs	0.00	t	Defra – v. 2025.0
C1-B-06	Orion S.p.A	Plant - Trieste (TS)	VOC, Volatile Organic Carbon - Europe	VOC, Volatile Organic Carbon	2630.78	kg	Bluegreen – v. 2026.0
C1-B-07	Orion S.p.A	Plant - Trieste (TS)	R410A	Scope 1 - Refrigerant & other Blends R410A Total emissions including non-Kyoto products	0.81	kg	Defra – v. 2025.0
C1-C-01	Orion S.p.A	Plant - Trieste (TS)	Automotive diesel combustion (volume), 11% bio-based	Scope 1 - Fuels Liquid fuels Diesel (average biofuel blend)	10.66	m³	Defra – v. 2025.0
C1-C-01	Orion S.p.A	Plant - Trieste (TS)	Car gasoline combustion (volume), 11% bio-based	Scope 1 - Fuels Liquid fuels Petrol (average biofuel blend)	5.77	m³	Defra – v. 2025.0

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C1-C-01	Orion S.p.A	Plant - Trieste (TS)	Combustion of biodiesel in Car (volume)	Scope 1 - Bioenergy Biofuel Biodiesel ME	0.19	m³	Defra – v. 2025.0
C2-A-01	Orion S.p.A	Plant - Trieste (TS)	Electricity, Location Based, IT, Medium Voltage	Energia elettrica, Location Based, IT, Medium tensione	1141303.01	kW·h	Electricity (Ecoinvent) – v. 3.12
C2-A-01	Orion S.p.A	Workshop - Inverigo (CO)	Electricity, Location Based, IT, Low Voltage	Energia elettrica, Location Based, IT, Low tensione	126760.00	kW·h	Electricity (Ecoinvent) – v. 3.12
C2-A-01	Orion S.p.A	Plant - Trieste (TS)	Electricity, Location Based, IT, Low Voltage	Energia elettrica, Location Based, IT, Low tensione	150270.40	kW·h	Electricity (Ecoinvent) – v. 3.12
C2-A-01	Orion S.p.A	Plant - Trieste (TS)	Electricity, Residual Mix, IT, Medium Voltage	Energia elettrica, Residual Mix, IT, Medium tensione	1141303.01	kW·h	Electricity (Ecoinvent) – v. 3.12
C2-A-01	Orion S.p.A	Workshop - Inverigo (CO)	Electricity, Residual Mix, IT, Low Voltage	Energia elettrica, Residual Mix, IT, Low tensione	126760.00	kW·h	Electricity (Ecoinvent) – v. 3.12
C2-A-01	Orion S.p.A	Plant - Trieste (TS)	Electricity, Residual Mix, IT, Low Voltage	Energia elettrica, Residual Mix, IT, Low tensione	150270.40	kW·h	Electricity (Ecoinvent) – v. 3.12
C3-A-01	Orion S.p.A	Plant - Trieste (TS)	Truck	transport, freight, lorry, diesel, unspecified {GLO} | market group for transport, freight, lorry, diesel, unspecified	398332.10	tkm	Ecoinvent – v. 3.12
C3-A-01	Orion S.p.A	Plant - Trieste (TS)	Unrefrigerated truck, >32 tons, EURO 5, Europe	transport, freight, lorry, >32 metric ton, diesel, EURO 5 {RER} | transport, freight, lorry, >32 metric ton, diesel, EURO 5	2280389.82	tkm	Ecoinvent – v. 3.12
C3-A-01	Orion S.p.A	Plant - Trieste (TS)	Ship, sea, unrefrigerated, container	transport, freight, sea, container ship, heavy fuel oil {GLO} | market for transport, freight, sea, container ship, heavy fuel oil	83870179.05	tkm	Ecoinvent – v. 3.12
C3-A-01	Orion S.p.A	Plant - Trieste (TS)	Train, Electricity, ExtraEurope	transport, freight, train, fleet average {RoW} | transport, freight, train, electric	2749983.14	tkm	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C3-A-01	Orion S.p.A	Plant - Trieste (TS)	Airplane, unrefrigerated, long haul, belly freight	transport, freight, aircraft, long haul {GLO} | transport, freight, aircraft, belly-freight, long haul	4476842.80	tkm	Ecoinvent – v. 3.12
C3-A-02	Orion S.p.A	Plant - Trieste (TS)	Unrefrigerated truck, >32 tons, EURO 6, ExtraEurope	transport, freight, lorry, >32 metric ton, diesel, EURO 6 {RoW} | transport, freight, lorry, >32 metric ton, diesel, EURO 6	921689.01	tkm	Ecoinvent – v. 3.12
C3-A-02	Orion S.p.A	Plant - Trieste (TS)	Ship, sea, unrefrigerated, container	transport, freight, sea, container ship, heavy fuel oil {GLO} | market for transport, freight, sea, container ship, heavy fuel oil	20395041.95	tkm	Ecoinvent – v. 3.12
C3-A-02	Orion S.p.A	Plant - Trieste (TS)	Train, Electricity, Europe	transport, freight, train, fleet average {Europe without Switzerland} | transport, freight, train, electric	190757.25	tkm	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, small, EURO 4	transport, passenger, car, petrol, medium size, EURO 4 {GLO} | market for transport, passenger, car, petrol, medium size, EURO 4	2670.50	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, small, EURO 5	transport, passenger, car, diesel, small size, EURO 5 {GLO} | market for transport, passenger, car, diesel, small size, EURO 5	13352.52	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, medium, EURO 2	transport, passenger, car, diesel, medium size, EURO 3 {GLO} | market for transport, passenger, car, diesel, medium size, EURO 3	667.63	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, medium, EURO 3	transport, passenger, car, diesel, medium size, EURO 3 {GLO} | market for transport, passenger, car, diesel, medium size, EURO 3	64092.10	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, medium, EURO 4	transport, passenger, car, diesel, medium size, EURO 4 {GLO} | market for transport, passenger, car, diesel, medium size, EURO 4	60486.92	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, medium, EURO 5	transport, passenger, car, diesel, medium size, EURO 5 {GLO} | market for transport, passenger, car, diesel, medium size, EURO 5	113362.90	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, medium, EURO 6	transport, passenger, car, diesel, medium size, EURO 5 {GLO} | market for transport, passenger, car, diesel, medium size, EURO 5	75441.74	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, large	transport, passenger, car, diesel, large size, EURO 4 {GLO} | market for transport, passenger, car, diesel, large size, EURO 4	8011.51	km	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, large, EURO 1	transport, passenger, car, diesel, large size, EURO 3 {GLO} | market for transport, passenger, car, diesel, large size, EURO 3	5341.01	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, large, EURO 4	transport, passenger, car, diesel, large size, EURO 4 {GLO} | market for transport, passenger, car, diesel, large size, EURO 4	22766.05	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Workshop - Inverigo (CO)	Car, internal combustion, diesel, large, EURO 5	transport, passenger, car, diesel, large size, EURO 5 {GLO} | market for transport, passenger, car, diesel, large size, EURO 5	48493.13	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, large, EURO 5	transport, passenger, car, diesel, large size, EURO 5 {GLO} | market for transport, passenger, car, diesel, large size, EURO 5	34716.55	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, diesel, large, EURO 6	transport, passenger, car, diesel, large size, EURO 5 {GLO} | market for transport, passenger, car, diesel, large size, EURO 5	106820.16	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, gasoline	transport, passenger, car, petrol, medium size, EURO 4 {GLO} | market for transport, passenger, car, petrol, medium size, EURO 4	0.00	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, gasoline, small, EURO 2	transport, passenger, car, petrol, small size, EURO 3 {GLO} | market for transport, passenger, car, petrol, small size, EURO 3	37387.06	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, gasoline, small, EURO 3	transport, passenger, car, petrol, small size, EURO 3 {GLO} | market for transport, passenger, car, petrol, small size, EURO 3	37720.87	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, gasoline, small, EURO 4	transport, passenger, car, petrol, small size, EURO 4 {GLO} | market for transport, passenger, car, petrol, small size, EURO 4	58083.46	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, gasoline, small, EURO 5	transport, passenger, car, petrol, small size, EURO 5 {GLO} | market for transport, passenger, car, petrol, small size, EURO 5	74373.54	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, gasoline, small, EURO 6	transport, passenger, car, petrol, small size, EURO 5 {GLO} | market for transport, passenger, car, petrol, small size, EURO 5	132724.05	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, gasoline, medium, EURO 3	transport, passenger, car, petrol, medium size, EURO 3 {GLO} | market for transport, passenger, car, petrol, medium size, EURO 3	14020.15	km	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, gasoline, medium, EURO 4	transport, passenger, car, petrol, medium size, EURO 4 {GLO} | market for transport, passenger, car, petrol, medium size, EURO 4	11349.64	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, gasoline, medium, EURO 5	transport, passenger, car, petrol, medium size, EURO 5 {GLO} | market for transport, passenger, car, petrol, medium size, EURO 5	69433.11	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, gasoline, medium, EURO 6	transport, passenger, car, petrol, medium size, EURO 5 {GLO} | market for transport, passenger, car, petrol, medium size, EURO 5	40725.19	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, internal combustion, gasoline, large, EURO 6	transport, passenger, car, petrol, large size, EURO 5 {GLO} | market for transport, passenger, car, petrol, large size, EURO 5	13352.52	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, electric	transport, passenger, car, electric {GLO} | market for transport, passenger, car, electric	2002.88	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Car, hybrid	Scope 3 - Business travel- land Cars (by size) Average car Hybrid	115499.30	km	Defra – v. 2025.0
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	City bus	transport, passenger, bus, diesel, regular {GLO} | market for transport, passenger, bus, diesel, regular	104349.95	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Bikes	transport, passenger, motor scooter, fleet average {GLO} | market for transport, passenger, motor scooter, fleet average	23366.91	km	Ecoinvent – v. 3.12
C3-B-01	Orion S.p.A	Plant - Trieste (TS)	Scooter, combustion engine	transport, passenger, motor scooter, fleet average {GLO} | market for transport, passenger, motor scooter, fleet average	106152.54	km	Ecoinvent – v. 3.12
C3-C-01	Orion S.p.A	Plant - Trieste (TS)	Automotive diesel combustion (volume), 6% bio-based	Scope 3 - WTT- fuels Liquid fuels Diesel (average biofuel blend)	10.48	m^3	Defra – v. 2025.0
C3-C-01	Orion S.p.A	Plant - Trieste (TS)	Car gasoline combustion (volume), 6% bio-based	Scope 3 - WTT- fuels Liquid fuels Petrol (average biofuel blend)	6.16	m^3	Defra – v. 2025.0
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | VOLANTINI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	5.14	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | RIDUTTORI	casting, steel, lost-wax {RoW} | casting, steel, lost-wax	0.04	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ATTUAT. GENERICO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	153.44	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | TUBO	hot rolling, steel {Europe without Austria} | hot rolling, steel	2.65	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ATTREZZATURA	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.71	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | DADI	hot rolling, steel {Europe without Austria} | hot rolling, steel	75.46	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | CUSCINETTI	forging, steel {RoW} | forging, steel, large open die	0.52	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | OBSOLETO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | COSTOLE	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.05	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ANELLO A SETTORI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.27	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | FITTING	hot rolling, steel {Europe without Austria} | hot rolling, steel	2.50	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ANELLO DI FONDO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | COPERCHIO STANDARD	hot rolling, steel {Europe without Austria} | hot rolling, steel	2.31	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ANELLO SETTORI F51..	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.12	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | CORPO RIPORTATO	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.54	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ANELLO CENTRAGGIO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.02	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ANELLO DISTANZIATORE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	2.69	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | CORPO STANDARD	hot rolling, steel {Europe without Austria} | hot rolling, steel	5.25	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ANELLO ANTIFRIZIONE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.05	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | COPERCHIO CLADD PARZ	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.02	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ANELLI SCONTRO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.07	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | COPERCHIO RIPORTATO	hot rolling, steel {Europe without Austria} | hot rolling, steel	1.08	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	sheet rolling, steel {RER} | sheet rolling, steel | INGRASSATORI	sheet rolling, chromium steel {RER} | sheet rolling, chromium steel	0.19	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel removed by turning, average, conventional {RoW} | chromium steel turning, average, conventional	chromium steel removed by turning, average, conventional {RoW} | chromium steel turning, average, conventional	147.78	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	wire drawing, steel {RoW} | wire drawing, steel	wire drawing, steel {RoW} | wire drawing, steel	1.89	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | INDICATORI ALZATA	casting, steel, lost-wax {RoW} | casting, steel, lost-wax	1.55	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | COPERCHIO STANDARD	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	2.31	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | GUARNIZIONI COR/COP	hot rolling, steel {Europe without Austria} | hot rolling, steel	6.85	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	wire drawing, steel {RoW} | wire drawing, steel	wire drawing, steel {RoW} | wire drawing, steel	60.16	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | RONDELLE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	1.64	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | BOCCOLE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.25	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | GOLFARI	hot rolling, steel {Europe without Austria} | hot rolling, steel	3.54	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RoW} | metal working, average for steel product manufacturing	metal working, average for steel product manufacturing {RoW} | metal working, average for steel product manufacturing	1508.12	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | RIDUTTORI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.06	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | VALV. PISTON CHECK	forging, steel {RoW} | forging, steel, large open die	0.21	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ATTUATORI ELETTRICI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	8.77	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | VALV. BALL FUSA	casting, steel, lost-wax {RoW} | casting, steel, lost-wax	6.48	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ATTUAT.PNEUM.BIFFI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	91.63	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | GHIERE	hot rolling, steel {Europe without Austria} | hot rolling, steel	3.04	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | BARRA DUPLEX	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.08	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	injection moulding {RoW} | injection moulding	injection moulding {RoW} | injection moulding	0.01	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | VALV. GLOBE FUSA	casting, steel, lost-wax {RoW} | casting, steel, lost-wax	0.20	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | BARRA 410-F6	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	5.48	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die	forging, steel {RoW} | forging, steel, large open die	147.78	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | KIT VALVOLE	casting, steel, lost-wax {RoW} | casting, steel, lost-wax	0.01	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | BARRA 316/316L	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | BARRA ACC. CARBONI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.16	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {RoW} | hot rolling, steel	hot rolling, steel {RoW} | hot rolling, steel	1.89	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | VALV. SWING CHECK	casting, aluminium, lost-wax {RoW} | casting, aluminium, lost-wax	4.97	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | VALV. SWING CHECK	metal working, average for chromium steel product manufacturing {RER} | metal working, average for chromium steel product manufacturing	5.53	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | COPERCHIO CLADD PARZ	forging, steel {RoW} | forging, steel, large open die	0.02	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing | FLANGIA	metal working, average for chromium steel product manufacturing {RER} | metal working, average for chromium steel product manufacturing	21.33	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing | ANELLO SETTORI 410..	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing	0.24	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	injection moulding {RER} | injection moulding | GUARNIZIONI O-RING	injection moulding {RER} | injection moulding	0.09	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing | BARRA 625	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing	0.56	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | BADERNE	forging, steel {RoW} | forging, steel, large open die	1.34	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | BADERNE C.M.D.	forging, steel {RoW} | forging, steel, large open die	0.11	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | GUARNIZIONI GENERICH	forging, steel {RoW} | forging, steel, large open die	1.01	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing | FONDELLI	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing	1.36	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for copper product manufacturing {RER} | metal working, average for copper product manufacturing | SEGGIO	metal working, average for copper product manufacturing {RER} | metal working, average for copper product manufacturing	0.02	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing | RISCONTRI	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing	3.50	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing | PREMITRECCIA	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing	1.58	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing | CREMAGLIERA	metal working, average for metal product manufacturing {GLO} | market for metal working, average for metal product manufacturing	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing | BOCCOLE MON.	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing	1.20	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing | BOCCOLE RA	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing	0.19	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | OTTURATORE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	15.84	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | MOZZO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	2.97	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing | ANELLO TENUTA	metal working, average for metal product manufacturing {RER} | metal working, average for metal product manufacturing	5.88	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | MINUTERIE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	1.83	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	nickel concentrate, 16% Ni {CA-QC} | nickel mine operation and benefication to nickel concentrate, 16% Ni | ANELLO TENUTA	nickel concentrate, 16% Ni {CA-QC} | nickel mine operation and benefication to nickel concentrate, 16% Ni	1.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	sheet rolling, steel {RER} | sheet rolling, steel | LINGUETTE	sheet rolling, steel {RER} | sheet rolling, steel	0.26	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | PIEDINI	forging, steel {RoW} | forging, steel, large open die	5.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | PIASTRA	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.17	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | SC. OTTURATORE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional | LANTERNE	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional	0.03	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | STELI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	3.12	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for copper product manufacturing {RER} | metal working, average for copper product manufacturing | GREZZO STELO	metal working, average for copper product manufacturing {RER} | metal working, average for copper product manufacturing	24.56	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | LUCCHETTI,BLOCCHI, C	forging, steel {RoW} | forging, steel, large open die	0.40	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for copper product manufacturing {RER} | metal working, average for copper product manufacturing | GREZZO OTTURATORE	metal working, average for copper product manufacturing {RER} | metal working, average for copper product manufacturing	5.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for copper product manufacturing {RER} | metal working, average for copper product manufacturing | GREZZO OGIVA	metal working, average for copper product manufacturing {RER} | metal working, average for copper product manufacturing	3.63	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel removed by turning, average, conventional {RER} | steel turning, average, conventional | VALVOLE	steel removed by turning, average, conventional {RER} | steel turning, average, conventional	1.85	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	sheet rolling, steel {RER} | sheet rolling, steel | TRAVERSA	sheet rolling, chromium steel {GLO} | market for sheet rolling, chromium steel	7.72	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | TIRANTI	metal working, average for chromium steel product manufacturing {RER} | metal working, average for chromium steel product manufacturing	159.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	sheet rolling, steel {RER} | sheet rolling, steel | TARGHETTE	sheet rolling, steel {RER} | sheet rolling, steel	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | VALV. GATE SR	forging, steel {RoW} | forging, steel, large open die	0.13	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | VALV. ASSIALE	forging, steel {RoW} | forging, steel, large open die	1.92	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | TAPPO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.14	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | SEMIANELLI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.22	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	sheet rolling, steel {RER} | sheet rolling, steel | PERNI	sheet rolling, chromium steel {RER} | sheet rolling, chromium steel	2.66	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional | SPINE CENTRAGGIO	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional	1.07	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | BOCCOLE	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.25	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ANELLI GUIDA	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.91	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | ASSIEME SEGGIO	forging, steel {RoW} | forging, steel, large open die	4.12	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | BARRA DUPLEX	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.08	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | BARRA XM-19	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	1.03	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ASSIEME OTTURATORE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.01	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | BARRA 410-F6	hot rolling, steel {Europe without Austria} | hot rolling, steel	5.48	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | GREZZO CAVALLETTO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.10	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | CAVALLETTO	casting, aluminium, lost-wax {RoW} | casting, aluminium, lost-wax	0.10	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ANELLI	metal working, average for aluminium product manufacturing {RER} | metal working, average for aluminium product manufacturing	0.04	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | RONDELLE	hot rolling, steel {Europe without Austria} | hot rolling, steel	1.64	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	wire drawing, steel {RER} | wire drawing, steel | VITI E GRANI	wire drawing, steel {RER} | wire drawing, steel	25.41	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | GREZZO COPERCHIO	forging, steel {RoW} | forging, steel, large open die	2.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | BARRA 316/316L	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | BARRA ACC. CARBONI	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.16	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | GREZZO LEVA	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ATTUAT.PNEUM.ROTORK	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.80	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | SEMIL. COPERCHIO	forging, steel {RoW} | forging, steel, large open die	2.40	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | PIEDINI	hot rolling, steel {Europe without Austria} | hot rolling, steel	5.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | PIASTRA	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.17	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | VALV. PISTON CHECK	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | SC. OTTURATORE	forging, steel {RoW} | forging, steel, large open die	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | VALV. BALL FUSA	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	7.20	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | CORPO RIPORTATO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.54	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RoW} | metal working, average for steel product manufacturing	metal working, average for steel product manufacturing {RoW} | metal working, average for steel product manufacturing	149.67	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | LANTERNE	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.03	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RoW} | metal working, average for steel product manufacturing	metal working, average for steel product manufacturing {RoW} | metal working, average for steel product manufacturing	80.03	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | CORPO STANDARD	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	5.25	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | STELI	hot rolling, steel {Europe without Austria} | hot rolling, steel	3.12	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | COPERCHIO CLADD PARZ	metal working, average for chromium steel product manufacturing {RER} | metal working, average for chromium steel product manufacturing	0.02	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | LUCCHETTI,BLOCCHI, C	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.40	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | COPERCHIO RIPORTATO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	1.08	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | OTTURATORE	forging, steel {RoW} | forging, steel, large open die	15.84	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | FITTING	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	2.50	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | MOZZO	forging, steel {RoW} | forging, steel, large open die	2.97	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | TUBO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	2.65	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | MINUTERIE	hot rolling, steel {Europe without Austria} | hot rolling, steel	1.83	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | DADI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	75.46	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | LINGUETTE	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.26	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | COSTOLE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.05	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | PERNI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	2.66	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RoW} | metal working, average for steel product manufacturing	metal working, average for steel product manufacturing {RoW} | metal working, average for steel product manufacturing	3839.98	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | VITI E GRANI	hot rolling, steel {Europe without Austria} | hot rolling, steel	25.41	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for chromium steel product manufacturing {RoW} | metal working, average for chromium steel product manufacturing	metal working, average for chromium steel product manufacturing {RoW} | metal working, average for chromium steel product manufacturing	6.13	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | SPINE CENTRAGGIO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	1.07	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | VALV. GATE SR	casting, steel, lost-wax {RoW} | casting, steel, lost-wax	1.05	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | VALV. ASSIALE	casting, steel, lost-wax {RoW} | casting, steel, lost-wax	5.38	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | PIEDINI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	5.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | GOLFARI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	3.54	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | TAPPO	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.14	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | GHIERE	forging, steel {RoW} | forging, steel, large open die	3.04	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | SEMIANELLI	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.22	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | VALV. GLOBE FUSA	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.22	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | PERNI	hot rolling, steel {Europe without Austria} | hot rolling, steel	2.66	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | KIT VALVOLE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.01	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | SPINE CENTRAGGIO	hot rolling, steel {Europe without Austria} | hot rolling, steel	1.07	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | VALVOLE	forging, steel {RoW} | forging, steel, large open die	22.72	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | LINGUETTE	metal working, average for chromium steel product manufacturing {RER} | metal working, average for chromium steel product manufacturing	0.26	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | ATTUAT. GENERICO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	142.37	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | LANTERNE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.03	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | TRAVERSA	hot rolling, steel {Europe without Austria} | hot rolling, steel	7.72	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | TIRANTI	hot rolling, steel {Europe without Austria} | hot rolling, steel	159.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | LUCCHETTI,BLOCCHI, C	metal working, average for chromium steel product manufacturing {RER} | metal working, average for chromium steel product manufacturing	0.40	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | TARGHETTE	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | GUARNIZIONI COR/COP	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	6.85	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel removed by turning, average, conventional {RER} | steel turning, average, conventional | ANELLO DI FONDO	steel removed by turning, average, conventional {RER} | steel turning, average, conventional	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional | ANELLO SETTORI F51..	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional	0.12	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | ASSIEME SEGGIO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	4.12	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional | ANELLI	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional	0.04	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | VALV. ASSIALE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	7.30	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | GREZZO COPERCHIO	hot rolling, steel {Europe without Austria} | hot rolling, steel	2.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | GREZZO LEVA	forging, steel {RoW} | forging, steel, large open die	0.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | VALVOLE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	23.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | SEMIL. COPERCHIO	hot rolling, steel {Europe without Austria} | hot rolling, steel	2.40	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | TRAVERSA	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	7.72	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | VOLANTINI	casting, aluminium, lost-wax {RoW} | casting, aluminium, lost-wax	5.14	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for copper product manufacturing {RoW} | metal working, average for copper product manufacturing	metal working, average for copper product manufacturing {RoW} | metal working, average for copper product manufacturing	0.03	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | TARGHETTE	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.00	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional | ANELLI GUIDA	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional	0.91	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | GREZZO COPERCHIO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	2.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ASSIEME SEGGIO	hot rolling, steel {Europe without Austria} | hot rolling, steel	4.12	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | SEMIL. COPERCHIO	metal working, average for chromium steel product manufacturing {RER} | metal working, average for chromium steel product manufacturing	2.40	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | ASSIEME OTTURATORE	casting, aluminium, lost-wax {RoW} | casting, aluminium, lost-wax	0.01	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | VITI E GRANI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	25.41	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | GREZZO CAVALLETTO	casting, steel, lost-wax {RoW} | casting, steel, lost-wax	0.10	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | VALV. GATE SR	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	1.61	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | RIDUTTORI	forging, steel {RoW} | forging, steel, large open die	0.02	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	casting, steel, lost-wax {RoW} | casting, steel, lost-wax | ATTUATORI ELETTRICI	casting, steel, lost-wax {RoW} | casting, steel, lost-wax	0.44	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel removed by turning, average, conventional {RER} | steel turning, average, conventional | ATTUAT.PNEUM.BIFFI	steel removed by turning, average, conventional {RER} | steel turning, average, conventional	90.70	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional | ANELLO CENTRAGGIO	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional	0.02	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional | ANELLO DISTANZIATORE	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional	2.69	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional | ANELLO ANTIFRIZIONE	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional	0.05	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional | ANELLI SCONTRO	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional	0.07	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel removed by turning, average, conventional {RER} | steel turning, average, conventional | ATTUAT. GENERICO	steel removed by turning, average, conventional {RER} | steel turning, average, conventional	153.44	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel removed by turning, average, conventional {RER} | steel turning, average, conventional | ATTREZZATURA	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional	0.71	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel removed by turning, average, conventional {RER} | steel turning, average, conventional | OBSOLETO	steel removed by turning, average, conventional {RER} | steel turning, average, conventional	0.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional | ANELLO A SETTORI	chromium steel removed by turning, average, conventional {RER} | chromium steel turning, average, conventional	0.27	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | CORPO STANDARD	forging, steel {RoW} | forging, steel, large open die	5.25	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | BADERNE PILLAR	forging, steel {RoW} | forging, steel, large open die	0.24	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | COPERCHIO RIPORTATO	forging, steel {RoW} | forging, steel, large open die	1.08	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | COPERCHIO STANDARD	forging, steel {RoW} | forging, steel, large open die	2.31	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	sheet rolling, steel {RER} | sheet rolling, steel | BARRA DUPLEX	sheet rolling, steel {RER} | sheet rolling, steel	0.08	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	sheet rolling, steel {RER} | sheet rolling, steel | BARRA 410-F6	sheet rolling, steel {RER} | sheet rolling, steel	5.48	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	sheet rolling, steel {RER} | sheet rolling, steel | BARRA 316/316L	sheet rolling, steel {RER} | sheet rolling, steel	0.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	sheet rolling, steel {RER} | sheet rolling, steel | BARRA ACC. CARBONI	sheet rolling, steel {RER} | sheet rolling, steel	0.16	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | CAVALLETTO	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.10	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	wire drawing, steel {RER} | wire drawing, steel | RONDELLE	wire drawing, steel {RER} | wire drawing, steel	1.64	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	wire drawing, steel {RER} | wire drawing, steel | BOCCOLE	wire drawing, steel {RER} | wire drawing, steel	0.25	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | VALV. BALL FUSA	forging, steel {RoW} | forging, steel, large open die	0.58	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel removed by turning, average, conventional {RER} | steel turning, average, conventional | VALV. GLOBE FUSA	steel removed by turning, average, conventional {RER} | steel turning, average, conventional	0.21	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | KIT VALVOLE	forging, steel {RoW} | forging, steel, large open die	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | VALV. SWING CHECK	forging, steel {RoW} | forging, steel, large open die	0.28	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	wire drawing, steel {RER} | wire drawing, steel | VALV. PISTON CHECK	wire drawing, steel {RER} | wire drawing, steel	0.01	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	wire drawing, steel {RER} | wire drawing, steel | DADI	wire drawing, steel {RER} | wire drawing, steel	75.46	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | CUSCINETTI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.52	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | COSTOLE	forging, steel {RoW} | forging, steel, large open die	0.05	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | CORPO RIPORTATO	forging, steel {RoW} | forging, steel, large open die	0.54	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | FITTING	forging, steel {RoW} | forging, steel, large open die	2.50	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	wire drawing, steel {RER} | wire drawing, steel | TUBO	wire drawing, steel {RER} | wire drawing, steel	2.65	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | INDICATORI ALZATA	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	1.55	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	sheet rolling, steel {RER} | sheet rolling, steel | GUARNIZIONI COR/COP	sheet rolling, chromium steel {RER} | sheet rolling, chromium steel	6.85	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	forging, steel {RoW} | forging, steel, large open die | GOLFARI	forging, steel {RoW} | forging, steel, large open die	3.54	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | GHIERE	metal working, average for chromium steel product manufacturing {RER} | metal working, average for chromium steel product manufacturing	3.04	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing | INGRASSATORI	metal working, average for steel product manufacturing {RER} | metal working, average for steel product manufacturing	0.19	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ANELLO ANTIFRIZIONE	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.05	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ANELLI SCONTRO	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.07	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	extrusion, plastic film {RoW} | extrusion, plastic film	extrusion, plastic film {RoW} | extrusion, plastic film	0.01	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {RoW} | hot rolling, steel	hot rolling, steel {RoW} | hot rolling, steel	1508.12	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	metal working, average for metal product manufacturing {RoW} | metal working, average for metal product manufacturing	metal working, average for metal product manufacturing {RoW} | metal working, average for metal product manufacturing	1.47	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | OBSOLETO	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.18	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {RoW} | hot rolling, steel	hot rolling, steel {Europe without Austria} | hot rolling, steel	80.03	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ANELLO A SETTORI	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.27	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ANELLO CENTRAGGIO	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.02	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ANELLO DISTANZIATORE	hot rolling, steel {Europe without Austria} | hot rolling, steel	2.69	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ANELLO SETTORI F51..	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.12	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ANELLI	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.04	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ANELLI GUIDA	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.91	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ANELLO DI FONDO	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	printed paper {RoW} | operation, printer, laser, colour, per kg printed paper	printed paper {RoW} | operation, printer, laser, colour, per kg printed paper	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ATTUATORI ELETTRICI	hot rolling, steel {Europe without Austria} | hot rolling, steel	7.45	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ATTUAT.PNEUM.BIFFI	hot rolling, steel {Europe without Austria} | hot rolling, steel	90.70	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ATTUAT. GENERICO	hot rolling, steel {Europe without Austria} | hot rolling, steel	150.27	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	hot rolling, steel {Europe without Austria} | hot rolling, steel | ATTREZZATURA	hot rolling, steel {Europe without Austria} | hot rolling, steel	0.71	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	electronics, for control units {RoW} | electronics production, for control units	electronics, for control units {RoW} | electronics production, for control units	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	graphite {RER} | graphite production | BADERNE C.M.D.	graphite {RER} | graphite production	0.11	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	graphite {RER} | graphite production | BADERNE PILLAR	graphite {RER} | graphite production	0.24	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	graphite {RER} | graphite production | GUARNIZIONI GENERICH	graphite {RER} | graphite production	1.01	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	graphite {RER} | graphite production | BADERNE	graphite {RER} | graphite production	1.34	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production | BOCCOLE MON.	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production	1.20	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production | BOCCOLE RA	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production	0.19	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production | RISCONTRI	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production	3.50	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production | ANELLO SETTORI 410..	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production	0.24	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production | FLANGIA	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production	21.33	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production | BARRA 625	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production	0.56	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production | FONDELLI	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production	1.36	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production | PREMITRECCIA	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production	1.58	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production | CREMAGLIERA	iron-nickel-chromium alloy {RER} | iron-nickel-chromium alloy production	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	cast iron {RoW} | cast iron production	cast iron {RoW} | cast iron production	276.54	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	cast iron {RoW} | cast iron production	cast iron {RoW} | cast iron production	7.83	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	cast iron {RoW} | cast iron production	cast iron {RoW} | cast iron production	2559.03	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	cast iron {RoW} | cast iron production	cast iron {RoW} | cast iron production	996.16	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	cast iron {RER} | cast iron production | RIDUTTORI	cast iron {RER} | cast iron production	0.04	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium steel pipe {GLO} | chromium steel pipe production	chromium steel pipe {GLO} | chromium steel pipe production	0.42	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	iron pellet {RoW} | iron pellet production | ANELLO TENUTA	iron pellet {RoW} | iron pellet production	1.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | TUBO	steel, chromium steel 18/8, hot rolled {RoW} | steel production, chromium steel 18/8, hot rolled	2.65	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | BARRA 316/316L	steel, chromium steel 18/8, hot rolled {RoW} | steel production, chromium steel 18/8, hot rolled	0.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | GREZZO CAVALLETTO	steel, chromium steel 18/8, hot rolled {RoW} | steel production, chromium steel 18/8, hot rolled	0.10	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | INDICATORI ALZATA	steel, chromium steel 18/8, hot rolled {RER} | steel production, chromium steel 18/8, hot rolled	1.55	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | ANELLI SCONTRO	steel, chromium steel 18/8, hot rolled {RER} | steel production, chromium steel 18/8, hot rolled	0.07	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | BARRA 410-F6	steel, chromium steel 18/8, hot rolled {RER} | steel production, chromium steel 18/8, hot rolled	5.48	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | RONDELLE	steel, chromium steel 18/8, hot rolled {RER} | steel production, chromium steel 18/8, hot rolled	1.64	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | VALV. PISTON CHECK	steel, chromium steel 18/8, hot rolled {RER} | steel production, chromium steel 18/8, hot rolled	0.21	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | TIRANTI	steel, chromium steel 18/8, hot rolled {RER} | steel production, chromium steel 18/8, hot rolled	159.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, low-alloyed {RoW} | steel production, converter, low-alloyed	steel, low-alloyed {RoW} | steel production, converter, low-alloyed	228.63	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, low-alloyed {IN} | steel production, converter, low-alloyed	steel, low-alloyed {IN} | steel production, converter, low-alloyed	12.64	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RoW} | steel production, converter, unalloyed	steel, unalloyed {RoW} | steel production, converter, unalloyed	67.39	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RoW} | steel production, converter, unalloyed	steel, unalloyed {RoW} | steel production, converter, unalloyed	1.83	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RoW} | steel production, converter, unalloyed	steel, unalloyed {RoW} | steel production, converter, unalloyed	1279.50	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RoW} | steel production, converter, unalloyed	steel, unalloyed {RoW} | steel production, converter, unalloyed	0.05	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | ATTUAT.PNEUM.BIFFI	steel, unalloyed {RER} | steel production, converter, unalloyed	74.04	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | ASSIEME SEGGIO	steel, unalloyed {RER} | steel production, converter, unalloyed	4.12	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | LUCCHETTI,BLOCCHI, C	steel, unalloyed {RER} | steel production, converter, unalloyed	0.40	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | VALV. ASSIALE	steel, unalloyed {RER} | steel production, converter, unalloyed	5.38	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | ATTREZZATURA	steel, unalloyed {RER} | steel production, converter, unalloyed	0.71	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | KIT VALVOLE	steel, unalloyed {RER} | steel production, converter, unalloyed	0.01	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | GOLFARI	steel, unalloyed {RER} | steel production, converter, unalloyed	3.54	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | VALV. SWING CHECK	steel, unalloyed {RER} | steel production, converter, unalloyed	4.97	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | PERNI	steel, unalloyed {RER} | steel production, converter, unalloyed	2.66	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | VITI E GRANI	steel, unalloyed {RER} | steel production, converter, unalloyed	25.41	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | DADI	steel, unalloyed {RER} | steel production, converter, unalloyed	75.46	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | ATTUATORI ELETTRICI	steel, unalloyed {RER} | steel production, converter, unalloyed	7.45	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | VALV. BALL FUSA	steel, unalloyed {RER} | steel production, converter, unalloyed	6.48	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | BARRA ACC. CARBONI	steel, unalloyed {RER} | steel production, converter, unalloyed	0.16	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | COPERCHIO RIPORTATO	steel, unalloyed {RER} | steel production, converter, unalloyed	1.08	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | PIEDINI	steel, unalloyed {RER} | steel production, converter, unalloyed	5.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | FITTING	steel, unalloyed {RER} | steel production, converter, unalloyed	2.50	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | GREZZO COPERCHIO	steel, unalloyed {RER} | steel production, converter, unalloyed	2.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | GREZZO LEVA	steel, unalloyed {RER} | steel production, converter, unalloyed	0.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | OBSOLETO	steel, unalloyed {RER} | steel production, converter, unalloyed	0.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | ANELLO DI FONDO	steel, unalloyed {RER} | steel production, converter, unalloyed	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | TRAVERSA	steel, unalloyed {RER} | steel production, converter, unalloyed	7.72	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | LINGUETTE	steel, unalloyed {RER} | steel production, converter, unalloyed	0.26	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | GHIERE	steel, unalloyed {RER} | steel production, converter, unalloyed	3.04	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, unalloyed {RER} | steel production, converter, unalloyed | SEMIL. COPERCHIO	steel, unalloyed {RER} | steel production, converter, unalloyed	2.40	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RoW} | steel production, electric, chromium steel 18/8	steel, chromium steel 18/8 {RoW} | steel production, electric, chromium steel 18/8	6.13	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | PIASTRA	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.17	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | MOZZO	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	2.97	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | COPERCHIO CLADD PARZ	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.02	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | COPERCHIO STANDARD	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	2.31	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | SPINE CENTRAGGIO	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	1.07	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | ASSIEME OTTURATORE	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.01	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | CAVALLETTO	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.10	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | BOCCOLE	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.25	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | VALV. GATE SR	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	1.05	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | VALVOLE	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	20.87	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | CUSCINETTI	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.52	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | COSTOLE	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.05	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | CORPO RIPORTATO	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.54	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | CORPO STANDARD	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	5.25	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | VOLANTINI	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	5.14	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | ANELLO ANTIFRIZIONE	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.05	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | MINUTERIE	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	1.83	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | ANELLO SETTORI F51..	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.12	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | OTTURATORE	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	15.84	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | LANTERNE	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.03	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | GUARNIZIONI COR/COP	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	6.85	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | ANELLI	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.04	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RoW} | steel production, electric, chromium steel 18/8	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	147.78	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | SC. OTTURATORE	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | ANELLI GUIDA	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.91	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | VALV. GLOBE FUSA	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.15	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | STELI	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	3.12	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | SEMIANELLI	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.22	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | ANELLO DISTANZIATORE	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	2.69	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | TAPPO	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.14	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | ANELLO CENTRAGGIO	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.02	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | TARGHETTE	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.00	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | ANELLO A SETTORI	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.27	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8 | INGRASSATORI	steel, chromium steel 18/8 {RER} | steel production, electric, chromium steel 18/8	0.19	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, low-alloyed {Europe without Switzerland and Austria} | steel production, electric, low-alloyed | BARRA DUPLEX	steel, low-alloyed {Europe without Switzerland and Austria} | steel production, electric, low-alloyed	0.08	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	steel, low-alloyed {Europe without Switzerland and Austria} | steel production, electric, low-alloyed | ATTUAT.PNEUM.ROTORK	steel, low-alloyed {Europe without Switzerland and Austria} | steel production, electric, low-alloyed	0.33	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	brass {CH} | brass production | GREZZO OTTURATORE	brass {CH} | brass production	5.23	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	brass {CH} | brass production | SEGGIO	brass {CH} | brass production	0.02	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	brass {CH} | brass production | GREZZO OGIVA	brass {CH} | brass production	3.63	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	brass {CH} | brass production | BARRA	brass {CH} | brass production	0.11	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	brass {CH} | brass production | GREZZO STELO	brass {RoW} | brass production	24.56	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	brass {RoW} | brass production	brass {RoW} | brass production	0.86	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium {RER} | chromium production | MOLLE	chromium {RER} | chromium production	10.95	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	chromium {RER} | chromium production | ANELLO TENUTA	chromium {RER} | chromium production	1.18	t	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	cobalt {GLO} | cobalt production | ANELLO TENUTA	cobalt {GLO} | cobalt production	1.18	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	cobalt {GLO} | cobalt production | MOLLE	cobalt {GLO} | cobalt production	10.95	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	titanium {GLO} | titanium production	titanium {GLO} | titanium production	0.64	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	titanium {GLO} | titanium production | BARRA XM-19	titanium {GLO} | titanium production	1.03	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	synthetic rubber {RoW} | synthetic rubber production	synthetic rubber {RoW} | synthetic rubber production	76.21	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	synthetic rubber {RoW} | synthetic rubber production	synthetic rubber {RoW} | synthetic rubber production	4.21	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	synthetic rubber {RoW} | synthetic rubber production	synthetic rubber {RoW} | synthetic rubber production	0.01	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	synthetic rubber {RER} | synthetic rubber production | GUARNIZIONI O-RING	synthetic rubber {RER} | synthetic rubber production	0.09	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	polyethylene terephthalate, granulate, amorphous {RoW} | polyethylene terephthalate production, granulate, amorphous	polyethylene terephthalate, granulate, amorphous {RoW} | polyethylene terephthalate production, granulate, amorphous	0.07	t	Ecoinvent – v. 3.12
C4-A-01	Orion S.p.A	Plant - Trieste (TS)	tetrafluoroethylene {RER} | tetrafluoroethylene production | BARRA	tetrafluoroethylene {RER} | tetrafluoroethylene production	0.11	t	Ecoinvent – v. 3.12
C4-A-02	Orion S.p.A	Plant - Trieste (TS)	PE pallet	PE pallet	6943.43	kg	Bluegreen – v. 2026.0
C4-A-02	Orion S.p.A	Plant - Trieste (TS)	Corrugated cardboard boxes and corners	Corrugated cardboard boxes and corners	8874.71	kg	Bluegreen – v. 2026.0
C4-A-02	Orion S.p.A	Plant - Trieste (TS)	Wooden pallets	Wooden pallets	289692.75	kg	Bluegreen – v. 2026.0
C4-A-02	Orion S.p.A	Plant - Trieste (TS)	Steel tubs and trays	Steel tubs and trays	37614.07	kg	Bluegreen – v. 2026.0
C4-B	Orion S.p.A	Workshop - Inverigo (CO)	Indirect emissions from natural gas combustion (volume)	Scope 3 - WTT- fuels Gaseous fuels Natural gas (100% mineral blend)	135.00	smc	Defra – v. 2025.0

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-B	Orion S.p.A	Plant - Trieste (TS)	Indirect emissions from natural gas combustion (volume)	Scope 3 - WTT- fuels Gaseous fuels Natural gas (100% mineral blend)	2236.00	smc	Defra – v. 2025.0
C4-B	Orion S.p.A	Workshop - Inverigo (CO)	Indirect emissions from LPG combustion (volume)	Scope 3 - WTT- fuels Gaseous fuels LPG	0.00	m³	Defra – v. 2025.0
C4-B	Orion S.p.A	Plant - Trieste (TS)	Indirect emissions from LPG combustion (volume)	Scope 3 - WTT- fuels Gaseous fuels LPG	0.10	m³	Defra – v. 2025.0
C4-B	Orion S.p.A	Workshop - Inverigo (CO)	Indirect emissions from diesel combustion (volume)	Scope 3 - WTT- fuels Liquid fuels Diesel (100% mineral diesel)	0.00	m³	Defra – v. 2025.0
C4-B	Orion S.p.A	Plant - Trieste (TS)	Indirect emissions from diesel combustion (volume)	Scope 3 - WTT- fuels Liquid fuels Diesel (100% mineral diesel)	0.00	m³	Defra – v. 2025.0
C4-B	Orion S.p.A	Workshop - Inverigo (CO)	Indirect emissions from woody biomass combustion (mass)	Scope 3 - WTT- bioenergy WTT- biomass Wood logs	0.00	t	Defra – v. 2025.0
C4-B	Orion S.p.A	Plant - Trieste (TS)	Indirect emissions from woody biomass combustion (mass)	Scope 3 - WTT- bioenergy WTT- biomass Wood logs	0.00	t	Defra – v. 2025.0
C4-C-01	Orion S.p.A	Plant - Trieste (TS)	Indirect emission from electricity, Location Based, IT, Medium Voltage	Indirect emissions from electricity, Location Based, IT, Medium Voltage	1254513.00	kW·h	Electricity (Ecoinvent) – v. 3.12
C4-C-01	Orion S.p.A	Workshop - Inverigo (CO)	Indirect emission from electricity, Location Based, IT, Low Voltage	Indirect emissions from electricity, Location Based, IT, Low Voltage	122482.00	kW·h	Electricity (Ecoinvent) – v. 3.12
C4-C-01	Orion S.p.A	Plant - Trieste (TS)	Indirect emission from electricity, Location Based, IT, Low Voltage	Indirect emissions from electricity, Location Based, IT, Low Voltage	150270.00	kW·h	Electricity (Ecoinvent) – v. 3.12
C4-C-01	Orion S.p.A	Plant - Trieste (TS)	Indirect emission from electricity, Residual Based, IT, Medium Voltage	Indirect emissions from electricity, Residual Mix, IT, Medium Voltage	1254513.00	kW·h	Electricity (Ecoinvent) – v. 3.12
C4-C-01	Orion S.p.A	Workshop - Inverigo (CO)	Indirect emission from electricity, Residual Based, IT, Low Voltage	Indirect emissions from electricity, Residual Mix, IT, Low Voltage	122482.00	kW·h	Electricity (Ecoinvent) – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C4-C-01	Orion S.p.A	Plant - Trieste (TS)	Indirect emission from electricity, Residual Based, IT, Low Voltage	Indirect emissions from electricity, Residual Mix, IT, Low Voltage	150270.00	kW·h	Electricity (Ecoinvent) – v. 3.12
C4-D-01	Orion S.p.A	Plant - Trieste (TS)	Fabricated metal products, except machinery and equipment	Fabricated metal products, except machinery and equipment	101326.88	eur	Bluegreen – v. 2026.0
C4-D-01	Orion S.p.A	Plant - Trieste (TS)	Computer, electronic and optical products	Computer, electronic and optical products	100786.91	eur	Bluegreen – v. 2026.0
C4-D-01	Orion S.p.A	Plant - Trieste (TS)	Machinery and equipment n.e.c.	Machinery and equipment n.e.c.	167159.68	eur	Bluegreen – v. 2026.0
C4-D-01	Orion S.p.A	Plant - Trieste (TS)	Motor vehicles, trailers and semi-trailers	Motor vehicles, trailers and semi-trailers	40144.29	eur	Bluegreen – v. 2026.0
C4-D-01	Orion S.p.A	Plant - Trieste (TS)	Furniture and other manufactured goods	Furniture and other manufactured goods	10260.37	eur	Bluegreen – v. 2026.0
C4-D-01	Orion S.p.A	Plant - Trieste (TS)	Constructions and construction works	Constructions and construction works	27500.00	eur	Bluegreen – v. 2026.0
C4-D-01	Orion S.p.A	Plant - Trieste (TS)	Rental and leasing services	Rental and leasing services	188099.00	eur	Bluegreen – v. 2026.0
C4-E-04	Orion S.p.A	Plant - Trieste (TS)	scrap steel {Europe without Switzerland} | market for scrap steel	waste steel {Europe without Switzerland} | market for waste steel	2559.00	kg	Ecoinvent – v. 3.12
C4-E-04	Orion S.p.A	Plant - Trieste (TS)	spent solvent mixture {RoW} | market for spent solvent mixture	spent solvent mixture {RoW} | market for spent solvent mixture	10600.00	kg	Ecoinvent – v. 3.12
C4-E-04	Orion S.p.A	Plant - Trieste (TS)	hazardous waste, for incineration {Europe without Switzerland} | market for hazardous waste, for incineration	hazardous waste, for incineration {Europe without Switzerland} | market for hazardous waste, for incineration	42385.00	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	scrap copper {CH} | market for scrap copper	waste copper {CH} | market for waste copper	0.01	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	scrap copper {Europe without Switzerland} | market for scrap copper	waste copper {Europe without Switzerland} | market for waste copper	167.03	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	scrap copper {RoW} | market for scrap copper	waste copper {RoW} | market for waste copper	7644.85	kg	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	scrap aluminium {CH} | market for scrap aluminium	waste aluminium {CH} | market for waste aluminium	0.00	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	scrap aluminium {Europe without Switzerland} | market for scrap aluminium	waste aluminium {Europe without Switzerland} | market for waste aluminium	0.04	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	scrap aluminium {RoW} | market for scrap aluminium	waste aluminium {RoW} | market for waste aluminium	1.89	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	scrap steel {CH} | market for scrap steel	waste steel {CH} | market for waste steel	0.48	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	scrap steel {Europe without Switzerland} | market for scrap steel	waste steel {Europe without Switzerland} | market for waste steel	6326.41	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	scrap steel {RoW} | market for scrap steel	waste steel {RoW} | market for waste steel	289563.92	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene terephthalate {BR} | market for waste polyethylene terephthalate	waste polyethylene terephthalate {BR} | market for waste polyethylene terephthalate	0.29	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene terephthalate {CH} | market for waste polyethylene terephthalate	waste polyethylene terephthalate {CH} | market for waste polyethylene terephthalate	0.07	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene terephthalate {GB} | market for waste polyethylene terephthalate	waste polyethylene terephthalate {GB} | market for waste polyethylene terephthalate	0.50	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene terephthalate {IN} | market for waste polyethylene terephthalate	waste polyethylene terephthalate {IN} | market for waste polyethylene terephthalate	0.08	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene terephthalate {NO} | market for waste polyethylene terephthalate	waste polyethylene terephthalate {NO} | market for waste polyethylene terephthalate	914.16	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene terephthalate {PE} | market for waste polyethylene terephthalate	waste polyethylene terephthalate {PE} | market for waste polyethylene terephthalate	1.66	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene terephthalate {RoW} | market for waste polyethylene terephthalate	waste polyethylene terephthalate {RoW} | market for waste polyethylene terephthalate	41815.07	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene terephthalate {ZA} | market for waste polyethylene terephthalate	waste polyethylene terephthalate {ZA} | market for waste polyethylene terephthalate	47.57	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polypropylene {BR} | market for waste polypropylene	waste polypropylene {BR} | market for waste polypropylene	0.01	kg	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polypropylene {CH} | market for waste polypropylene	waste polypropylene {CH} | market for waste polypropylene	0.00	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polypropylene {GB} | market for waste polypropylene	waste polypropylene {GB} | market for waste polypropylene	0.02	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polypropylene {IN} | market for waste polypropylene	waste polypropylene {IN} | market for waste polypropylene	0.00	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polypropylene {NO} | market for waste polypropylene	waste polypropylene {NO} | market for waste polypropylene	41.40	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polypropylene {PE} | market for waste polypropylene	waste polypropylene {PE} | market for waste polypropylene	0.07	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polypropylene {RoW} | market for waste polypropylene	waste polypropylene {RoW} | market for waste polypropylene	1893.80	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polypropylene {ZA} | market for waste polypropylene	waste polypropylene {ZA} | market for waste polypropylene	2.15	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyurethane {BR} | market for waste polyurethane	waste polyurethane {BR} | market for waste polyurethane	0.13	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyurethane {CH} | market for waste polyurethane	waste polyurethane {CH} | market for waste polyurethane	0.03	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyurethane {GB} | market for waste polyurethane	waste polyurethane {GB} | market for waste polyurethane	0.23	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyurethane {IN} | market for waste polyurethane	waste polyurethane {IN} | market for waste polyurethane	0.04	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyurethane {NO} | market for waste polyurethane	waste polyurethane {NO} | market for waste polyurethane	412.19	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyurethane {PE} | market for waste polyurethane	waste polyurethane {PE} | market for waste polyurethane	0.75	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyurethane {RoW} | market for waste polyurethane	waste polyurethane {RoW} | market for waste polyurethane	18854.35	kg	Ecoinvent – v. 3.12
C5-A-02	Orion S.p.A	Plant - Trieste (TS)	waste polyurethane {ZA} | market for waste polyurethane	waste polyurethane {ZA} | market for waste polyurethane	21.45	kg	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	scrap steel {Europe without Switzerland} | market for scrap steel	waste steel {Europe without Switzerland} | market for waste steel	989.45	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	scrap steel {RoW} | market for scrap steel	waste steel {RoW} | market for waste steel	21579.00	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste paperboard {CH} | market for waste paperboard	waste paperboard {CH} | market for waste paperboard	14.02	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste paperboard {GB} | market for waste paperboard	waste paperboard {GB} | market for waste paperboard	0.30	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste paperboard {NO} | market for waste paperboard	waste paperboard {NO} | market for waste paperboard	335.86	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste paperboard {RoW} | market for waste paperboard	waste paperboard {RoW} | market for waste paperboard	7636.02	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste paperboard {BR} | market for waste paperboard	waste paperboard {BR} | market for waste paperboard	0.12	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste paperboard {IN} | market for waste paperboard	waste paperboard {IN} | market for waste paperboard	0.14	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste paperboard {PE} | market for waste paperboard	waste paperboard {PE} | market for waste paperboard	0.79	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene {BR} | market for waste polyethylene	waste polyethylene {BR} | market for waste polyethylene	0.09	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene {CH} | market for waste polyethylene	waste polyethylene {CH} | market for waste polyethylene	10.97	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene {GB} | market for waste polyethylene	waste polyethylene {GB} | market for waste polyethylene	0.23	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene {IN} | market for waste polyethylene	waste polyethylene {IN} | market for waste polyethylene	0.11	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene {NO} | market for waste polyethylene	waste polyethylene {NO} | market for waste polyethylene	262.77	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene {PE} | market for waste polyethylene	waste polyethylene {PE} | market for waste polyethylene	0.62	kg	Ecoinvent – v. 3.12

Source Code	Company	Site	Activity Data	Dataset Name	Quantity	Unit	Emission Factor Source
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste polyethylene {RoW} | market for waste polyethylene	waste polyethylene {RoW} | market for waste polyethylene	5974.29	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste wood, untreated {BR} | market for waste wood, untreated	waste wood, untreated {BR} | market for waste wood, untreated	0.42	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste wood, untreated {CH} | market for waste wood, untreated	waste wood, untreated {CH} | market for waste wood, untreated	50.84	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste wood, untreated {GB} | market for waste wood, untreated	waste wood, untreated {GB} | market for waste wood, untreated	1.09	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste wood, untreated {IN} | market for waste wood, untreated	waste wood, untreated {IN} | market for waste wood, untreated	0.51	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste wood, untreated {NO} | market for waste wood, untreated	waste wood, untreated {NO} | market for waste wood, untreated	1218.14	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste wood, untreated {PE} | market for waste wood, untreated	waste wood, untreated {PE} | market for waste wood, untreated	2.87	kg	Ecoinvent – v. 3.12
C5-A-03	Orion S.p.A	Plant - Trieste (TS)	waste wood, untreated {RoW} | market for waste wood, untreated	waste wood, untreated {RoW} | market for waste wood, untreated	27695.40	kg	Ecoinvent – v. 3.12

Annex B

Emission Source	CO_2 [kgCO2e]	CH_4 [kgCO2e]	N_2O [kgCO2e]	Fluorinated GHG [kgCO2e]	Other GHGs [kgCO2e]	CO_2 Biogenic [kg]
Natural gas combustion (volume)	441746.45	650.42	201.27	0.00	0.00	0.00
LPG combustion (volume)	0.00	0.00	0.00	0.00	0.00	0.00
Diesel fuel combustion (volume)	0.00	0.00	0.00	0.00	0.00	0.00
Combustion of woody biomass (mass)	0.00	0.00	0.00	0.00	0.00	0.00
VOC, Volatile Organic Carbon - Europe	0.00	0.00	0.00	0.00	14732.35	0.00
R410A	0.00	0.00	0.00	1558.44	0.00	0.00
Automotive diesel combustion (volume), 11% bio-based	27039.69	3.09	350.57	0.00	0.00	0.00
Car gasoline combustion (volume), 11% bio-based	11851.50	46.48	33.85	0.00	0.00	0.00
Combustion of biodiesel in Car (volume)	0.00	0.00	0.00	0.00	31.97	456.20

Annex C

- Ecoinvent, 2024. Ecoinvent database, v3.10. https://ecoinvent.org/
- DEFRA, 2024. CO_2 conversione factors. https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2024
- Marson A., 2024. Database integration in Bluegreen. Methods and Documentation Overview, Bluegreen Ecoinnovations, Trieste, Italy.
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- Marson A., 2024. GHG emissions measurement in Bluegreen. Methods and Documentation Overview, Bluegreen Ecoinnovations, Trieste, Italy.

Detailed information on the quantification methodologies adopted by the Bluegreen software can be obtained by writing to info@bluegreen.eco.