

Environmental  
Product  
Declaration

In accordance with ISO 14025:2006, ISO 21930:2017, and EN 15804:2012+A2:2019/AC:2021 for:

Rotors  
from  
Hunter Industries



THE NORTH AMERICAN EPD® SYSTEM

# Hunter®

|                             |   |
|-----------------------------|---|
| Programme:                  | The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>   |
| Programme operator:         | EPD International AB  |
| Licensee:                   | EPD North America ( <a href="http://www.epdna.com">www.epdna.com</a> )  |
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|                             | An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at <a href="http://www.environdec.com">www.environdec.com</a> |
| EPD Type                    | EPD of multiple products, based on a representative product   |
| Products Covered by the EPD | Please refer to Product Group on page 4   |



## General information

### Programme information

|            |   |
|------------|---|
| Programme: | The International EPD® System                                       |
| Address:   | EPD International AB<br>Box 210 60<br>SE-100 31 Stockholm<br>Sweden |
| Website:   | <a href="http://www.environdec.com">www.environdec.com</a>          |
| E-mail:    | <a href="mailto:info@environdec.com">info@environdec.com</a>        |

### Accountabilities for PCR, LCA and independent, third-party verification

#### Product Category Rules (PCR)

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR): Construction Products, 2019:14, version 1.3.4 and UN CPC 44150

PCR review was conducted by: The Technical Committee of the International EPD System. See [www.environdec.com](http://www.environdec.com) for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat [www.environdec.com/contact](http://www.environdec.com/contact).

#### Life Cycle Assessment (LCA)

LCA accountability: Kai Wang, WAP Sustainability Consulting, LLC  
Email: [kai@wapsustainability.com](mailto:kai@wapsustainability.com)

#### Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

EPD verification by individual verifier

Third-party verifier: Jonas Bengtsson, Edge Impact

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes       No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

## Company information

Owner of the EPD: Hunter Industries

Address: 1940 Diamond St., San Marcos, CA 92078 USA

Contact: Warren Gorowitz <Warren.Gorowitz@hunterindustries.com>

Description of the organization:

Founded in 1981, Hunter Industries is a family-owned manufacturer of best-in-class solutions for the landscape irrigation, outdoor lighting, dispensing technology, and custom manufacturing sectors. Headed by CEO Greg Hunter, our Global Operations Team provides leadership for the entire company.

The core mission of Hunter Industries will always remain the same: to deliver valued products and services backed by unwavering customer support, grow the company conscientiously, and remain true to the culture that makes our employees proud to work at Hunter.

Hunter Industries offers thousands of products in over 120 countries, including a complete spectrum of water- and energy-efficient solutions for residential, commercial, and golf course irrigation systems. We also offer industry-leading landscape, architectural, and facade lighting solutions through our FX Luminaire and Lumascape brands.

Product-related or management system-related certifications: Hunter Industries is compliant with ISO-9001 and has completed an audit with ICS.

Name and location of production site(s): PGP-04, PGP-ADJ / San Marcos, CA; I-40-04-SS, I-25-04, PGJ-04, I-80-04-SS, I-90-ADV, SRM-04, I-20-04 / Tijuana, MX

## Product information

Product name: PGJ, SRM, PGP-ADJ, PGP® Ultra, I-20, I-25, I-40, I-50, I-80, I-90

Product identification: The products under study represent all rotor products manufactured by Hunter Industries manufactured in San Marcos, CA, and Tijuana, MX.

Product Description:

The products are underground landscape sprinklers and are part of a larger irrigation system that includes irrigation controls, valves, water distribution pipes, and sprinklers.

- PGJ: The highly durable PGJ offers all the benefits of a large rotor in a compact, spray-sized package, with water-efficient nozzles and easy arc adjustment.
- SRM: The SRM is an economical short-range rotor that offers a convenient and efficient alternative to spray heads.
- PGP-ADJ: As Hunter's original rotor, the PGP® delivers unsurpassed reliability, durability, versatility, and value.
- PGP® Ultra: The PGP Ultra raises the bar for rotor technology with powerful features developed over three decades of research, customer feedback, and lab testing.
- I-20: The I-20 is loaded with upgraded features such as FloStop® control, check valves, and efficient nozzles that make it the perfect choice in a range of applications.
- I-25: The reliable, durable, and versatile I-25 offers an expansive nozzle selection that makes it the perfect choice for large turf applications.
- I-40®: The I-40® rotor has a comprehensive list of upgraded features that make it the top choice for demanding, large turf projects.
- I-80: The highly versatile and efficient I-80 Rotor is the first commercial sports turf rotor with no-dig Total-Top-Serviceability.
- I-90: The robust I-90 Rotor is built for long-distance natural turf applications in large parks, open spaces, and sports fields.

## Product Grouping

| Product Grouping | Representative Product | Additional Products Represented                         |
|------------------|------------------------|---|
| PGJ              | PGJ-04                 | PGJ-04R   |
| SRM              | SRM-04                 |   |
| PGP-ADJ          | PGP-ADJ                | PGP-ADJ-4/5/6/7/8/B                                     |
| PGP Ultra        | PGP-04                 | PGP-04R<br>PGP-04-15/20/25/30/40<br>PGP-04R-15/20/25/30 |
| I-20             | I-20-04                | I-20-04R  |
| I-25             | I-25-04                | I-25-04B<br>I-25-04R<br>I-25-04RB                       |
| I-40             | I-40-04-SS             | I-40-04-SSB<br>I-40-04-SSR<br>I-40-04-SS15              |
| I-80             | I-80-04-SS             | I-80-04-SSB   |
| I-90             | I-90-ADV               | I-90-ADVB<br>I-90-ARV                                   |

UN CPC code: UN CPC 44150

Geographical scope: Global

## LCA information

This EPD provides data for 1 unit of PGP-04 rotor as a representative product. Conversion factors for additional products is shown under “additional environmental information.”

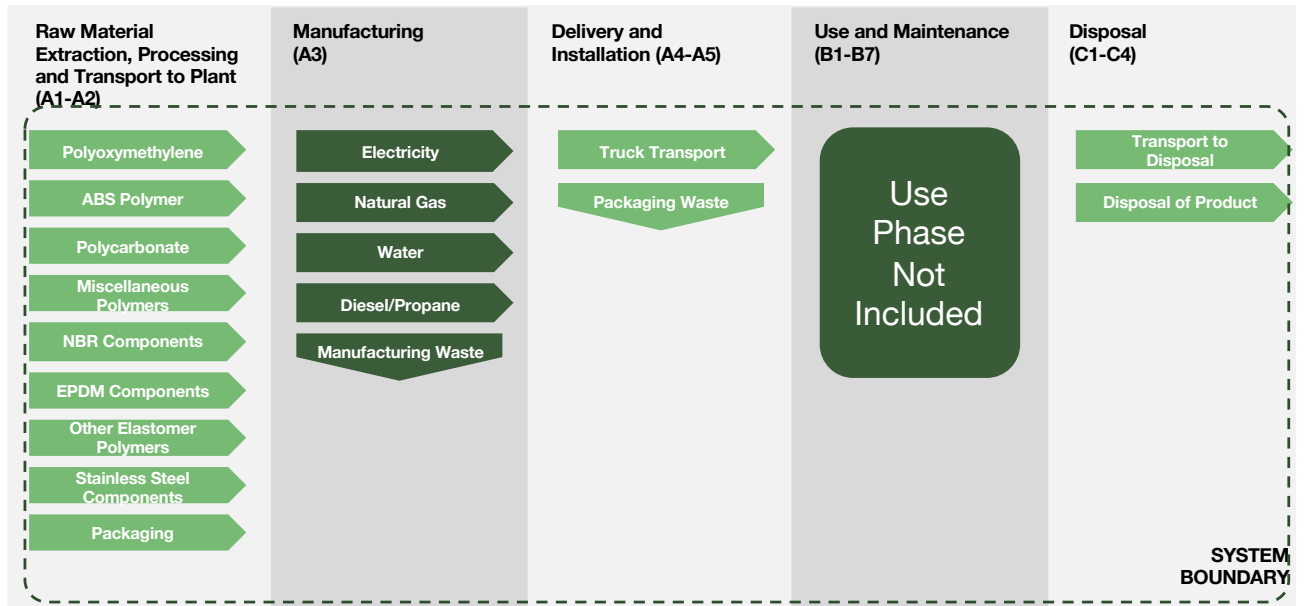
Declared unit: One (1) Unit of Rotor

Time representativeness: 2022

Database(s) and LCA software used: MLC Database 2023.2 and LCA FE 10.8 software

Description of system boundaries: Cradle-to-Gate with modules C1-C4, module D, and optional modules A4 and A5

System diagram:



Manufacturing process:

The major product components are injection-molded in the corresponding Hunter’s facilities. Together with the ancillary components that are outsourced, they are assembled to finished products.

Resource mix of electricity datasets used in the LCA

| Fuel Type             | San Marcos, CA | Tijuana, Mexico |
|-----------------------|----------------|-----------------|
| Natural Gas           | 73.98%         | 70.01%          |
| Nuclear               | 17.41%         | 4.06%           |
| Coal                  | 7.59%          | 9.35%           |
| Fuel Oil              | 0.51%          | 16.45%          |
| Waste-to-energy       | 0.51%          | 0.05%           |
| Coal Gas              | -              | 0.07%           |
| GWP-GHG [kg CO2e/kWh] | 4.74E-01       | 7.22E-01        |

Cut-off Criteria

Material inputs greater than 1% (based on total mass of the final product) were included within the scope of analysis. Material inputs less than 1% were included if sufficient data was available to warrant inclusion and/or the material input was thought to have significant environmental impact. Cumulative excluded material inputs and environmental impacts are less than 5% based on total weight of the functional unit. Some flows are excluded from the analysis, including:

- Employee transport,
- Manufacture and maintenance of the manufacturing facility and machines if they are not proportional to the reference flow,
- Construction and maintenance of the infrastructure if they are not proportional to the reference flow,
- Transport systems and infrastructures if they are not proportional to the reference flow,
- Administrative, management and R&D department flows,
- Marketing activity related to the product,

- Staff catering facilities.

The list of excluded materials and energy inputs include:

- UV stabilizer 94 containing Oligomeric hindered amine with <0.01% in products
- Biocide with 0-0.25% in products
- Some material inputs may have been excluded within the MLC datasets used for this project. All MLC datasets have been critically reviewed and conform to” ISO 21930 and EN 15804.

Allocation Procedures:

General principles of allocation were based on ISO 14040/44. To derive a per-unit value for manufacturing inputs such as electricity, thermal energy and water, two steps of allocation are conducted. The first step of allocation is to allocate the facility-level of utility input and waste output to the product families covered in the study, i.e. to all rotors. This allocation is based on production by unit, rather than the mass of products produced due to the lack of data. The second step of allocation is to allocate the manufacturing input and waste output after step 1 to the products in the study by economic value of the products produced in the reference year. The rationale of using economic-value allocation is to account for the raw material input ending up as manufacturing waste. As per EN 14804 A2, the manufacturing waste shall be treated as a co-product of the manufacturing process. As a conservative approach, the allocation of input materials, utility and resources is conducted based on economic value. Because manufacturing waste is not sold as commodity, the input materials, utility, and resources are allocated solely to the finished products, i.e., the economic value of the manufacturing waste is zero.

As a default, secondary MLC datasets use a physical basis for allocation.

Key Assumptions

The products are landfilled at the end of product life.

The packaging material are disposed of based on the statistics of US EPA

The waste transportation distance is assumed to be 160.9 km.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

|                  | Product stage       |           |               | Construction process stage |                           | Use stage |             |        |             |               |                        | End of life stage     |                            |           |                  | Resource recovery stage |          |
|------------------|---------------------|-----------|---------------|----------------------------|---------------------------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|-------------------------|----------|
|                  | Raw material supply | Transport | Manufacturing | Transport                  | Construction installation | Use       | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing |                         | Disposal |
| Module           | A1                  | A2        | A3            | A4                         | A5                        | B1        | B2          | B3     | B4          | B5            | B6                     | B7                    | C1                         | C2        | C3               | C4                      | D        |
| Modules declared | X                   | X         | X             | X                          | X                         | ND        | ND          | ND     | ND          | ND            | ND                     | ND                    | X                          | X         | X                | X                       | X        |
| Geography        | GLO                 | GLO       | RNA           | GLO                        | US                        | ND        | ND          | ND     | ND          | ND            | ND                     | ND                    | US                         | US        | US               | US                      | US       |

|                      |             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|----------------------|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific data used   | <20%        | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation - products | +61%/-137%* | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation - sites    | 0%**        | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

\* The variation range represents the respective difference between the results of the declared product (PGP-04) and the lowest and highest result of all the products covered in the EPD. The results of these products are expressed as conversion factors in relation with PGP-04 in the section of additional environmental information. Within each product group shown on page 4, the variation between the results of the representative product and the lowest and highest results within the group is within 10%.

\*\*No products in the study are produced in both facilities of Hunter Industries.

Within each product group shown on page 4, the variation between the results of the representative product and the lowest and highest results within the group, for the declared environmental impact indicator aggregated over modules A to C, is within 10%, and thereby the results presented are compliant with ISO 21930.

## Content information

No substances included in the Candidate List of Substances of Very High Concern for authorization under REACH Regulations are present in all the covered products manufactured by Hunter Industries, either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt)

### PGP-04

| Product components           | Weight, kg | Post-consumer material, weight-% | Biogenic material, weight-% and kg C | Range of weight, kg* |
|------------------------------|------------|----------------------------------|--------------------------------------|----------------------|
| LDPE                         | 1.28E-04   | 0.00%                            | 0.00E+00                             | 2.27E-05~3.08E-02    |
| SBR                          | 7.97E-03   | 0.00%                            | 0.00E+00                             | 0.00E+00~1.21E-02    |
| Polycarbonate                | 6.17E-03   | 0.00%                            | 0.00E+00                             | 0.00E+00~1.33E-01    |
| Nylon 66                     | 0.00E+00   | 0.00%                            | 0.00E+00                             | 0.00E+00~1.35E-01    |
| POM                          | 4.07E-02   | 0.00%                            | 0.00E+00                             | 2.32E-02~4.74E-01    |
| ABS                          | 1.71E-01   | 0.00%                            | 0.00E+00                             | 1.11E-01~8.59E-01    |
| Brass                        | 0.00E+00   | 0.00%                            | 0.00E+00                             | 0.00E+00~1.56E-03    |
| EPDM                         | 0.00E+00   | 0.00%                            | 0.00E+00                             | 0.00E+00~2.98E-03    |
| NBR                          | 0.00E+00   | 0.00%                            | 0.00E+00                             | 0.00E+00~2.35E-03    |
| Masterbatch*                 | 8.63E-04   | 0.00%                            | 0.00E+00                             | 5.40E-04~2.77E-02    |
| PBT                          | 4.29E-04   | 0.00%                            | 0.00E+00                             | 0.00E+00~4.29E-04    |
| Polyurethane                 | 0.00E+00   | 0.00%                            | 0.00E+00                             | 0.00E+00~1.56E-02    |
| Ethylene-1-octene copolymer* | 1.92E-02   | 0.00%                            | 0.00E+00                             | 0.00E+00~1.92E-02    |
| PTFE                         | 1.68E-04   | 0.00%                            | 0.00E+00                             | 0.00E+00~4.08E-03    |
| Santoprene                   | 1.29E-03   | 0.00%                            | 0.00E+00                             | 0.00E+00~2.28E-02    |
| Stainless Steel              | 5.59E-02   | 0.00%                            | 0.00E+00                             | 2.53E-02~1.70E-01    |
| Linear LDPE                  | 0.00E+00   | 0.00%                            | 0.00E+00                             | 0.00E+00~4.27E-03    |
| Polypropylene                | 0.00E+00   | 0.00%                            | 0.00E+00                             | 0.00E+00~1.47E-03    |



|   |                   |  |                                     |                             |
|---|-------------------|--|-------------------------------------|-----------------------------|
| Fiberglass  | 0.00E+00          | 0.00%                                    | 0.00E+00                            | 0.00E+00~9.60E-02           |
| TOTAL   | 3.04E-01          | 0.00%                                    | 0.00E+00                            | 1.74E-01~1.74E+00           |
| <b>Packaging materials</b>  | <b>Weight, kg</b> | <b>Weight-%<br/>(versus the product)</b> | <b>Weight biogenic carbon, kg C</b> | <b>Range of weight, kg*</b> |
| Corrugate [kg]  | 2.15E-02          | 7.06%                                    | 9.22E-03                            | 1.50E-02~1.06E-01           |
| Paper [kg]  | 0.00E+00          | 0.00%                                    | 0.00E+00                            | 3.00E-04~2.00E-03           |
| Plastic Film [kg]   | 0.00E+00          | 0.00%                                    | 0.00E+00                            | 0.00E+00~7.03E-03           |
| TOTAL   | 2.15E-02          | 7.06%                                    | 9.22E-03                            | 6.64E-03~4.66E-02           |
| *The value ranges in parenthesis are for the additional represented products. |                   |  |                                     |                             |

## Post-factory gate scenario development

### A4 (Delivery to installation site) scenario per declared unit

|  | North American Truck                                   | Global Ship   | Global Truck  |
|--|--|---|---|
| Vehicle Type                                 | Heavy Heavy-duty Diesel Truck / 53,333 lb payload - 8b | Bulk commodity carrier, 1,000 to 250,000 dwt payload capacity, deep sea | Truck-trailer, Euro 1, 34 - 40t gross weight / 27t payload capacity |
| Fuel Efficiency [L/100km]                    | 42   | 15,134  | 56.2  |
| Fuel Type                                    | Diesel   | Heavy Fuel Oil  | Diesel  |
| Capacity Utilization [%]                     | 67%  | 53%   | 61%   |
| Capacity utilization volume factor           | 100%   | 100%  | 100%  |
| Distance [km]                                | 1.65E+03   | 5.68E+03  | 2.60E+02  |
| Weight of Products Transported [kg] - PGP-04 | 3.25E-01   |   |   |

### A5 (Installation) scenario per declared unit

Installation of Hunter Rotors is performed by hand. Explicit installation instructions can be found at the following site: <https://www.hunterindustries.com/support/residential-rotors-rotor-installation>.

|  | PGP-04   | % of Pathway |
|--|----------|--------------|
| Product wastage [%]  | 0%       | -            |
| Waste materials at the construction site before waste processing, generated by product installation [kg] | 2.15E-02 | -            |
| Plastic Packaging Waste to Landfill [kg]   | 0.00E+00 | 16.9%        |
| Plastic Packaging Waste to Incineration [kg]   | 0.00E+00 | 69.5%        |
| Plastic Packaging Waste to Recycling [kg]  | 0.00E+00 | 13.6%        |
| Paper Packaging Waste to Landfill [kg]   | 3.50E-03 | 16.3%        |
| Paper Packaging Waste to Incineration [kg]   | 7.94E-04 | 3.7%         |
| Paper Packaging Waste to Recycling [kg]  | 1.72E-02 | 80%          |

### C1-C4 (Product End of Life) scenario per declared unit

|  | PGP-04   |
|--|--|
| Vehicle Type                               | Heavy Heavy-duty Diesel Truck / 53,333 lb payload - 8b |
| Collected as mixed construction waste [kg] | 3.04E-01   |
| Plastic Product Waste to Landfill [kg]     | 2.48E-01   |
| Metal Product Waste to Landfill [kg]       | 5.59E-02   |
| Distance to Disposal [km]                  | 160.9  |

### Module D (Benefits and Loads Beyond the System Boundary) Scenario Per Declared Unit

Benefits and loads beyond the system boundary are accounted for in Module D and are to be declared according to the PCR. For rotors, Module D impacts are associated both with the additional benefits and loads due to the disposal of packaging materials in Module A5. Specifically, Module D impacts for Hunter rotor products are associated with the recycling of corrugate and plastic recycling, waste incineration, and landfill gas recovery.

## Impact Category Details

| Abbreviation                   | Parameter  | Unit                          |
|--------------------------------|--|-------------------------------|
| <b>IPCC AR6</b>                |  |                               |
| GWP incl. biogenic             | Global warming potential (100 years, includes biogenic CO2)  | kg CO2 eq                     |
| <b>EF 3.1 (EN 15804 +A2)</b>   |  |                               |
| GWP-GHG                        | Global warming potential (100 years, excludes biogenic CO2)  | kg CO2 eq                     |
| GWP-total                      | Climate Change - total   | kg CO2 eq                     |
| GWP-fossil                     | Climate Change, fossil   | kg CO2 eq                     |
| GWP-biogenic                   | Climate Change, biogenic   | kg CO2 eq                     |
| GWP-luluc                      | Climate Change, land use and land use change   | kg CO2 eq                     |
| ODP                            | Ozone depletion  | kg CFC-11 eq.                 |
| AP                             | Acidification  | Mole of H+ eq.                |
| EP-freshwater                  | Eutrophication, freshwater   | kg P eq.                      |
| EP-marine                      | Eutrophication, marine   | kg N eq.                      |
| EP-terrestrial                 | Eutrophication, terrestrial  | Mole of N eq.                 |
| POCP                           | Photochemical ozone formation, human health  | kg NMVOC eq.                  |
| ADP-minerals <sup>2</sup>      | Resource use, mineral and metals   | kg Sb eq.                     |
| ADP-fossil <sup>2</sup>        | Resource use, fossils  | MJ                            |
| WDP <sup>2</sup>               | Water use [m <sup>3</sup> world equiv.]  | m <sup>3</sup> world equiv.   |
| <b>TRACI 2.1</b>               |  |                               |
| AP                             | Acidification potential of soil and water  | kg SO2 eq                     |
| EP                             | Eutrophication potential   | kg N eq                       |
| ODP                            | Depletion of stratospheric ozone layer   | kg CFC 11 eq                  |
| Resources                      | Depletion of non-renewable fossil fuels  | MJ, surplus energy            |
| SFP                            | Smog formation potential   | kg O3 eq                      |
| <b>Biogenic Carbon</b>         |  |                               |
| BCRP                           | Biogenic Carbon Removal from Product   | [kg CO2]                      |
| BCEP                           | Biogenic Carbon Emission from Product  | [kg CO2]                      |
| BCRK                           | Biogenic Carbon Removal from Packaging   | [kg CO2]                      |
| BCEK                           | Biogenic Carbon Emission from Packaging  | [kg CO2]                      |
| BCEW                           | Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes      | [kg CO2]                      |
| CCE                            | Calcination Carbon Emissions   | [kg CO2]                      |
| CCR                            | Carbonation Carbon Removals  | [kg CO2]                      |
| CWNR                           | Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes          | [kg CO2]                      |
| <b>Resource Use Parameters</b> |  |                               |
| PERE                           | Use of renewable primary energy excluding renewable primary energy resources used as raw materials         | MJ, net calorific value (LHV) |
| PERM                           | Use of renewable primary energy resources used as raw materials  | MJ, net calorific value       |
| PERT                           | Total use of renewable primary energy resources  | MJ, net calorific value       |
| PENRE                          | Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials | MJ, net calorific value       |
| PENRM                          | Use of non-renewable primary energy resources used as raw materials  | MJ, net calorific value       |
| PENRT                          | Total use of non-renewable primary energy resources  | MJ, net calorific value       |
| SM                             | Use of secondary materials   | kg                            |

|  |   |                         |
|--|---|-------------------------|
| RSF                                      | Use of renewable secondary fuels  | MJ, net calorific value |
| NRSF                                     | Use of non-renewable secondary fuels  | MJ, net calorific value |
| RE                                       | Recovered energy  | MJ, net calorific value |
| FW                                       | Net use of fresh water  | m3                      |
| <b>Waste Parameters and Output Flows</b> |   |                         |
| HWD                                      | Disposed-of-hazardous waste   | kg                      |
| NHWD                                     | Disposed-of non-hazardous waste   | kg                      |
| HLRW                                     | High-level radioactive waste, conditioned, to final repository                  | kg                      |
| ILLRW                                    | Intermediate- and low-level radioactive waste, conditioned, to final repository | kg                      |
| CRU                                      | Components for reuse  | kg                      |
| MR                                       | Materials for recycling   | kg                      |
| MER                                      | Materials for energy recovery   | kg                      |
| EEE                                      | Exported electrical energy  | MJ                      |
| EET                                      | Exported thermal energy   | MJ                      |

1. Disclaimer: This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

2. Disclaimer: The results of these environmental impact indicators shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Results of the Environmental Performance Indicators<sup>1</sup>

These results are representative of the PGP-04 product. Conversion factors for additional products can be found in the section of additional environmental information.

### Mandatory impact category indicators according to EN 15804

| Results per declared unit of PGP-04 |                        |           |          |          |       |          |          |          |           |           |
|-------------------------------------|------------------------|-----------|----------|----------|-------|----------|----------|----------|-----------|-----------|
| Indicator                           | Unit                   | A1-A3     | A4       | A5       | B1-B7 | C1       | C2       | C3       | C4        | D         |
| GWP-GHG                             | kg CO <sub>2</sub> eq. | 1.65E+00  | 5.68E-02 | 2.45E-03 | ND    | 0.00E+00 | 3.92E-03 | 0.00E+00 | 6.46E-03  | -7.31E-03 |
| GWP-total                           | kg CO <sub>2</sub> eq. | 1.61E+00  | 5.69E-02 | 3.69E-02 | ND    | 0.00E+00 | 3.92E-03 | 0.00E+00 | 6.44E-03  | -7.42E-03 |
| GWP-fossil                          | kg CO <sub>2</sub> eq. | 1.64E+00  | 5.68E-02 | 3.79E-04 | ND    | 0.00E+00 | 3.91E-03 | 0.00E+00 | 6.44E-03  | -7.25E-03 |
| GWP-biogenic                        | kg CO <sub>2</sub> eq. | -2.97E-02 | 0.00E+00 | 3.66E-02 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | -1.20E-05 | -1.49E-04 |
| GWP-luluc                           | kg CO <sub>2</sub> eq. | 4.25E-03  | 5.72E-05 | 3.49E-07 | ND    | 0.00E+00 | 4.45E-06 | 0.00E+00 | 2.41E-06  | -2.56E-05 |
| ODP                                 | kg CFC 11 eq.          | 1.63E-12  | 6.81E-15 | 2.51E-16 | ND    | 0.00E+00 | 4.80E-16 | 0.00E+00 | 1.49E-14  | -3.28E-14 |
| AP                                  | mol H <sup>+</sup> eq. | 5.26E-03  | 5.03E-04 | 7.29E-06 | ND    | 0.00E+00 | 1.18E-05 | 0.00E+00 | 3.93E-05  | -4.10E-05 |

<sup>1</sup> The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

| Results per declared unit of PGP-04 |                |          |          |          |       |          |          |          |          |           |
|-------------------------------------|----------------|----------|----------|----------|-------|----------|----------|----------|----------|-----------|
| Indicator                           | Unit           | A1-A3    | A4       | A5       | B1-B7 | C1       | C2       | C3       | C4       | D         |
| EP-freshwater                       | kg P eq.       | 6.32E-06 | 2.48E-07 | 5.35E-08 | ND    | 0.00E+00 | 1.92E-08 | 0.00E+00 | 6.47E-06 | -3.13E-07 |
| EP-marine                           | kg N eq.       | 1.37E-03 | 1.98E-04 | 1.72E-06 | ND    | 0.00E+00 | 5.79E-06 | 0.00E+00 | 1.05E-05 | -1.77E-05 |
| EP-terrestrial                      | mol N eq.      | 1.45E-02 | 2.18E-03 | 3.30E-05 | ND    | 0.00E+00 | 6.40E-05 | 0.00E+00 | 1.08E-04 | -1.69E-04 |
| POCP                                | kg NMVOC eq.   | 3.93E-03 | 4.38E-04 | 4.10E-06 | ND    | 0.00E+00 | 1.15E-05 | 0.00E+00 | 2.98E-05 | -4.75E-05 |
| ADP-minerals & metals               | kg Sb eq.      | 9.35E-06 | 3.66E-09 | 2.38E-11 | ND    | 0.00E+00 | 2.57E-10 | 0.00E+00 | 3.69E-10 | -2.39E-09 |
| ADP-fossil                          | MJ             | 3.52E+01 | 7.37E-01 | 5.16E-03 | ND    | 0.00E+00 | 5.14E-02 | 0.00E+00 | 1.00E-01 | -1.08E-01 |
| WDP                                 | m <sup>3</sup> | 5.68E-01 | 2.95E-03 | 1.34E-04 | ND    | 0.00E+00 | 2.28E-04 | 0.00E+00 | 3.40E-04 | -1.59E-03 |

The use of modules A1-A3 without considering the results of module C is not recommended.

## Impact category indicators of TRACI and IPCC AR6 for GWP

| Results per declared unit of PGP-04 |                        |          |          |          |       |          |          |          |          |           |
|-------------------------------------|------------------------|----------|----------|----------|-------|----------|----------|----------|----------|-----------|
| Indicator                           | Unit                   | A1-A3    | A4       | A5       | B1-B7 | C1       | C2       | C3       | C4       | D         |
| AP                                  | kg SO <sub>2</sub> eq. | 4.82E-03 | 4.51E-04 | 8.67E-06 | ND    | 0.00E+00 | 1.09E-05 | 0.00E+00 | 3.53E-05 | -3.79E-05 |
| EP                                  | kg N eq.               | 3.34E-04 | 2.89E-05 | 1.39E-06 | ND    | 0.00E+00 | 1.14E-06 | 0.00E+00 | 4.50E-05 | -1.21E-05 |
| GWP incl. biogenic                  | kg CO <sub>2</sub> eq. | 1.61E+00 | 5.68E-02 | 3.69E-02 | ND    | 0.00E+00 | 3.91E-03 | 0.00E+00 | 6.43E-03 | -7.40E-03 |
| ODP                                 | kg CFC 11 eq.          | 3.60E-14 | 1.44E-16 | 5.28E-18 | ND    | 0.00E+00 | 1.01E-17 | 0.00E+00 | 3.13E-16 | -6.93E-16 |
| Resources                           | MJ                     | 4.40E+00 | 1.05E-01 | 7.03E-04 | ND    | 0.00E+00 | 7.29E-03 | 0.00E+00 | 1.28E-02 | -1.10E-02 |
| SFP                                 | kg O <sub>3</sub> eq.  | 8.20E-02 | 9.61E-03 | 5.35E-05 | ND    | 0.00E+00 | 2.50E-04 | 0.00E+00 | 6.15E-04 | -9.66E-04 |

The use of modules A1-A3 without considering the results of module C is not recommended.

## Carbon Emissions and Uptake (ISO 21930)

| Results per declared unit of PGP-04 |                        |          |          |          |       |          |          |          |          |          |
|-------------------------------------|------------------------|----------|----------|----------|-------|----------|----------|----------|----------|----------|
| Indicator                           | Unit                   | A1-A3    | A4       | A5       | B1-B7 | C1       | C2       | C3       | C4       | D        |
| BCRP                                | kg CO <sub>2</sub> eq. | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| BCEP                                | kg CO <sub>2</sub> eq. | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| Results per declared unit of PGP-04 |                        |          |          |          |       |          |          |          |          |          |
|-------------------------------------|------------------------|----------|----------|----------|-------|----------|----------|----------|----------|----------|
| Indicator                           | Unit                   | A1-A3    | A4       | A5       | B1-B7 | C1       | C2       | C3       | C4       | D        |
| BCRK                                | kg CO <sub>2</sub> eq. | 3.40E-02 | 0.00E+00 | 0.00E+00 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| BCEK                                | kg CO <sub>2</sub> eq. | 0.00E+00 | 0.00E+00 | 3.40E-02 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| BCEW                                | kg CO <sub>2</sub> eq. | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| CCE                                 | kg CO <sub>2</sub> eq. | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| CCR                                 | kg CO <sub>2</sub> eq. | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| CWNR                                | kg CO <sub>2</sub> eq. | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

The use of modules A1-A3 without considering the results of module C is not recommended.

## Resource use indicators

| Results per declared unit of PGP-04 |                |              |              |              |       |              |              |              |              |              |
|-------------------------------------|----------------|--------------|--------------|--------------|-------|--------------|--------------|--------------|--------------|--------------|
| Indicator                           | Unit           | A1-A3        | A4           | A5           | B1-B7 | C1           | C2           | C3           | C4           | D            |
| PERE                                | MJ             | 3.22E+00     | 2.88E-02     | 3.27E-04     | ND    | 0.00E+0<br>0 | 2.20E-03     | 0.00E+0<br>0 | 1.19E-02     | -5.48E-01    |
| PERM                                | MJ             | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | ND    | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 |
| PERT                                | MJ             | 3.22E+00     | 2.88E-02     | 3.27E-04     | ND    | 0.00E+0<br>0 | 2.20E-03     | 0.00E+0<br>0 | 1.19E-02     | -5.48E-01    |
| PENRE                               | MJ             | 2.38E+01     | 7.91E-01     | 5.45E-03     | ND    | 0.00E+0<br>0 | 5.51E-02     | 0.00E+0<br>0 | 1.02E-01     | -1.08E-01    |
| PENRM                               | MJ             | 1.20E+01     | 0.00E+0<br>0 | 0.00E+0<br>0 | ND    | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 |
| PENRT                               | MJ             | 3.59E+01     | 7.91E-01     | 5.45E-03     | ND    | 0.00E+0<br>0 | 5.51E-02     | 0.00E+0<br>0 | 1.02E-01     | -1.08E-01    |
| SM                                  | kg             | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | ND    | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 |
| RSF                                 | MJ             | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | ND    | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 |
| NRSF                                | MJ             | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | ND    | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 |
| RE                                  | MJ             | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | ND    | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 | 0.00E+0<br>0 |
| FW                                  | m <sup>3</sup> | 1.63E-02     | 9.77E-05     | 3.34E-06     | ND    | 0.00E+0<br>0 | 7.53E-06     | 0.00E+0<br>0 | 1.26E-05     | -7.29E-05    |

The use of modules A1-A3 without considering the results of module C is not recommended.

## Waste indicators and output flows

| Results per declared unit of PGP-04 |      |          |          |          |       |          |          |          |          |           |
|-------------------------------------|------|----------|----------|----------|-------|----------|----------|----------|----------|-----------|
| Indicator                           | Unit | A1-A3    | A4       | A5       | B1-B7 | C1       | C2       | C3       | C4       | D         |
| HWD                                 | kg   | 3.83E-05 | 2.26E-12 | 5.31E-14 | ND    | 0.00E+00 | 1.59E-13 | 0.00E+00 | 2.54E-12 | -3.88E-09 |
| NHWD                                | kg   | 4.62E-02 | 6.55E-05 | 2.62E-03 | ND    | 0.00E+00 | 4.80E-06 | 0.00E+00 | 3.03E-01 | -5.98E-04 |
| HLRW                                | kg   | 7.84E-07 | 2.67E-09 | 4.38E-11 | ND    | 0.00E+00 | 1.88E-10 | 0.00E+00 | 1.26E-09 | -4.82E-09 |
| ILLRW                               | kg   | 6.36E-04 | 2.25E-06 | 3.76E-08 | ND    | 0.00E+00 | 1.58E-07 | 0.00E+00 | 1.13E-06 | -5.78E-06 |
| CRU                                 | kg   | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| MR                                  | kg   | 2.94E-02 | 0.00E+00 | 1.73E-02 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| MER                                 | kg   | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| EEE                                 | MJ   | 2.44E-03 | 0.00E+00 | 0.00E+00 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| EET                                 | MJ   | 1.15E-03 | 0.00E+00 | 0.00E+00 | ND    | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |

The use of modules A1-A3 without considering the results of module C is not recommended.

## Additional environmental information

Conversion factors for additional products can be found in the following section.

### I-40-04-SS

| EF 3.1 (EN 15804 +A2) Results per declared unit of I-40-04-SS |       |     |     |        |     |     |     |     |     |  |
|---|-------|-----|-----|--------|-----|-----|-----|-----|-----|--|
| Indicator   | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |  |
| GWP-GHG   | 2.2   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |  |
| GWP-total   | 2.2   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |  |
| GWP-fossil  | 2.2   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |  |
| GWP-biogenic  | 1.5   | 0.0 | 1.2 | ND     | 0.0 | 0.0 | 0.0 | 1.7 | 1.2 |  |

| EF 3.1 (EN 15804 +A2) Results per declared unit of I-40-04-SS |       |     |     |        |     |     |     |     |     |
|---|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator   | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| GWP-luluc   | 1.6   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |
| ODP   | 1.1   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |
| AP  | 3.8   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |
| EP-freshwater   | 1.1   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.4 | 1.2 |
| EP-marine   | 2.6   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.8 | 1.2 |
| EP-terrestrial  | 2.6   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |
| POCP  | 2.7   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |
| ADP-minerals & metals   | 2.8   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |
| ADP-fossil  | 1.9   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |
| WDP   | 2.3   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |

The use of modules A1-A3 without considering the results of module C is not recommended.

| TRACI and IPCC AR6 for GWP Results per declared unit of I-40-04-SS |       |     |     |        |     |     |     |     |     |
|--|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator  | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| AP   | 3.5   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.8 | 1.2 |
| EP   | 2.1   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.4 | 1.2 |
| GWP incl. biogenic   | 2.2   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |
| ODP  | 1.2   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |
| Resources  | 1.7   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |
| SFP  | 2.6   | 1.7 | 1.2 | ND     | 0.0 | 1.7 | 0.0 | 1.7 | 1.2 |

The use of modules A1-A3 without considering the results of module C is not recommended.

## I-25-04



| EF 3.1 (EN 15804 +A2) Results per declared unit of I-25-04                               |       |     |     |        |     |     |     |     |     |
|--|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator  | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| GWP-GHG  | 1.6   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| GWP-total  | 1.6   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| GWP-fossil   | 1.6   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| GWP-biogenic   | 1.5   | 0.0 | 1.2 | ND     | 0.0 | 0.0 | 0.0 | 1.5 | 1.2 |
| GWP-luluc  | 1.3   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| ODP  | 0.9   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| AP   | 2.3   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| EP-freshwater  | 0.9   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.4 | 1.2 |
| EP-marine  | 1.7   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| EP-terrestrial   | 1.8   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| POCP   | 1.8   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| ADP-minerals & metals  | 1.7   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| ADP-fossil   | 1.4   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| WDP  | 1.4   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| The use of modules A1-A3 without considering the results of module C is not recommended. |       |     |     |        |     |     |     |     |     |

| TRACI and IPCC AR6 for GWP Results per declared unit of I-25-04 |       |     |     |        |     |     |     |     |     |
|---|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator   | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| AP  | 2.2   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| EP  | 1.5   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.4 | 1.2 |
| GWP incl. biogenic  | 1.6   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| ODP   | 1.0   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |
| Resources   | 1.4   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |

| TRACI and IPCC AR6 for GWP Results per declared unit of I-25-04 |       |     |     |        |     |     |     |     |     |
|---|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator   | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| SFP   | 1.8   | 1.5 | 1.2 | ND     | 0.0 | 1.5 | 0.0 | 1.5 | 1.2 |

The use of modules A1-A3 without considering the results of module C is not recommended.

## PGJ-04

| EF 3.1 (EN 15804 +A2) Results per declared unit of PGJ-04 |       |     |     |        |     |     |     |     |     |
|---|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator   | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| GWP-GHG   | 0.5   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| GWP-total   | 0.5   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| GWP-fossil  | 0.5   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| GWP-biogenic  | 0.9   | 0.0 | 0.7 | ND     | 0.0 | 0.0 | 0.0 | 0.6 | 0.7 |
| GWP-luluc   | 0.6   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| ODP   | 0.3   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| AP  | 0.7   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| EP-freshwater   | 0.4   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| EP-marine   | 0.6   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| EP-terrestrial  | 0.6   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| POCP  | 0.6   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| ADP-minerals & metals                                     | 0.4   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| ADP-fossil  | 0.5   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| WDP   | 0.4   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |

The use of modules A1-A3 without considering the results of module C is not recommended.

| TRACI and IPCC AR6 for GWP Results per declared unit of PGJ-04 |       |     |     |        |     |     |     |     |     |
|--|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator  | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| AP   | 0.7   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| EP   | 0.5   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |

| TRACI and IPCC AR6 for GWP Results per declared unit of PGJ-04 |       |     |     |        |     |     |     |     |     |
|--|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator  | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| GWP incl. biogenic   | 0.5   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| ODP  | 0.3   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| Resources  | 0.6   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| SFP  | 0.6   | 0.6 | 0.7 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |

The use of modules A1-A3 without considering the results of module C is not recommended.

## I-80-04-SS

| EF 3.1 (EN 15804 +A2) Results per declared unit of I-80-04-SS |       |     |      |        |     |     |     |     |     |
|---|-------|-----|------|--------|-----|-----|-----|-----|-----|
| Indicator   | A1-A3 | A4  | A5   | B1- B7 | C1  | C2  | C3  | C4  | D   |
| GWP-GHG   | 4.8   | 5.0 | 6.6  | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.5 |
| GWP-total   | 4.8   | 5.0 | 5.1  | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.5 |
| GWP-fossil  | 4.8   | 5.0 | 15.3 | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.5 |
| GWP-biogenic  | 6.2   | 0.0 | 5.0  | ND     | 0.0 | 0.0 | 0.0 | 4.9 | 5.0 |
| GWP-luluc   | 3.1   | 5.0 | 5.4  | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.0 |
| ODP   | 3.1   | 5.0 | 6.3  | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.2 |
| AP  | 5.4   | 5.0 | 5.2  | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.1 |
| EP-freshwater   | 3.3   | 5.0 | 7.4  | ND     | 0.0 | 4.9 | 0.0 | 5.6 | 5.0 |
| EP-marine   | 4.7   | 5.0 | 5.2  | ND     | 0.0 | 4.9 | 0.0 | 4.7 | 5.1 |
| EP-terrestrial  | 4.8   | 5.0 | 5.2  | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.1 |
| POCP  | 4.9   | 5.0 | 5.2  | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.1 |
| ADP-minerals & metals   | 1.8   | 5.0 | 5.6  | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.2 |
| ADP-fossil  | 4.8   | 5.0 | 5.7  | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.9 |
| WDP   | 2.6   | 5.0 | 7.6  | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.4 |

The use of modules A1-A3 without considering the results of module C is not recommended.

| TRACI and IPCC AR6 for GWP Results per declared unit I-80-04-SS |       |     |     |        |     |     |     |     |     |
|---|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator   | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| AP  | 5.2   | 5.0 | 5.1 | ND     | 0.0 | 4.9 | 0.0 | 4.8 | 5.1 |
| EP  | 4.4   | 5.0 | 5.7 | ND     | 0.0 | 4.9 | 0.0 | 5.5 | 5.0 |
| GWP incl. biogenic  | 4.8   | 5.0 | 5.1 | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.5 |
| ODP   | 3.0   | 5.0 | 6.3 | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.2 |
| Resources   | 5.1   | 5.0 | 5.6 | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 6.1 |
| SFP   | 4.7   | 5.0 | 5.4 | ND     | 0.0 | 4.9 | 0.0 | 4.9 | 5.1 |

The use of modules A1-A3 without considering the results of module C is not recommended.

## I-90-ADV

| EF 3.1 (EN 15804 +A2) Results per declared unit of I-90-ADV |       |     |      |        |     |     |     |     |     |
|---|-------|-----|------|--------|-----|-----|-----|-----|-----|
| Indicator   | A1-A3 | A4  | A5   | B1- B7 | C1  | C2  | C3  | C4  | D   |
| GWP-GHG   | 5.4   | 5.7 | 6.6  | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.5 |
| GWP-total   | 5.4   | 5.7 | 5.1  | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.5 |
| GWP-fossil  | 5.4   | 5.7 | 15.3 | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.5 |
| GWP-biogenic  | 6.2   | 0.0 | 5.0  | ND     | 0.0 | 0.0 | 0.0 | 5.7 | 5.0 |
| GWP-luluc   | 3.9   | 5.7 | 5.4  | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.0 |
| ODP   | 3.9   | 5.7 | 6.3  | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.2 |
| AP  | 5.7   | 5.7 | 5.2  | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.1 |
| EP-freshwater   | 3.6   | 5.7 | 7.4  | ND     | 0.0 | 5.7 | 0.0 | 6.6 | 5.0 |
| EP-marine   | 5.4   | 5.7 | 5.2  | ND     | 0.0 | 5.7 | 0.0 | 5.5 | 5.1 |
| EP-terrestrial  | 5.5   | 5.7 | 5.2  | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.1 |
| POCP  | 5.5   | 5.7 | 5.2  | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.1 |
| ADP-minerals & metals                                       | 2.2   | 5.7 | 5.6  | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.2 |
| ADP-fossil  | 5.5   | 5.7 | 5.7  | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.9 |

| EF 3.1 (EN 15804 +A2) Results per declared unit of I-90-ADV                              |       |     |     |        |     |     |     |     |     |
|--|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator  | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| WDP  | 2.6   | 5.7 | 7.7 | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.4 |
| The use of modules A1-A3 without considering the results of module C is not recommended. |       |     |     |        |     |     |     |     |     |

| TRACI and IPCC AR6 for GWP Results per declared unit of I-90-ADV                         |       |     |     |        |     |     |     |     |     |
|--|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator  | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| AP   | 5.5   | 5.7 | 5.1 | ND     | 0.0 | 5.7 | 0.0 | 5.5 | 5.1 |
| EP   | 5.0   | 5.7 | 5.7 | ND     | 0.0 | 5.7 | 0.0 | 6.5 | 5.0 |
| GWP incl. biogenic   | 5.4   | 5.7 | 5.1 | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.5 |
| ODP  | 3.8   | 5.7 | 6.3 | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.2 |
| Resources  | 5.9   | 5.7 | 5.6 | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 6.1 |
| SFP  | 5.3   | 5.7 | 5.4 | ND     | 0.0 | 5.7 | 0.0 | 5.7 | 5.1 |
| The use of modules A1-A3 without considering the results of module C is not recommended. |       |     |     |        |     |     |     |     |     |

## PGP-ADJ

| EF 3.1 (EN 15804 +A2) Results per declared unit of PGP-ADJ |       |     |     |        |     |     |     |     |     |
|--|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator  | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| GWP-GHG  | 1.0   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| GWP-total  | 1.0   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| GWP-fossil   | 1.0   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| GWP-biogenic   | 1.0   | 0.0 | 1.0 | ND     | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 |
| GWP-luluc  | 1.0   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| ODP  | 0.5   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| AP   | 1.1   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| EP-freshwater  | 1.0   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| EP-marine  | 1.1   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |

| EF 3.1 (EN 15804 +A2) Results per declared unit of PGP-ADJ |       |     |     |        |     |     |     |     |     |
|--|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator  | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| EP-terrestrial   | 1.1   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| POCP   | 1.1   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| ADP-minerals & metals                                      | 1.0   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| ADP-fossil   | 1.0   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| WDP  | 1.0   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |

The use of modules A1-A3 without considering the results of module C is not recommended.

| TRACI and IPCC AR6 for GWP Results per declared unit of PGP-ADJ |       |     |     |        |     |     |     |     |     |
|---|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator   | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| AP  | 1.1   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| EP  | 1.0   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| GWP incl. biogenic  | 1.0   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| ODP   | 0.5   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Resources   | 1.0   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| SFP   | 1.1   | 1.0 | 1.0 | ND     | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 |

The use of modules A1-A3 without considering the results of module C is not recommended.

## SRM-04

| EF 3.1 (EN 15804 +A2) Results per declared unit of SRM-04 |       |     |     |        |     |     |     |     |     |
|---|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator   | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| GWP-GHG   | 0.6   | 0.6 | 2.1 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 1.1 |
| GWP-total   | 0.6   | 0.6 | 0.8 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 1.1 |
| GWP-fossil  | 0.6   | 0.6 | 9.8 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 1.1 |
| GWP-biogenic  | 0.9   | 0.0 | 0.7 | ND     | 0.0 | 0.0 | 0.0 | 0.6 | 0.7 |
| GWP-luluc   | 0.6   | 0.6 | 1.1 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |

| EF 3.1 (EN 15804 +A2) Results per declared unit of SRM-04 |       |     |     |        |     |     |     |     |     |
|---|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator   | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| ODP   | 0.3   | 0.6 | 1.9 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.9 |
| AP  | 0.7   | 0.6 | 0.9 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.8 |
| EP-freshwater   | 0.4   | 0.6 | 2.8 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| EP-marine   | 0.7   | 0.6 | 0.9 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.8 |
| EP-terrestrial  | 0.7   | 0.6 | 0.9 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.8 |
| POCP  | 0.7   | 0.6 | 0.9 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.8 |
| ADP-minerals & metals                                     | 0.5   | 0.6 | 1.2 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.9 |
| ADP-fossil  | 0.6   | 0.6 | 1.3 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 1.5 |
| WDP   | 0.5   | 0.6 | 3.0 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 1.0 |

The use of modules A1-A3 without considering the results of module C is not recommended.

| TRACI and IPCC AR6 for GWP Results per declared unit of SRM-04 |       |     |     |        |     |     |     |     |     |
|--|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator  | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| AP   | 0.7   | 0.6 | 0.8 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.8 |
| EP   | 0.6   | 0.6 | 1.3 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.7 |
| GWP incl. biogenic   | 0.6   | 0.6 | 0.8 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 1.1 |
| ODP  | 0.3   | 0.6 | 1.9 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.9 |
| Resources  | 0.6   | 0.6 | 1.2 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 1.6 |
| SFP  | 0.7   | 0.6 | 1.1 | ND     | 0.0 | 0.6 | 0.0 | 0.6 | 0.8 |

The use of modules A1-A3 without considering the results of module C is not recommended.

## I-20-04

| EF 3.1 (EN 15804 +A2) Results per declared unit of I-20-04 |       |     |     |        |     |     |     |     |     |
|--|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator  | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| GWP-GHG  | 1.2   | 1.2 | 2.4 | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.4 |

| EF 3.1 (EN 15804 +A2) Results per declared unit of I-20-04 |       |     |      |        |     |     |     |     |     |
|--|-------|-----|------|--------|-----|-----|-----|-----|-----|
| Indicator  | A1-A3 | A4  | A5   | B1- B7 | C1  | C2  | C3  | C4  | D   |
| GWP-total  | 1.2   | 1.2 | 1.1  | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.4 |
| GWP-fossil   | 1.2   | 1.2 | 10.1 | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.4 |
| GWP-biogenic   | 1.3   | 0.0 | 1.0  | ND     | 0.0 | 0.0 | 0.0 | 1.2 | 1.0 |
| GWP-luluc  | 1.1   | 1.2 | 1.4  | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.0 |
| ODP  | 0.6   | 1.2 | 2.2  | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.2 |
| AP   | 1.6   | 1.2 | 1.2  | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.1 |
| EP-freshwater  | 0.7   | 1.2 | 3.1  | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.0 |
| EP-marine  | 1.3   | 1.2 | 1.2  | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.1 |
| EP-terrestrial   | 1.3   | 1.2 | 1.2  | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.1 |
| POCP   | 1.3   | 1.2 | 1.2  | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.1 |
| ADP-minerals & metals                                      | 1.3   | 1.2 | 1.5  | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.2 |
| ADP-fossil   | 1.1   | 1.2 | 1.6  | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.8 |
| WDP  | 1.2   | 1.2 | 3.3  | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.3 |

The use of modules A1-A3 without considering the results of module C is not recommended.

| TRACI and IPCC AR6 for GWP Results per declared unit of I-20-04 |       |     |     |        |     |     |     |     |     |
|---|-------|-----|-----|--------|-----|-----|-----|-----|-----|
| Indicator   | A1-A3 | A4  | A5  | B1- B7 | C1  | C2  | C3  | C4  | D   |
| AP  | 1.5   | 1.2 | 1.1 | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.1 |
| EP  | 1.1   | 1.2 | 1.6 | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.0 |
| GWP incl. biogenic  | 1.2   | 1.2 | 1.1 | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.4 |
| ODP   | 0.7   | 1.2 | 2.2 | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.2 |
| Resources   | 1.1   | 1.2 | 1.6 | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.9 |
| SFP   | 1.3   | 1.2 | 1.4 | ND     | 0.0 | 1.2 | 0.0 | 1.2 | 1.1 |

The use of modules A1-A3 without considering the results of module C is not recommended.



## **Additional social and economic information**

No additional social and economic information is declared.

## **Information related to Sector EPD**

This is an individual EPD®.

## **Differences versus previous versions**

This is the first version of the EPD®.

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