# ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

## SWEDOOR ADVANCE-LINE

4210 STEEL DOOR. EI30 - EI120 WITH OR WITHOUT RC4. UNGLAZED

## JELD-WEN

**EPD HUB, EPD number HUB-4886**
Published on 16.01.2026, last updated on 16.01.2026, valid until 15.01.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

# GENERAL INFORMATION

## MANUFACTURER

| | |
|---|---|
| Manufacturer | JELD-WEN |
| Address | Retford Road, Woodhouse Mill, Sheffield, South Yorkshire, S13 9WH, United Kingdom |
| Contact details | EU_Sustainability@jeldwen.com |
| Website | www.jeld-wen.biz |

## EPD STANDARDS, SCOPE AND VERIFICATION

| | |
|---|---|
| Program operator | EPD Hub, hub@epdhub.com |
| Reference standard | EN 15804:2012+A2:2019/AC:2021 and ISO 14025 |
| PCR | EPD Hub Core PCR Version 1.2, 24 Mar 2025<br>EN 17213 Windows and doors |
| Sector | Construction product |
| Category of EPD | Third party verified EPD |
| Scope of the EPD | Cradle to gate with options, A4-A5, and modules C1-C4, D |
| EPD author | Piia Peever, JELD-WEN |
| EPD verification | Independent verification of this EPD and data, according to ISO 14025:<br>☐ Internal verification ☑ External verification |
| EPD verifier | Vera Durão, as an authorised verifier acting for EPD Hub Limited |

## PRODUCT

| | |
|---|---|
| Product name | Swedoor ADVANCE-LINE 4210 Steel door. EI30 - EI120 with or without RC4. Unglazed |
| Place(s) of raw material origin | Europe |
| Place of production | Tallinn, Estonia, Horsens, Hedehusene,Denmark, Forserum, Sweden |
| Place(s) of installation and use | Baltics, Nordic countries |
| Period for data | Calendar year 2024 |
| Averaging in EPD | No grouping |

## ENVIRONMENTAL DATA SUMMARY

| | |
|---|---|
| Declared unit | 1 square meter of door based on a standard size door |
| Declared unit mass | 62,49 kg |
| GWP-fossil, A1-A3 ($kgCO_2e$) | 235 |
| GWP-total, A1-A3 ($kgCO_2e$) | 207 |
| Secondary material, inputs (%) | 13,9 |
| Secondary material, outputs (%) | 74,3 |
| Total energy use, A1-A3 (kWh) | 891 |
| Net freshwater use, A1-A3 ($m^3$) | 1,25 |

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

# PRODUCT AND MANUFACTURER

## ABOUT THE MANUFACTURER

Headquartered in Charlotte, N.C., USA, JELD-WEN is a leading global manufacturer of high-performance interior and exterior building products, offering one of the broadest selections of windows, interior and exterior doors, and wall systems. JELD-WEN delivers a differentiated customer experience, providing construction professionals with durable, energy-efficient products and labor-saving services that help them maximize productivity and create beautiful, secure spaces for all to enjoy. The JELD-WEN team is driven by innovation and committed to creating safe, sustainable environments for customers, associates, and local communities. The JELD-WEN family of brands includes JELD-WEN® worldwide; LaCantina™ and VPI™ in North America; and Swedoor® and DANA® in Europe. Visit JELD-WEN.com for more information.

## PRODUCT DESCRIPTION

Metal doors are manufactured from galvanized sheet metal and are available with a variety of surface finishes. These doors are suitable for both interior and exterior applications in residential, commercial, and public buildings. They can be manufactured with classifications for fire resistance, security, exterior use, industrial environments, and acoustic insulation. Enhanced variants are also available, offering additional protection against burglary, ballistic threats, explosions, and radiation.

The scope of this EPD is the full doorset covering the door leaf, frame, threshold and standard hardware and materials for installation. Note: For RC3 apartment doors featuring a wooden threshold, the EPD for wooden threshold (HUB-0967) must be included as an additional component in the project. The reference size of 1,23 m × 2,18 m is used in the LCA to calculate the results for the declared unit (one square meter of the doorset).

The specific technical standards and additional product information for the designs and available classification options can be found on Swedoor website, www.jeld-wen.biz.

## PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass % | Material origin |
|---|---|---|
| Metals | 76 | Europe |
| Minerals | 21 | Europe |
| Fossil materials | 3 | Europe |
| Bio-based materials | - | - |

## BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

| | |
|---|---|
| Biogenic carbon content in product, kg C | 0 |
| Biogenic carbon content in packaging, kg C | 3,48 |

## FUNCTIONAL UNIT AND SERVICE LIFE

| | |
|---|---|
| Declared unit | 1 square meter of door based on a standard size door |
| Mass per declared unit | 62,49 kg |

## SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

# PRODUCT LIFE-CYCLE

## SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

| Product stage | | | Assembly stage | | Use stage | | | | | | | End of life stage | | | | Beyond the system boundaries | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D | | |
| x | x | x | x | x | ND | | | | | | | x | x | x | x | x | | |
| Raw materials | Transport | Manufacturing | Transport | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction/ demolition | Transport | Waste processing | Disposal | Reuse | Recovery | Recycling |

*Not declared = ND.*

## MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission. A market-based approach is used in modelling the electricity mix utilized in the factory.

The manufacturing process begins with order management and material sourcing. Production starts with sheet metal processing, which involves punching and cutting, and bending. The semi-finished components are assembled on various production lines to door leaves and door frames. The door leaf typically comprises two or three layers of sheet metal, with stone wool, gypsum boards, reinforcement elements, and adhesives. Door frames undergo welding before being matched with the door leaves for painting. The process then moves to final assembly, where sealings, hardware, and other components are installed to complete the product. Before packaging, each item undergoes quality control. The final steps are packing and delivery. Products are packaged using thermally treated wood to create custom transport packing for doors, with additional shrink-wrap and foam-film applied to protect against scrapes. All waste is collected by type, metal is sold to a scrap dealer other materials are disposed of by the municipality waste management.

## TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation distance is calculated based on the product-specific sales data, taking into account warehouses and the end customer locations; weighted average result is being used. The transportation method is assumed to be lorry and ferry. Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product are packaged properly. Installation includes the generated packaging waste. There is no loss on site during construction activities. Energy use during installation has not been taken into account, as installing the door only requires mounting and fastening.

## PRODUCT USE AND MAINTENANCE (B1-B7)

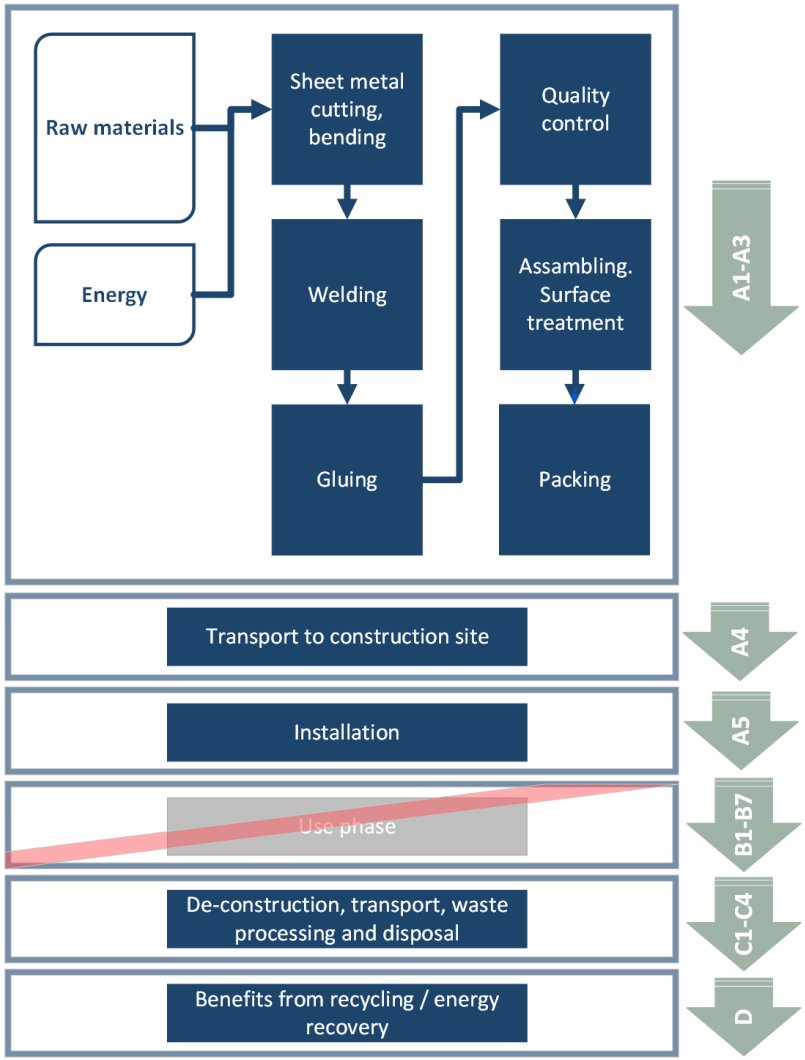
Air, soil, and water impacts during the use phase have not been studied.

## PRODUCT END OF LIFE (C1-C4, D)

The energy and use of natural resources upon demolition process are considered negligible. Assumptions regarding the waste management are given regarding the sorting practices and transport distance. The waste collecting vehicle is assumed to a lorry and the waste is assumed to be part of the mixed construction waste-fraction. The travel distance of the lorry carrying the waste from the demolition site to the waste handling site is assumed to be 50 kilometers.

End Of Life (EOL) scenarios have been based on default scenarios given in standard EN 17213 Annex B (Windows and doors -Environmental Product Declarations - Product category rules for windows and pedestrian doorsets). The EOL scenario is representative of Europe It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed to have the same weight as the declared product. All the end-of-life products are assumed to be sent to the closest facilities such as recycling or landfill. Transportation distance to the closest disposal area is estimated as 100 km and the transportation method is assumed as lorry which is the most common option. It is assumed that 100% of the products are collected via dismantling that does not require any energy or resources. Waste treatment includes shredding and sorting for all materials. The recovery rate for metal extraction is assumed to be 95% that will get recycled, with a 100% rate or recovery. The remaining 5% of metal is assumed to be landfilled with other inert materials. Non-metal inert materials are landfilled, combustible materials are sent to incineration. It is assumed that the metals enter the market as metal scrap to be used as input for electric arc furnaces. The recycling rate for metals is assumed to be 100%. The wooden and plastic packaging used during transportation is also incinerated for energy recovery or recycled. The benefits and loads of incineration and recycling are included in Module D.

## SYSTEM DIAGRAM



# LIFE-CYCLE ASSESSMENT

## CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

## VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

## ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

| Data type | Allocation |
|---|---|
| Raw materials | No allocation |
| Packaging material | Allocated by mass or volume |
| Ancillary materials | Allocated by mass or volume |
| Manufacturing energy and waste | Allocated by mass or volume |

## PRODUCT & MANUFACTURING SITES GROUPING

| | |
|---|---|
| Type of grouping | No grouping |
| Grouping method | Not applicable |
| Variation in GWP-fossil for A1-A3, % | Not applicable |

This EPD is product and factory specific.

## LCA SOFTWARE AND BIBLIOGRAPHY

One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.3.

Ecoinvent v3.10.1/3.11 and One Click LCA databases.

ISO 14025:2010. Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

ISO 14040:2006. Environmental management – Life cycle assessment – Principles and framework.

ISO 14044:2006. Environmental management – Life cycle assessment – Requirements and guidelines.

EN 15804:2012+A2:2019/AC:2021. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

EN 17213:2020 Windows and doors - Environmental Product Declarations - Product category rules for windows and pedestrian doorsets

Eriksson, O., & Finnveden, G. (2017). Energy recovery from waste incineration—The importance of technology data and system boundaries on $CO_2$ emissions. Energies, 10(4), 539. https://doi.org/10.3390/en10040539

# ENVIRONMENTAL IMPACT DATA

*The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.*

## CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP – total[1)] | kg $CO_2$e | 2,11E+02 | 3,65E+00 | -7,69E+00 | 2,07E+02 | 3,41E+00 | 1,30E+01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 6,70E-01 | 1,44E+00 | 1,84E+00 | -4,29E+01 |
| GWP – fossil | kg $CO_2$e | 2,26E+02 | 3,65E+00 | 5,05E+00 | 2,35E+02 | 3,41E+00 | 2,59E-01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 6,69E-01 | 1,46E+00 | 1,84E+00 | -4,28E+01 |
| GWP – biogenic | kg $CO_2$e | -1,49E+01 | 7,61E-04 | -1,28E+01 | -2,77E+01 | 0,00E+00 | 1,28E+01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 1,41E-04 | -2,16E-02 | -9,41E-05 | -1,53E-02 |
| GWP – LULUC | kg $CO_2$e | 1,98E-01 | 1,37E-03 | 1,86E-02 | 2,18E-01 | 1,28E-03 | 2,51E-04 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 2,52E-04 | 1,44E-03 | 1,25E-04 | -1,23E-02 |
| Ozone depletion pot. | kg $CFC\text{-}_{11}$e | 1,84E-06 | 7,34E-08 | 1,73E-07 | 2,09E-06 | 6,86E-08 | 2,79E-09 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 1,35E-08 | 1,51E-08 | 1,46E-08 | -4,49E-08 |
| Acidification potential | mol $H^+$e | 2,18E+00 | 1,18E-02 | 2,42E-02 | 2,22E+00 | 1,10E-02 | 7,11E-04 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 2,16E-03 | 1,27E-02 | 1,91E-03 | -1,87E-01 |
| EP-freshwater[2)] | kg Pe | 1,35E-01 | 2,46E-04 | 1,50E-03 | 1,37E-01 | 2,30E-04 | 6,26E-05 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 4,51E-05 | 6,83E-04 | 2,63E-05 | -1,52E-02 |
| EP-marine | kg Ne | 2,26E-01 | 4,00E-03 | 5,80E-03 | 2,36E-01 | 3,74E-03 | 2,58E-04 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 7,34E-04 | 3,04E-03 | 6,14E-04 | -2,56E-02 |
| EP-terrestrial | mol Ne | 8,10E+00 | 4,35E-02 | 6,15E-02 | 8,21E+00 | 4,07E-02 | 1,95E-03 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 7,99E-03 | 3,20E-02 | 5,17E-03 | -4,31E-01 |
| POCP ("smog")[3)] | kg NMVOCe | 6,50E-01 | 1,92E-02 | 2,93E-02 | 6,98E-01 | 1,79E-02 | 7,17E-04 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 3,52E-03 | 9,57E-03 | 2,62E-03 | -1,21E-01 |
| ADP-minerals & metals[4)] | kg Sbe | 5,10E-03 | 1,01E-05 | 2,35E-05 | 5,13E-03 | 9,42E-06 | 8,46E-07 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 1,85E-06 | 7,31E-05 | 7,97E-07 | -6,39E-04 |
| ADP-fossil resources | MJ | 2,45E+03 | 5,28E+01 | 1,02E+02 | 2,61E+03 | 4,94E+01 | 2,69E+00 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 9,70E+00 | 1,51E+01 | 1,02E+01 | -3,57E+02 |
| Water use[5)] | $m^3$e depr. | 4,55E+01 | 2,70E-01 | 2,79E+01 | 7,37E+01 | 2,53E-01 | 5,45E-02 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 4,97E-02 | 2,71E-01 | 3,83E-02 | 6,67E+00 |

*1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.*

## ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Particulate matter | Incidence | 1,94E-05 | 3,62E-07 | 4,81E-07 | 2,02E-05 | 3,39E-07 | 1,07E-08 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 6,66E-08 | 1,81E-07 | 2,96E-08 | -3,35E-06 |
| Ionizing radiation[6)] | kBq U235e | 7,47E+00 | 6,37E-02 | 1,56E+00 | 9,10E+00 | 5,96E-02 | 3,69E-02 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 1,17E-02 | 1,19E-01 | 8,01E-03 | -7,74E-01 |
| Ecotoxicity (freshwater) | CTUe | 1,78E+03 | 6,23E+00 | 2,20E+01 | 1,81E+03 | 5,82E+00 | 7,05E-01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 1,14E+00 | 9,10E+00 | 2,49E+00 | 3,40E+02 |
| Human toxicity, cancer | CTUh | 9,92E-08 | 6,01E-10 | 1,52E-09 | 1,01E-07 | 5,62E-10 | 8,63E-11 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 1,10E-10 | 1,61E-09 | 3,28E-09 | 2,01E-08 |
| Human tox. non-cancer | CTUh | 2,21E-06 | 3,43E-08 | 4,06E-08 | 2,28E-06 | 3,21E-08 | 2,22E-09 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 6,30E-09 | 6,57E-08 | 5,87E-09 | 3,21E-06 |
| SQP[7)] | - | 2,41E+03 | 5,30E+01 | 1,66E+03 | 4,12E+03 | 4,98E+01 | 1,61E+00 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 9,77E+00 | 2,82E+01 | 5,27E+00 | -2,12E+02 |

*6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.*

## USE OF NATURAL RESOURCES

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Renew. PER as energy[8)] | MJ | 4,48E+02 | 8,61E-01 | 2,00E+02 | 6,49E+02 | 8,05E-01 | 3,41E-01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 1,58E-01 | 2,63E+00 | 9,59E-02 | -1,99E+02 |
| Renew. PER as material | MJ | 1,14E+02 | 0,00E+00 | 1,13E+02 | 2,27E+02 | 0,00E+00 | -1,13E+02 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | -1,08E+02 | -5,70E+00 | 0,00E+00 |
| Total use of renew. PER | MJ | 5,62E+02 | 8,61E-01 | 3,14E+02 | 8,77E+02 | 8,05E-01 | -1,13E+02 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 1,58E-01 | -1,06E+02 | -5,60E+00 | -1,99E+02 |
| Non-re. PER as energy | MJ | 2,43E+03 | 5,28E+01 | 7,67E+01 | 2,56E+03 | 4,94E+01 | -2,99E+01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 9,70E+00 | -4,97E+01 | -1,88E+00 | -4,04E+02 |
| Non-re. PER as material | MJ | 1,63E+00 | 0,00E+00 | 3,26E+01 | 3,42E+01 | 0,00E+00 | -3,26E+01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | -1,55E+00 | -8,15E-02 | 0,00E+00 |
| Total use of non-re. PER | MJ | 2,43E+03 | 5,28E+01 | 1,09E+02 | 2,59E+03 | 4,94E+01 | -6,25E+01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 9,70E+00 | -5,13E+01 | -1,96E+00 | -4,04E+02 |
| Secondary materials | kg | 8,71E+00 | 2,29E-02 | 3,75E-02 | 8,77E+00 | 2,14E-02 | 3,58E-03 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 4,20E-03 | 2,11E-02 | 3,77E-03 | 2,73E+01 |
| Renew. secondary fuels | MJ | 6,33E-02 | 2,88E-04 | 2,87E-02 | 9,23E-02 | 2,70E-04 | 2,80E-05 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 5,29E-05 | 8,11E-04 | 1,71E-05 | 2,11E-02 |
| Non-ren. secondary fuels | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of net fresh water | $m^3$ | 1,18E+00 | 7,79E-03 | 6,08E-02 | 1,25E+00 | 7,30E-03 | 1,40E-03 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 1,43E-03 | 6,96E-03 | 2,94E-03 | -1,39E+00 |

*8) PER = Primary energy resources.*

## END OF LIFE – WASTE

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 1,56E+01 | 7,65E-02 | 2,31E-01 | 1,59E+01 | 7,15E-02 | 1,32E-02 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 1,40E-02 | 1,06E-01 | 3,57E-02 | -2,52E+01 |
| Non-hazardous waste | kg | 2,37E+02 | 1,53E+00 | 1,97E+01 | 2,58E+02 | 1,43E+00 | 5,08E-01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 2,81E-01 | 4,69E+00 | 6,02E-01 | 6,33E+02 |
| Radioactive waste | kg | 8,28E-03 | 1,58E-05 | 2,32E-04 | 8,53E-03 | 1,47E-05 | 9,46E-06 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 2,89E-06 | 3,04E-05 | 2,01E-06 | -1,54E-04 |

## END OF LIFE – OUTPUT FLOWS

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Components for re-use | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Materials for recycling | kg | 1,47E+01 | 0,00E+00 | 3,18E-13 | 1,47E+01 | 0,00E+00 | 7,67E-01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 4,51E+01 | 0,00E+00 | 0,00E+00 |
| Materials for energy rec | kg | 0,00E+00 | 0,00E+00 | 1,66E-21 | 1,66E-21 | 0,00E+00 | 5,46E+00 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 1,31E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy – Electricity | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy – Heat | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |

## ADDITIONAL INDICATOR – GWP-GHG

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP-GHG[9)] | kg $CO_2e$ | 2,26E+02 | 3,65E+00 | 5,07E+00 | 2,35E+02 | 3,41E+00 | 2,60E-01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 6,70E-01 | 1,46E+00 | 1,84E+00 | -4,29E+01 |

*9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero.*

# THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Vera Durão, as an authorised verifier acting for EPD Hub Limited

16.01.2026