



Environmental Product Declaration

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

XPS Thermal Insulation Boards- Type VI

from

Al-Sharq Polystyrene Factory Company Limited

Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Licensee	EPD Saudi Arabia
Type of EPD:	EPD of Single product from manufacturer
EPD registration number:	EPD-IES-0028906
Version date:	2026-03-23
Validity date:	2031-03-22

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com.



General information

Programme Information	
Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	support@environdec.com

Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): <i>PCR 2019:14 Construction products (EN 15804+A2) (2.0.1)</i>
PCR review was conducted by: <i>The Technical Committee of the International EPD System. A full list of members is available on www.environdec.com. The review panel may be contacted via support@environdec.com. Chairs of the PCR review: Rob Rouwette (chair), Noa Meron (co-chair)</i>
c-PCR: <i>Thermal insulation products (EN 16783) (c-PCR to PCR 2019:14) (1.0.0) Version: 2025-04-08</i>

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
☒ Individual EPD verification without a pre-verified LCA/EPD tool
Third-party verifier: Vijay Thakur, Eco-Assure Verification & Advisory
Approved by: 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 published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit 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 identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); 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: M/s Al-Sharq Polystyrene Factory Company Limited

Contact: Engr. Sunil D Vishwakarma

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Address: Al-Sharq Polystyrene Factory Co. Ltd (SPF)

Extruded Polystyrene (XPS) Factory

2nd Industrial City, Street 85,

Building No: 6939, District Code: 3663

Postal Code: 34332

City Dammam, Kingdom of Saudi Arabia

Company Website: www.stayromax.com

Address and contact information of the LCA practitioner commissioned by the EPD owner:

Envirolink LLC

Rajesh Prabhu

Sales & Program Director – Middle East

00971-54-313 9696 / 00971-55-721 9696

www.envirolink.me

Description of the organisation: Al Sharq Polystyrene Factory Company Limited (SPF) is a premier Saudi Arabian manufacturer specializing in advanced thermal insulation solutions. Powered by world-class European technology, we produce high-performance Extruded Polystyrene (XPS) insulation boards tailored for residential, commercial, and industrial applications throughout the Middle East and international markets. By utilizing state-of-the-art extrusion lines and integrated in-house recycling systems, we maximize material efficiency and minimize environmental impact, ensuring our solutions meet the highest global standards.

Product information

Product name: XPS Thermal Insulation Boards- Type VI

Product identification: The product is marketed under the brand name **Stayromax XPS Insulation Panels**.

Product description: In accordance with ASTM C578 Type VI, this grade is characterized by a minimum compressive strength of 40 psi (≈ 276 kPa) and a minimum density of approximately 29 kg/m³. The product is designed for structural insulation applications requiring reliable load-bearing performance, moisture resistance, and stable thermal properties throughout its service life.

Product Applications

Typical applications include:

- Insulation beneath heavy duty commercial and industrial floor slabs
- Warehouse and logistics center flooring systems
- Roof insulation systems subjected to elevated mechanical loads
- Foundation and basement insulation under significant soil and structural pressure
- Below-grade insulation in areas requiring enhanced load bearing capacity

Visual representation of the product:



UN CPC code: 369 Other plastics products

Name and location of production site(s): M/s Al-Sharq Polystyrene Factory Company Limited,
P.O.Box 936, Thuraiya Building, Al Shatie Dist, Khaleej Road
Dammam, K.S.A - 31421

More information: <https://www.stayromax.com/>

Content declaration

Declared unit: 1 m³ of Type VI- XPS Thermal Insulation Board

The mass (weight) per declared unit: 29 kg/ m³

R-value: 0.88 K·m²/W

Available Thickness: 25 mm- 200 mm

Content of the product in the form of a list of materials and substances, and their mass:

Product content*	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
General Purpose Polystyrene	28.71	-	-	-
Fire Retardant	0.058	-	-	-
Colorants	0.0029	-	-	-
Nucleating agent- Talc	0.2291	-	-	-
TOTAL	29.000	-	-	-

*in terms of composition, the difference between product variants is negligible

The mass and the content of distribution and/or consumer packaging

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/product or declared unit
Low Density Polyethylene bag	0.6019	2.07%	-
Bio-PE Label	0.0190	0.07%	0.005
Stretch film-Plastic	0.1437	0.5%	-
TOTAL	0.7646	2.64%	0.005

Information on the environmental and hazardous/toxic properties of a substances contained in the product: The product does not contain any REACH SVHC substances in amounts greater than 0.1 % (1000 ppm).

Other information on substances with hazardous and toxic properties: none to declare

LCA information

Declared unit: 1 m³ of Type VI- XPS Thermal Insulation Board

Reference service life: NA

Time representativeness: Jan 2025 – Dec 2025

Geographical scope: A1, A2, A3 –Kingdom of Saudi Arabia
A4-A5, C1-C4 & D – Middle East

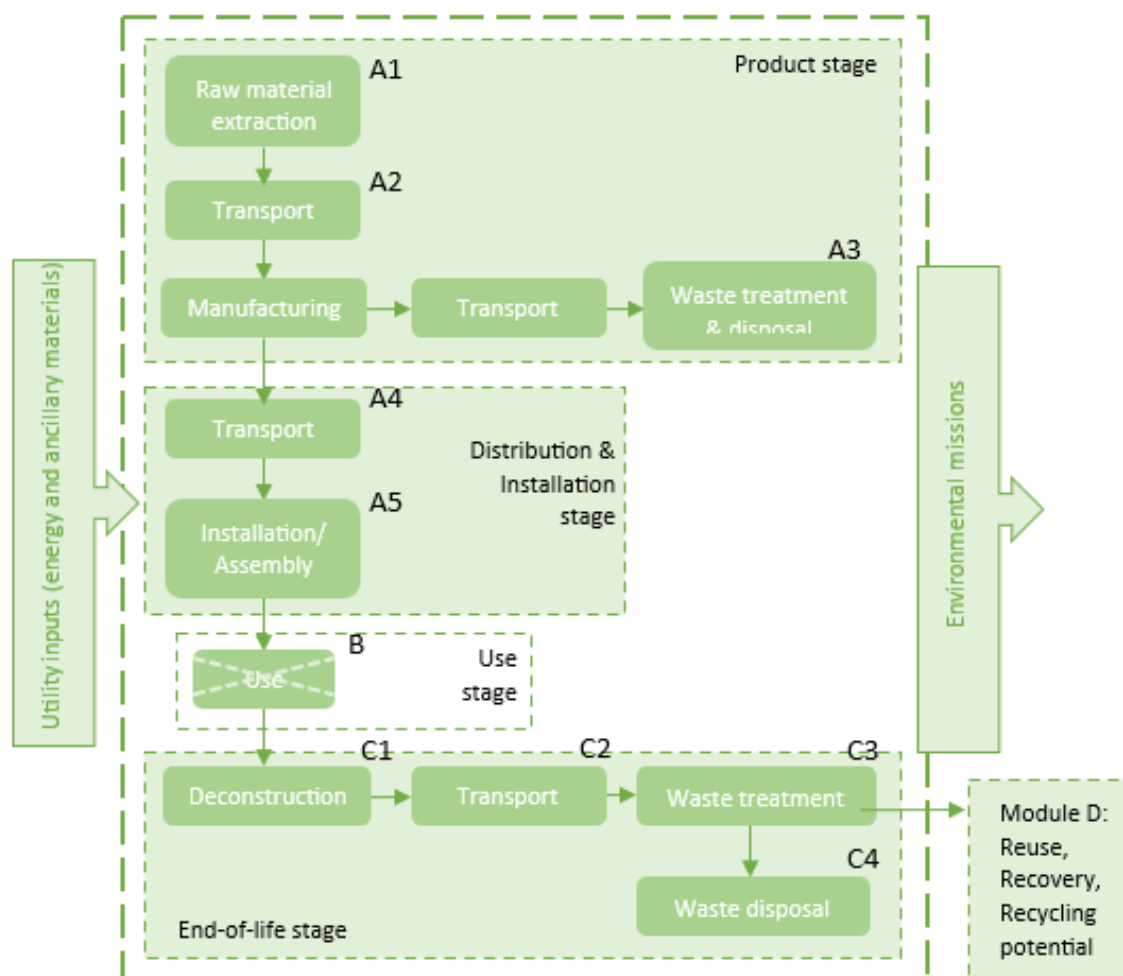
Database(s) and LCA software used: Ecoinvent 3.10.1 database and One Click LCA database. The LCA software used is One Click LCA EPD Generator.

EPD/LCA Tool used: EPD Generator - Ecoinvent 3.10.1.

Description of system boundaries: cradle-to-gate with options, modules C1-C4, module D and optional modules A4-A5.

The Use stage (B1-B7) is optional and out of scope of this study.

Process flow diagram:



More information:

Allocation: In this study, allocation could not be avoided for Packaging, Ancillary material and Energy consumption as the information was only measured on factory or production process level. The inputs were allocated to studied product based on annual production volume (volume and mass allocation). The allocations in the Ecoinvent 3.10.1 datasets used in this study follow the Ecoinvent system model 'Allocation, cut-off, EN15804'.

GWP-GHG intensity of recycled material: None to declare

Data quality: Specific data has been taken on the amounts of materials and energy used during the life cycle of the product. These data have been supplied by the manufacturer, referring to the calendar year 2024, and come from direct factory data. The quality of the specific data is consistent with the standards used. The data was examined carefully, and clarifications requested from the Manufacturer when necessary.

Generic data have been taken on the impact per unit of matter or energy. These data have been obtained from the Ecoinvent database, of recognized international prestige, in its version 3.10.1. Said database has been selected as the reference database because it coincides with the input flows of matter and energy on the following aspects:

- Technological equivalence: the data derives from the same physical and chemical processes, or at least the same technological coverage.
- Limits towards nature: the data contains all the quantitative information necessary for the EPD.
- Limits towards technical systems: the considered stages of the life cycle are equivalent.

The treatment and processing of the data has been carried out in accordance with the international standards ISO 14025, ISO 14040, ISO 14044, ISO 21930:2017 and EN15804:2012 + A2:2019/AC:2021.

The Data Quality Indicator (DQI) assessment, conducted in accordance with EN 15941 and EN 15804 Annex E, indicates that overall data quality is **Very Good to Good**. Inventory data across modules A1–A3, A4-A5, and C1–C4 is predominantly of high quality, supported by primary supplier and manufacturer-specific data, with no datasets rated as poor. Environmental (background) data is also largely rated Good to Very Good, reflecting the use of recent and representative datasets. Some datasets are assessed as Fair or Good in specific criteria due to the use of generic or regional data (affecting geographical representativeness) and proxy datasets (affecting technical representativeness). No fair category datasets contribute over 30% of the total impacts for any of the declared indicators. Overall, the data quality is considered robust, conservative, and fully compliant with EN 15941 requirements, with no significant impact on the reliability of the study.

Total share of primary data: 21.55%

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Manufacturing of main product	Database	Ecoinvent 3.10.1	2025	Secondary data	0%
Generation of electricity used in manufacturing of product	Database	Ecoinvent 3.10.1	2025	Primary data	21.51%
Transport of raw materials, packaging and ancillary materials	Collected data	Distance: manufacturer	2025	Primary data	0.04%
Production of packaging & ancillary	Database	Ecoinvent 3.10.1	2025	Secondary data	0%
Other processes	Database	Ecoinvent 3.10.1	2025	Secondary data	0%
Total share of primary data, of GWP-GHG results for A1-A3					21.55%

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

Modelling of infrastructure/capital goods: 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.

Cut-off rules: The study does not exclude any modules or processes which are stated mandatory in the Standards and 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 are included in the calculation. There is no neglected unit process more than 1% of total mass and energy flows. The total excluded input and output flows do not exceed 5% of energy usage or mass. No flow has been excluded in this study.

Electricity modelling- manufacturing (A3): The source of electricity is 'Market for electricity, medium voltage', Ecoinvent 3.10.1, with an GWP-GHG emission of 1.05 kg CO₂e/kWh.

Electricity modelling- Installation (A5): The source of electricity is 'Market for electricity, medium voltage', Ecoinvent 3.10.1, with an GWP-GHG emission of 1.05 kg CO₂e/kWh.

Fuel modelling- manufacturing (C1): The source of fuel is 'Diesel, burned in building machine', Ecoinvent 3.10.1, with an GWP-GHG emission of 0.1 kg CO₂e/MJ.

Characterisation methods for all declared environmental performance indicators: EN 15804 reference package based on EF 3.1 has been used.

Description of upstream and core processes:

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, electricity and 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.

The production of extruded polystyrene (XPS) insulation boards is a continuous industrial process involving raw material preparation, extrusion, shaping, and product finishing. The main manufacturing steps included in modules A1–A3 are described below.

A1–A3: Raw Material Supply and Inbound Processing

General Purpose Polystyrene (GPPS) pellets arrive in sealed bags or bulk containers and are transferred into storage silos via a de-bagging system. Prior to extrusion, the GPPS is prepared for processing by blending with nucleating agents, colorants, and flame retardants in the required formulation. Blowing agents are supplied to the extrusion system through dedicated injection lines.

Material loss in production is about 20% and all the in-house process scrap, including edge trim and offcuts, is collected and reintroduced into the production cycle. The scrap is processed through a recycling machine using a stabiliser, extruded into granules, and transferred to dedicated silos for controlled incorporation back into the formulation, reducing raw material consumption.

Extrusion, Foaming, and Shaping

The mixed GPPS feed and blowing agents are introduced into a temperature-controlled extruder, where they are melted, homogenized, and pressurized. Upon exiting through a shaping die, a rapid pressure drop triggers foam expansion, forming the closed-cell structure characteristic of XPS insulation products. The foamed board then passes through a calibrator to achieve the required product thickness and surface structure, followed by a primary haul-off system that ensures consistent dimensional stability. Cooling conveyors further stabilize the material before it proceeds to downstream cutting and profiling.

Cutting, Profiling, and Finishing

After cooling and stabilization, the continuous board enters the cutting line, where it is trimmed to the specified length. Additional profiling equipment such as shiplap or tongue and-groove cutters is used to produce interlocking edges when required by the product design.

Depending on product type, boards may undergo additional processing including thermo-bonding or block insertion to meet dimensional or structural specifications. These operations ensure the finished XPS boards meet performance and quality criteria required for building applications.

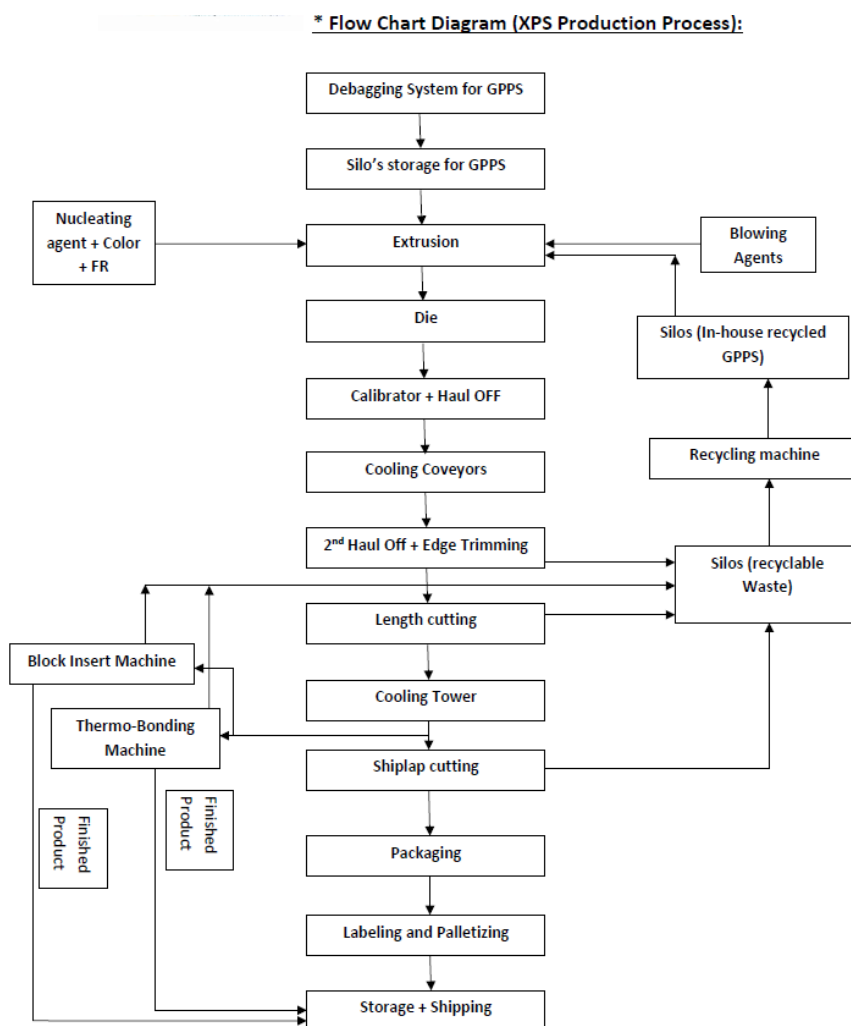
Packaging

Final products are stacked, wrapped, and packaged to protect them during handling and transport. Each packaged product is labelled using PE Label for traceability and moved to storage before shipment to customers or distribution hubs.

Electricity & Ancillaries:

In the factory, electricity is required for the machinery operation. Ancillary materials including Lubricating oils, water, etc. are also taken into account for the LCA study.

Manufacturing Diagram:



Description of scenario(s) used in the modelling of downstream stages and module D:

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 impacts of product distribution include road transport by lorry, both domestically and to different countries in the Middle East. The average distances to destination countries were based on sales data in the reference year.

Transport scenario documentation (A4)

Scenario parameter	Value
Specific transport CO _{2e} emissions, kg CO _{2e} / tkm	Market for transport, freight, lorry >32 metric ton, EURO5; 0.11 kg CO _{2e} / tkm
Average transport distance, km	225
Capacity utilization (including empty return) %	50%
Bulk density of transported products	Approx. 29 kg/m ³
Volume capacity utilization factor	<1

Module A5 accounts for an installation loss of 2%, which includes offcuts and adjustments made when fitting the panels into their designated spaces. Installation activities are assumed to use electric hand tools, with an average energy consumption of 0.02 kWh per kg of installed product. The electricity supply is modelled using world average data. Power tools are typically operated using electricity; therefore, this study assumes the use of average medium-voltage grid electricity representative of the Middle East region, with a GWP-GHG emission factor of 1.05 kg CO₂e per kWh.

Packaging waste is conservatively assumed to take on the market average scenarios on the middle east regions, which comprise mainly of disposal activities such as landfilling.

Installation of the product in the building scenario documentation (A5)

Scenario parameter	Value
Ancillary materials for installation (specified by material)	NA
Water use (m3)	0
Other resource use (kg)	0
Quantitative description of energy type (regional mix) and consumption during the installation process (kWh)	Market group for electricity, medium voltage (world)- 0.58 kWh/DU
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) (kg)	Installation waste – foam cuttings 0.58 kg Packaging wastes – mix plastics 0.78 kg
Output materials (specified by type) as result of waste processing at the building site e.g. of collection for recycling, for energy recovery, disposal (specified by route) (kg)	Disposal of inert waste – foam cuttings 0.58 kg Disposal of packaging wastes – mix plastics 0.78 kg
Direct emissions to ambient air, soil and water (kg)	NA

PRODUCT USE AND MAINTENANCE (B1-B7)

The use phase is not in scope of this study.

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

PRODUCT END OF LIFE (C1-C4)

At the end of life, the product is assumed to be demolished together with the building, becoming part of the mixed construction and demolition (C&D) waste stream. The energy use associated with demolition is estimated at 0.07 kWh/kg, consistent with typical building demolition values (source: Gervasio & Dimova, JRC Technical Report: Model for Life Cycle Assessment (LCA) of Buildings, 2018). (C1)

Following collection, the product is handled together with other C&D waste and transported to local waste treatment facilities, which are expected to be located within a 100 km radius of the demolition site. And so, transport distance of 100 km is conservatively assumed for the movement of demolition waste to a waste handling facility. (C2)

Due to the lack of reliable regional data on construction and demolition waste management in the Middle East, it is conservatively assumed that 100% of the product is sent to landfill. No mass loss is considered during collection or transport prior to final disposal. (C4)

No benefits or burdens from material recovery, reuse, or recycling are claimed. (D)

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	0
Collection process – kg collected with mixed construction waste	29
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0
Recovery process – kg for energy recovery	0
Disposal (total) – kg for final deposition	29
Scenario assumptions – Transportation distance (km)	100
Scenario assumptions – Transportation type	Same as A4

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

	Product stage			Distribution/ installation stage		Use stage							End-of-life stage				Beyond product life cycle
	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	Reuse-Recovery-Recycling- potential
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	KSA	KSA	KSA	ME	ME	-	-	-	-	-	-	-	ME	ME	ME	ME	ME
Share of primary data	21.55% GWP-GHG			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Not applicable			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not applicable			-	-	-	-	-	-	-	-	-	-	-	-	-	-

ND = Module not declared.

ENVIRONMENTAL PERFORMANCE

Mandatory impact category indicators according to EN 15804

Impact category	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	1,57E+02	1,27E+00	3,89E+00	7,32E-01	3,12E-01	0,00E+00	1,82E-01	0,00E+00
GWP – fossil	kg CO ₂ e	1,57E+02	1,27E+00	3,88E+00	7,32E-01	3,12E-01	0,00E+00	1,81E-01	0,00E+00
GWP – biogenic	kg CO ₂ e	-1,68E-02	0,00E+00	1,68E-02	0,00E+00	7,07E-05	0,00E+00	8,14E-05	0,00E+00
GWP – LULUC	kg CO ₂ e	2,11E-02	5,62E-04	4,82E-04	7,50E-05	1,40E-04	0,00E+00	1,04E-04	0,00E+00
Ozone depletion pot.	kg CFC-11e	9,05E-07	1,78E-08	3,00E-08	1,12E-08	4,61E-09	0,00E+00	5,05E-09	0,00E+00
Acidification potential	mol H ⁺ e	6,70E-01	4,23E-03	1,70E-02	6,61E-03	1,06E-03	0,00E+00	1,27E-03	0,00E+00
EP-freshwater ²⁾	kg Pe	3,19E-02	9,88E-05	6,52E-04	2,11E-05	2,43E-05	0,00E+00	1,59E-05	0,00E+00
EP-marine	kg Ne	7,17E-01	1,37E-03	1,65E-02	3,06E-03	3,50E-04	0,00E+00	4,88E-04	0,00E+00
EP-terrestrial	mol Ne	1,22E+00	1,49E-02	3,08E-02	3,35E-02	3,81E-03	0,00E+00	5,33E-03	0,00E+00
POCP (“smog”) ³⁾	kg NMVOCe	6,17E-01	5,90E-03	1,48E-02	1,00E-02	1,57E-03	0,00E+00	1,92E-03	0,00E+00
ADP-minerals & metals ⁴⁾	kg Sbe	2,02E-04	4,17E-06	4,78E-06	2,62E-07	8,71E-07	0,00E+00	2,70E-07	0,00E+00
ADP-fossil resources	MJ	3,14E+03	1,78E+01	7,23E+01	9,57E+00	4,53E+00	0,00E+00	4,44E+00	0,00E+00
Water use ⁵⁾	m ³ e depr.	7,89E+01	8,27E-02	1,62E+00	2,39E-02	2,24E-02	0,00E+00	1,95E-01	0,00E+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.

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.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Additional (optional) environmental impact indicators – EN 15804+A2

Impact category	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Particulate matter	Incidence	1,17E-04	1,01E-07	2,37E-06	1,88E-07	3,13E-08	0,00E+00	2,92E-08	0,00E+00
Ionizing radiation ⁶⁾	kBq U235e	2,93E+00	1,44E-02	6,08E-02	4,24E-03	3,95E-03	0,00E+00	2,66E-03	0,00E+00
Ecotoxicity (freshwater)	CTUe	1,82E+03	2,82E+00	3,73E+01	5,27E-01	6,41E-01	0,00E+00	2,97E+00	0,00E+00
Human toxicity, cancer	CTUh	2,33E-08	2,16E-10	6,02E-10	7,52E-11	5,15E-11	0,00E+00	3,29E-11	0,00E+00
Human tox. non-cancer	CTUh	8,51E-07	1,12E-08	1,93E-08	1,19E-09	2,93E-09	0,00E+00	7,40E-10	0,00E+00
SQP ⁷⁾	-	1,54E+02	1,06E+01	4,49E+00	6,71E-01	4,56E+00	0,00E+00	8,73E+00	0,00E+00

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.

Resource use indicators

Impact category	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	6,19E+01	2,44E-01	1,27E+00	6,06E-02	6,21E-02	0,00E+00	4,15E-02	0,00E+00
Renew. PER as material	MJ	2,43E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	6,22E+01	2,44E-01	1,27E+00	6,06E-02	6,21E-02	0,00E+00	4,15E-02	0,00E+00
Non-re. PER as energy	MJ	1,96E+03	1,78E+01	4,39E+01	9,57E+00	4,53E+00	0,00E+00	4,45E+00	0,00E+00
Non-re. PER as material	MJ	1,18E+03	0,00E+00	2,84E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	3,14E+03	1,78E+01	7,23E+01	9,57E+00	4,53E+00	0,00E+00	4,45E+00	0,00E+00
Secondary materials	kg	2,04E-01	8,01E-03	5,35E-03	3,98E-03	1,93E-03	0,00E+00	1,11E-03	0,00E+00
Renew. secondary fuels	MJ	7,44E-03	1,02E-04	1,57E-04	1,04E-05	2,45E-05	0,00E+00	2,31E-05	0,00E+00
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	-3,46E+01	2,36E-03	-6,95E-01	6,33E-04	6,70E-04	0,00E+00	4,60E-03	0,00E+00

8) PER = Primary energy resources

Additional mandatory and voluntary impact category indicators

Impact category	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	1,57E+02	1,27E+00	3,88E+00	7,32E-01	3,12E-01	0,00E+00	1,82E-01	0,00E+00

10) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.3.2 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO₂ is set to zero.

Waste indicators

Impact category	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	2,69E+00	3,11E-02	5,94E-02	1,07E-02	7,67E-03	0,00E+00	5,06E-03	0,00E+00
Non-hazardous waste	kg	3,66E+04	5,83E-01	7,36E+02	1,45E-01	1,42E-01	0,00E+00	2,90E+01	0,00E+00
Radioactive waste	kg	6,87E-04	3,53E-06	1,43E-05	1,04E-06	9,66E-07	0,00E+00	6,48E-07	0,00E+00

Output flow indicators

Impact category	Unit	A1-A3	A4	A5	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	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	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	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Abbreviations

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
CEN	European Committee for Standardization
SVHC	Substances of Very High Concern
ND	Not Declared

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