ENVIRONMENTAL PRODUCT DECLARATION

Onto/Preto Raised Floor Panel PG-CA

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

Products included in the EPD:

Onto/Preto Raised Floor Panel PG-CA

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

EPD of a single product from a manufacturer/service provider

EPD Owner
UNIGEN YAPI MALZEMELERI AS

Programme
International EPD System
www.environdec.com

Programme operator
EPD International AB

Licensee
EPD Türkiye

Registration number
EPD-IES-0028484:001

Approval date
2026-03-05

Validity date
2031-03-05

GENERAL INFORMATION

Programme information

Programme	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

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)	
Product Category Rules (PCR)	2019:14 Construction products (EN 15804+A2) (version 2.0.1) 2.0.1
PCR review was conducted by	The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Rob Rouwette (chair), Noa Meron (co-chair). The review panel may be contacted via the Secretariat www.environdec.com/support.

Verification

LCA accountability	Irem Yaman, irem@erketasarim.com, ERKE Sustainability Consultancy
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via	☑ EPD verification through an individual EPD verification ☐ EPD verification through EPD Process Certification* ☐ EPD verification through a fully pre-verified tool
Third-party verifier	Ipek Goktas Kalkan (One Click LCA)
Approved by	International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier	☐ Yes ☑ No

*EPD Process Certification involves an accredited certification body certifying and periodically auditing the EPD process and conducting external and independent verification of EPDs that are regularly published. More information can be found in the General Programme Instructions on www.environdec.com.

Ownership and limitations on use of EPD

Limitations

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.

Ownership

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

INFORMATION ABOUT EPD OWNER

EPD Owner	UNIGEN YAPI MALZEMELERI AS
Contact person name	Ahmet Gurkan UMUCU
Contact person e-mail	gurkanumucu@unigen.com.tr
Organisation address	Turkey Istanbul 34755 Inonu Mahallesi Kayisdagi Caddesi Kandis Is Merkezi No 128 Kat 2 Atasehir

Description of the organisation of the EPD Owner

Unigen Yapı Malzemeleri A.Ş., established in 2004, operates in the field of interior flooring solutions for commercial buildings and raised access floor systems. Production of raised floor systems under the Onto® brand started in 2009. In 2020, Unigen expanded its production capabilities by adding the Preto® brand to its existing product portfolio.

Since the start of its raised floor production activities, Unigen has focused on the development and manufacturing of modular raised floor solutions for modern building applications.

Unigen’s production facility is located in Düzce, Türkiye. Research and development activities are carried out in-house and in collaboration with universities to improve product performance, production efficiency, and environmental impact.

Quality, performance, and compliance with international standards are integral parts of Unigen’s production approach. The company operates in accordance with internationally recognized management systems, including ISO 9001 (Quality Management System), ISO 14001 (Environmental Management System), and ISO 45001 (Occupational Health and Safety Management System). Unigen’s raised floor systems are certified in compliance with TS EN 12825, ensuring conformity with European performance and safety requirements. In addition, the company holds product approvals and test certifications such as Reaction to Fire ve Fire Classification, Impact Sound ve Sound Insulation and VOC (Indoor Air Quality).

Unigen adopts a sustainability-focused manufacturing policy and integrates environmental responsibility into its production processes. Renewable energy use, including on-site solar power generation, together with waste recovery, recycling and resource efficiency practices, forms an integral part of the company’s environmental management approach aimed at reducing emissions and minimizing the environmental impacts of manufacturing activities.

Through its production capabilities, R&D activities, certification processes, and environmental initiatives, Unigen aims to deliver durable and responsible raised floor solutions while contributing to sustainable construction practices.

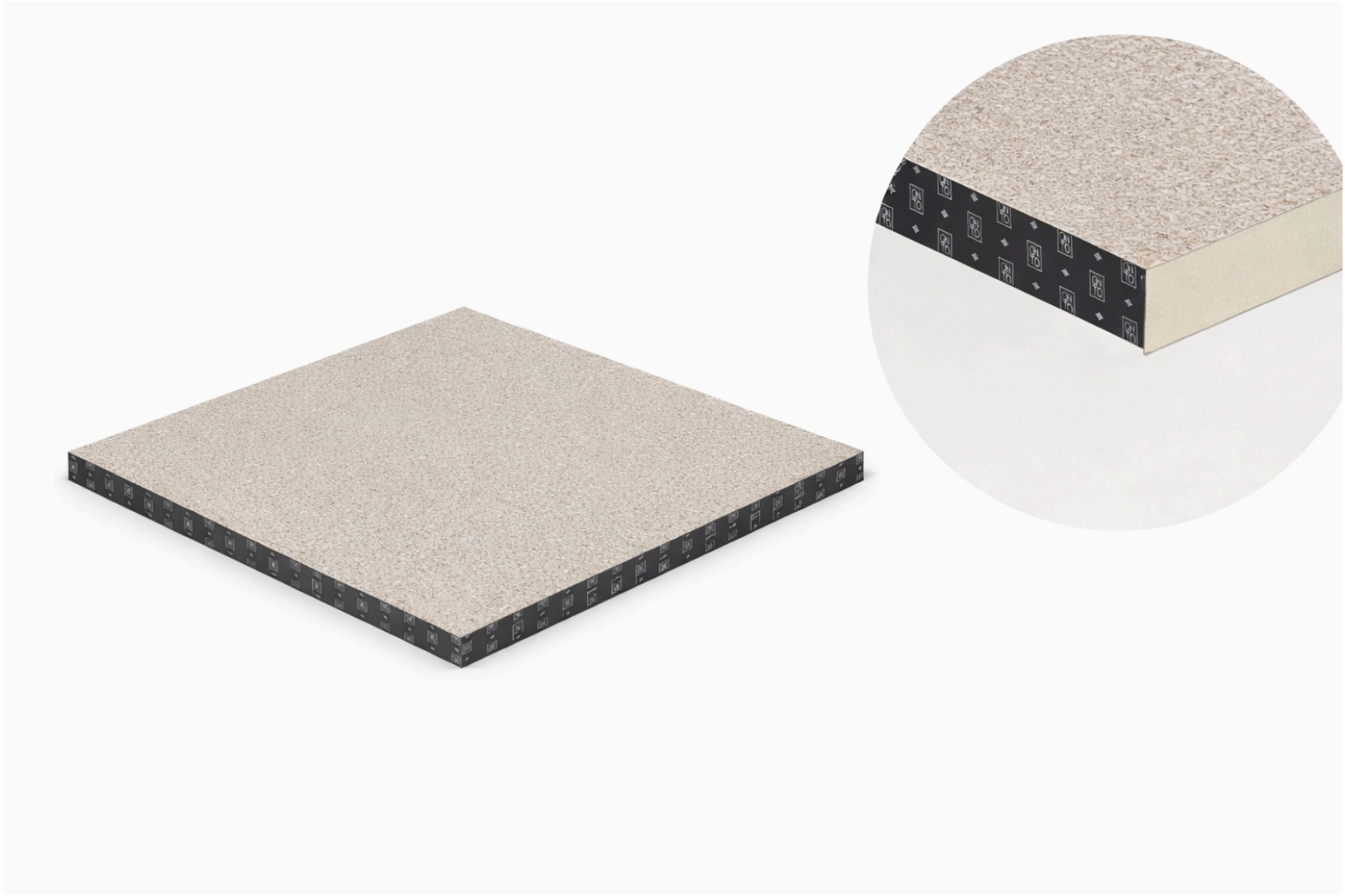

UNIGEN

PRODUCT INFORMATION

Product name	Onto/Preto Raised Floor Panel PG-CA
Product identification	The product is a 32.5 mm raised access floor panel with a UniBoard core and PVC top surface.
Product description	The PG-CA panel is a PVC covered panel with dimensions of 600 × 600 mm. The panel consists of a high-density Uniboard calcium sulphate core. Depending on the required load class of the system, calcium sulphate cores with different thicknesses from 30 mm to 42 mm can be used. The top surface is 2 mm commercial PVC covering, while the bottom surface is covered with galvanised steel sheets with thicknesses of 0.50 mm or 0.40 mm. The panel edges are enclosed with a 0.40 mm or 0.60mm PVC edge band. The raised access floor system is installed as a demountable modular system on a galvanised steel pedestal and stringer substructure, allowing access to the underfloor service void. The main application areas include offices, data centres, server and control rooms, industrial and process areas, banks, airports, educational institutions, hospital, shopping centres, and similar indoor environments. Note: All declared values presented in this EPD are based on a panel with a reference thickness of 32.5 mm.
Product information from external sources	https://www.unigen.com.tr/en/series/pvc-covered-panel
Technical purpose of product	A raised access floor creates a secondary surface above the building floor, enabling efficient management of electrical, mechanical and ventilation installations. The underfloor void allows cables, pipes and ducts to be routed to the required locations quickly and easily, without the need for additional construction works. The demountable modular panel system provides easy access to the installations, facilitating maintenance and modification activities and significantly reducing downtime. Especially in dense office layouts, it enables layout changes to be implemented in an economical and effortless manner. In addition, raised access flooring offers a lighter, faster and more cost-effective solution for compensating floor level differences within buildings compared to conventional screed applications.
Manufacturing or service provision description	The product is a high-density uniboard (UB) calcium sulphate core panel measuring 600 × 600 mm, designed as a modular raised access floor system. The manufacturing process begins with uniboard (UB) production, where the calcium sulphate core is formulated from raw materials. The UB panel ensures dimensional stability and high structural integrity as a base for the PG-CA product. Following UB production, the panel undergoes edge trimming to achieve precise dimensions, gluing, a second edge trimming, edgebanding, and a final gluing operation to complete the PG-CA panel. These sequential operations guarantee consistent product quality, durability, and a high-quality surface finish while facilitating modular installation and ease of maintenance throughout the panel’s service life.
Material properties	Area density: 56.96 kg/m^2 Thickness: 0.0325 m
Manufacturing site	UNIGEN YAPI MALZEMELERI AS Düzce 1. OSB 6. Cadde No:3 Beyköy Merkez Turkey Duzce 81060 Düzce 1. OSB 6. Cadde No:3 Beyköy Merkez

UN CPC code	37520. Boards, blocks and similar articles of vegetable fibre, straw or wood waste agglomerated with mineral binders
Geographical scope(s)	Global
Geographical scope description	The product is manufactured in Türkiye while the use and end of life is Global.

PRODUCT IMAGES



TECHNICAL CHARACTERISTICS AND PERFORMANCE

Technical performance

Product name	Fire Reaction Class (EN 13501)	Impact Sound Reduction (ISO 1625-1)	Airborne Sound Insulation (ISO 10848-2:2020)
PG-CA	A1 (non-combustible)	23 dB	D_n,w (C, C_t) = 49 (−2; −4) dB L_n,w (CI) = 55 (−2) dB

CONTENT DECLARATION

Hazardous and toxic substances	The product does not contain any substances from the SVHC candidate list in concentrations exceeding 0.1% of its weight.

PRODUCT CONTENT

Content name	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material[1], kg C/declared unit
Steel sheet	3.84	2.43	0	0
PVC sheet	2.39	0	0	0
Uniboard	50.17	8.13	3.21	1.83
Edgeband	0.32	0	0	0
Adhesive	0.24	0	0	0
Total	**56.96**	**10.56**	**3.21**	**1.83**
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2			

PACKAGING MATERIALS

Material name	Mass, kg	Mass-% (versus the product)	Biogenic material[1], kg C/declared unit
Wooden pallet	0.5	0.88	0.22
Cardboard	0.02	0.04	0.01
Plastic	0.02	0.04	0
Total	**0.54**	**0.96**	**0.23**
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2		

LCA INFORMATION

EPD based on declared or functional unit	Declared unit
Declared unit and reference flow	Raised Floor Panel Area: 1 m^2
Conversion factor to mass	0.018
Are infrastructure or capital goods included in any upstream, core or downstream processes?	☐ Yes ☑ No
Data sources used for this EPD	ecoinvent database (general) ecoinvent 3.11 database
LCA Software	OpenLCA OpenLCA 2.5.0
Additional information about the underlying LCA-based information	ALLOCATION: The allocation process was conducted by fixing the product output to one unit, with the corresponding product quantity used in the calculations. An average allocation based on the total product mass relative to the annual production volume was applied. Accordingly, the total energy consumption and waste generation associated with the manufacturing process were divided by the total annual production and calculated on a per-unit basis. Raw material allocation was carried out based on the material composition of the final product and the waste generated during production. No co-product allocation was applied. Since electricity and thermal energy are also consumed in the production of other products at the facility, energy inputs were allocated proportionally to the production volume, taking process-specific differences into account. CUT-OFF RULES: This study includes all 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 per unit process. The total neglected input flows per module is less than 5 % of energy usage and mass.
Version of the EN 15804 reference package	EF Reference Package 3.1
Characterisation methods	EF 3.1 Method, as defined in the Environmental Footprint Reference Package 3.1, is used for characterisation in accordance with EN 15804+A2 and the applicable PCR.
Technology description including background system	The manufacturing of the raised access floor panel starts with the Uniboard (UB) production, using high-density calcium sulphate core materials and covering sheets. The production process includes a combination of mechanical and thermal operations: sizing, edge trimming, pressing, drying, and gluing. These operations ensure dimensional accuracy, structural stability, and surface quality for the PG-CA product. Electricity consumption during manufacturing is supplied via a combination of on-site photovoltaic

	generation and residual grid electricity. Background system processes, including raw material production, energy supply, transport, and waste treatment, are modeled using generic datasets from the Ecoinvent v3.11 database, with appropriate geographical and technological representativeness. These background processes support UB and PG-CA manufacturing by providing necessary raw materials, utilities, and managing environmental impacts related to logistics and waste management.
Scrap (recycled material) inputs contribution level	Less than 10% of the GWP-GHG results in modules A1-A3 come from scrap inputs

Data quality assessment

Description of data quality assessment and reference years	The data quality assessment was carried out in accordance with EN 15804:2012+A2:2019 and PCR 2019:14 (v2.0.1). Primary data were collected directly from Unigen Yapı Malzemeleri A.Ş. for the reference year 2024. These data include material inputs, energy consumption, transport distances, water use, and waste generation associated with the manufacturing processes. Secondary data for upstream and downstream processes were obtained from the Ecoinvent v3.11 database. The datasets were selected based on technological, geographical, and temporal representativeness. Overall, the data quality is assessed as good to very good with respect to temporal, geographical, and technological representativeness. The dataset is considered complete, consistent, and appropriate for supporting the intended purpose of this Environmental Product Declaration.

DATA QUALITY ASSESSMENT

Process name	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Generation of electricity used in manufacturing of product	Collection data	EPD Owner Ecoinvent v3.11	2024	Primary data	3.5%
Transport of raw materials	Collection data	EPD Owner Ecoinvent v3.11	2024	Primary data	12.3%
Total share of primary data, of GWP-GHG results for A1-A3					**15.8%**
Note	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.				

ELECTRICITY USED IN THE MANUFACTURING PROCESS IN A3 (A5 FOR SERVICES)

Type of electricity mix	Specific electricity mix as generated, or purchased from an electricity supplier, demonstrated by a contractual instrument

Energy sources	Hydro	0%
	Wind	0%
	Solar	72%
	Biomass	0%
	Geothermal	0%
	Waste	0%
	Nuclear	0%
	Natural gas	13.7%
	Coal	14.3%
	Oil	0%
	Peat	0%
	Other	0%
Climate impact (GWP-GHG):	0.29 kg CO_2 eq./kWh	

SYSTEM BOUNDARY

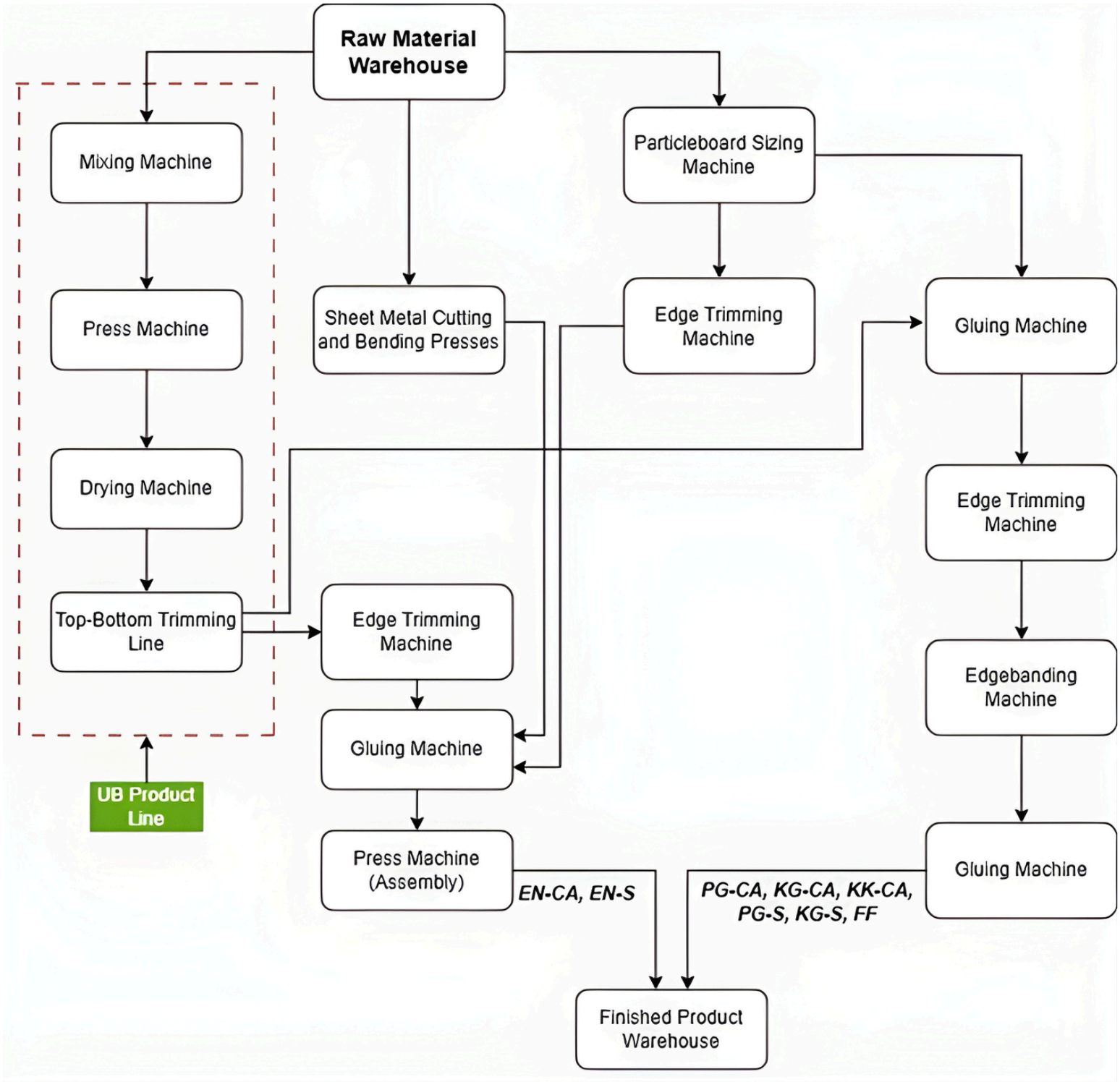
Description of the System boundary	b) Cradle to gate with options, modules C1-C4, module D and with optional modules (A1-A3 + C + D and additional modules).
Excluded modules	Yes, there is an excluded module, or there are excluded modules
Justification for omission of modules	Use stage is excluded.

	Product stage			**Construction process stage**		**Use stage**							**End of life stage**				**Beyond product life cycle**
	Raw material supply	Transport	Manufacturing	Transport to site	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	Global	Global	Republic of Türkiye	Global	Global	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Global	Global	Global	Global	Global
Share of specific data	15.8%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disclaimer	The share of specific/primary data and both variations (products and sites) refer to GWP-GHG results only.																

Description of the process flow diagram(s)

The PG-CA product lifecycle starts with the Uniboard (UB) production step, where the base material for PG-CA is manufactured. Following UB production, the product undergoes sequential processing: Edge Trimming, Gluing, a second Edge Trimming, Edgebanding, and a final Gluing operation, resulting in the finished PG-CA product. After production, PG-CA is distributed to the global market. During installation, approximately 2% of the product is lost, and packaging and product waste are properly managed. Installation requires minimal energy. At the end of life (EOL), disassembly is manual, so energy requirements remain low. Components are either recycled according to product type, converted into energy, or sent to landfill. In the Next Product system, recycling and energy recovery provide additional environmental benefits, enhancing resource efficiency and sustainability.

Process flow diagram(s) related images



DEFAULT SCENARIO

Name of the default scenario	Default End-of-Life Scenario
Description of the default scenario	The end-of-life scenarios are based on global average applications. Accordingly, steel components are assumed to have a 90% recycling rate and 10% disposal to landfill. The calcium sulphate core is assumed to be 100% disposed of in landfill. Plastic components are assumed to have a 25% recycling rate, 60% incineration, and 15% landfill disposal. Of the incinerated plastic fraction, 30% is treated in facilities with thermal efficiency greater than 60%, while 30% is treated in facilities with thermal efficiency lower than 60%. These assumptions reflect representative global waste management practices and are consistently applied within the life cycle assessment modelling framework.

Module A4: Transport to the building site

Explanatory name of the default scenario in module A4	Delivery
Description of the default scenario in module A4	The delivery scenario was developed based on actual market distribution data. The reference market is defined as global; therefore, transport modelling reflects international distribution patterns. Road transport constitutes the predominant mode, particularly for regional and continental deliveries from production facilities to distribution centers and final project sites. For intercontinental shipments, containerized sea freight is included in the model to represent overseas transport. Transport distances are based on representative average values reflecting typical global supply chains. Standard load factors, vehicle capacities, and fuel consumption rates are applied in accordance with commonly used LCA database assumptions. The impacts associated with fuel use, emissions, and infrastructure are included in the modelling of the transport stage. This approach ensures that the delivery scenario realistically represents global logistics conditions while maintaining methodological consistency within the life cycle assessment framework.

Module A5: Installation in the building

Explanatory name of the default scenario in module A5	Installation
Description of the default scenario in module A5	Packaging waste generated during installation, including associated transport and end-of-life treatment, is modelled using Ecoinvent v3.11 global market average datasets. The modelling approach reflects typical global waste management practices and includes the collection and transport of packaging materials to treatment facilities. A 2% product loss during installation is assumed to account for cutting losses, breakage, and handling-related damage. The environmental impacts associated with this product loss are included in the assessment. The resulting waste from installation losses is modelled using the same global average waste treatment assumptions, ensuring methodological consistency. Transport to waste treatment facilities and related emissions are included within the system boundary. Raised access floor system components (e.g., pedestals and stringers) are not included within the scope of this EPD; therefore, any ancillary material use related to these components is excluded, and electricity consumption during installation is considered minimal, as the system is installed manually without the need for energy-intensive equipment. This approach ensures that installation-related activities and waste generation are represented in a transparent and geographically consistent manner within the life cycle assessment framework.

Module C: End-of-life

Explanatory name of the default scenario in module C	Landfill
Description of the default scenario in module C	C1 – Deconstruction and demolition Disassembly of the raised access floor system is assumed to be manual. Therefore, energy consumption in this module is considered negligible. C2 – Transport Transport of dismantled materials to waste treatment facilities is modelled using representative distances based on the PCR. Waste sent for incineration is assumed to travel an average of 130 km, while other waste streams are transported approximately 80 km. Standard freight assumptions, including typical vehicle types and load factors, are applied to reflect global average transport conditions. C3 – Waste processing for reuse, recovery, or recycling Steel components are assumed to be sent to recycling at a rate of 90%, while 25% of plastic components are directed to recycling processes. Recycling processes are modelled according to global average efficiencies. In addition, 30% of the plastic fraction is assumed to be incinerated with thermal efficiency greater than 60%, contributing to energy recovery in line with representative global practices. C4 – Disposal The remaining 10% of steel components are disposed of in landfill. Plastic components are assumed to be treated as follows: 15% landfill disposal and 30% incineration with thermal efficiency lower than 60%. The calcium sulphate core is assumed to be 100% disposed of in landfill. These end-of-life assumptions are consistently applied within the life cycle assessment modelling framework and reflect representative global waste management conditions.

Module D: Beyond product life cycle

Explanatory name of the default scenario in module D	Benefits
Description of the default scenario in module D	Steel components recycled at a rate of 90% are assumed to displace primary steel production in subsequent product systems. Plastic components recycled at 25% similarly substitute virgin plastic materials. Plastic waste incinerated with energy recovery, accounting for 60% of plastic waste, generates thermal energy that offsets conventional energy production; differentiation is made between facilities operating above and below 60% thermal efficiency. No benefits are attributed to the calcium sulphate core, which is disposed of in landfill. All credits are calculated following EN 15804 requirements and reported separately from Modules A–C for transparency.

Module D information	Value	Unit
Recycled steel	2.212	kg
Recycled Plastic	0.701	kg
Exported Electricity	9.1	MJ
Exported Thermal Energy	11.1	MJ

ADDITIONAL SCENARIO 1

Name of the additional scenario	Steel: 100% Landfill Plastic sections: 100% Landfill Uniboard (gypsum): 100% Landfill
Description of the additional scenario	In this additional end-of-life scenario, steel components, plastic sections, and gypsum-based Uniboard panels are assumed to be fully disposed of in landfill (100% landfill rate). All materials are transported to a landfill site and modelled as directly landfilled. No material recovery or energy recovery is considered; therefore, no benefits or loads beyond the system boundary are declared in module D.

Module A4: Transport to the building site

Description of the additional scenario in module A4	Not applicable.

Module A5: Installation in the building

Description of the additional scenario in module A5	Not applicable.

Module C: End-of-life

Description of the additional scenario in module C	In this additional end-of-life scenario, steel components, plastic sections, and gypsum-based Uniboard panels are assumed to be fully disposed of in landfill (100% landfill rate). All materials are transported to a landfill site (C2) and modelled as directly landfilled in module C4. No material recovery or energy recovery is considered in this scenario.

Module D: Beyond product life cycle

Description of the additional scenario in module D	In this additional end-of-life scenario, steel components, plastic sections, and gypsum-based Uniboard panels are assumed to be fully disposed of in landfill (100% landfill rate). As no material recycling or energy recovery is considered, no net material flow enters module D and no benefits or loads beyond the system boundary are declared.

ADDITIONAL SCENARIO 2

Name of the additional scenario	Steel: 100% Recycling, Plastic sections: 100% Recycling, Uniboard (gypsum): 100% Landfill
Description of the additional scenario	In this additional end-of-life scenario, steel components and plastic sections are assumed to be fully recycled (100% recycling rate), while the gypsum-based Uniboard panels are assumed to be fully disposed of in landfill (100% landfill rate). Recovered steel and plastic materials are modelled as secondary materials substituting primary production, with the resulting benefits reported in module D in accordance with EN 15804+A2. No material recovery is considered for the gypsum panels.

Module A4: Transport to the building site

Description of the additional scenario in module A4	Not applicable.

Module A5: Installation in the building

Description of the additional scenario in module A5	Not applicable.

Module C: End-of-life

Description of the additional scenario in module C	In this additional end-of-life scenario, steel components and plastic sections are assumed to be fully recycled (100% recycling rate), while the gypsum-based Uniboard panels are assumed to be fully disposed of in landfill (100% landfill rate). Steel and plastic components are transported to recycling facilities (C2) and processed for material recovery (C3). The gypsum panels are transported to a landfill site (C2) and disposed of in module C4.

Module D: Beyond product life cycle

Description of the additional scenario in module D	In this additional end-of-life scenario, steel components and plastic sections are assumed to be fully recycled (100% recycling rate), while the gypsum-based Uniboard panels are assumed to be fully disposed of in landfill (100% landfill rate). The recovered steel and plastic materials are modelled as secondary materials substituting primary production, and the resulting benefits are reported in module D in accordance with EN 15804+A2. No material recovery is considered for the gypsum panels; therefore, no benefits or loads beyond the system boundary are declared for this fraction.

ADDITIONAL SCENARIO 3

Name of the additional scenario	Steel:100% Recycling, Plastic sections:100% Incineration, Uniboard (gypsum):100% Landfill
Description of the additional scenario	In this additional end-of-life scenario, steel components are assumed to be fully recycled (100% recycling rate), plastic sections are assumed to be fully treated by incineration (100%), and the gypsum-based Uniboard panels are assumed to be fully disposed of in landfill (100% landfill rate). Recovered steel is modelled as secondary material substituting primary steel production, with the resulting benefits reported in module D in accordance with EN 15804+A2. Plastic sections are modelled as incinerated at end of life, and gypsum panels are modelled as landfilled. No material recovery is considered for the gypsum fraction.

Module A4: Transport to the building site

Description of the additional scenario in module A4	Not applicable.

Module A5: Installation in the building

Description of the additional scenario in module A5	Not applicable.

Module C: End-of-life

Description of the additional scenario in module C	In this additional end-of-life scenario, steel components are assumed to be fully recycled (100% recycling rate), plastic sections are assumed to be fully treated by incineration (100%), and the gypsum-based Uniboard panels are assumed to be fully disposed of in landfill (100% landfill rate). Steel components are transported to recycling facilities (C2) and processed for material recovery (C3). Plastic sections are transported to waste treatment facilities (C2) and treated by incineration (C3/C4, depending on system modelling). The gypsum panels are transported to landfill (C2) and disposed of in module C4.

Module D: Beyond product life cycle

Description of the additional scenario in module D	In this additional end-of-life scenario, steel components are assumed to be fully recycled (100% recycling rate), plastic sections are assumed to be fully treated by incineration (100%), and the gypsum-based Uniboard panels are assumed to be fully disposed of in landfill (100% landfill rate). The recovered steel is modelled as secondary material substituting primary steel production, and the resulting benefits are reported in module D in accordance with EN 15804+A2. Plastic sections are modelled as incinerated at end of life; potential benefits from energy recovery are reported in module D where applicable. No material recovery is considered for the gypsum fraction; therefore, no benefits or loads beyond the system boundary are declared for this material.

ENVIRONMENTAL PERFORMANCE

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.

Mandatory environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - total	GWP-total	kg CO_2 eq.	2.31E+1	1.27E+1	1.24E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.11E-1	2.30E+0	9.77E+0	-5.76E+0
Climate change - fossil	GWP-fossil	kg CO_2 eq.	2.93E+1	1.27E+1	9.32E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.10E-1	2.29E+0	3.07E+0	-5.83E+0
Climate change - biogenic	GWP-biogenic	kg CO_2 eq.	-6.24E+0	8.34E-3	3.05E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	3.02E-4	1.34E-2	6.70E+0	7.32E-2
Climate change - land use and land-use change	GWP-luluc	kg CO_2 eq.	3.35E-2	4.40E-3	8.02E-4	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.17E-4	1.26E-4	9.53E-4	-3.69E-3
Ozone depletion	ODP	kg CFC-11 eq.	2.71E-6	2.73E-7	6.01E-8	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.23E-8	4.18E-9	2.03E-8	-7.78E-8
Acidification	AP	mol H^+ eq.	4.78E-1	4.33E-2	1.62E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.18E-3	2.68E-3	1.62E+0	-2.01E-2
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	1.48E-3	9.26E-5	3.21E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.13E-5	1.60E-5	1.60E-5	4.79E-5
Eutrophication aquatic marine	EP-marine	kg N eq.	4.13E-2	1.04E-2	1.17E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.83E-4	1.28E-3	3.38E-3	-3.28E-3
Eutrophication terrestrial	EP-terrestrial	mol N eq.	1.78E+0	1.16E-1	3.93E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	5.41E-3	1.30E-2	2.72E-2	-4.43E-2
Photochemical ozone formation	POCP	kg NMVOC eq.	1.18E-1	5.43E-2	4.32E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.95E-3	3.79E-3	1.08E-1	-1.93E-2
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals[1]	kg Sb eq.	2.96E-3	4.32E-5	6.01E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	3.12E-6	5.65E+0	2.85E-6	-4.06E-5
Depletion of abiotic resources - fossil fuels	ADP-fossil[1]	MJ, net calorific value	4.61E+2	1.80E+2	1.33E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.26E+1	1.19E+0	1.85E+1	-1.00E+2
Water use	WDP[1]	m^3 world eq. deprived	1.58E+1	9.35E-1	3.47E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	6.78E-2	1.55E-1	9.24E-1	-6.67E-1
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption																
General disclaimer	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/A1-A5 for services).																
Disclaimer 1	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator																

Additional mandatory environmental performance indicators

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - GWP-GHG	GWP-GHG[1]	kg CO_2 eq.	3.07E+1	1.27E+1	1.68E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.11E-1	2.30E+0	3.08E+0	-5.76E+0
Acronyms	GWP-GHG = Global warming potential greenhouse gas.																
General disclaimer	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/A1-A5 for services).																
Disclaimer 1	The GWP-GHG indicator is termed GWP-IOBC/GHG in the ILCD+EPD+ data format. The indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.																

Additional voluntary environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter emissions	PM	Disease incidence	5.38E-6	9.22E-7	1.42E-7	ND	ND	ND	ND	ND	ND	ND	0.00E+0	6.60E-8	8.23E-8	1.34E-6	-2.58E-7
Ionizing radiation - human health	IRP[1]	kBq U235 eq.	7.27E-1	7.66E-2	1.63E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.00E-3	2.65E-3	9.52E-3	-9.59E-2
Eco-toxicity - freshwater	ETP-fw[2]	CTUe	5.83E+2	2.37E+1	1.28E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.32E+0	4.75E+0	1.54E+2	-1.83E+1
Human toxicity - cancer effects	HTP-c[2]	CTUh	3.98E-8	2.16E-9	9.17E-10	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.51E-10	3.71E-10	1.86E-9	8.23E-10
Human toxicity - non-cancer effects	HTP-nc[2]	CTUh	6.09E-7	1.10E-7	1.71E-8	ND	ND	ND	ND	ND	ND	ND	0.00E+0	7.90E-9	7.81E-9	1.32E-7	1.43E-7
Land-use related impacts/soil quality	SQP[2]	Dimensionless	2.08E+2	1.04E+2	7.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	7.53E+0	1.05E+0	3.13E+1	-1.19E+1
Acronyms	PM = Potential incidence of disease due to particulate matter emissions; IRP = Potential human exposure efficiency relative to U235; ETP-fw = Potential comparative toxic unit for ecosystems; HTP-c = Potential comparative toxic unit for humans; HTP-nc = Potential comparative toxic unit for humans; SQP = Potential soil quality index.																
General disclaimer	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/A1-A5 for services).																
Disclaimer 1	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.																
Disclaimer 2	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.																

Resource use indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ, net calorific value	7.14E+1	2.90E+0	1.03E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.78E-1	9.15E-2	6.53E+1	-6.35E+0
PERM	MJ, net calorific value	7.23E+1	0.00E+0	-7.39E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	-6.49E+1	0.00E+0
PERT	MJ, net calorific value	1.44E+2	2.90E+0	2.94E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.78E-1	9.15E-2	4.20E-1	-6.35E+0
PENRE	MJ, net calorific value	4.63E+2	1.80E+2	1.59E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.26E+1	9.19E+0	4.49E+1	-1.00E+2
PENRM	MJ, net calorific value	6.68E+1	0.00E+0	-1.20E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	-3.36E+1	-3.19E+1	1.53E+1
PENRT	MJ, net calorific value	5.30E+2	1.80E+2	1.47E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.26E+1	-2.44E+1	1.30E+1	-8.50E+1
SM	kg	8.34E+0	1.73E-1	1.51E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.23E-3	4.83E-3	1.61E-2	2.91E+0
RSF	MJ, net calorific value	3.19E-1	4.00E-2	7.29E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.09E-3	4.02E-4	2.59E-3	-2.93E-2
NRSF	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	m^3	3.79E-1	2.16E-2	7.61E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.74E-3	2.70E-3	-1.96E-1	-8.93E-2
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water.															
General disclaimer	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/A1-A5 for services).															

Waste indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	3.90E+0	1.85E-1	8.31E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.13E-2	3.98E-2	1.09E-1	-1.18E+0
NHWD	kg	5.10E+1	1.95E+0	2.23E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.23E-1	1.08E+0	1.50E+2	2.73E+1
RWD	kg	4.96E-4	5.21E-5	1.11E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.52E-6	1.13E-6	6.01E-6	-6.11E-5
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed.															
General disclaimer	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/A1-A5 for services).															

Output flow indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
CRU	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	kg	1.64E+0	1.62E-1	3.66E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	8.18E-3	4.16E+0	1.03E-2	-6.00E-1
MER	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	MJ, net calorific value	1.84E+0	3.39E-2	3.80E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.05E-3	5.03E+0	4.07E+0	3.46E-3
EET	MJ, net calorific value	2.11E+0	4.08E-2	4.32E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.86E-3	9.06E+0	2.02E+0	-2.72E-2
Acronyms	CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy.															
General disclaimer	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/A1-A5 for services).															

Results for additional scenarios for modules A4-C4

Additional scenario	Steel: 100% Recycling, Plastic sections: 100% Recycling, Uniboard (gypsum): 100% Landfill

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global warming potential – total	GWP-total	kg CO2 eq.	2.31E+1	1.27E+1	1.24E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.11E-1	5.59E-1	7.73E+0	-7.68E+0
Global warming potential – fossil fuels	GWP-fossil	kg CO2 eq.	2.93E+1	1.27E+1	9.32E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.10E-1	5.06E-1	1.03E+0	-7.97E+0
Global warming potential – biogenic	GWP-biogenic	kg CO2 eq.	-6.24E+0	8.34E-3	3.05E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	3.02E-4	5.28E-2	6.70E+0	2.94E-1
Global warming potential – land use and land use change	GWP-luluc	kg CO2 eq.	3.35E-2	4.40E-3	8.02E-4	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.17E-4	3.25E-4	9.33E-4	-6.56E-4
Depletion potential of the stratospheric ozone layer	ODP	kg CFC-11 eq.	2.71E-6	2.73E-7	6.01E-8	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.23E-8	4.67E-9	1.95E-8	-2.06E-7
Acidification potential, accumulated exceedance	AP	mol H+ eq.	4.78E-1	4.33E-2	1.62E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.18E-3	3.12E-3	1.62E+0	-2.32E-2
Eutrophication potential – freshwater	EP-freshwater	kg P eq.	1.48E-3	9.26E-5	3.21E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.13E-5	5.80E-5	1.53E-5	8.47E-5
Eutrophication potential – marine	EP-marine	kg N eq.	4.13E-2	1.04E-2	1.17E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.83E-4	1.63E-3	3.13E-3	-3.48E-3
Eutrophication potential – terrestrial	EP-terrestrial	mol N eq.	1.78E+0	1.16E-1	3.93E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	5.41E-3	1.42E-2	2.47E-2	-4.81E-2
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.18E-1	5.43E-2	4.32E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.95E-3	4.27E-3	1.07E-1	-3.48E-2
Abiotic depletion potential – non-fossil resources	ADPE	kg Sb eq.	2.96E-3	4.32E-5	6.01E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	3.12E-6	2.26E+1	2.70E-6	-6.29E-5
Abiotic depletion potential – fossil resources	ADPF	MJ, net calorific value	4.61E+2	1.80E+2	1.33E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.26E+1	-5.31E+0	1.80E+1	-2.11E+2
Water deprivation potential	WDP	m3 world eq. deprived	1.58E+1	9.35E-1	3.47E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	6.78E-2	5.95E-2	7.84E-1	-1.24E+0
Global warming potential	GWP-GHG	kg CO2 eq.	3.07E+1	1.27E+1	1.68E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.11E-1	5.59E-1	1.04E+0	-7.68E+0
Particulate matter emissions	PM	Disease incidence	5.38E-6	9.22E-7	1.42E-7	ND	ND	ND	ND	ND	ND	ND	0.00E+0	6.60E-8	1.58E-7	1.34E-6	-2.72E-7
Ionizing radiation, human health	IRP	kBq U235 eq.	7.27E-1	7.66E-2	1.63E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.00E-3	6.91E-3	9.23E-3	-3.37E-2
Eco-toxicity – freshwater	ETP-fw	CTUe	5.83E+2	2.37E+1	1.28E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.32E+0	2.77E+0	1.48E+2	-4.63E+1
Human toxicity, cancer effect	HTP-c	CTUh	3.98E-8	2.16E-9	9.17E-10	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.51E-10	7.33E-10	1.68E-9	1.48E-9
Human toxicity, non-cancer effects	HTP-nc	CTUh	6.09E-7	1.10E-7	1.71E-8	ND	ND	ND	ND	ND	ND	ND	0.00E+0	7.90E-9	6.04E-9	1.25E-7	1.56E-7
Land use related impacts / Soil quality	SQP	dimensionless	2.08E+2	1.04E+2	7.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	7.53E+0	3.01E+0	3.08E+1	-1.20E+1
Use of renewable primary energy as energy carrier	PERE	MJ, net calorific value	7.14E+1	2.90E+0	1.03E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.78E-1	1.98E-1	6.53E+1	-4.57E+0
Use of renewable primary energy resources used as raw materials	PERM)	MJ, net calorific value	7.23E+1	0.00E+0	-7.39E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	-6.49E+1	0.00E+0
Total use of renewable primary energy	PERT	MJ, net calorific value	1.44E+2	2.90E+0	2.94E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.78E-1	1.98E-1	4.03E-1	-4.57E+0
Use of non renewable primary energy as energy carrier	PENRE	MJ, net calorific value	4.63E+2	1.80E+2	1.59E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.26E+1	4.68E+0	2.24E+1	-2.11E+2

Use of non renewable primary energy resources used as raw materials	PENRM	MJ, net calorific value	6.68E+1	0.00E+0	-1.20E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	-6.12E+1	-4.42E+0	6.12E+1
Total use of non renewable primary energy resources	PENRT	MJ, net calorific value	5.30E+2	1.80E+2	1.47E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.26E+1	-5.65E+1	1.80E+1	-1.50E+2
Use of secondary material	SM	kg	8.34E+0	1.73E-1	1.51E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.23E-3	1.09E-2	1.51E-2	5.26E+0
Use of renewable secondary fuels	RSF	MJ, net calorific value	3.19E-1	4.00E-2	7.29E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.09E-3	4.20E-4	2.50E-3	-2.01E-3
Use of non-renewable secondary fuels	NRSF	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Net use of fresh water	FW	m3	3.79E-1	2.16E-2	7.61E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.74E-3	1.12E-3	-1.97E-1	-1.12E-1
Hazardous waste disposed	HWD	kg	3.90E+0	1.85E-1	8.31E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.13E-2	2.96E-2	7.86E-2	-1.33E+0
Non-hazardous waste disposed	NHWD	kg	5.10E+1	1.95E+0	2.23E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.23E-1	6.50E-1	1.48E+2	1.47E+1
Radioactive waste disposed	RWD	kg	4.96E-4	5.21E-5	1.11E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.52E-6	2.14E-6	5.82E-6	-1.79E-5
Components for re-use	CRU	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for recycling	MFR	kg	1.64E+0	1.62E-1	3.66E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	8.18E-3	6.64E+0	9.77E-3	-6.17E-1
Materials for energy recovery	MER	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Exported electrical energy	EEE	MJ, net calorific value	1.84E+0	3.39E-2	3.80E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.05E-3	9.78E-4	4.44E-2	9.42E-4
Exported thermal energy	EET	MJ, net calorific value	2.11E+0	4.08E-2	4.32E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.86E-3	4.15E-4	7.26E-3	-3.57E-2
Acronyms																	
Disclaimers																	
General disclaimer	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/A1-A5 for services).																

Results for additional scenarios for modules A4-C4

Additional scenario	Steel:100% Recycling, Plastic sections:100% Incineration, Uniboard (gypsum):100% Landfill

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global warming potential – total	GWP-total	kg CO2 eq.	2.31E+1	1.27E+1	1.24E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.30E-1	3.59E+0	1.11E+1	-6.21E+0
Global warming potential – fossil fuels	GWP-fossil	kg CO2 eq.	2.93E+1	1.27E+1	9.32E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.30E-1	3.59E+0	4.37E+0	-6.21E+0
Global warming potential – biogenic	GWP-biogenic	kg CO2 eq.	-6.24E+0	8.34E-3	3.05E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	3.08E-4	3.46E-4	6.70E+0	-1.80E-3
Global warming potential – land use and land use change	GWP-luluc	kg CO2 eq.	3.35E-2	4.40E-3	8.02E-4	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.26E-4	7.17E-5	9.59E-4	-5.86E-3
Depletion potential of the stratospheric ozone layer	ODP	kg CFC-11 eq.	2.71E-6	2.73E-7	6.01E-8	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.26E-8	4.72E-9	2.05E-8	-4.33E-8
Acidification potential, accumulated exceedance	AP	mol H+ eq.	4.78E-1	4.33E-2	1.62E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.23E-3	2.98E-3	1.62E+0	-2.31E-2
Eutrophication potential – freshwater	EP-freshwater	kg P eq.	1.48E-3	9.26E-5	3.21E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.15E-5	2.33E-6	1.63E-5	3.02E-5

Eutrophication potential – marine	EP-marine	kg N eq.	4.13E-2	1.04E-2	1.17E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.94E-4	1.37E-3	3.49E-3	-3.91E-3
Eutrophication potential – terrestrial	EP-terrestrial	mol N eq.	1.78E+0	1.16E-1	3.93E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	5.53E-3	1.48E-2	2.84E-2	-5.19E-2
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.18E-1	5.43E-2	4.32E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	3.01E-3	4.26E-3	1.08E-1	-1.70E-2
Abiotic depletion potential – non-fossil resources	ADPE	kg Sb eq.	2.96E-3	4.32E-5	6.01E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	3.19E-6	3.85E-7	2.93E-6	-3.83E-5
Abiotic depletion potential – fossil resources	ADPF	MJ, net calorific value	4.61E+2	1.80E+2	1.33E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.29E+1	3.92E+0	1.86E+1	-7.74E+1
Water deprivation potential	WDP	m3 world eq. deprived	1.58E+1	9.35E-1	3.47E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	6.93E-2	2.32E-1	1.01E+0	-6.03E-1
Global warming potential	GWP-GHG	kg CO2 eq.	3.07E+1	1.27E+1	1.68E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.30E-1	3.59E+0	4.37E+0	-6.21E+0
Particulate matter emissions	PM	Disease incidence	5.38E-6	9.22E-7	1.42E-7	ND	ND	ND	ND	ND	ND	ND	0.00E+0	6.74E-8	6.62E-8	1.34E-6	-3.01E-7
Ionizing radiation, human health	IRP	kBq U235 eq.	7.27E-1	7.66E-2	1.63E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.08E-3	1.46E-3	9.64E-3	-1.46E-1
Eco-toxicity – freshwater	ETP-fw	CTUe	5.83E+2	2.37E+1	1.28E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.37E+0	6.75E+0	1.55E+2	-1.08E+1
Human toxicity, cancer effect	HTP-c	CTUh	3.98E-8	2.16E-9	9.17E-10	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.54E-10	3.11E-10	1.97E-9	6.64E-10
Human toxicity, non-cancer effects	HTP-nc	CTUh	6.09E-7	1.10E-7	1.71E-8	ND	ND	ND	ND	ND	ND	ND	0.00E+0	8.07E-9	1.05E-8	1.35E-7	1.59E-7
Land use related impacts / Soil quality	SQP	dimensionless	2.08E+2	1.04E+2	7.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	7.69E+0	4.70E-1	3.10E+1	-1.40E+1
Use of renewable primary energy as energy carrier	PERE	MJ, net calorific value	7.14E+1	2.90E+0	1.03E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.81E-1	6.64E-2	6.53E+1	-8.38E+0
Use of renewable primary energy resources used as raw materials	PERM)	MJ, net calorific value	7.23E+1	0.00E+0	-7.39E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	-6.49E+1	0.00E+0
Total use of renewable primary energy	PERT	MJ, net calorific value	1.44E+2	2.90E+0	2.94E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.81E-1	6.64E-2	4.29E-1	-8.38E+0
Use of non renewable primary energy as energy carrier	PENRE	MJ, net calorific value	4.63E+2	1.80E+2	1.59E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.29E+1	1.31E+1	4.44E+1	-7.74E+1
Use of non renewable primary energy resources used as raw materials	PENRM	MJ, net calorific value	6.68E+1	0.00E+0	-1.20E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	-3.06E+1	-3.50E+1	0.00E+0
Total use of non renewable primary energy resources	PENRT	MJ, net calorific value	5.30E+2	1.80E+2	1.47E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.29E+1	-1.75E+1	9.43E+0	-7.74E+1
Use of secondary material	SM	kg	8.34E+0	1.73E-1	1.51E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.43E-3	3.76E-3	1.67E-2	2.46E+0
Use of renewable secondary fuels	RSF	MJ, net calorific value	3.19E-1	4.00E-2	7.29E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.12E-3	4.66E-4	2.62E-3	-4.76E-2
Use of non-renewable secondary fuels	NRSF	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Net use of fresh water	FW	m3	3.79E-1	2.16E-2	7.61E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.78E-3	4.02E-3	-1.93E-1	-9.54E-2
Hazardous waste disposed	HWD	kg	3.90E+0	1.85E-1	8.31E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.18E-2	5.37E-2	1.29E-1	-1.32E+0
Non-hazardous waste disposed	NHWD	kg	5.10E+1	1.95E+0	2.23E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.26E-1	1.53E+0	1.49E+2	3.63E+1
Radioactive waste disposed	RWD	kg	4.96E-4	5.21E-5	1.11E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.57E-6	9.37E-7	6.09E-6	-9.42E-5
Components for re-use	CRU	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for recycling	MFR	kg	1.64E+0	1.62E-1	3.66E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	8.35E-3	3.84E+0	1.05E-2	-6.92E-1
Materials for energy recovery	MER	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

Exported electrical energy	EEE	MJ, net calorific value	1.84E+0	3.39E-2	3.80E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.07E-3	8.39E+0	6.76E+0	4.90E-3
Exported thermal energy	EET	MJ, net calorific value	2.11E+0	4.08E-2	4.32E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.90E-3	1.69E+2	3.36E+0	-2.82E-2
Acronyms																	
Disclaimers																	
General disclaimer	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/A1-A5 for services).																

Results for additional scenarios for modules A4-C4

Additional scenario	Steel: 100% Landfill Plastic sections: 100% Landfill Uniboard (gypsum): 100% Landfill

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global warming potential – total	GWP-total	kg CO2 eq.	2.31E+1	1.27E+1	1.24E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.11E-1	0.00E+0	8.01E+0	0.00E+0
Global warming potential – fossil fuels	GWP-fossil	kg CO2 eq.	2.93E+1	1.27E+1	9.32E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.10E-1	0.00E+0	1.32E+0	0.00E+0
Global warming potential – biogenic	GWP-biogenic	kg CO2 eq.	-6.24E+0	8.34E-3	3.05E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	3.02E-4	0.00E+0	6.70E+0	0.00E+0
Global warming potential – land use and land use change	GWP-luluc	kg CO2 eq.	3.35E-2	4.40E-3	8.02E-4	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.17E-4	0.00E+0	9.65E-4	0.00E+0
Depletion potential of the stratospheric ozone layer	ODP	kg CFC-11 eq.	2.71E-6	2.73E-7	6.01E-8	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.23E-8	0.00E+0	2.09E-8	0.00E+0
Acidification potential, accumulated exceedance	AP	mol H+ eq.	4.78E-1	4.33E-2	1.62E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.18E-3	0.00E+0	1.62E+0	0.00E+0
Eutrophication potential – freshwater	EP-freshwater	kg P eq.	1.48E-3	9.26E-5	3.21E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.13E-5	0.00E+0	1.59E-5	0.00E+0
Eutrophication potential – marine	EP-marine	kg N eq.	4.13E-2	1.04E-2	1.17E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.83E-4	0.00E+0	3.38E-3	0.00E+0
Eutrophication potential – terrestrial	EP-terrestrial	mol N eq.	1.78E+0	1.16E-1	3.93E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	5.41E-3	0.00E+0	2.63E-2	0.00E+0
Photochemical ozone creation potential	POCP	kg NMVOC eq.	1.18E-1	5.43E-2	4.32E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.95E-3	0.00E+0	1.08E-1	0.00E+0
Abiotic depletion potential – non-fossil resources	ADPE	kg Sb eq.	2.96E-3	4.32E-5	6.01E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	3.12E-6	0.00E+0	2.80E-6	0.00E+0
Abiotic depletion potential – fossil resources	ADPF	MJ, net calorific value	4.61E+2	1.80E+2	1.33E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.26E+1	0.00E+0	1.92E+1	0.00E+0
Water deprivation potential	WDP	m3 world eq. deprived	1.58E+1	9.35E-1	3.47E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	6.78E-2	0.00E+0	8.40E-1	0.00E+0
Global warming potential	GWP-GHG	kg CO2 eq.	3.07E+1	1.27E+1	1.68E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.11E-1	0.00E+0	1.32E+0	0.00E+0
Particulate matter emissions	PM	Disease incidence	5.38E-6	9.22E-7	1.42E-7	ND	ND	ND	ND	ND	ND	ND	0.00E+0	6.60E-8	0.00E+0	1.35E-6	0.00E+0
Ionizing radiation, human health	IRP	kBq U235 eq.	7.27E-1	7.66E-2	1.63E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	4.00E-3	0.00E+0	9.59E-3	0.00E+0
Eco-toxicity – freshwater	ETP-fw	CTUe	5.83E+2	2.37E+1	1.28E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.32E+0	0.00E+0	1.58E+2	0.00E+0
Human toxicity, cancer effect	HTP-c	CTUh	3.98E-8	2.16E-9	9.17E-10	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.51E-10	0.00E+0	1.70E-9	0.00E+0
Human toxicity, non-cancer effects	HTP-nc	CTUh	6.09E-7	1.10E-7	1.71E-8	ND	ND	ND	ND	ND	ND	ND	0.00E+0	7.90E-9	0.00E+0	1.28E-7	0.00E+0
Land use related impacts / Soil quality	SQP	dimensionless	2.08E+2	1.04E+2	7.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	7.53E+0	0.00E+0	3.36E+1	0.00E+0

Use of renewable primary energy as energy carrier	PERE	MJ, net calorific value	7.14E+1	2.90E+0	1.03E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.78E-1	0.00E+0	6.53E+1	0.00E+0
Use of renewable primary energy resources used as raw materials	PERM)	MJ, net calorific value	7.23E+1	0.00E+0	-7.39E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	-6.49E+1	0.00E+0
Total use of renewable primary energy	PERT	MJ, net calorific value	1.44E+2	2.90E+0	2.94E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.78E-1	0.00E+0	4.18E-1	0.00E+0
Use of non renewable primary energy as energy carrier	PENRE	MJ, net calorific value	4.63E+2	1.80E+2	1.59E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.26E+1	0.00E+0	8.48E+1	0.00E+0
Use of non renewable primary energy resources used as raw materials	PENRM	MJ, net calorific value	6.68E+1	0.00E+0	-1.20E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	-6.56E+1	0.00E+0
Total use of non renewable primary energy resources	PENRT	MJ, net calorific value	5.30E+2	1.80E+2	1.47E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.26E+1	0.00E+0	1.92E+1	0.00E+0
Use of secondary material	SM	kg	8.34E+0	1.73E-1	1.51E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	9.23E-3	0.00E+0	1.58E-2	0.00E+0
Use of renewable secondary fuels	RSF	MJ, net calorific value	3.19E-1	4.00E-2	7.29E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.09E-3	0.00E+0	2.62E-3	0.00E+0
Use of non-renewable secondary fuels	NRSF	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Net use of fresh water	FW	m3	3.79E-1	2.16E-2	7.61E-3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.74E-3	0.00E+0	-2.07E-1	0.00E+0
Hazardous waste disposed	HWD	kg	3.90E+0	1.85E-1	8.31E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.13E-2	0.00E+0	7.99E-2	0.00E+0
Non-hazardous waste disposed	NHWD	kg	5.10E+1	1.95E+0	2.23E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.23E-1	0.00E+0	1.55E+2	0.00E+0
Radioactive waste disposed	RWD	kg	4.96E-4	5.21E-5	1.11E-5	ND	ND	ND	ND	ND	ND	ND	0.00E+0	2.52E-6	0.00E+0	6.04E-6	0.00E+0
Components for re-use	CRU	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for recycling	MFR	kg	1.64E+0	1.62E-1	3.66E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	8.18E-3	0.00E+0	1.03E-2	0.00E+0
Materials for energy recovery	MER	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Exported electrical energy	EEE	MJ, net calorific value	1.84E+0	3.39E-2	3.80E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.05E-3	0.00E+0	4.45E-2	0.00E+0
Exported thermal energy	EET	MJ, net calorific value	2.11E+0	4.08E-2	4.32E-2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	1.86E-3	0.00E+0	7.35E-3	0.00E+0
Acronyms																	
Disclaimers																	
General disclaimer	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/A1-A5 for services).																

ADDITIONAL ENVIRONMENTAL INFORMATION

No mass balance allocation (MBA) was applied in the life cycle assessment (LCA) model.

Biogenic carbon contained in the product and packaging was balanced out at the system boundary where output flows left the product system.

The energy balance was modelled in accordance with Option A as specified in the PCR.

ABBREVIATIONS

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

REACH Registration, Evaluation, Authorisation and Restriction of Chemicals

VOC Volatile Organic Compounds

REFERENCES

• General Programme Instructions of the International EPD® System. Version 5.0.1

• PCR 2019:14 Construction products v2.0.1

• EN 15804:2012+A2:2019: Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction product

• ISO 14040: 2006 Environmental management - Life cycle assessment - Principles and framework

• ISO 14044: 2006 Environmental management - Life cycle assessment - Requirements and

Guidelines

• ISO 14020: 2002 Environmental labels and declarations- General principles

• ISO 14025: 2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures

• The International EPD® System; www.environdec.com

• openLCA Software, ecoinvent 3.11 database; https://www.openlca.org/openlca

VERSION HISTORY

Version 001, 2026-03-05

Original version of the EPD