Environmental Product Declaration

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

Mapefast HHH

EPD of a single product

from

Mapei Australia Pty. Ltd.

Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Type of EPD:	EPD of a single product from “Mapei Australia Pty. Ltd.”.
EPD registration number:	EPD-IES-0028658:002
Version date:	2026-07-10
Validity date:	2031-02-15
	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): PCR 2019:14 Construction products, version 2.0.1, valid until: 2030-04-07; UN CPC code: 375
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.

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD process certification* without a pre-verified LCA/EPD tool Third-party verifier: *Certiquality Srl* Accredited by: *Accredia* *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.
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.

INFORMATION ABOUT EPD OWNER

Owner of the EPD: Mapei Australia Pty. Ltd.

Address: 180 Viking Drive, Wacol, Brisbane, Queensland 4076

Contact: corporate.sustainability@mapei.it

Description of the organisation:

Founded in 1937 in Milan, Italy, Mapei produces adhesives and complementary products for laying all types of floor, wall and coating materials, and also specializes in other chemical products used in the building industry, such as waterproofing products, specialty mortars, admixtures for concrete, cement additives, products for underground constructions and for the restoration of concrete and historical buildings. With more than 14000 employees, Mapei Group currently has 92 subsidiaries with a total of 109 production facilities located around the world in 59 different countries. Mapei also has 39 central laboratories. Most locations are certified ISO 9001, 63% ISO 14001 and 64% ISO 45001. In 2025, Mapei invested €73 milions of its turnover in Research & Development. Furthermore, Mapei has developed a sales and technical service network with offices all over the world and offers an efficient Technical Assistance Service that is valued by architects, engineers, contractors and owners.

PRODUCT INFORMATION

Product name: Mapefast HHH

Product identification: *Mapefast HHH is a liquid admixture based on highly effective hardening accelerators, free of chlorides.*

UN CPC code: 375 - Articles of concrete, cement and plaster

Product description: Mapefast HHH is a liquid admixture based on highly effective hardening accelerators, free of chlorides.
Mapefast HHH is typically used in addition to Mapei's Water Reducing, Air Entraining and High Range Water Reducing admixtures such as the Mapefluid and Dynamon range.
The product is packaged in IBC (1000 kg)

Name and location of production site(s): 180 Viking Drive, Wacol, 4076, Australia

CONTENT DECLARATION

Product content	Weight, kg	Post-consumer recycled material, weight-% of product	Biogenic material, weight-% of product	Biogenic material[1], kg C/product or declared unit
Water	0.127	0	0	0
Organic Substances	0.06	0	0	0
Inorganic Substances	0.813	0	0	0
TOTAL	**1**	**0%**	**0%**	**0**

Packaging materials	Weight, kg	Weight-% (versus the product)	Biogenic material, kg C/product or declared unit
Plastics	0.00266	0.266%	0
Metal	0.00448	0.448%	0
Wood	0.00368	0.368%	0.00151
TOTAL	**0.0108**	**1.08%**	**0.00151**

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2.

The product does not contain a concentration higher than 0,1% (by unit weight) of either carcinogenic substances or substances of very high concern (SVHC) on the REACH Candidate List published by the European Chemicals Agency.

LCA INFORMATION

Declared unit: 1 kg of finished product plus the weight of the packaging

Time representativeness: 2024

Geographical scope: Oceania

Database(s) and LCA software used:
Sphera database (CUP 2025.2); Ecoinvent 3.11 database
LCA for Experts v.10 (formerly GaBi Software)

Description of system boundaries:
The approach is “cradle to gate” (A1–A3) with modules C1-C4 and module D and optional modules (A1-A3 + A4-A5 + C + D):

- A1, A2, A3 (Product stage): extraction and processing of raw materials (A1), transportation up to the factory gate (A2), manufacturing of the finished product and packaging (A3).

- A4 – A5 (Construction process stage): transport distance of the finished product to final customers (A4). The product is applied manually. The packaging is collected and sent to treatment.
- C1, C2, C3, C4 (End of Life stage): the demolition phase (C1) includes the electricity for demolition. With a collection rate of 100% as C&D waste, the transports are carried out by lorry over 100 km (C2). A recycling ratio (C3) of 84% is considered. The remaining 16% is landfilled (C4).
- D (benefits and potential for recovery/reuse) beyond the system boundaries considered: potential benefits from the recycling of the product.

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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	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	GLO	GLO	AU	OCE	OCE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	AU	AU	AU	AU	AU
Specific data used	5.54%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Transport to the building site (A4):

Scenario information	Value	Unit
Means of transport	Means of transport: truck-trailer euro 6, gross weight 34-40 t, payload capacity 27 t	Dimensionless
Transport distance - truck	1000	km
Capacity utilisation (including empty runs) - truck	61	%

Gross density of products transported	1220	kg/m^3
Capacity utilisation volume factor	1	-

Installation into the building site (A5):

Scenario information	Value	Unit
Ancillary materials for installation	0	kg
Water use	0	m3
Other resources use	0	kg/m^2
Electricity and other energy consumption for the mixing	0.004	kWh
Waste materials on building site before waste processing, generated by the product's installation (specified by type)	0.00266 (Plastics) 0.00368 (Wood) 0.00448 (Metals) 0.01 (C&D waste)	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)	6.34E-005 (Incineration) 0.00331 (Landfill) 0.00744 (Recycling)	kg
Direct emission to ambient air, soil and water	0	kg

End of Life (C1-C4):

Scenario information	Value	Unit
Collected separately	0	kg
Collected with mixed construction waste	1	kg
Reuse	0	kg
Recycling	0.84	kg
Energy recovery	0	kg
Landfill	0.16	kg

Data quality assessment:

The EPD covers Mapefast HHH manufactured in Wacol (Australia) during year 2024. The distribution, application and EoL stages of the EPD cover the Australian scenario. The production is a discontinuous process, in which all the components are mechanically mixed in batches. The EPD uses background data from Ecoinvent 3.11 and Sphera databases CUP 2025.2, and specific data from suppliers. The quality of the relevant data used for the EPD in terms of its time, geography and technology representativeness using EN 15804:2012+A2:2019, Annex E, E2 is mostly “very good” and “good”. The relevant data assessed included “no poor” or “very poor” data.

Process name	Source type	Source	Reference year	Data category	Share of primary data, of GWP GHG results for A1 A3
Manufacturing of product	Collected data	EPD owner	2024	Primary data	2.21 %
Generation of electricity used in manufacturing of product	Database	Ecoinvent 3.11 Sphera	2024	Primary data	3.33%
Transport of raw materials to manufacturing sites	Database	Sphera	2024	Secondary data	0%
Raw materials	EPD. Database	Supplier. Sphera	2024	Secondary data	0%
Total share of primary data, of GWP GHG results for A1- A3					**5.54%**
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	Residual electricity mix on the market	
Energy sources	Hydro	0.9%
	Wind	0%
	Solar	5.6%
	Biomass	3.4%
	Geothermal	0%
	Waste	0%
	Nuclear	2.2%
	Natural gas	27%
	Coal	25.2%
	Oil	35.7%
	Peat	0%
	Other	0%
Climate impact GWP GHG	0.983 kg CO_2 eq./kWh	
Method used to calculate electricity grid mix	Country specific Energy Mix based on IEA	

More information on allocation and cut-off:

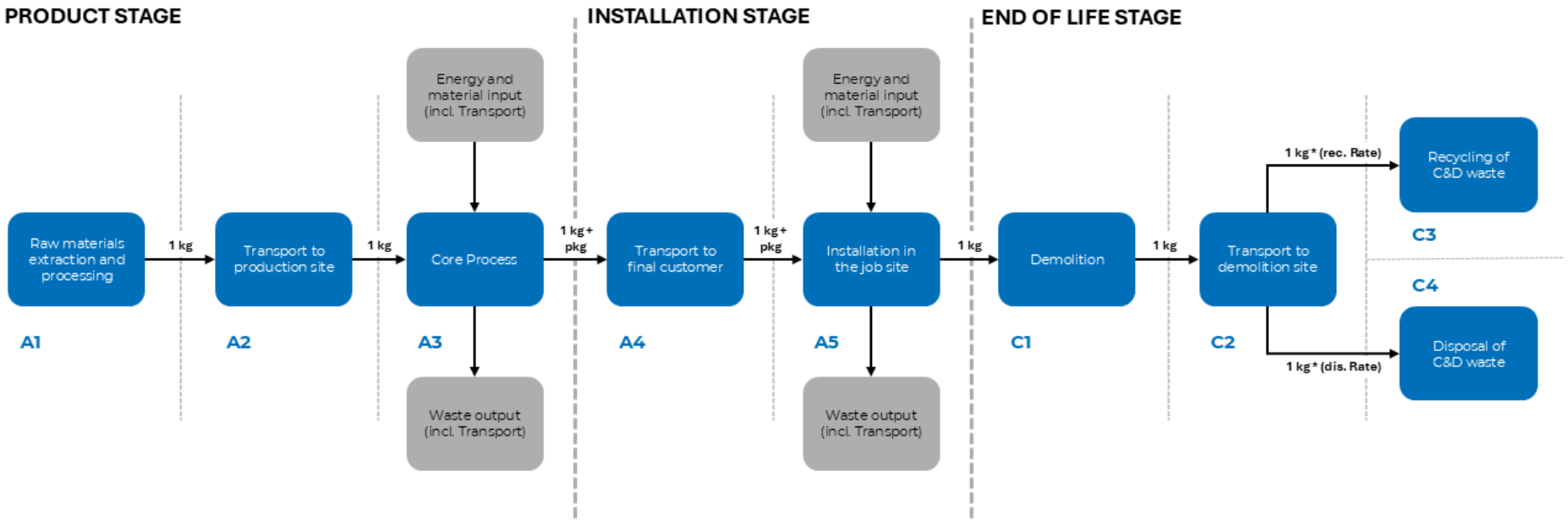
Criteria for the exclusion of inputs and outputs (cut-off rules) in the LCA, information modules and any additional information are intended to support an efficient calculation procedure. They are not applied in order to hide data. Cut-off criteria, where applied, are described below.
Input flows are covered for the whole formula.

Process excluded from study	Cut-off criteria	Quantified contribution from process
A3: production (auxiliary materials)	Less than 10^{-5} kg/kg of finished product	Sensitivity study demonstrates a relative contribution lower than 0,5%

For the allocation procedure and principles consider the following table:

Module	Allocation Principle
A1	All data are referred to 1 kg of product. A1: electricity is allocated to the entire facility
A3	All data are referred to 1 kg of packaged product. A3-wastes: all data are allocated to the entire facility

System flow diagram:



ENVIRONMENTAL PERFORMANCE

LCA results of the product(s) - main environmental performance results

The following tables show the environmental impacts for the products considered according to the requirements of EN15804:2012+A2:2019/AC:2021. The Characterization Factors are based on EF 3.1 package.

The results are referred to the declared unit. In the whole document, the point ". "is the decimal separator, while the comma " , " is the thousands separator.

Reading example: 9.0 E-03 = 9.0*10-3 = 0.009

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.

We discourage the use of the outcomes from modules A1-A3 without considering the results obtained from module C.

Mandatory impact category indicators according to EN 15804

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	7.74E-01	8.02E-02	7.99E-03	ND	4.75E-03	8.36E-03	2.31E-03	2.44E-03	-2.14E-05
GWP-fossil	kg CO_2 eq.	7.77E-01	7.68E-02	2.40E-03	ND	4.74E-03	8.02E-03	2.28E-03	2.42E-03	-2.12E-05
GWP-biogenic	kg CO_2 eq.	-3.21E-03	3.28E-03	5.59E-03	ND	6.00E-06	3.37E-04	6.67E-06	6.15E-06	-1.29E-07
GWP-luluc	kg CO_2 eq.	3.99E-04	1.80E-04	8.19E-06	ND	3.57E-06	1.99E-07	1.96E-05	9.93E-06	-2.64E-08
ODP	kg CFC 11 eq.	3.11E-10	1.11E-14	1.37E-13	ND	6.41E-14	1.20E-15	4.49E-15	6.74E-15	-2.05E-16
AP	mol H^+ eq.	5.66E-03	1.20E-04	8.88E-06	ND	2.52E-05	1.41E-05	1.16E-05	1.71E-05	-2.55E-08
EP-freshwater	kg P eq.	1.66E-06	5.56E-08	4.20E-08	ND	1.61E-09	1.27E-09	5.71E-09	3.60E-09	-2.51E-11
EP-marine	kg N eq.	1.50E-03	5.05E-05	2.02E-06	ND	5.44E-06	6.15E-06	5.38E-06	4.48E-06	-6.87E-09
EP-terrestrial	mol N eq.	1.50E-02	5.58E-04	2.23E-05	ND	5.96E-05	6.85E-05	5.83E-05	4.88E-05	-8.03E-08
POCP	kg NMVOC eq.	3.91E-03	1.33E-04	5.66E-06	ND	1.50E-05	1.68E-05	1.43E-05	1.34E-05	-1.85E-08
ADP - minerals&metals[1]	kg Sb eq.	1.37E-07	1.84E-09	2.55E-10	ND	3.72E-10	8.19E-11	2.32E-09	1.50E-10	-2.06E-12
ADP-fossil[1]	MJ	9.28E00	1.04E00	3.42E-02	ND	5.45E-02	1.11E-01	4.21E-02	3.18E-02	-3.43E-04
WDP[1]	m^3	1.27E-01	3.09E-04	5.88E-04	ND	1.98E-03	3.05E-05	4.05E-04	2.62E-04	-3.19E-06
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
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 and voluntary impact category indicators

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP - GHG[1]	kg CO_2 eq.	7.78E-01	7.70E-02	2.45E-03	ND	4.75E-03	8.02E-03	2.31E-03	2.44E-03	-2.14E-05
PM	Disease incidence	9.22E-08	1.40E-09	9.43E-11	ND	2.46E-10	1.79E-10	2.22E-10	2.13E-10	-2.05E-13
IRP[2]	kBq U235 eq.	3.17E-02	8.06E-05	3.41E-04	ND	1.70E-06	2.66E-06	8.49E-05	3.74E-05	-2.36E-06
ETP-fw[3]	CTUe	2.18E00	7.91E-01	1.20E-02	ND	1.27E-02	4.31E-02	4.21E-02	2.46E-02	-2.91E-05
HTP-c[3]	CTUh	7.12E-11	1.16E-11	5.42E-13	ND	5.65E-13	6.74E-13	6.71E-13	4.23E-13	-3.72E-15
HTP-nc[3]	CTUh	1.22E-09	3.39E-10	1.05E-11	ND	1.27E-11	1.12E-11	2.79E-11	1.58E-11	-5.65E-14
SQP[3]	Dimensionless	1.46E00	9.97E-02	8.66E-03	ND	6.03E-03	1.95E-04	1.19E-02	7.84E-03	-7.39E-05
Acronyms	GWP GHG Global warming potential greenhouse gas. 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.									
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.									
Disclaimer 2	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 3	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

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE*	MJ, net calorific value	1.01E00	2.05E-02	6.35E-02	ND	2.31E-02	4.90E-04	4.13E-03	6.13E-03	-1.25E-04
PERM*	MJ, net calorific value	5.52E-02	0.00E+00	-4.69E-02	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT*	MJ, net calorific value	1.07E00	2.05E-02	1.66E-02	ND	2.31E-02	4.90E-04	4.13E-03	6.13E-03	-1.25E-04
PENRE*	MJ, net calorific value	9.15E00	1.04E00	5.01E-02	ND	5.45E-02	1.11E-01	4.21E-02	3.18E-02	-3.43E-04
PENRM*	MJ, net calorific value	1.22E-01	0.00E+00	-1.59E-02	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT*	MJ, net calorific value	9.28E00	1.04E00	3.42E-02	ND	5.45E-02	1.11E-01	4.21E-02	3.18E-02	-3.43E-04
SM	kg	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	3.36E-03	1.33E-05	2.52E-05	ND	2.79E-05	6.18E-07	1.10E-05	7.67E-06	-9.84E-08

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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

*According to Annex 3 of PCR 2.0.1, the option B for the calculation of primary energy use indicators has been used.

Waste indicators

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.26E-04	2.14E-11	2.77E-11	ND	2.98E-11	1.46E-12	5.81E-12	6.95E-12	-1.69E-13
Non-hazardous waste disposed	kg	8.15E-02	5.11E-05	1.33E-02	ND	1.82E-05	2.30E-06	1.06E-05	1.59E-01	-1.84E-07
Radioactive waste disposed	kg	1.90E-04	6.24E-07	2.41E-06	ND	1.22E-08	2.14E-08	5.34E-07	3.37E-07	-1.38E-08

Output flow indicators

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	1.15E-03	0.00E+00	7.44E-03	ND	0.00E+00	0.00E+00	8.32E-01	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	6.34E-05	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	8.90E-05	ND	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	1.67E-04	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Mandatory impact category indicators according to EN 15804 (100% recycling end-of-life scenario)

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	7.74E-01	8.02E-02	7.99E-03	ND	4.75E-03	8.36E-03	2.75E-03	0.00E+00	-2.14E-05
GWP-fossil	kg CO_2 eq.	7.77E-01	7.68E-02	2.40E-03	ND	4.74E-03	8.02E-03	2.71E-03	0.00E+00	-2.12E-05
GWP-biogenic	kg CO_2 eq.	-3.21E-03	3.28E-03	5.59E-03	ND	6.00E-06	3.37E-04	7.94E-06	0.00E+00	-1.29E-07
GWP-luluc	kg CO_2 eq.	3.99E-04	1.80E-04	8.19E-06	ND	3.57E-06	1.99E-07	2.34E-05	0.00E+00	-2.64E-08
ODP	kg CFC 11 eq.	3.11E-10	1.11E-14	1.37E-13	ND	6.41E-14	1.20E-15	5.34E-15	0.00E+00	-2.05E-16
AP	mol H^+ eq.	5.66E-03	1.20E-04	8.88E-06	ND	2.52E-05	1.41E-05	1.38E-05	0.00E+00	-2.55E-08
EP-freshwater	kg P eq.	1.66E-06	5.56E-08	4.20E-08	ND	1.61E-09	1.27E-09	6.80E-09	0.00E+00	-2.51E-11
EP-marine	kg N eq.	1.50E-03	5.05E-05	2.02E-06	ND	5.44E-06	6.15E-06	6.40E-06	0.00E+00	-6.87E-09
EP-terrestrial	mol N eq.	1.50E-02	5.58E-04	2.23E-05	ND	5.96E-05	6.85E-05	6.94E-05	0.00E+00	-8.03E-08
POCP	kg NMVOC eq.	3.91E-03	1.33E-04	5.66E-06	ND	1.50E-05	1.68E-05	1.71E-05	0.00E+00	-1.85E-08
ADP - minerals&metals[1]	kg Sb eq.	1.37E-07	1.84E-09	2.55E-10	ND	3.72E-10	8.19E-11	2.76E-09	0.00E+00	-2.06E-12
ADP-fossil[1]	MJ	9.28E00	1.04E00	3.42E-02	ND	5.45E-02	1.11E-01	5.02E-02	0.00E+00	-3.43E-04
WDP[1]	m^3	1.27E-01	3.09E-04	5.88E-04	ND	1.98E-03	3.05E-05	4.83E-04	0.00E+00	-3.19E-06

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
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 and voluntary impact category indicators (100% recycling end-of-life scenario)

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP - GHG[1]	kg CO_2 eq.	7.78E-01	7.70E-02	2.45E-03	ND	4.75E-03	8.02E-03	2.75E-03	0.00E+00	-2.14E-05
PM	Disease incidence	9.22E-08	1.40E-09	9.43E-11	ND	2.46E-10	1.79E-10	2.64E-10	0.00E+00	-2.05E-13
IRP[2]	kBq U235 eq.	3.17E-02	8.06E-05	3.41E-04	ND	1.70E-06	2.66E-06	1.01E-04	0.00E+00	-2.36E-06
ETP-fw[3]	CTUe	2.18E00	7.91E-01	1.20E-02	ND	1.27E-02	4.31E-02	5.01E-02	0.00E+00	-2.91E-05
HTP-c[3]	CTUh	7.12E-11	1.16E-11	5.42E-13	ND	5.65E-13	6.74E-13	7.99E-13	0.00E+00	-3.72E-15
HTP-nc[3]	CTUh	1.22E-09	3.39E-10	1.05E-11	ND	1.27E-11	1.12E-11	3.32E-11	0.00E+00	-5.65E-14
SQP[3]	Dimensionless	1.46E00	9.97E-02	8.66E-03	ND	6.03E-03	1.95E-04	1.42E-02	0.00E+00	-7.39E-05
Acronyms	GWP GHG Global warming potential greenhouse gas. 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.									
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.									

Disclaimer 2	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 3	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 (100% recycling end-of-life scenario)

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE*	MJ, net calorific value	1.01E00	2.05E-02	6.35E-02	ND	2.31E-02	4.90E-04	4.92E-03	0.00E+00	-1.25E-04
PERM*	MJ, net calorific value	5.52E-02	0.00E+00	-4.69E-02	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT*	MJ, net calorific value	1.07E00	2.05E-02	1.66E-02	ND	2.31E-02	4.90E-04	4.92E-03	0.00E+00	-1.25E-04
PENRE*	MJ, net calorific value	9.15E00	1.04E00	5.01E-02	ND	5.45E-02	1.11E-01	5.02E-02	0.00E+00	-3.43E-04
PENRM*	MJ, net calorific value	1.22E-01	0.00E+00	-1.59E-02	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT*	MJ, net calorific value	9.28E00	1.04E00	3.42E-02	ND	5.45E-02	1.11E-01	5.02E-02	0.00E+00	-3.43E-04
SM	kg	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

FW	m^3	3.36E-03	1.33E-05	2.52E-05	ND	2.79E-05	6.18E-07	1.31E-05	0.00E+00	-9.84E-08
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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water									

*According to Annex 3 of PCR 2.0.1, the option B for the calculation of primary energy use indicators has been used.

Waste indicators (100% recycling end-of-life scenario)

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.26E-04	2.14E-11	2.77E-11	ND	2.98E-11	1.46E-12	6.92E-12	0.00E+00	-1.69E-13
Non-hazardous waste disposed	kg	8.15E-02	5.11E-05	1.33E-02	ND	1.82E-05	2.30E-06	1.26E-05	0.00E+00	-1.84E-07
Radioactive waste disposed	kg	1.90E-04	6.24E-07	2.41E-06	ND	1.22E-08	2.14E-08	6.36E-07	0.00E+00	-1.38E-08

Output flow indicators (100% recycling end-of-life scenario)

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	1.90E-04	6.24E-07	2.41E-06	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	9.90E-01	0.00E+00	0.00E+00
Materials for energy recovery	kg	1.15E-03	0.00E+00	7.44E-03	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	6.34E-05	ND	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	8.90E-05	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Mandatory impact category indicators according to EN 15804 (100% landfill end-of-life scenario)

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	7.74E-01	8.02E-02	7.99E-03	ND	4.75E-03	8.36E-03	0.00E+00	1.52E-02	-2.14E-05
GWP-fossil	kg CO_2 eq.	7.77E-01	7.68E-02	2.40E-03	ND	4.74E-03	8.02E-03	0.00E+00	1.51E-02	-2.12E-05
GWP-biogenic	kg CO_2 eq.	-3.21E-03	3.28E-03	5.59E-03	ND	6.00E-06	3.37E-04	0.00E+00	3.84E-05	-1.29E-07
GWP-luluc	kg CO_2 eq.	3.99E-04	1.80E-04	8.19E-06	ND	3.57E-06	1.99E-07	0.00E+00	6.21E-05	-2.64E-08
ODP	kg CFC 11 eq.	3.11E-10	1.11E-14	1.37E-13	ND	6.41E-14	1.20E-15	0.00E+00	4.21E-14	-2.05E-16
AP	mol H^+ eq.	5.66E-03	1.20E-04	8.88E-06	ND	2.52E-05	1.41E-05	0.00E+00	1.07E-04	-2.55E-08

EP-freshwater	kg P eq.	1.66E-06	5.56E-08	4.20E-08	ND	1.61E-09	1.27E-09	0.00E+00	2.25E-08	-2.51E-11
EP-marine	kg N eq.	1.50E-03	5.05E-05	2.02E-06	ND	5.44E-06	6.15E-06	0.00E+00	2.80E-05	-6.87E-09
EP-terrestrial	mol N eq.	1.50E-02	5.58E-04	2.23E-05	ND	5.96E-05	6.85E-05	0.00E+00	3.05E-04	-8.03E-08
POCP	kg NMVOC eq.	3.91E-03	1.33E-04	5.66E-06	ND	1.50E-05	1.68E-05	0.00E+00	8.37E-05	-1.85E-08
ADP - minerals&metals[1]	kg Sb eq.	1.37E-07	1.84E-09	2.55E-10	ND	3.72E-10	8.19E-11	0.00E+00	9.36E-10	-2.06E-12
ADP-fossil[1]	MJ	9.28E00	1.04E00	3.42E-02	ND	5.45E-02	1.11E-01	0.00E+00	1.99E-01	-3.43E-04
WDP[1]	m^3	1.27E-01	3.09E-04	5.88E-04	ND	1.98E-03	3.05E-05	0.00E+00	1.64E-03	-3.19E-06
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									
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 and voluntary impact category indicators (100% landfill end-of-life scenario)

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP - GHG[1]	kg CO_2 eq.	7.78E-01	7.70E-02	2.45E-03	ND	4.75E-03	8.02E-03	0.00E+00	1.52E-02	-2.14E-05
PM	Disease incidence	9.22E-08	1.40E-09	9.43E-11	ND	2.46E-10	1.79E-10	0.00E+00	1.33E-09	-2.05E-13
IRP[2]	kBq U235 eq.	3.17E-02	8.06E-05	3.41E-04	ND	1.70E-06	2.66E-06	0.00E+00	2.34E-04	-2.36E-06

ETP-fw[3]	CTUe	2.18E00	7.91E-01	1.20E-02	ND	1.27E-02	4.31E-02	0.00E+00	1.53E-01	-2.91E-05
HTP-c[3]	CTUh	7.12E-11	1.16E-11	5.42E-13	ND	5.65E-13	6.74E-13	0.00E+00	2.64E-12	-3.72E-15
HTP-nc[3]	CTUh	1.22E-09	3.39E-10	1.05E-11	ND	1.27E-11	1.12E-11	0.00E+00	9.88E-11	-5.65E-14
SQP[3]	Dimensionless	1.46E00	9.97E-02	8.66E-03	ND	6.03E-03	1.95E-04	0.00E+00	4.90E-02	-7.39E-05
Acronyms	GWP GHG Global warming potential greenhouse gas. 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.									
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.									
Disclaimer 2	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 3	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 (100% landfill end-of-life scenario)

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE*	MJ. net calorific value	1.01E00	2.05E-02	6.35E-02	ND	2.31E-02	4.90E-04	0.00E+00	3.83E-02	-1.25E-04
PERM*	MJ. net calorific value	5.52E-02	0.00E+00	-4.69E-02	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

PERT*	MJ. net calorific value	1.07E00	2.05E-02	1.66E-02	ND	2.31E-02	4.90E-04	0.00E+00	3.83E-02	-1.25E-04
PENRE*	MJ. net calorific value	9.15E00	1.04E00	5.01E-02	ND	5.45E-02	1.11E-01	0.00E+00	1.99E-01	-3.43E-04
PENRM*	MJ. net calorific value	1.22E-01	0.00E+00	-1.59E-02	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT*	MJ. net calorific value	9.28E00	1.04E00	3.42E-02	ND	5.45E-02	1.11E-01	0.00E+00	1.99E-01	-3.43E-04
SM	kg	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ. net calorific value	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ. net calorific value	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	3.36E-03	1.33E-05	2.52E-05	ND	2.79E-05	6.18E-07	0.00E+00	4.79E-05	-9.84E-08
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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water									

*According to Annex 3 of PCR 2.0.1, the option B for the calculation of primary energy use indicators has been used.

Waste indicators (100% landfill end-of-life scenario)

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.26E-04	2.14E-11	2.77E-11	ND	2.98E-11	1.46E-12	0.00E+00	4.34E-11	-1.69E-13
Non-hazardous waste disposed	kg	8.15E-02	5.11E-05	1.33E-02	ND	1.82E-05	2.30E-06	0.00E+00	9.91E-01	-1.84E-07

Radioactive waste disposed	kg	1.90E-04	6.24E-07	2.41E-06	ND	1.22E-08	2.14E-08	0.00E+00	2.11E-06	-1.38E-08

Output flow indicators (100% landfill end-of-life scenario)

Results per declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	1.15E-03	0.00E+00	7.44E-03	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	6.34E-05	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	8.90E-05	ND	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	1.67E-04	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ABBREVIATIONS.

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PCR	Product Category Rules
c-PCR	Complementary Product Category Rules
CEN	European Committee for Standardization
CLC	Co-location centre
CPC	Central product classification
GHS	Globally harmonized system of classification and labelling of chemicals
GRI	Global Reporting Initiative
Environmental Impact Indicators (EN 15804)	
GHG	Greenhouse gas
GWP	Global Warming Potential (kg CO_2 eq.)
GWP-fossil	Global Warming Potential from fossil sources (kg CO_2 eq.)
GWP-biogenic	Global Warming Potential from biogenic sources (kg CO_2 eq.)
GWP-luluc	Global Warming Potential from land use and land use change (kg CO_2 eq.)
GWP-total	Total Global Warming Potential (kg CO_2 eq.)
GWP-GHG	Global Warming Potential for greenhouse gases (kg CO_2 eq.)
ODP	Ozone Depletion Potential (kg CFC-11 eq.)
AP	Acidification Potential (mol H^+ eq.)
EP	Eutrophication Potential
EP-freshwater	Freshwater eutrophication potential (kg P eq.)
EP-marine	Marine eutrophication potential (kg N eq.)
EP-terrestrial	Terrestrial eutrophication potential (mol N eq.)
POCP	Photochemical Ozone Creation Potential (kg NMVOC eq.)
ADP	Abiotic Depletion Potential
ADP-minerals&metals	Abiotic depletion potential for non-fossil resources (kg Sb eq.)
ADP-fossil	Abiotic depletion potential for fossil resources (MJ)
WDP	Water Deprivation Potential (m^3)
Resource Use Indicators	
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)
PERM	Use of renewable primary energy resources used as raw materials (MJ)
PERT	Total use of renewable primary energy resources (MJ)
PENRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ)
PENRM	Use of non-renewable primary energy resources used as raw materials (MJ)
PENRT	Total use of non-renewable primary energy resources (MJ)
SM	Use of secondary material (kg)
RSF	Use of renewable secondary fuels (MJ)
NRSF	Use of non-renewable secondary fuels (MJ)
FW	Use of net fresh water (m^3)
Waste Indicators	
HW	Hazardous Waste (disposed) (kg)
NHW	Non-Hazardous Waste (disposed) (kg)
RW	Radioactive Waste (disposed) (kg)
Output Flow Indicators	
CFR	Components for Reuse (kg)
MR	Material for Recycling (kg)

MER	Materials for Energy Recovery (kg)
EEE	Exported Energy. Electricity (MJ)
EET	Exported Energy. Thermal (MJ)
Lifecycle Stages / Modules	
A1	Raw material supply
A2	Transport
A3	Manufacturing
A4	Transport to site
A5	Construction/Installation
B1	Use
B2	Maintenance
B3	Repair
B4	Replacement
B5	Refurbishment
B6	Operational energy use
B7	Operational water use
C1	Deconstruction/Demolition
C2	Transport to waste processing
C3	Waste processing
C4	Disposal
D	Reuse-Recovery-Recycling potential
Other Relevant Terms	
SVHC	Substances of Very High Concern
EC No.	European Community Number
CAS No.	Chemical Abstracts Service Number
MJ	Megajoule
kg	Kilogram
m^3	Cubic Meter
NMVOC	Non-Methane Volatile Organic Compounds
Sb eq.	Antimony Equivalents
P eq.	Phosphorus Equivalents
N eq.	Nitrogen Equivalents
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO_2 eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO_2 eq.	Kilograms of Carbon Dioxide Equivalent
ND	Not Declared

REFERENCES

- EN 15804 SUSTAINABILITY OF CONSTRUCTION WORKS ENVIRONMENTAL PRODUCT DECLARATIONS CORE RULES FOR THE PRODUCT CATEGORY OF CONSTRUCTION PRODUCTS
- GENERAL PROGRAMME INSTRUCTIONS OF THE INTERNATIONAL EPD® SYSTEM. VERSION 5.0
- ISO 14025 ENVIRONMENTAL LABELS AND DECLARATIONS TYPE III ENVIRONMENTAL DECLARATIONS PRINCIPLES AND PROCEDURES
- ISO 14044 ENVIRONMENTAL MANAGEMENT L I F E CYCLE ASSESSMENT REQUIREMENTS AND GUIDELINES
- PCR 2019:14 CONSTRUCTION PRODUCTS EN 15804- A2 (VERSION 2.0.1)

VERSION HISTORY

Original Version of the EPD. 2026-02-16
2026-07-10: Editorial change, fix content declaration typo and company description.

INTERNATIONAL EPD SYSTEM

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