

Environmental Product Declaration

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

Ready-mixed concrete

The following groups of concrete are processed separately: C12/15-X0b(H)-16-F3; C30/37-XA1-XC4-XV2(H)-16-F3 A; C30/37-XA1-XC4-XV2(H)-16-F3 B; C30/37-XA1-XC4-XV2(H)-16-F3 C; C35/45-XA1-XC4-XV2(H)-16-F3.

from

FRISSBETON Kft.

FRISSBETON

Programme:	"National Environmental Labeling Program" - Czech Republic (NPEZ)
Programme operator:	Ministry of the Environment of the Czech Republic
EPD type:	EPD of a single product from a manufacturer/service provider
EPD registration number:	3015-EPD-030069076
Publication date:	2025-09-15
Valid until:	2030-09-15

An EPD should provide current information and may be updated if conditions change.



General information

Programme information

Programme:	"National Environmental Labeling Program" - Czech Republic (NPEZ)
Address:	Ministry of the Environment of the Czech Republic Department of Voluntary Instruments 100 10 Praha 10, Vršovická 1442/65
Website:	www.mzp.cz , www.cenia.cz
E-mail:	info@mpz.cz

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

Product Category Rules (PCR)

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

Product Category Rules (PCR): EN 16757:2022 Sustainability of construction works - Environmental product declarations - Product Category Rules for concrete and concrete elements

Life Cycle Assessment (LCA)

LCA accountability: *FRISSBETON Kft.*

Third-party verification

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

EPD verification by accredited certification body

Third-party verification: **Technický a zkušební ústav stavební Praha, s.p.** is an approved certification body accountable for the third-party verification.
190 00 Praha 9, Prosecká 811/76a, CZ

The certification body is accredited by: **Českým institutem pro akreditaci, o.p.s.**, Osvědčení č. 456/2024

Verifier: Ing. Lenka Vrbová



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

Ano ne

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

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

Company information

Owner of the EPD: FRISSBETON Kft.

Gábor Dénes utca 2. INFOPARK D. épület

H-1117 Budapest, Hungary

Contact:

Anna Bridišová, anna.bridis@strabag.com, Kačírkova 982/4, 158 00 Praha 5 - Jinonice, CZ

Description of the organisation:

The company is part of the STRABAG SE construction group, operates an extensive network of concrete plants and is one of the largest concrete producers on the Hungarian market.

FRISSBETON produces concrete mixes in plants all over Hungary.

The basis of the product range is the production of structural and non-structural concrete according to MSZ 4798:2016 or e-ÜT 06.03.53:2018. Structural concretes are produced according to the scope of certification in classes **C 8/10 to C 80/95** for various degrees of environmental influence, in consistencies S1- S4 or S5.

The company provides transport by truck mixers and concrete pumping. The products are intended for civil, civil engineering and transport structures, site-mixed concrete and precast structural components. In addition to a wide range of quality products, as already mentioned, the company also provides its customers with technical solutions that create added value for product users, making it a reliable support for the construction industry in Hungary.

Concrete is produced in accordance with the standard **EN 206:2013+A2:2021 Concrete - Specification, performance, production and conformity**. Concretes can be designed for different classes of exposure.

The present EPD provides quantified environmental information on a construction product on harmonized and scientifically reasoned basis. It is also intended to provide basic information on the product regarding assessment of life cycle of buildings and other structures and contribute to identification of products with a lower impact on the environment.

To enable comparison of products in the building life cycle assessment process based on their EPD which is made by determination of their contribution to the environmental properties of the building, the EPD for the concerned construction products must be drawn up in accordance with the requirements of **EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products**.

Product-related or management system-related certifications:

The quality of the products is ensured by an effective quality management system according to EN ISO 9001 and at selected operations by an environmental management system according to EN ISO 14001 in accordance with the technical regulations regarding the type of product.

Name and location of production site(s):

FRISSBETON Kft.

Budapest, Öv utca

1141 Budapest, Öv utca 23-25.

Product information

Product name: Ready-mixed concrete

Product identification:

Ready-mixed concrete

The following groups of concrete are processed separately:

C12/15-X0b(H)-16-F3 (CEM II A-S 42,5 R)

C30/37-XA1-XC4-XV2(H)-16-F3 A (CEM II A-S 42,5 R)

C30/37-XA1-XC4-XV2(H)-16-F3 B (CEM III A 32,5 R-MSR)

C30/37-XA1-XC4-XV2(H)-16-F3 C (CEM III B 32,5 N-LH/SR)

C35/45-XA1-XC4-XV2(H)-16-F3 (CEM III A 32,5 R-MSR)

Product description:

Concretes are produced according to the currently valid standards of the national and international standard **EN 206:2013+A2:2021** Concrete - Specification, performance, production and conformity.

These specific types of concrete have a wide range of applications and are primarily used in civil engineering and residential and commercial construction.

The production process is fully automated to ensure superior quality products, conforming to the national and European concrete standards. The raw materials (cement, aggregates, water, admixtures etc.) are accurately weighed according to the proprietary mix designs to produce ready-mixed concrete with specific characteristics (strength, durability, finish ability, pumpability etc.). Once manufactured, the fresh concrete is transported with concrete trucks to the construction sites.

The production process is fully automated to ensure superior quality products, conforming to the national and European concrete standards. The raw materials (cement, aggregates, water, admixtures etc.) are accurately weighed according to the proprietary mix designs to produce ready-mixed concrete with specific characteristics (strength, durability, finish ability, pumpability etc.). Once manufactured, the fresh concrete is transported with concrete trucks to the construction sites.

UN CPC code:

375 - Articles of concrete, cement and plaster

Geographical scope:

The generic data used from the Ecoinvent database are used with validity for the Czech Republic (e.g. energy inputs) and in the event that data for the Czech Republic are not available, data valid for the EU or according to the location of the supplier are used. Based on the evaluation according to EN 15804+A2, Annex E, tab. E.1 the generic data used meet the quality level - medium.

Product packaging:

The concrete is delivered to the place of storage by means of transport (truck mixers).

Environment and health during use

During the entire production process, it is not necessary to take any special health protection measures beyond the legally specified industrial protection measures for production employees.

LCA information

Functional unit / declared unit:

The declared unit is 1 m³ of the manufactured product - ready-mixed concrete according to a specific recipe.

The following groups of concrete are processed separately: C12/15-X0b(H)-16-F3; C30/37-XA1-XC4-XV2(H)-16-F3 A; C30/37-XA1-XC4-XV2(H)-16-F3 B; C30/37-XA1-XC4-XV2(H)-16-F3 C; C35/45-XA1-XC4-XV2(H)-16-F3.

Designation	Unit	Conversion factor to 1 kg
Declared unit	m ³	-
Average bulk weight C12/15-X0b(H)-16-F3 [kg/m³]	2 300	0,000435
Average bulk weight C30/37-XA1-XC4-XV2(H)-16-F3 A; C30/37-XA1-XC4-XV2(H)-16-F3 B; C30/37-XA1-XC4-XV2(H)-16-F3 C; C35/45-XA1-XC4-XV2(H)-16-F3 [kg/m³]	2 385	0,000419

Reference service life:

The reference service life (RSL) for concrete mixtures is declared in the technical specification and in the application standards. According to this standard, concrete mixtures have a service life (RSL) of 50 or 100 years.

Time representativeness:

For specific data, the manufacturer's data for the **year 2024** is used. For generic data, data from the Ecoinvent database version 3.11 is used. Based on the evaluation according to EN 15804+A2, Annex E, tab. E.1 the generic data used meet the quality level - very good.

Database(s) and LCA software used:

SimaPro Craft calculation software, version 10.2, Ecoinvent database version 3.11.

GWP-GHG from electricity production: 0.384 kg CO₂ eq/kWh (HU residual mix).

Description of system boundaries:

“Cradle to gate with options, modules C1–C4, module D and with optional modules”

The production phase includes the following modules:

- **A1 - extraction and processing of raw materials** and production of packaging from input raw materials
- **A2 - transport of input raw materials** from the supplier to the manufacturer, waste removal
- **A3 - production of products**, production of auxiliary materials and semi-finished products, energy consumption, including waste processing until reaching a state where it ceases to be waste or after removal of the last material residues during the production phase.

The construction phase includes the following modules:

- **A4 - transport to the construction site.** Transport is carried out by truck with a capacity of 16-32 t (EURO 6). Transport of the declared product unit over a distance of 1 km is considered.

The usage phase includes the module:

- **B1**, use of the installed product in terms of emissions and the environment, taking into account the effect of carbonation. The calculation of the effect of carbonation (the process by which CO₂ from the ambient air penetrates the concrete and reacts with the hydration products of the concrete) was carried out according to the procedure specified in Annex BB.2 of EN 16757.

The end-of-life phase includes modules:

- **C1**, deconstruction, demolition; product from a building, including its dismantling or demolition, including the initial sorting of materials on the construction site. The decomposition and/or dismantling of the product is part of the demolition of the entire building. In this case, the

combustion of diesel in the construction machine is assumed to be 0.045 MJ/kg (based on the volume weight of the product). Water consumption for spraying is also considered at 80 kg per 1 m³.

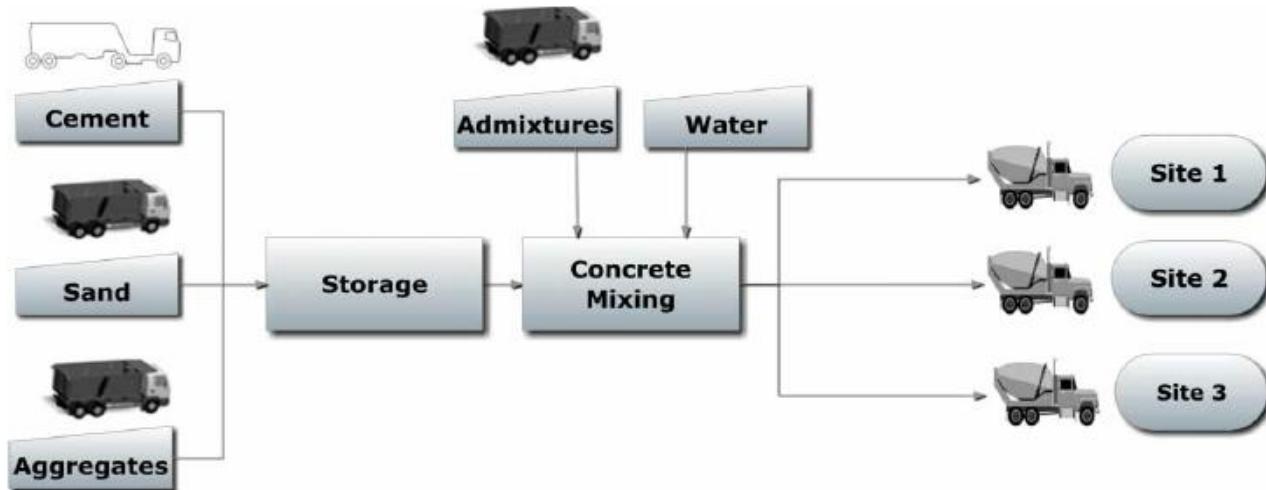
- **C2**, transport to the waste processing site; transport of the discarded product as part of waste processing, e.g. to a recycling site, and transport of waste, e.g. to a final disposal site. Transport from the dismantled building is carried out by a truck with a load capacity of 7.5 - 16 t (EURO 6) to an inert material landfill as a mixed building demolition or to a recycling center, the estimated transport distance according to calculations is 25 km.
- **C3**, waste processing for reuse, recovery and/or recycling; e.g. collection of waste fractions from deconstruction and processing of waste from material streams for recycling (90%). The loads from the necessary processing for further use are also included. This includes processing by crushing at 0.00398 kWh/1 kg and material movements in the recycling centre - operation of construction machinery at 0.0143 MJ/1 kg.
- **C4**, waste disposal including its pre-processing and landfill management. 10% of the dismantled product is disposed of as mixed construction rubble in an inert materials landfill, without taking into account the energy recovery of landfill gas from (fine) organic components.

Benefits and costs beyond the product system boundary are presented in module D.

Module D includes:

- **D**, potential for reuse, recovery and/or recycling, expressed in net impacts or benefits. In the module D scenario, the saving of primary raw material inputs (excluding transport and energy) in another product system (e.g. crushed aggregates) is taken into account.

Production:



More information:

The information module **A5** from the construction phase was not included in the LCA due to the difficulty of accessing input data and is therefore not declared. The product is also delivered without packaging. Information modules from the use phase **B2 to B7** are also not declared, as these types of products, assuming correct use, do not require maintenance, repair or replacement during the normal life time in the use phase. They also do not require energy or water consumption during the use phase.

For the study, all operational data related to the consumption of main and auxiliary materials for the production of the product, energy data, diesel consumption and the distribution of annual waste production and emissions according to plant records were taken. In terms of produced waste, only those wastes that are clearly related to production activities were included in the analysis.

The processes required for the installation of production equipment and the construction of infrastructure were not included in the analysis. Also, administrative processes are not included – inputs and outputs are balanced per production phase.

The cut-off rules set for this project are the ones recommended by the document EN 15804:2012+A2:2019/AC:2021.

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	ND	x	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	GLO	GLO, EU	EU, HU	EU		EU							EU	EU	EU	EU	GLO, EU
Specific data used	> 95 %					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0 %					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0 %					-	-	-	-	-	-	-	-	-	-	-	-

The data used to calculate the EPD conforms to the following principles:

Technological point of view: Data corresponding to the current production of individual types of partial products of the plant and corresponding to the current state of the technologies used are used.

Based on the evaluation according to EN 15804+A2, Annex E, tab. E.1 the generic data used meet the quality level - very good.

The aspect of completeness and completeness: Most of the input data is based on consumption balances, which are precisely recorded in the manufacturer's information system. The reliability of the source of specific data is determined by the uniformity of the collection methodology of the information system.

Consistency point of view: Uniform points of view are used throughout the report (allocation rules, age of data, technological scope of validity, temporal scope of validity, geographical scope of validity).

Credibility aspect: All important data were checked for adherence to cross-comparison of mass balances.

Each product is assessed individually. Production takes place at only one production site.

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.

Content information - C12/15-X0b(H)-16-F3

Product components	Weight %	Post-consumer material, weight-%	Biogenic carbon content in kg C/DU
Cement	9,9	0	0
Aggregate	82,7	0	0
Chemical additives	0,1	0	0
Water	7,4	0	0
TOTAL	100	0	0
Packaging materials	Weight %	Weight-% (versus the product)	Biogenic carbon content in kg C/DU
Without packaging	-	-	-
TOTAL	-	-	-

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit (DU)
They are not	-	-	-

Substances listed on the list of substances of very high concern subject to authorization by the European Chemicals Agency are not contained in the product in declarable quantities.

Content information - C30/37-XA1-XC4-XV2(H)-16-F3 A

Product components	Weight %	Post-consumer material, weight-%	Biogenic carbon content in kg C/DU
Cement	13,4	0	0
Aggregate	79,8	0	0
Chemical additives	0,1	0	0
Water	6,7	0	0
TOTAL	100	0	0
Packaging materials	Weight %	Weight-% (versus the product)	Biogenic carbon content in kg C/DU
Without packaging	-	-	-
TOTAL	-	-	-

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit (DU)
They are not	-	-	-

Substances listed on the list of substances of very high concern subject to authorization by the European Chemicals Agency are not contained in the product in declarable quantities.

Content information - C30/37-XA1-XC4-XV2(H)-16-F3 B

Product components	Weight %	Post-consumer material, weight-%	Biogenic carbon content in kg C/DU
Cement	13,4	0	0
Aggregate	79,8	0	0
Chemical additives	0,1	0	0
Water	6,7	0	0
TOTAL	100	0	0
Packaging materials	Weight %	Weight-% (versus the product)	Biogenic carbon content in kg C/DU
Without packaging	-	-	-
TOTAL	-	-	-

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit (DU)
They are not	-	-	-

Substances listed on the list of substances of very high concern subject to authorization by the European Chemicals Agency are not contained in the product in declarable quantities.

Content information - C30/37-XA1-XC4-XV2(H)-16-F3 C

Product components	Weight %	Post-consumer material, weight-%	Biogenic carbon content in kg C/DU
Cement	13,6	0	0
Aggregate	79,5	0	0
Chemical additives	0,1	0	0
Water	6,8	0	0
TOTAL	100	0	0
Packaging materials	Weight %	Weight-% (versus the product)	Biogenic carbon content in kg C/DU
Without packaging	-	-	-
TOTAL	-	-	-

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit (DU)
They are not	-	-	-

Substances listed on the list of substances of very high concern subject to authorization by the European Chemicals Agency are not contained in the product in declarable quantities.

Content information - C35/45-XA1-XC4-XV2(H)-16-F3

Product components	Weight %	Post-consumer material, weight-%	Biogenic carbon content in kg C/DU
Cement	14,7	0	0
Aggregate	78,3	0	0
Chemical additives	0,1	0	0
Water	6,9	0	0
TOTAL	100	0	0
Packaging materials	Weight %	Weight-% (versus the product)	Biogenic carbon content in kg C/DU
Without packaging	-	-	-
TOTAL	-	-	-

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit (DU)
They are not	-	-	-

Substances listed on the list of substances of very high concern subject to authorization by the European Chemicals Agency are not contained in the product in declarable quantities.

Results of the environmental performance indicators - C12/15-X0b(H)-16-F3 (CEM II A-S 42,5 R)

Mandatory impact category indicators according to EN 15804:2012+A2:2019/AC:2021 (characterisation factors based on EF 3.1 package)

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ ekv.	2,16E+02	4,29E-01	ND	-6,78E+01	ND	ND	ND	ND	ND	ND	1,04E+01	1,36E+01	6,27E+00	1,44E+00	-7,37E+00
GWP-biogenic	kg CO ₂ ekv.	3,22E+00	2,98E-04	ND	ND	ND	ND	ND	ND	ND	ND	2,56E-03	6,22E-03	2,78E-02	7,04E-04	-1,62E-01
GWP- luluc	kg CO ₂ ekv.	4,61E-02	1,45E-04	ND	ND	ND	ND	ND	ND	ND	ND	1,11E-03	4,23E-03	4,23E-03	8,18E-04	-4,87E-03
GWP - total	kg CO ₂ ekv.	2,20E+02	4,30E-01	ND	-6,78E+01	ND	ND	ND	ND	ND	ND	1,04E+01	1,36E+01	6,30E+00	1,44E+00	-7,54E+00
ODP	kg CFC 11 ekv.	1,41E-06	9,37E-09	ND	ND	ND	ND	ND	ND	ND	ND	1,55E-07	2,98E-07	1,40E-07	4,01E-08	-9,40E-08
AP	mol H ⁺ ekv.	5,03E-01	9,22E-04	ND	ND	ND	ND	ND	ND	ND	ND	9,32E-02	2,75E-02	4,44E-02	1,01E-02	-5,91E-02
EP-freshwater	kg P ekv.	2,35E-02	2,98E-05	ND	ND	ND	ND	ND	ND	ND	ND	3,51E-04	9,11E-04	3,24E-03	1,26E-04	-1,62E-03
EP- marine	kg N ekv.	1,45E-01	2,22E-04	ND	ND	ND	ND	ND	ND	ND	ND	4,34E-02	6,50E-03	1,55E-02	3,87E-03	-1,75E-02
EP - terrestrial	mol N ekv.	1,65E+00	2,40E-03	ND	ND	ND	ND	ND	ND	ND	ND	4,75E-01	7,02E-02	1,62E-01	4,23E-02	-2,36E-01
POCP	kg NMVOC ekv.	5,10E-01	1,46E-03	ND	ND	ND	ND	ND	ND	ND	ND	1,42E-01	4,40E-02	4,94E-02	1,52E-02	-5,88E-02
ADP- minerals&metals*	kg Sb ekv.	3,56E-04	1,47E-06	ND	ND	ND	ND	ND	ND	ND	ND	3,85E-06	4,63E-05	6,54E-06	2,11E-06	-1,11E-04
ADP-fossil*	MJ	1,24E+03	6,10E+00	ND	ND	ND	ND	ND	ND	ND	ND	1,36E+02	1,91E+02	1,33E+02	3,53E+01	-1,10E+02
WDP*	m ³	2,43E+01	2,40E-02	ND	ND	ND	ND	ND	ND	ND	ND	3,73E+00	6,79E-01	1,67E+00	1,54E+00	-2,02E+00
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: 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.

Disclaimer: If module C is included then when assessing the results of A1-A3, also take into account the results of modules C.

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ ekv.	2,16E+02	4,30E-01	ND	1,04E+01	1,36E+01	6,28E+00	1,44E+00	-7,39E+00							
PM	Disease incidence	5,47E-06	3,22E-08	ND	2,66E-06	8,54E-07	8,26E-07	2,32E-07	-1,38E-06							
IRP	kBq U235 ekv.	8,42E+00	7,37E-03	ND	6,67E-02	2,78E-01	3,05E+00	2,11E-02	-1,86E+00							
ETP- fw	CTUe	1,72E+02	8,19E-01	ND	7,43E+00	2,78E+01	9,13E+00	2,55E+00	-3,31E+01							
HTP-c	CTUh	2,77E-08	7,17E-11	ND	1,09E-09	2,09E-09	8,04E-10	2,60E-10	-3,90E-09							
HTP- nc	CTUh	2,22E-06	3,83E-09	ND	1,80E-08	1,11E-07	2,72E-08	5,83E-09	-9,57E-08							
SQP	dimensionless	5,42E+02	3,66E+00	ND	9,02E+00	9,74E+01	1,64E+01	6,92E+01	-2,22E+02							
Acronyms	GWP-GHG = this indicator includes all greenhouse gases except biogenic uptake and emissions of carbon dioxide 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, PM = Potential incidence of disease due to PM 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															

¹ This 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 CO₂ is set to zero.

Resource use indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	8,89E+01	1,01E-01	ND	9,28E-01	3,50E+00	7,88E+00	3,33E-01	-3,51E+01							
PERM	MJ	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PERT	MJ	8,89E+01	1,01E-01	ND	9,28E-01	3,50E+00	7,88E+00	3,33E-01	-3,51E+01							
PENRE	MJ	4,10E+02	4,86E-01	ND	5,57E+00	1,47E+01	7,23E+01	2,14E+00	-4,46E+01							
PENRM	MJ	7,31E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PENRT	MJ	4,17E+02	4,86E-01	ND	5,57E+00	1,47E+01	7,23E+01	2,14E+00	-4,46E+01							
SM	kg	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
RSF	MJ	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
NRSF	MJ	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	1,73E-01	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
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															

Additional environmental information - Waste indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	7,62E-02	1,56E-04	ND	1,30E-03	4,45E-03	3,31E-03	5,15E-04	-7,24E-02							
Non-hazardous waste disposed	kg	5,12E+01	2,97E-01	ND	9,52E-02	7,75E+00	1,69E-01	2,30E+02	-2,13E+00							
Radioactive waste disposed	kg	2,09E-03	1,82E-06	ND	1,65E-05	6,91E-05	7,26E-04	5,14E-06	-4,15E-04							

Additional environmental information - Output flow indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	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	ND	0,00E+00	0,00E+00	2,07E+03	0,00E+00	0,00E+00							
Materials for energy recovery	kg	0,00E+00	0,00E+00	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	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	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							

The result tables shall only contain values or the letters "ND" (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.

Results of the environmental performance indicators - C30/37-XA1-XC4-XV2(H)-16-F3 A (CEM II A-S 42,5 R)

Mandatory impact category indicators according to EN 15804:2012+A2:2019/AC:2021 (characterisation factors based on EF 3.1 package)

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ ekv.	2,92E+02	4,45E-01	ND	-1,23E+02	ND	ND	ND	ND	ND	ND	1,08E+01	1,41E+01	6,36E+00	1,49E+00	-7,64E+00
GWP-biogenic	kg CO ₂ ekv.	4,43E+00	3,09E-04	ND	ND	ND	ND	ND	ND	ND	ND	2,64E-03	6,45E-03	2,77E-02	7,31E-04	-1,68E-01
GWP- luluc	kg CO ₂ ekv.	6,04E-02	1,50E-04	ND	ND	ND	ND	ND	ND	ND	ND	1,15E-03	4,39E-03	4,23E-03	8,48E-04	-5,05E-03
GWP - total	kg CO ₂ ekv.	2,96E+02	4,46E-01	ND	-1,23E+02	ND	ND	ND	ND	ND	ND	1,08E+01	1,41E+01	6,40E+00	1,49E+00	-7,81E+00
ODP	kg CFC 11 ekv.	1,78E-06	9,72E-09	ND	ND	ND	ND	ND	ND	ND	ND	1,61E-07	3,09E-07	1,41E-07	4,16E-08	-9,75E-08
AP	mol H ⁺ ekv.	6,65E-01	9,56E-04	ND	ND	ND	ND	ND	ND	ND	ND	9,67E-02	2,85E-02	4,53E-02	1,05E-02	-6,13E-02
EP-freshwater	kg P ekv.	3,16E-02	3,09E-05	ND	ND	ND	ND	ND	ND	ND	ND	3,64E-04	9,44E-04	3,23E-03	1,31E-04	-1,68E-03
EP- marine	kg N ekv.	1,91E-01	2,30E-04	ND	ND	ND	ND	ND	ND	ND	ND	4,50E-02	6,74E-03	1,59E-02	4,01E-03	-1,82E-02
EP - terrestrial	mol N ekv.	2,17E+00	2,49E-03	ND	ND	ND	ND	ND	ND	ND	ND	4,92E-01	7,28E-02	1,67E-01	4,38E-02	-2,45E-01
POCP	kg NMVOC ekv.	6,64E-01	1,52E-03	ND	ND	ND	ND	ND	ND	ND	ND	1,47E-01	4,56E-02	5,09E-02	1,58E-02	-6,10E-02
ADP- minerals&metals*	kg Sb ekv.	4,44E-04	1,53E-06	ND	ND	ND	ND	ND	ND	ND	ND	3,99E-06	4,80E-05	6,55E-06	2,18E-06	-1,16E-04
ADP-fossil*	MJ	1,59E+03	6,33E+00	ND	ND	ND	ND	ND	ND	ND	ND	1,41E+02	1,98E+02	1,34E+02	3,66E+01	-1,14E+02
WDP*	m ³	2,87E+01	2,49E-02	ND	ND	ND	ND	ND	ND	ND	ND	3,74E+00	7,04E-01	1,67E+00	1,59E+00	-2,10E+00
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: 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.

Disclaimer: If module C is included then when assessing the results of A1-A3, also take into account the results of modules C.

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ²	kg CO ₂ ekv.	2,92E+02	4,46E-01	ND	1,08E+01	1,41E+01	6,38E+00	1,49E+00	-7,67E+00							
PM	Disease incidence	6,60E-06	3,34E-08	ND	2,76E-06	8,85E-07	8,54E-07	2,40E-07	-1,43E-06							
IRP	kBq U235 ekv.	1,08E+01	7,64E-03	ND	6,88E-02	2,88E-01	3,03E+00	2,19E-02	-1,93E+00							
ETP- fw	CTUe	2,19E+02	8,49E-01	ND	7,71E+00	2,88E+01	9,17E+00	2,64E+00	-3,43E+01							
HTP-c	CTUh	3,65E-08	7,44E-11	ND	1,13E-09	2,17E-09	8,13E-10	2,69E-10	-4,04E-09							
HTP- nc	CTUh	3,04E-06	3,97E-09	ND	1,86E-08	1,15E-07	2,73E-08	6,05E-09	-9,93E-08							
SQP	dimensionless	6,30E+02	3,79E+00	ND	9,35E+00	1,01E+02	1,65E+01	7,18E+01	-2,30E+02							
Acronyms	GWP-GHG = this indicator includes all greenhouse gases except biogenic uptake and emissions of carbon dioxide 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, PM = Potential incidence of disease due to PM 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															

² This 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 CO₂ is set to zero.

Resource use indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1,11E+02	1,05E-01	ND	9,60E-01	3,63E+00	7,85E+00	3,45E-01	-3,63E+01							
PERM	MJ	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PERT	MJ	1,11E+02	1,05E-01	ND	9,60E-01	3,63E+00	7,85E+00	3,45E-01	-3,63E+01							
PENRE	MJ	5,44E+02	5,04E-01	ND	5,77E+00	1,53E+01	7,20E+01	2,22E+00	-4,63E+01							
PENRM	MJ	1,04E+01	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PENRT	MJ	5,54E+02	5,04E-01	ND	5,77E+00	1,53E+01	7,20E+01	2,22E+00	-4,63E+01							
SM	kg	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
RSF	MJ	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
NRSF	MJ	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	1,61E-01	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
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															

Additional environmental information - Waste indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	8,63E-02	1,62E-04	ND	1,35E-03	4,62E-03	3,31E-03	5,34E-04	-7,51E-02							
Non-hazardous waste disposed	kg	5,98E+01	3,08E-01	ND	9,86E-02	8,04E+00	1,69E-01	2,38E+02	-2,20E+00							
Radioactive waste disposed	kg	2,70E-03	1,88E-06	ND	1,70E-05	7,16E-05	7,23E-04	5,33E-06	-4,30E-04							

Additional environmental information - Output flow indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	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	ND	0,00E+00	0,00E+00	2,15E+03	0,00E+00	0,00E+00							
Materials for energy recovery	kg	0,00E+00	0,00E+00	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	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	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							

The result tables shall only contain values or the letters "ND" (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.

Results of the environmental performance indicators - C30/37-XA1-XC4-XV2(H)-16-F3 B (CEM III A 32,5 R-MSR)

Mandatory impact category indicators according to EN 15804:2012+A2:2019/AC:2021 (characterisation factors based on EF 3.1 package)

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ ekv.	2,10E+02	4,45E-01	ND	-1,23E+02	ND	ND	ND	ND	ND	ND	1,08E+01	1,41E+01	6,36E+00	1,49E+00	-7,64E+00
GWP-biogenic	kg CO ₂ ekv.	2,79E+00	3,09E-04	ND	ND	ND	ND	ND	ND	ND	ND	2,64E-03	6,45E-03	2,77E-02	7,31E-04	-1,68E-01
GWP- luluc	kg CO ₂ ekv.	9,20E-02	1,50E-04	ND	ND	ND	ND	ND	ND	ND	ND	1,15E-03	4,39E-03	4,23E-03	8,48E-04	-5,05E-03
GWP - total	kg CO ₂ ekv.	2,13E+02	4,46E-01	ND	-1,23E+02	ND	ND	ND	ND	ND	ND	1,08E+01	1,41E+01	6,40E+00	1,49E+00	-7,81E+00
ODP	kg CFC 11 ekv.	1,67E-06	9,72E-09	ND	ND	ND	ND	ND	ND	ND	ND	1,61E-07	3,09E-07	1,41E-07	4,16E-08	-9,75E-08
AP	mol H ⁺ ekv.	6,27E-01	9,56E-04	ND	ND	ND	ND	ND	ND	ND	ND	9,67E-02	2,85E-02	4,53E-02	1,05E-02	-6,13E-02
EP-freshwater	kg P ekv.	2,91E-02	3,09E-05	ND	ND	ND	ND	ND	ND	ND	ND	3,64E-04	9,44E-04	3,23E-03	1,31E-04	-1,68E-03
EP- marine	kg N ekv.	1,53E-01	2,30E-04	ND	ND	ND	ND	ND	ND	ND	ND	4,50E-02	6,74E-03	1,59E-02	4,01E-03	-1,82E-02
EP - terrestrial	mol N ekv.	1,72E+00	2,49E-03	ND	ND	ND	ND	ND	ND	ND	ND	4,92E-01	7,28E-02	1,67E-01	4,38E-02	-2,45E-01
POCP	kg NMVOC ekv.	5,58E-01	1,52E-03	ND	ND	ND	ND	ND	ND	ND	ND	1,47E-01	4,56E-02	5,09E-02	1,58E-02	-6,10E-02
ADP- minerals&metals*	kg Sb ekv.	5,04E-04	1,53E-06	ND	ND	ND	ND	ND	ND	ND	ND	3,99E-06	4,80E-05	6,55E-06	2,18E-06	-1,16E-04
ADP-fossil*	MJ	1,51E+03	6,33E+00	ND	ND	ND	ND	ND	ND	ND	ND	1,41E+02	1,98E+02	1,34E+02	3,66E+01	-1,14E+02
WDP*	m ³	2,45E+01	2,49E-02	ND	ND	ND	ND	ND	ND	ND	ND	3,74E+00	7,04E-01	1,67E+00	1,59E+00	-2,10E+00
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: 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.

Disclaimer: If module C is included then when assessing the results of A1-A3, also take into account the results of modules C.

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ³	kg CO ₂ ekv.	2,10E+02	4,46E-01	ND	1,08E+01	1,41E+01	6,38E+00	1,49E+00	-7,67E+00							
PM	Disease incidence	7,57E-06	3,34E-08	ND	2,76E-06	8,85E-07	8,54E-07	2,40E-07	-1,43E-06							
IRP	kBq U235 ekv.	1,04E+01	7,64E-03	ND	6,88E-02	2,88E-01	3,03E+00	2,19E-02	-1,93E+00							
ETP- fw	CTUe	5,63E+02	8,49E-01	ND	7,71E+00	2,88E+01	9,17E+00	2,64E+00	-3,43E+01							
HTP-c	CTUh	3,10E-08	7,44E-11	ND	1,13E-09	2,17E-09	8,13E-10	2,69E-10	-4,04E-09							
HTP- nc	CTUh	2,55E-06	3,97E-09	ND	1,86E-08	1,15E-07	2,73E-08	6,05E-09	-9,93E-08							
SQP	dimensionless	7,29E+02	3,79E+00	ND	9,35E+00	1,01E+02	1,65E+01	7,18E+01	-2,30E+02							
Acronyms	GWP-GHG = this indicator includes all greenhouse gases except biogenic uptake and emissions of carbon dioxide 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, PM = Potential incidence of disease due to PM 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															

³ This 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 CO₂ is set to zero.

Resource use indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1,21E+02	1,05E-01	ND	9,60E-01	3,63E+00	7,85E+00	3,45E-01	-3,63E+01							
PERM	MJ	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PERT	MJ	1,21E+02	1,05E-01	ND	9,60E-01	3,63E+00	7,85E+00	3,45E-01	-3,63E+01							
PENRE	MJ	5,14E+02	5,04E-01	ND	5,77E+00	1,53E+01	7,20E+01	2,22E+00	-4,63E+01							
PENRM	MJ	9,44E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PENRT	MJ	5,23E+02	5,04E-01	ND	5,77E+00	1,53E+01	7,20E+01	2,22E+00	-4,63E+01							
SM	kg	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
RSF	MJ	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
NRSF	MJ	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	1,61E-01	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
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															

Additional environmental information - Waste indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	9,04E-02	1,62E-04	ND	1,35E-03	4,62E-03	3,31E-03	5,34E-04	-7,51E-02							
Non-hazardous waste disposed	kg	5,72E+01	3,08E-01	ND	9,86E-02	8,04E+00	1,69E-01	2,38E+02	-2,20E+00							
Radioactive waste disposed	kg	2,58E-03	1,88E-06	ND	1,70E-05	7,16E-05	7,23E-04	5,33E-06	-4,30E-04							

Additional environmental information - Output flow indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	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	ND	0,00E+00	0,00E+00	2,15E+03	0,00E+00	0,00E+00							
Materials for energy recovery	kg	0,00E+00	0,00E+00	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	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	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							

The result tables shall only contain values or the letters "ND" (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.

Results of the environmental performance indicators - C30/37-XA1-XC4-XV2(H)-16-F3 C (CEM III B 32,5 N-LH/SR)

Mandatory impact category indicators according to EN 15804:2012+A2:2019/AC:2021 (characterisation factors based on EF 3.1 package)

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ ekv.	1,60E+02	4,45E-01	ND	-1,24E+02	ND	ND	ND	ND	ND	ND	1,08E+01	1,41E+01	6,36E+00	1,49E+00	-7,64E+00
GWP-biogenic	kg CO ₂ ekv.	1,82E+00	3,09E-04	ND	ND	ND	ND	ND	ND	ND	ND	2,64E-03	6,45E-03	2,77E-02	7,31E-04	-1,68E-01
GWP- luluc	kg CO ₂ ekv.	1,06E-01	1,50E-04	ND	ND	ND	ND	ND	ND	ND	ND	1,15E-03	4,39E-03	4,23E-03	8,48E-04	-5,05E-03
GWP - total	kg CO ₂ ekv.	1,62E+02	4,46E-01	ND	-1,24E+02	ND	ND	ND	ND	ND	ND	1,08E+01	1,41E+01	6,40E+00	1,49E+00	-7,81E+00
ODP	kg CFC 11 ekv.	1,59E-06	9,72E-09	ND	ND	ND	ND	ND	ND	ND	ND	1,61E-07	3,09E-07	1,41E-07	4,16E-08	-9,75E-08
AP	mol H ⁺ ekv.	5,88E-01	9,56E-04	ND	ND	ND	ND	ND	ND	ND	ND	9,67E-02	2,85E-02	4,53E-02	1,05E-02	-6,13E-02
EP-freshwater	kg P ekv.	2,70E-02	3,09E-05	ND	ND	ND	ND	ND	ND	ND	ND	3,64E-04	9,44E-04	3,23E-03	1,31E-04	-1,68E-03
EP- marine	kg N ekv.	1,29E-01	2,30E-04	ND	ND	ND	ND	ND	ND	ND	ND	4,50E-02	6,74E-03	1,59E-02	4,01E-03	-1,82E-02
EP - terrestrial	mol N ekv.	1,44E+00	2,49E-03	ND	ND	ND	ND	ND	ND	ND	ND	4,92E-01	7,28E-02	1,67E-01	4,38E-02	-2,45E-01
POCP	kg NMVOC ekv.	4,87E-01	1,52E-03	ND	ND	ND	ND	ND	ND	ND	ND	1,47E-01	4,56E-02	5,09E-02	1,58E-02	-6,10E-02
ADP- minerals&metals*	kg Sb ekv.	5,31E-04	1,53E-06	ND	ND	ND	ND	ND	ND	ND	ND	3,99E-06	4,80E-05	6,55E-06	2,18E-06	-1,16E-04
ADP-fossil*	MJ	1,44E+03	6,33E+00	ND	ND	ND	ND	ND	ND	ND	ND	1,41E+02	1,98E+02	1,34E+02	3,66E+01	-1,14E+02
WDP*	m ³	2,18E+01	2,49E-02	ND	ND	ND	ND	ND	ND	ND	ND	3,74E+00	7,04E-01	1,67E+00	1,59E+00	-2,10E+00
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: 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.

Disclaimer: If module C is included then when assessing the results of A1-A3, also take into account the results of modules C.

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁴	kg CO ₂ ekv.	1,60E+02	4,46E-01	ND	1,08E+01	1,41E+01	6,38E+00	1,49E+00	-7,67E+00							
PM	Disease incidence	7,93E-06	3,34E-08	ND	2,76E-06	8,85E-07	8,54E-07	2,40E-07	-1,43E-06							
IRP	kBq U235 ekv.	1,00E+01	7,64E-03	ND	6,88E-02	2,88E-01	3,03E+00	2,19E-02	-1,93E+00							
ETP- fw	CTUe	7,25E+02	8,49E-01	ND	7,71E+00	2,88E+01	9,17E+00	2,64E+00	-3,43E+01							
HTP-c	CTUh	2,73E-08	7,44E-11	ND	1,13E-09	2,17E-09	8,13E-10	2,69E-10	-4,04E-09							
HTP- nc	CTUh	2,24E-06	3,97E-09	ND	1,86E-08	1,15E-07	2,73E-08	6,05E-09	-9,93E-08							
SQP	dimensionless	7,73E+02	3,79E+00	ND	9,35E+00	1,01E+02	1,65E+01	7,18E+01	-2,30E+02							
Acronyms	GWP-GHG = this indicator includes all greenhouse gases except biogenic uptake and emissions of carbon dioxide 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, PM = Potential incidence of disease due to PM 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															

⁴ This 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 CO₂ is set to zero.

Resource use indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1,24E+02	1,05E-01	ND	9,60E-01	3,63E+00	7,85E+00	3,45E-01	-3,63E+01							
PERM	MJ	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PERT	MJ	1,24E+02	1,05E-01	ND	9,60E-01	3,63E+00	7,85E+00	3,45E-01	-3,63E+01							
PENRE	MJ	4,85E+02	5,04E-01	ND	5,77E+00	1,53E+01	7,20E+01	2,22E+00	-4,63E+01							
PENRM	MJ	8,85E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PENRT	MJ	4,94E+02	5,04E-01	ND	5,77E+00	1,53E+01	7,20E+01	2,22E+00	-4,63E+01							
SM	kg	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
RSF	MJ	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
NRSF	MJ	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	1,61E-01	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
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															

Additional environmental information - Waste indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	9,25E-02	1,62E-04	ND	1,35E-03	4,62E-03	3,31E-03	5,34E-04	-7,51E-02							
Non-hazardous waste disposed	kg	5,60E+01	3,08E-01	ND	9,86E-02	8,04E+00	1,69E-01	2,38E+02	-2,20E+00							
Radioactive waste disposed	kg	2,50E-03	1,88E-06	ND	1,70E-05	7,16E-05	7,23E-04	5,33E-06	-4,30E-04							

Additional environmental information - Output flow indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	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	ND	0,00E+00	0,00E+00	2,15E+03	0,00E+00	0,00E+00							
Materials for energy recovery	kg	0,00E+00	0,00E+00	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	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	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							

The result tables shall only contain values or the letters "ND" (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.

Results of the environmental performance indicators - C35/45-XA1-XC4-XV2(H)-16-F3 (CEM III A 32,5 R-MSR)

Mandatory impact category indicators according to EN 15804:2012+A2:2019/AC:2021 (characterisation factors based on EF 3.1 package)

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ ekv.	2,28E+02	4,45E-01	ND	-1,34E+02	ND	ND	ND	ND	ND	ND	1,08E+01	1,41E+01	6,36E+00	1,49E+00	-7,64E+00
GWP-biogenic	kg CO ₂ ekv.	3,05E+00	3,09E-04	ND	ND	ND	ND	ND	ND	ND	ND	2,64E-03	6,45E-03	2,77E-02	7,31E-04	-1,68E-01
GWP- luluc	kg CO ₂ ekv.	1,00E-01	1,50E-04	ND	ND	ND	ND	ND	ND	ND	ND	1,15E-03	4,39E-03	4,23E-03	8,48E-04	-5,05E-03
GWP - total	kg CO ₂ ekv.	2,31E+02	4,46E-01	ND	-1,34E+02	ND	ND	ND	ND	ND	ND	1,08E+01	1,41E+01	6,40E+00	1,49E+00	-7,81E+00
ODP	kg CFC 11 ekv.	1,81E-06	9,72E-09	ND	ND	ND	ND	ND	ND	ND	ND	1,61E-07	3,09E-07	1,41E-07	4,16E-08	-9,75E-08
AP	mol H ⁺ ekv.	6,78E-01	9,56E-04	ND	ND	ND	ND	ND	ND	ND	ND	9,67E-02	2,85E-02	4,53E-02	1,05E-02	-6,13E-02
EP-freshwater	kg P ekv.	3,18E-02	3,09E-05	ND	ND	ND	ND	ND	ND	ND	ND	3,64E-04	9,44E-04	3,23E-03	1,31E-04	-1,68E-03
EP- marine	kg N ekv.	1,65E-01	2,30E-04	ND	ND	ND	ND	ND	ND	ND	ND	4,50E-02	6,74E-03	1,59E-02	4,01E-03	-1,82E-02
EP - terrestrial	mol N ekv.	1,85E+00	2,49E-03	ND	ND	ND	ND	ND	ND	ND	ND	4,92E-01	7,28E-02	1,67E-01	4,38E-02	-2,45E-01
POCP	kg NMVOC ekv.	6,00E-01	1,52E-03	ND	ND	ND	ND	ND	ND	ND	ND	1,47E-01	4,56E-02	5,09E-02	1,58E-02	-6,10E-02
ADP- minerals&metals*	kg Sb ekv.	5,43E-04	1,53E-06	ND	ND	ND	ND	ND	ND	ND	ND	3,99E-06	4,80E-05	6,55E-06	2,18E-06	-1,16E-04
ADP-fossil*	MJ	1,63E+03	6,33E+00	ND	ND	ND	ND	ND	ND	ND	ND	1,41E+02	1,98E+02	1,34E+02	3,66E+01	-1,14E+02
WDP*	m ³	2,60E+01	2,49E-02	ND	ND	ND	ND	ND	ND	ND	ND	3,74E+00	7,04E-01	1,67E+00	1,59E+00	-2,10E+00
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: 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.

Disclaimer: If module C is included then when assessing the results of A1-A3, also take into account the results of modules C.

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁵	kg CO ₂ ekv.	2,28E+02	4,46E-01	ND	1,08E+01	1,41E+01	6,38E+00	1,49E+00	-7,67E+00							
PM	Disease incidence	8,01E-06	3,34E-08	ND	2,76E-06	8,85E-07	8,54E-07	2,40E-07	-1,43E-06							
IRP	kBq U235 ekv.	1,13E+01	7,64E-03	ND	6,88E-02	2,88E-01	3,03E+00	2,19E-02	-1,93E+00							
ETP- fw	CTUe	6,12E+02	8,49E-01	ND	7,71E+00	2,88E+01	9,17E+00	2,64E+00	-3,43E+01							
HTP-c	CTUh	3,38E-08	7,44E-11	ND	1,13E-09	2,17E-09	8,13E-10	2,69E-10	-4,04E-09							
HTP- nc	CTUh	2,95E-06	3,97E-09	ND	1,86E-08	1,15E-07	2,73E-08	6,05E-09	-9,93E-08							
SQP	dimensionless	7,65E+02	3,79E+00	ND	9,35E+00	1,01E+02	1,65E+01	7,18E+01	-2,30E+02							
Acronyms	GWP-GHG = this indicator includes all greenhouse gases except biogenic uptake and emissions of carbon dioxide 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, PM = Potential incidence of disease due to PM 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															

⁵ This 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 CO₂ is set to zero.

Resource use indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	129,80418	1,05E-01	ND	9,60E-01	3,63E+00	7,85E+00	3,45E-01	-3,63E+01							
PERM	MJ	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PERT	MJ	1,30E+02	1,05E-01	ND	9,60E-01	3,63E+00	7,85E+00	3,45E-01	-3,63E+01							
PENRE	MJ	5,59E+02	5,04E-01	ND	5,77E+00	1,53E+01	7,20E+01	2,22E+00	-4,63E+01							
PENRM	MJ	1,19E+01	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PENRT	MJ	5,71E+02	5,04E-01	ND	5,77E+00	1,53E+01	7,20E+01	2,22E+00	-4,63E+01							
SM	kg	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
RSF	MJ	0,00E+00	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
NRSF	MJ	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	1,65E-01	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
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															

Additional environmental information - Waste indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	9,46E-02	1,62E-04	ND	1,35E-03	4,62E-03	3,31E-03	5,34E-04	-7,51E-02							
Non-hazardous waste disposed	kg	5,96E+01	3,08E-01	ND	9,86E-02	8,04E+00	1,69E-01	2,38E+02	-2,20E+00							
Radioactive waste disposed	kg	2,81E-03	1,88E-06	ND	1,70E-05	7,16E-05	7,23E-04	5,33E-06	-4,30E-04							

Additional environmental information - Output flow indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	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	ND	0,00E+00	0,00E+00	2,15E+03	0,00E+00	0,00E+00							
Materials for energy recovery	kg	0,00E+00	0,00E+00	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	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	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							

The result tables shall only contain values or the letters "ND" (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.

Other environmental performance indicators

Additional environmental information

Differences versus previous versions

This is the first version of the EPD.

ABBREVIATIONS

Abbreviation	Definition
General abbreviations	
EN	European standard
EPD	Environmental product declaration
EF	Environmental footprint
GPI	General guidelines for the environmental labelling program (in the Czech Republic – NPEZ)
ISO	International Organization for Standardization
LCA	Life cycle assessment
LCI	Life cycle inventory analysis
LCIA	Life cycle impact assessment
DJ / DU	Declared unit
ILCD	International Reference Life cycle data system
PCR	Product category rules
c-PCR	Additional rules for product categories
PRICE	European Committee for Standardization
CPC	Central Product Classification (Central Product Classification)
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
GRI	Global Reporting Initiative
National	Undeclared
Environmental impact indicators (EN 15804)	
Greenhouse gas	a gas in the atmosphere that absorbs and emits infrared radiation, thereby contributing to the warming of the planet (CO ₂ , CH ₄ , N ₂ O and others)
GWP	Global warming potential (kg CO ₂ eq.)
GWP-fossil	Global warming potential from fossil fuels (kg CO ₂ eq.)
GWP-biogenic	Global warming potential from biogenic sources (kg CO ₂ eq.)
GWP-luluc	Global warming potential due to land use and land use change (kg CO ₂ (eq.)
ODP	Stratospheric ozone depletion potential (kg CFC-11 equivalent)
AP	Acidification potential, cumulative exceedance (mol H ⁺ (eq.)
EP	Eutrophication potential
EP-freshwater	Freshwater eutrophication potential (kg P eq.)
EP-seawater	Seawater eutrophication potential (kg N eq.)
EP-soils	Land eutrophication potential (mol N eq.)
POCP	Ground-level ozone formation potential (kg NMVOC equivalent)
ADP	Potential for resource/raw material depletion
ADP - minerals and metals	Potential for depletion of non-fossil resources/raw materials (kg Sb equivalent)
ADP-fossil	Fossil resource/raw material depletion potential (MJ)
WDP	Water shortage potential (m ³)
Additional environmental impact indicators (EN 15804)	
GWP-GHG	Global warming potential for greenhouse gases (kg CO ₂ eq.). The indicator includes all greenhouse gases except biogenic uptake and emissions of carbon dioxide 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.

Abbreviation	Definition
PM	Potential incidence of diseases due to particulate matter emissions
IRP	Potential effect of human exposure to the isotope U235
ETP- fw	Potential toxicity benchmark for ecosystems
HTP-c	Potential human toxicity comparator – carcinogenic effects
HTP- oc	Potential human toxicity comparator - non-carcinogenic effects
SQP	Potential Soil Quality Index
Resource utilization indicators	
PERE	Renewable primary energy consumption excluding energy sources used as raw materials (MJ)
PERM	Consumption of renewable primary energy sources used as raw materials (MJ)
PERT	Total consumption of renewable primary energy sources (primary energy and primary energy sources used as raw materials) (MJ)
PENRE	Consumption of non-renewable primary energy excluding energy sources used as raw materials (MJ)
PENRM	Consumption of non-renewable primary energy sources used as raw materials (MJ)
PENRT	Total consumption of non-renewable primary energy sources (primary energy and primary energy sources used as raw materials) (MJ)
SM	Consumption of secondary raw materials (kg)
RSF	Consumption of renewable secondary fuels (MJ)
NRSF	Consumption of non-renewable secondary fuels (MJ)
FW	Net drinking water consumption (m ³)
Waste indicators	
HWD	Hazardous waste removed (kg)
NHWD	Other waste removed (kg)
RWD	Radioactive waste removed (kg)
Output flow indicators	
CRU	Reusable building elements (kg)
MR	Materials to be recycled (kg)
MER	Materials for energy recovery (kg)
EEE	Exported energy, electricity (MJ)
EET	Exported thermal energy (MJ)
Lifecycle phases/modules	
A1	Mining and processing of raw materials, processing of input secondary raw materials
A2	Transport to the manufacturer
A3	Production
A4	Transport to the construction site
A5	Installation in a building
B1	Use or application of the installed product
B2	Maintenance
B3	Repair
B4	Exchange
B5	Reconstruction
B6	Operating energy consumption

Abbreviation	Definition
B7	Operating water consumption
C1	Deconstruction / Demolition
C2	Transportation to the waste processing site
C3	Waste treatment for reuse, recovery and/or recycling
C4	Removal
D	Reuse, recovery and recycling potential
Other relevant terms	
Substances of Very High Concern (SVHC)	Substances of very high concern
CAS number	An internationally recognized unique numerical code used in chemistry for chemical substances
CF	Characterization factor
RSL	Reference life span
MJ	Megajoule
kg	Kilogram
m ³	Cubic meter
NMVOC	methane volatile organic compounds
Sat eq .	Antimony equivalents
P eq .	Phosphorus equivalents
Not equal .	Nitrogen equivalents
Equivalent to CFC-11	Chlorofluorocarbon-11 equivalents
CO ₂ equivalent	Carbon dioxide equivalents
kg C	Kilograms of carbon
kg CO ₂ eq .	Kilograms of carbon dioxide equivalent
OTE	OTE, as (in the Czech Republic) – energy market operator

References

EN ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures

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

EN ISO 14040:2006 Environmental management - Life Cycle Assessment - Principles and Framework

EN ISO 14044:2006 Environmental management - Life Cycle Assessment – Requirements and guidelines

EN ISO 14063:2020 Environmental management - Environmental communication - Guidelines and examples

EN 15643:2021 Sustainability of construction works - Framework for assessment of buildings and civil engineering works

EN 15941:2024 Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data

EN 15942:2021 Sustainability of construction works - Environmental product declarations - Communication format business-to-business

EN 17672:2022 Sustainability of construction works - Environmental product declarations - Horizontal rules for business-to-consumer communication

EN 16908:2017+A1:2022 Cement and building lime - Environmental product declarations - Product category rules complementary to EN 15804

EN 16449:2014 Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide

ILCD General guide for Life Cycle Assessment (2010) - JRC EU

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives; CZ - Act No. 541/2020 Coll., as amended (Waste Act)

Decree No. 8/2021 Coll. Waste catalogue – Waste catalogue

Regulation (EC) No 1907/2006 of the European Parliament concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency - REACH (Registration, Evaluation and Authorisation of Chemicals)

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

SimaPro LCA Package, Pré Consultants, the Netherlands, www.pre-sustainability.com

Ecoinvent Centre, www.Ecoinvent.org

EU PEF (EF reference package) - <https://eplca.jrc.ec.europa.eu/LCDN/EN15804.html>

Explanatory documents are available from the head of Technical Support of the EPD owner.