ENVIRONMENTAL PRODUCT DECLARATION

SW-sockel med EPS-isolering

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

Products included in the EPD:

SW-sockel med EPS-isolering

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

EPD of a single product from a manufacturer/service provider

EPD Owner
AB Nybro Cementgjuteri

Programme
International EPD System
www.environdec.com

Programme operator
EPD International AB

Registration number
EPD-IES-0023147:001

Version date
2026-10-20

Validity date
2031-10-20



EPD INTERNATIONAL EPD SYSTEM

ECO PLATFORM EPD VERIFIED

NCG AB NYBRO CEMENTGJUTERI

GENERAL INFORMATION

Programme information

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

Product category rules

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)	
Product Category Rules (PCR)	2019:14 Construction products (EN 15804+A2) (version 2.0.1) 2.0.1
PCR review was conducted by	The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Rob Rouwette (chair), Noa Meron (co-chair). The review panel may be contacted via the Secretariat www.environdec.com/support.
Complementary Product Category Rules (c-PCR)	2019:14-c-PCR-003 Concrete and concrete elements (EN 16757) 1.0.0
c-PCR review was conducted by	The Technical Committee of the International EPD System

Verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via	☐ EPD verification through an individual EPD verification ☐ EPD verification through EPD Process Certification* ☑ Fully pre-verified EPD tool
Tool name and version	Tyrens EPD generator - Nybro Cementgjuteri, version 4.0.0
Third-party verifier, accountable for the tool and EPD verification	Niels Jungbluth, ESU-services Ltd.
Approved by	The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier	☑ Yes ☐ No

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

Ownership and limitations on use of EPD

Limitations

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.

Ownership

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

INFORMATION ABOUT EPD OWNER

EPD Owner	AB Nybro Cementgjuteri
Contact person name	Leonard Svensson
Contact person e-mail	Leonard@nybrocement.se
Organisation address	Herkulesgatan 1 38245 Nybro Sweden
LCA Practitioner	Albert Norin, albert.norin@tyrens.se

Description of the organisation of the EPD Owner

Nybro Cementgjuteri is a privately owned company with a total of nine shareholders, all of whom are actively employed within the company and have strong local ties to Nybro and Kalmar. The factory is centrally located in Nybro and has been established there since the early 20th century. The business initially began as a cement and mortar factory, later transitioning into the production of concrete pipes and ready-mixed concrete. In the 1960s, the company shifted its focus towards manufacturing columns and beams for industrial and construction applications. The factory was an early adopter in producing prestressed roof beams, which remain one of the company's primary products to this day. The product range includes columns, beams (both conventionally reinforced and long prestressed), TT slabs (prestressed), solid walls, sandwich panels, and solid floor slabs. The company operates its own concrete batching plant, producing all concrete used in the factory. Nybro Cementgjuteri offers comprehensive services including the sale, design, production, and delivery of concrete structural systems across virtually the entire southern region of Sweden.

PRODUCT INFORMATION

Product name	SW-sockel med EPS-isolering
Product identification	SW base with EPS insulation
Product description	Sandwichsockel (SW) används som isolerade ytterväggar i industri eller kontorsbyggnader. Olika typer av isoleringsmaterial används: PIR, EPS/cellplast, fenolskum eller stenull.Väggarna produceras på vår fabrik i Nybro.Varje element produceras enligt projektriktning genom att gjuta i en uppbyggd form. Urtagningar och ingjutningar görs för tex el, ventilation och montagedetaljer. Innan härdning prepareras ytan berorende på elementets användningsområde. Betongblandningen produceras på samma fabrik som tillverkar elementen.En prefabricerad inomhuskonstruktion i betong utsätts inte för några naturliga nedbrytningsmekanismer och har därför ingen begränsning i livslängd. Det medger också lågt behov av utbyten, underhåll och renovering under driftsfasen. Med prefabricerad betong uppfylls utan svårigheter en modern byggnads krav på ljudisolering, brandskydd och fuktsäkerhet. En av betongens viktiga egenskaper är värmelagringsförmågan som ger förutsättningar för låg energiförbrukning och effektuttag under byggnadens hela driftstid. Betong är återvinningsbart för att tillverka ny betong av eller som fyllnadsmaterial. Betong återtar koldioxid under användnings och slutskedet genom karbonatiserings-processen (cement omvandlas tillbaka till kalk). Denna positiva miljöeffekt ingår i fasen B1.SW-sockel har oftast en standardtjocklek på mellan 240-320mm och höjd mellan 900-1300mm.Väggen för underlaget är L: 5970, B: 1280, H: 280Innerskivan är tillverkad i hållfasthetsklassen C32/40 vct 0,60 XC1 med en tjocklek på 80mm.Isolering är vanlig cellplast/EPS S80 120mm tjock.Ytterskivan är tillverkad i hållfasthetsklassen C50/60Luft vct 0,35 XD3+XF4 med en tjocklek på 80mm.
Technical purpose of product	The precast and reinforced concrete element is used as a structural and loadbearing element in buildings or other construction projects. It's composition provides stability, fire resistance, moisture protection and acoustic insulation to the construction, and the element is custom-produced based on the customer’s specific requirements.
Manufacturing or service provision description	Nybro is producing a wide range of concrete products such as columns, beams (both conventionally reinforced and long prestressed), TT slabs (prestressed), solid walls, sandwich panels, and solid floor slabs. The company operates its own concrete batching plant, producing all concrete used in the factory.
Material properties	Volumetric mass density: 2345 kg/m^3 Thermal resistance: 0.293 m^2K/W
Manufacturing site	AB Nybro Cementgjuteri Nybro Herkulesgatan 1 38245 Nybro Sweden
UN CPC code	375. Articles of concrete, cement and plaster
Geographical scope(s)	Sweden

PRODUCT IMAGES



CONTENT DECLARATION

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

PRODUCT CONTENT

Content name	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material[1], kg C/declared unit
Steel	22.69	2.175	0	0
Cement	136	0	0	0
Additive	4.08	0	0	0
Plastic	4	0	0	0
Water	43.03	0	0	0
Crushed gravel	757.2	0	0	0
Merit	33	0	0	0
Total	**1000**	**2.175**	**0**	**0**
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2			

LCA INFORMATION

EPD based on declared or functional unit	Declared unit
Declared unit and reference flow	SW-sockel med EPS-isolering Mass: 1000 kg
Conversion factor to mass	1000
Are infrastructure or capital goods included in any upstream, core or downstream processes?	☑ Yes ☐ No
Do infrastructure and capital goods contribute more than 10% to the A1-A3 (A1-A5 for services) results of any environmental impact indicator declared in the EPD?	☐ Yes ☑ No
Data sources used for this EPD	ecoinvent database (general) ecoinvent 3.11 database
LCA Software	SimaPro 10.5
Additional information about the underlying LCA-based information	This EPD is generated by Tyréns EPD-generator 4.0.0 – Nybro cementgjuteri which is a fully pre-verified EPD tool. The tool is verified by Niels Jungbluth, ESU-services GmbH. Cut-off: Production of the A- frame rack that are used for packaging is a cut off due to that the A-frame rack is reused and rarely replaced. No other known flows have been excluded based on cut-off criteria; all relevant material and energy flows have been considered in accordance with EN 15804. Allocation: Manufacturing processes are allocated to the products using mass allocation.
Version of the EN 15804 reference package	EF Reference Package 3.1
Characterisation methods	EN 15804 reference package based on EF 3.1 has been used.
Technology description including background system	The raw materials in A1 are can be seen in the content declaration. These main materials can be used in different combination when mixing the concrete to get different properties. The transport distance in A2 is fixed and the transport mode are trucks and ship. In A3, the production consists of mixing the raw material into a concrete mix and then pouring it to a mold with reinforced steel and castings. The electricity mix consists of an electricity mix from the electricity supplier Nybro energi consisting of Solar, Bio and Hydro-power. The factory located in Sweden also has its own solar panels. The total energy mix is presented a table below.
Scrap (recycled material) inputs contribution level	Less than 10% of the GWP-GHG results in modules A1-A3 come from scrap inputs

Data quality assessment

Description of data quality assessment and reference years	When modeling in Simapro, Ecoinvent data (updated November 2024) has been used for secondary data. The database is considered to be of high quality. For the majority of the materials, product specific and third party verified EPD's have been used and is considered to be of high quality. Indata has been gathered from the actual manufacturing plant with product-specific processes, specific amounts, specific waste, and spillage %, specific energy mix, specific transportation distances and transportation type, with the reference year 2025. The percentage primary data is estimated in this EPD for module A1-A3. Primary data are related to amount of energy, transportation and direct emission used throughout module A1-A3 and underlying EPD's. The reported share of primary data is associated with uncertainty, as NEPD-11495-11389 and HUB-3399 used as data source lack information on the share of primary data. The only process contributing to >10% GWP-GHG is production of cement (NEPD-11495-11389). This process has the source type - EPD; Source - (NEPD-11495-11389); Reference year - 2025; Data category - Primary data.

DATA QUALITY ASSESSMENT

Process name	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Manufacturing of product, inclusive generation of electricity used in manufacturing of product	Collected data & Databases	EPD Owner & Ecoinvent v 3.11	2025	Primary data	4%
Transport of materials & packaging to manufacturing site	Collected data & Databases	EPD Owner & Ecoinvent v 3.11	2025	Primary data	3%
Production of ingoing materials and packaging	EPDs & Databases	EPDs (Confidential) & Ecoinvent v 3.11	< 5 years old	Primary data, secondary data	75%
Total share of primary data, of GWP-GHG results for A1-A3					**82%**
Note	The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.				

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

Type of electricity mix	Specific electricity mix as generated, or purchased from an electricity supplier, demonstrated by a contractual instrument	
Energy sources	Hydro	31%
	Wind	0%
	Solar	51%
	Biomass	18%

	Geothermal	0%
	Waste	0%
	Nuclear	0%
	Natural gas	0%
	Coal	0%
	Oil	0%
	Peat	0%
	Other	0%
Climate impact (GWP-GHG):	0.06 kg CO_2 eq./kWh	

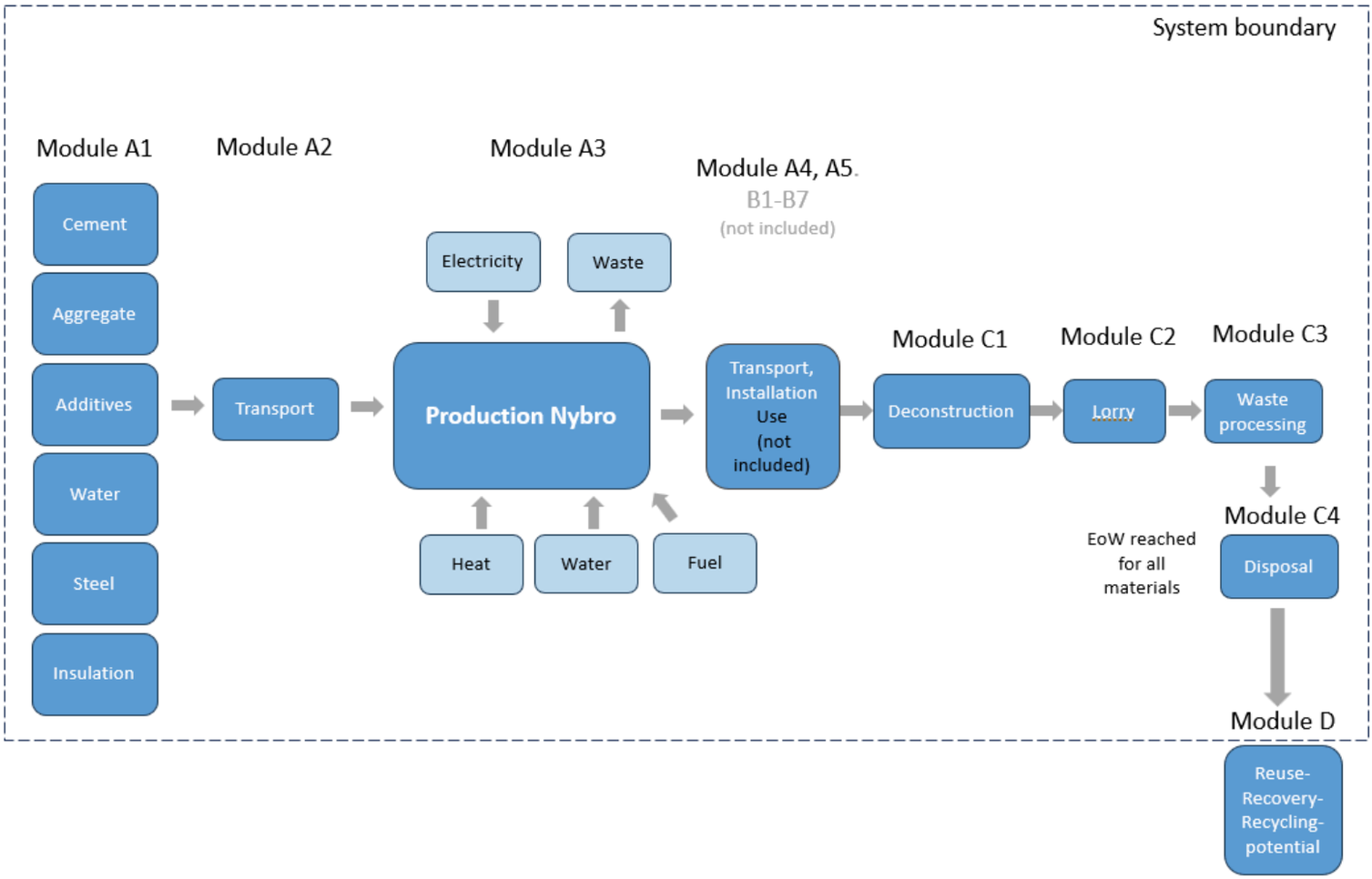
CO_2 UPTAKE ASSOCIATED WITH CARBONATION AND ITS ASSUMPTIONS		
	Production stage (module A)	Excluded
	Use stage (module B)	Excluded
	End-of-Life stage (module C)	Excluded
	Beyond product life cycle (Module D)	Excluded

SYSTEM BOUNDARY

Description of the System boundary	b) Cradle to gate with options, modules C1-C4, module D and with optional modules (A1-A3 + C + D and additional modules).
Excluded modules	Yes, there is an excluded module, or there are excluded modules
Justification for omission of modules	According to the PCR 2019:14 Construction product module A1-A3, C1-C4 and D are mandatory. All others modules is optional. This EPD includes A1-A5, C1-C4 and D. B1-B7 is excluded.

	Product stage			**Construction process stage**		**Use stage**							**End of life stage**				**Beyond product life cycle**
	Raw material supply	Transport	Manufacturing	Transport to site	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	Sweden	Sweden	Sweden	Sweden	Sweden	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Sweden	Sweden	Sweden	Sweden	Sweden
Share of specific data	82%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disclaimer	The share of specific/primary data and both variations (products and sites) refer to GWP-GHG results only.																

Process flow diagram(s) related images



DEFAULT SCENARIO

Name of the default scenario	Material recycling, crushed concrete as gravel
Description of the default scenario	The product is dismantled at the construction site and different material types are sorted before being sent to the respective recycling center. At the recycling center, concrete is crushed and reused as fill materials.

Module A4: Transport to the building site

Explanatory name of the default scenario in module A4	The transport to the site
Description of the default scenario in module A4	The transport distance to the construction site is 200 km and the transport mode is a diesel truck >32 tonne.

Module A5: Installation in the building

Explanatory name of the default scenario in module A5	Installation A5
Description of the default scenario in module A5	The installation is made by using a mobile lift to put the prefabricated concrete product into the correct place to be installed. This environmental impact from the installation is calculated from diesel burnt while using the mobile lift machinery. The lift is assumed to operate at an effect of 50kW during the lift which is assumed to take 5 minutes, the prefabricated product is assumed to weigh 6 tonnes. The use of diesel is 0.7 kWh/tonne.

Module C: End-of-life

Explanatory name of the default scenario in module C	Module C1-C4
Description of the default scenario in module C	The consumption of diesel for demolition in C1 is assumed to be 10 kWh/tonne which is based on PCR 2019:14 2.0.1. The transport distance in C2 is 80 km for concrete and steel and 130 km for plastic insulation. 53 % of the concrete is recycled in C3, and the remaining is landfilled C4. The energy use of crushing concrete in C3 is assumed to be 2 kWh/tonne. It is assumed that 95 % of the steel is material recycled and 95 % of plastic insulation are energy recovery in C3, and the remaining is landfilled, C4. If stone wool is included in the product, see "Product content", then all stone wool is landfilled in C4.

Module D: Beyond product life cycle

Explanatory name of the default scenario in module D	Module D
Description of the default scenario in module D	For calculations in Module D following assumption has been made: The crushed concrete is replacing crushed gravel. Steel is replacing pig iron. The plastic insulation is combusted in the Swedish district heating system which is replacing average district heating and electricity production.

ENVIRONMENTAL PERFORMANCE

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

Mandatory environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - total	GWP-total	kg CO_2 eq.	1.21E+2	2.04E+1	2.52E-1	ND	ND	ND	ND	ND	ND	ND	3.62E+0	1.50E+1	1.34E+1	2.90E+0	-3.44E+0
Climate change - fossil	GWP-fossil	kg CO_2 eq.	1.20E+2	2.04E+1	2.52E-1	ND	ND	ND	ND	ND	ND	ND	3.62E+0	1.50E+1	1.29E+1	2.89E+0	-3.41E+0
Climate change - biogenic	GWP-biogenic	kg CO_2 eq.	3.65E-1	1.29E-2	5.10E-5	ND	ND	ND	ND	ND	ND	ND	7.34E-4	1.04E-2	5.61E-1	5.67E-2	0.00E+0
Climate change - land use and land-use change	GWP-luluc	kg CO_2 eq.	5.41E-1	7.58E-3	2.57E-5	ND	ND	ND	ND	ND	ND	ND	3.71E-4	5.04E-3	5.48E-4	1.63E-3	-2.98E-2
Ozone depletion	ODP	kg CFC-11 eq.	1.35E-6	4.62E-7	3.74E-9	ND	ND	ND	ND	ND	ND	ND	5.38E-8	3.27E-7	1.55E-8	8.01E-8	-3.81E-8
Acidification	AP	mol H^+ eq.	3.53E+0	4.95E-2	2.25E-3	ND	ND	ND	ND	ND	ND	ND	3.24E-2	3.21E-2	8.13E-3	2.01E-2	-2.49E-2
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	9.57E-3	1.49E-3	8.11E-6	ND	ND	ND	ND	ND	ND	ND	1.17E-4	1.04E-3	2.48E-4	2.51E-4	-7.49E-4
Eutrophication aquatic marine	EP-marine	kg N eq.	1.09E-1	1.30E-2	1.05E-3	ND	ND	ND	ND	ND	ND	ND	1.51E-2	7.74E-3	4.51E-3	7.77E-3	-8.25E-3
Eutrophication terrestrial	EP-terrestrial	mol N eq.	1.08E+0	1.41E-1	1.15E-2	ND	ND	ND	ND	ND	ND	ND	1.65E-1	8.36E-2	3.54E-2	8.43E-2	-1.02E-1
Photochemical ozone formation	POCP	kg NMVOC eq.	4.00E+0	8.28E-2	3.43E-3	ND	ND	ND	ND	ND	ND	ND	4.94E-2	5.10E-2	1.03E-2	3.04E-2	-2.73E-2
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals[1], [2]	kg Sb eq.	1.75E-2	5.93E-5	8.98E-8	ND	ND	ND	ND	ND	ND	ND	1.29E-6	5.14E-5	9.90E-6	4.20E-6	-3.13E-5
Depletion of abiotic resources - fossil fuels	ADP-fossil[1]	MJ, net calorific value	1.23E+3	2.44E+1	1.28E-1	ND	ND	ND	ND	ND	ND	ND	1.84E+0	1.70E+1	2.50E+0	4.27E+0	-4.87E+1
Water use	WDP[1]	m^3 world eq. deprived	5.37E+1	1.75E+0	9.49E-3	ND	ND	ND	ND	ND	ND	ND	1.37E-1	1.09E+0	2.04E-1	3.08E+0	-8.33E+0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption																
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																
Disclaimer 1	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator																
Disclaimer 2	The results of the impact categories abiotic depletion of minerals and metals may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.																

Additional mandatory environmental performance indicators

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - GWP-GHG	GWP-GHG[1]	kg CO_2 eq.	1.21E+2	2.04E+1	2.52E-1	ND	ND	ND	ND	ND	ND	ND	3.62E+0	1.50E+1	1.31E+1	2.90E+0	-3.45E+0
Acronyms	GWP-GHG = Global warming potential greenhouse gas.																
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																
Disclaimer 1	The GWP-GHG indicator is termed GWP-IOBC/GHG in the ILCD+EPD+ data format. The indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.																

Additional voluntary environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter emissions	PM	Disease incidence	4.28E-6	2.02E-6	6.42E-8	ND	ND	ND	ND	ND	ND	ND	9.25E-7	1.12E-6	1.54E-7	4.63E-7	-1.06E-6
Ionizing radiation - human health	IRP[1]	kBq U235 eq.	1.58E+1	3.46E-1	1.40E-3	ND	ND	ND	ND	ND	ND	ND	2.01E-2	2.57E-1	6.30E-2	4.22E-2	-2.69E+0
Eco-toxicity - freshwater	ETP-fw[2, 3]	CTUe	8.89E+1	3.62E+1	1.78E-1	ND	ND	ND	ND	ND	ND	ND	2.56E+0	2.85E+1	8.18E+0	5.09E+0	-1.20E+1
Human toxicity - cancer effects	HTP-c[2, 3]	CTUh	4.57E-8	3.36E-9	2.56E-11	ND	ND	ND	ND	ND	ND	ND	3.68E-10	2.50E-9	6.78E-10	5.18E-10	-1.78E-9
Human toxicity - non-cancer effects	HTP-nc[2, 3]	CTUh	7.20E-7	1.98E-7	4.02E-10	ND	ND	ND	ND	ND	ND	ND	5.79E-9	1.34E-7	2.60E-8	1.17E-8	-4.47E-8
Land-use related impacts/soil quality	SQP[2, 3]	Dimensionless	1.20E+3	3.10E+2	2.17E-1	ND	ND	ND	ND	ND	ND	ND	3.13E+0	1.28E+2	2.20E+1	1.38E+2	-1.67E+2
Acronyms	PM = Potential incidence of disease due to particulate matter emissions; IRP = Potential human exposure efficiency relative to U235; ETP-fw = Potential comparative toxic unit for ecosystems; HTP-c = Potential comparative toxic unit for humans; HTP-nc = Potential comparative toxic unit for humans; SQP = Potential soil quality index.																
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																
Disclaimer 1	This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.																
Disclaimer 2	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.																
Disclaimer 3	The results of the impact categories land use, human toxicity (cancer), human toxicity, noncancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.																

Resource use indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ, net calorific value	4.55E+2	4.76E+0	2.06E-2	ND	ND	ND	ND	ND	ND	ND	2.97E-1	3.51E+0	8.00E-1	6.59E-1	-8.22E+1
PERM	MJ, net calorific value	5.86E-1	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	-2.69E-1	-2.36E-1	0.00E+0
PERT	MJ, net calorific value	4.56E+2	4.76E+0	2.06E-2	ND	ND	ND	ND	ND	ND	ND	2.97E-1	3.51E+0	5.31E-1	4.22E-1	-8.22E+1
PENRE	MJ, net calorific value	8.07E+2	2.55E+1	1.34E-1	ND	ND	ND	ND	ND	ND	ND	1.92E+0	1.77E+1	2.60E+0	4.48E+0	-4.94E+1
PENRM	MJ, net calorific value	2.06E+2	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	-9.81E+0	-8.10E+0	0.00E+0
PENRT	MJ, net calorific value	1.01E+3	2.55E+1	1.34E-1	ND	ND	ND	ND	ND	ND	ND	1.92E+0	1.77E+1	-7.21E+0	-3.61E+0	-4.94E+1
SM	kg	5.62E+1	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	MJ, net calorific value	9.29E+1	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	m^3	1.92E+0	6.21E-2	3.89E-4	ND	ND	ND	ND	ND	ND	ND	5.60E-3	4.04E-2	1.07E-2	7.88E-2	-2.23E-1
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water.															
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).															

Waste indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	3.44E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NHWD	kg	2.07E+1	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RWD	kg	1.09E-2	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed.															
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).															

Output flow indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
CRU	kg	7.80E-1	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	kg	4.52E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	5.37E+2	0.00E+0	0.00E+0
MER	kg	1.84E-1	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	MJ, net calorific value	6.60E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	2.87E+1	0.00E+0	0.00E+0
EET	MJ, net calorific value	2.64E+1	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	9.60E+1	0.00E+0	0.00E+0
Acronyms	CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy.															
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).															

Results of an alternative modelling approach

Description of the scenario/method	100% of production go to energy or material recycling for module C.

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - fossil	GWP-fossil	kg CO2 eq.	1.20E+2	2.04E+1	2.52E-1	ND	ND	ND	ND	ND	ND	ND	3.62E+0	1.50E+1	1.39E+1	0.00E+0	-4.38E+0
Climate change - biogenic	GWP-biogenic	kg CO2 eq.	3.65E-1	1.29E-2	5.10E-5	ND	ND	ND	ND	ND	ND	ND	7.34E-4	1.04E-2	5.22E-1	0.00E+0	0.00E+0
Climate change - land use and land-use change	GWP-luluc	kg CO2 eq.	5.41E-1	7.58E-3	2.57E-5	ND	ND	ND	ND	ND	ND	ND	3.71E-4	5.04E-3	6.09E-4	0.00E+0	-3.24E-2
Climate change - total	GWP-total	kg CO2 eq.	1.21E+2	2.04E+1	2.52E-1	ND	ND	ND	ND	ND	ND	ND	3.62E+0	1.50E+1	1.44E+1	0.00E+0	-4.98E+0
Ozone depletion	ODP	kg CFC-11 eq.	1.35E-6	4.62E-7	3.74E-9	ND	ND	ND	ND	ND	ND	ND	5.38E-8	3.27E-7	2.10E-8	0.00E+0	-5.81E-8
Acidification	AP	mol H+ eq.	3.53E+0	4.95E-2	2.25E-3	ND	ND	ND	ND	ND	ND	ND	3.24E-2	3.21E-2	1.13E-2	0.00E+0	-3.59E-2
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	9.57E-3	1.49E-3	8.11E-6	ND	ND	ND	ND	ND	ND	ND	1.17E-4	1.04E-3	2.71E-4	0.00E+0	-7.92E-4
Eutrophication aquatic marine	EP-marine	kg N eq.	1.09E-1	1.30E-2	1.05E-3	ND	ND	ND	ND	ND	ND	ND	1.51E-2	7.74E-3	6.05E-3	0.00E+0	-1.16E-2
Eutrophication terrestrial	EP-terrestrial	mol N eq.	1.08E+0	1.41E-1	1.15E-2	ND	ND	ND	ND	ND	ND	ND	1.65E-1	8.36E-2	5.15E-2	0.00E+0	-1.48E-1
Photochemical ozone formation	POCP	kg NMVOC eq.	4.00E+0	8.28E-2	3.43E-3	ND	ND	ND	ND	ND	ND	ND	4.94E-2	5.10E-2	1.51E-2	0.00E+0	-3.84E-2
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals	kg Sb eq.	1.75E-2	5.93E-5	8.98E-8	ND	ND	ND	ND	ND	ND	ND	1.29E-6	5.14E-5	1.05E-5	0.00E+0	-5.24E-5
Depletion of abiotic resources - fossil fuels	ADP-fossil	MJ, net calorific value	1.23E+3	2.44E+1	1.28E-1	ND	ND	ND	ND	ND	ND	ND	1.84E+0	1.70E+1	2.79E+0	0.00E+0	-5.26E+1
Water use	WDP	m3 world eq. deprived	5.37E+1	1.75E+0	9.49E-3	ND	ND	ND	ND	ND	ND	ND	1.37E-1	1.09E+0	2.27E-1	0.00E+0	-1.55E+1
Acronyms																	
Disclaimers																	
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																

Results of an alternative modelling approach

Description of the scenario/method	100% of the product go to landfill in module C.

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - fossil	GWP-fossil	kg CO2 eq.	1.20E+2	2.04E+1	2.52E-1	ND	ND	ND	ND	ND	ND	ND	3.62E+0	1.49E+1	0.00E+0	6.71E+0	0.00E+0
Climate change - biogenic	GWP-biogenic	kg CO2 eq.	3.65E-1	1.29E-2	5.10E-5	ND	ND	ND	ND	ND	ND	ND	7.34E-4	1.04E-2	0.00E+0	3.44E-3	0.00E+0
Climate change - land use and land-use change	GWP-luluc	kg CO2 eq.	5.41E-1	7.58E-3	2.57E-5	ND	ND	ND	ND	ND	ND	ND	3.71E-4	5.03E-3	0.00E+0	3.55E-3	0.00E+0
Climate change - total	GWP-total	kg CO2 eq.	1.21E+2	2.04E+1	2.52E-1	ND	ND	ND	ND	ND	ND	ND	3.62E+0	1.49E+1	0.00E+0	6.71E+0	0.00E+0

Ozone depletion	ODP	kg CFC-11 eq.	1.35E-6	4.62E-7	3.74E-9	ND	ND	ND	ND	ND	ND	ND	5.38E-8	3.26E-7	0.00E+0	1.75E-7	0.00E+0
Acidification	AP	mol H+ eq.	3.53E+0	4.95E-2	2.25E-3	ND	ND	ND	ND	ND	ND	ND	3.24E-2	3.21E-2	0.00E+0	4.39E-2	0.00E+0
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	9.57E-3	1.49E-3	8.11E-6	ND	ND	ND	ND	ND	ND	ND	1.17E-4	1.04E-3	0.00E+0	5.49E-4	0.00E+0
Eutrophication aquatic marine	EP-marine	kg N eq.	1.09E-1	1.30E-2	1.05E-3	ND	ND	ND	ND	ND	ND	ND	1.51E-2	7.72E-3	0.00E+0	1.78E-2	0.00E+0
Eutrophication terrestrial	EP-terrestrial	mol N eq.	1.08E+0	1.41E-1	1.15E-2	ND	ND	ND	ND	ND	ND	ND	1.65E-1	8.34E-2	0.00E+0	1.84E-1	0.00E+0
Photochemical ozone formation	POCP	kg NMVOC eq.	4.00E+0	8.28E-2	3.43E-3	ND	ND	ND	ND	ND	ND	ND	4.94E-2	5.09E-2	0.00E+0	6.66E-2	0.00E+0
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals	kg Sb eq.	1.75E-2	5.93E-5	8.98E-8	ND	ND	ND	ND	ND	ND	ND	1.29E-6	5.13E-5	0.00E+0	9.20E-6	0.00E+0
Depletion of abiotic resources - fossil fuels	ADP-fossil	MJ, net calorific value	1.23E+3	2.44E+1	1.28E-1	ND	ND	ND	ND	ND	ND	ND	1.84E+0	1.69E+1	0.00E+0	9.33E+0	0.00E+0
Water use	WDP	m3 world eq. deprived	5.37E+1	1.75E+0	9.49E-3	ND	ND	ND	ND	ND	ND	ND	1.37E-1	1.08E+0	0.00E+0	6.00E+0	0.00E+0
Acronyms																	
Disclaimers																	
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																

ABBREVIATIONS

General Abbreviations

Abbreviation	Definition
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

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

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VERSION HISTORY

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