

ENVIRONMENTAL PRODUCT DECLARATION

TW1061T

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

Products included in the EPD:

TW1061T Rebar tying wire

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
MAX EUROPE B.V.

Programme
International EPD System
www.environdec.com

Programme operator
EPD International AB

Registration number
EPD-IES-0032747:002

Version date
2026-07-06

Validity date
2031-07-06



GENERAL INFORMATION

Programme information

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

Product category rules

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

Verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via	☒ EPD verification through an individual EPD verification ☐ EPD verification through EPD Process Certification* ☐ EPD verification through a fully pre-verified tool
Third-party verifier	Martijn van Hövell (SGS Global)
Approved by	International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier	☐ Yes ☒ No
*EPD Process Certification involves an accredited certification body certifying and periodically auditing the EPD process and conducting external and independent verification of EPDs that are regularly published. More information can be found in the General Programme Instructions on www.environdec.com .	

Ownership and limitations on use of EPD

Limitations

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

Ownership

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

INFORMATION ABOUT EPD OWNER

EPD Owner	MAX EUROPE B.V.
Contact person name	Yoshihiko Kondo
Contact person e-mail	ykondo@max-europe.com
Organisation address	Antennestraat 45 1322 AH Almere The Netherlands
LCA Practitioner	Rik Wessels, rik@hhc.earth

Description of the organisation of the EPD Owner

MAX is a global manufacturer of high-quality industrial tools and office products, established in 1942. The company is committed to developing innovative and durable products that meet professional standards. MAX products are developed in Japan and are manufactured in factories certified with ISO 9001 (Quality Management) and ISO 14001 (Environmental Management).

MAX Europe B.V. has its headquarters in Almere, the Netherlands, serving customers across all European countries. The parent MAX Group headquarters is located in Tokyo, Japan.

PRODUCT INFORMATION

Product name	TW1061T Rebar tying wire
Product identification	TW1061T
Product description	The TW1061T is an annealed steel rebar tying wire, wound on a polypropylene spool. It is made from low-carbon steel. The diameter is 1.0mm. This product is made in two different manufacturing sites: one in Japan, and the other in Thailand. This EPD covers the environmental profile of the product as produced in the Thailand facility, as this is slightly worst case (based on GWP-GHG results).
Product information from external sources	https://www.max-europe.com/rebar_tying_tools/products/tie-wire-tw1061t/
Technical purpose of product	The product is intended to be to fasten and secure reinforcement steel bars (rebar) before pouring concrete. It is used for tying rebar and mesh in concrete foundations, walls, and slabs, providing secure and lasting connections.
Manufacturing or service provision description	Manufacturing includes wire drawing, annealing, wire drawing and product packaging.
Material properties	Volumetric mass density: 7850 kg/m ³
Manufacturing site	Fujioka Factory 375-0004 Fujioka-shi, Gunma Prefecture Japan
Manufacturing site 2	MAX (THAILAND) CO., LTD. 20110 Sriracha District, Chonburi Thailand
UN CPC code	41267. Wire of alloy steel
Geographical scope(s)	Europe, Asia
Geographical scope description	The geographical scope of the production stage is Asia. The geographical scope of downstream activities is Europe.

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.
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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
Low-carbon steel	1000	0	0	0
Total	1000	0	0	0
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂			

PACKAGING MATERIALS			
Material name	Mass, kg	Mass-% (versus the product)	Biogenic material ¹ , kg C/declared unit
Polypropylene	77.98	7.8	0
Cardboard	17.57	1.8	11.03
Low density polyethylene	4.48	0.4	0
Silica gel	0.44	0	0
Total	100.47	10	11.03
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	TW1061T Mass: 1000 kg
Conversion factor to mass	1
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 10.2
Additional information about the underlying LCA-based information	All known inputs and outputs for each unit process were included in the Life Cycle Assessment (LCA) calculation. Data collection was performed in accordance with the requirements of PCR 2019:14, v.2.0.1 and EN15804:2012+A2:2019. The procedure for the exclusion of inputs and outputs followed the requirements of EN 15804, Section 6.3.6. No processes were deliberately excluded. In accordance with the PCR, the total of neglected input flows per module is a maximum of 5% of energy usage and mass, and at least 95% of the environmental impact per module is included. For any unit process where insufficient data was available, the cut-off criteria of 1% of the total mass and 1% of the total energy of that unit process were applied, although ultimately there was no insufficient data. A screening of all inputs was conducted to ensure that all material and energy flows known to have the potential for significant environmental impact were included. This was confirmed through plausibility considerations and expert judgement by MAX Europe, ensuring that the final results are representative and robust. The exclusion of any flows is documented and justified as not significantly changing the overall conclusions of the study. The processes related to infrastructure, construction, and production of equipment, as well as tools that are not directly consumed in the production process, have been excluded. An exception to this is the infrastructure from modules A1-A3, which is included as energy consumption has a significant contribution to the environmental impact. Personnel-related activities, such as transportation to and from work, have also been excluded.
Version of the EN 15804 reference package	EF Reference Package 3.1
Characterisation methods	EN 15804 Version: EF 3.1, February 2023
Technology description including background system	The product considers tying wire used for rebar tying. The main product consists of a low carbon steel wire, wound on a polypropylene spool. The manufacturing process consists of wire drawing, annealing, wire winding and automatic packaging.
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	Data quality was assessed for time-related, geographical, and technological coverage. Overall, 19.72% of the GWP-GHG impact is calculated with primary data. The remaining 80.28% was calculated with secondary data. The database processes selected were also selected based on representativeness. Primary data from the production site is based on a one-year average for the time period 04/2024-03/2025. Geographical representativeness ranges from fair to very good, while technical representativeness is good to very good. No poor or very poor data is used in the study.
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DATA QUALITY ASSESSMENT					
Process name	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Raw material collection	Database	Ecoinvent	2024-2025	Secondary data	0%
Production of packaging	Database	Ecoinvent	2024-2025	Secondary data	0%
Transport of materials	Database	Ecoinvent	2024-2025	Secondary data	0%
Annealing	Collected data	EPD Owner	2024-2025	Primary data	3.97%
Wire drawing	Collected data	EPD Owner	2024-2025	Primary data	14.97%
Electricity for manufacturing	Collected data	EPD Owner	2024-2025	Primary data	0.78%
Total share of primary data, of GWP-GHG results for A1-A3					19.72%
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.				

Comment on the data sources and other information in the table	Modules A1 and A3 are calculated including infrastructure, all other modules exclude infrastructure and/or capital goods.
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ELECTRICITY USED IN THE MANUFACTURING PROCESS IN A3 (A5 FOR SERVICES)		
Type of electricity mix	Specific electricity mix as generated, or purchased from an electricity supplier, demonstrated by a contractual instrument	
Energy sources	Hydro	0%
	Wind	0%
	Solar	20.65%

	Biomass	0%
	Geothermal	0%
	Waste	0%
	Nuclear	0%
	Natural gas	0%
	Coal	0%
	Oil	0%
	Peat	0%
	Other	79.35%
Climate impact (GWP-GHG):	0.61 kg CO ₂ eq./kWh	

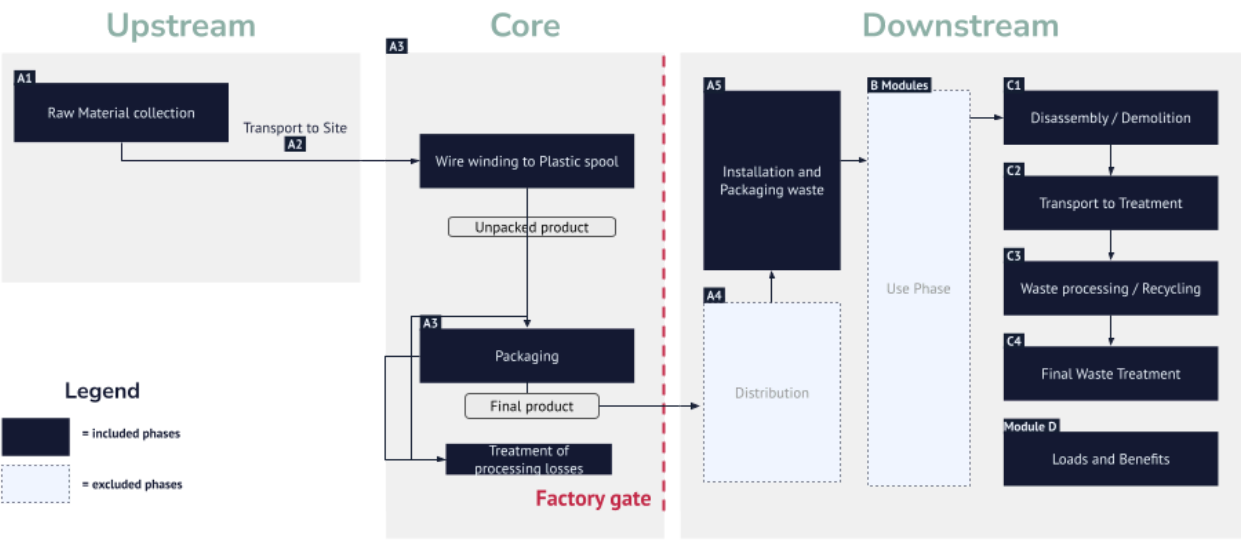
Method used to calculate residual electricity mix	Contractual instruments were supplied to substantiate the share of Solar energy. The remaining electricity is modelled based on the residual mix. The residual mix has been modelled based on the consumption mix of Thailand, minus all renewables, following ECO platform LCA Calculation Rules V2.0
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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	Transport (A4) is excluded as this is customer-specific due to the wide spread of customers. Customers should apply their own transport scenario when applying this EPD. The use stage modules (B1-B7) are excluded from the scope of this study because the assessed product does not require energy, water, maintenance, repair, replacement, refurbishment, or operational inputs during its service life. Furthermore, no emissions are expected

	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	ND	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	Asia	Asia	Asia	N/A	Europe	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Europe	Europe	Europe	Europe	Europe
Share of specific data	19.72%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	1.03%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	Default scenario
Description of the default scenario	N/a

Module A5: Installation in the building

Explanatory name of the default scenario in module A5	Installation
Description of the default scenario in module A5	The rebar tying wires are assumed to be installed by use of specific MAX Europe tying tools. Installation is based on the energy consumption of the cordless TWINTIER rebar tying tools from MAX Europe, used to tie the wires automatically. For each tonne of material, a total amount of 7.04 kWh of electricity is consumed. This is modelled with the average European consumption mix. Cardboard waste is assumed to be 75% recycled and 25% incinerated with energy recovery. All other materials are assumed to be 100% incinerated with energy recovery.

Module A5 information	Value	Unit
Electricity for tying	7.04	kWh
Packaging waste	100.47	kg

Module C: End-of-life

Explanatory name of the default scenario in module C	100% recycling
Description of the default scenario in module C	The wires are sorted out at end-of-life and sent to recycling. As the output of recycling is not 100%, a recycling output of 95% is applied. The remainder is assumed to be sent to landfill.

Module C information	Value	Unit
C1 Deconstruction, diesel consumption	1.1	kWh
C2 Transport, distance to waste treatment	80	km
C3 Sorting	2.2	kWh
C3 Fragging of steel	7.4	kWh

Module D: Beyond product life cycle

Explanatory name of the default scenario in module D	100% recycling
Description of the default scenario in module D	Benefits of steel recycling are calculated using the World Steel Method. This module also includes the benefits from the treatment of packaging materials and treatment of the polyester coating. Energy recovery from fossil sources (packaging materials) is modelled to substitute natural gas-based energy generation. The applied LHV's are taken from the descriptions of the applied ecoinvent datasets.

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.	3.03E+3	ND	2.49E+2	ND	ND	ND	ND	ND	ND	ND	3.75E-1	1.23E+1	3.19E+0	1.37E-1	-1.75E+3
Climate change - fossil	GWP-fossil	kg CO ₂ eq.	3.05E+3	ND	2.18E+2	ND	ND	ND	ND	ND	ND	ND	3.75E-1	1.23E+1	3.19E+0	1.36E-1	-1.75E+3
Climate change - biogenic	GWP-biogenic	kg CO ₂ eq.	-3.07E+1	ND	3.07E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Climate change - land use and land-use change	GWP-luluc	kg CO ₂ eq.	8.37E+0	ND	1.26E-2	ND	ND	ND	ND	ND	ND	ND	1.54E-5	1.94E-4	2.14E-3	6.89E-6	-5.04E-1
Ozone depletion	ODP	kg CFC-11 eq.	2.77E-5	ND	9.33E-8	ND	ND	ND	ND	ND	ND	ND	5.70E-9	2.79E-7	4.85E-8	1.96E-9	-8.74E-6
Acidification	AP	mol H ⁺ eq.	1.02E+1	ND	4.75E-2	ND	ND	ND	ND	ND	ND	ND	3.46E-3	3.17E-2	2.65E-2	1.23E-3	-5.86E+0
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	1.03E-1	ND	2.45E-4	ND	ND	ND	ND	ND	ND	ND	3.53E-7	7.57E-6	6.93E-5	4.48E-7	-4.96E-2
Eutrophication aquatic marine	EP-marine	kg N eq.	2.25E+0	ND	1.88E-2	ND	ND	ND	ND	ND	ND	ND	1.63E-3	1.21E-2	1.14E-2	5.60E-4	-1.27E+0
Eutrophication terrestrial	EP-terrestrial	mol N eq.	2.50E+1	ND	2.04E-1	ND	ND	ND	ND	ND	ND	ND	1.79E-2	1.32E-1	1.25E-1	6.14E-3	-1.47E+1
Photochemical ozone formation	POCP	kg NMVOC eq.	9.64E+0	ND	5.51E-2	ND	ND	ND	ND	ND	ND	ND	5.34E-3	5.24E-2	3.74E-2	1.86E-3	-5.07E+0
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals ^{1, 2}	kg Sb eq.	6.94E-3	ND	1.16E-6	ND	ND	ND	ND	ND	ND	ND	1.31E-8	3.20E-7	1.33E-7	4.54E-9	-3.30E-4
Depletion of abiotic resources - fossil fuels	ADP-fossil ¹	MJ, net calorific value	3.51E+4	ND	9.70E+1	ND	ND	ND	ND	ND	ND	ND	4.90E+0	1.63E+2	4.90E+1	1.75E+0	-1.79E+4
Water use	WDP ¹	m ³ world eq. deprived	9.07E+2	ND	1.71E+0	ND	ND	ND	ND	ND	ND	ND	3.66E-3	5.33E-2	1.69E-1	1.53E-3	-2.86E+2
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.	3.07E+3	ND	2.18E+2	ND	ND	ND	ND	ND	ND	ND	3.75E-1	1.23E+1	3.19E+0	1.37E-1	-1.75E+3
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	2.28E-4	ND	3.35E-7	ND	ND	ND	ND	ND	ND	ND	9.97E-8	8.16E-7	6.78E-7	3.48E-8	-1.88E-4
Ionizing radiation - human health	IRP ¹	kBq U235 eq.	2.11E+1	ND	4.84E-1	ND	ND	ND	ND	ND	ND	ND	4.07E-4	1.57E-2	1.49E-1	1.73E-4	-6.16E+0
Eco-toxicity - freshwater	ETP-fw ^{2, 3}	CTUe	1.23E+4	ND	5.98E+1	ND	ND	ND	ND	ND	ND	ND	1.40E-1	5.83E+0	2.23E+0	6.67E-2	-4.53E+3
Human toxicity - cancer effects	HTP-c ^{2, 3}	CTUh	2.83E-6	ND	7.13E-9	ND	ND	ND	ND	ND	ND	ND	2.00E-11	8.27E-10	2.07E-10	9.40E-12	-1.96E-6
Human toxicity - non-cancer effects	HTP-nc ^{2, 3}	CTUh	1.47E-5	ND	3.58E-7	ND	ND	ND	ND	ND	ND	ND	3.68E-10	8.13E-8	5.96E-9	1.80E-10	2.65E-7
Land-use related impacts/soil quality	SQP ^{2, 3}	Dimensionless	8.32E+3	ND	8.55E+0	ND	ND	ND	ND	ND	ND	ND	8.32E-3	2.07E-1	1.87E+0	2.06E+0	-2.21E+3
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	1.47E+3	ND	2.94E+2	ND	ND	ND	ND	ND	ND	ND	1.05E-2	4.01E-1	4.40E+0	7.64E-3	-3.91E+2
PERM	MJ, net calorific value	2.80E+2	ND	-2.80E+2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ, net calorific value	1.75E+3	ND	1.44E+1	ND	ND	ND	ND	ND	ND	ND	1.05E-2	4.01E-1	4.40E+0	7.64E-3	-3.91E+2
PENRE	MJ, net calorific value	3.24E+4	ND	2.84E+3	ND	ND	ND	ND	ND	ND	ND	4.90E+0	1.63E+2	4.90E+1	1.75E+0	-1.79E+4
PENRM	MJ, net calorific value	2.75E+3	ND	-2.75E+3	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	MJ, net calorific value	3.51E+4	ND	9.70E+1	ND	ND	ND	ND	ND	ND	ND	4.90E+0	1.63E+2	4.90E+1	1.75E+0	-1.79E+4
SM	kg	0.00E+0	ND	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	0.00E+0	ND	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	ND	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	0.00E+0	ND	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	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	1.12E+0	ND	1.58E+0	ND	ND	ND	ND	ND	ND	ND	3.68E-5	1.18E-3	6.69E-4	1.45E-5	-2.98E-1
NHWD	kg	1.75E+2	ND	9.09E-1	ND	ND	ND	ND	ND	ND	ND	1.72E-4	5.39E-3	1.10E-2	5.00E+1	-4.06E+1
RWD	kg	1.32E-2	ND	3.93E-4	ND	ND	ND	ND	ND	ND	ND	2.29E-7	9.84E-6	1.20E-4	9.88E-8	-3.53E-3
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed.															
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).															

Output flow indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
CRU	kg	0.00E+0	ND	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	kg	1.19E+1	ND	1.32E+1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	9.50E+2	0.00E+0	0.00E+0
MER	kg	0.00E+0	ND	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	0.00E+0	ND	4.25E+2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	MJ, net calorific value	0.00E+0	ND	9.85E+2	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	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).															

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
CEN	European Committee for Standardization
CPC	Central product classification
CF	Characterisation Factor
GHG	Greenhouse gas
GWP	Global Warming Potential (kg CO ₂ eq.)
GWP-fossil	Global Warming Potential from fossil sources (kg CO ₂ eq.)
GWP-biogenic	Global Warming Potential from biogenic sources (kg CO ₂ eq.)
GWP-luluc	Global Warming Potential from land use and land use change (kg CO ₂ eq.)
GWP-total	Total Global Warming Potential (kg CO ₂ eq.)
GWP-GHG	Global Warming Potential for greenhouse gases (kg CO ₂ eq.)
ODP	Ozone Depletion Potential (kg CFC-11 eq.)
AP	Acidification Potential (mol H ⁺ eq.)
EP	Eutrophication Potential
EP-freshwater	Freshwater eutrophication potential (kg P eq.)
EP-marine	Marine eutrophication potential (kg N eq.)
EP-terrestrial	Terrestrial eutrophication potential (mol N eq.)
POCP	Photochemical Ozone Creation Potential (kg NMVOC eq.)
ADP	Abiotic Depletion Potential
ADP-minerals&metals	Abiotic depletion potential for non-fossil resources (kg Sb eq.)

ADP-fossil	Abiotic depletion potential for fossil resources (MJ)
WDP	Water Deprivation Potential (m ³)
PM	Particulate matter emissions (Disease incidence)
IRP	Ionising radiation. human health (kBq U235 eq.)
ETP-fw	Ecotoxicity. freshwater (CTUe)
HTP-c	Human toxicity. cancer effects (CTUh)
HTP-nc	Human toxicity. non-cancer effects (CTUh)
SQP	Land use related impacts / soil quality (Dimensionless)
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)
PERM	Use of renewable primary energy resources used as raw materials (MJ)
PERT	Total use of renewable primary energy resources (MJ)
PENRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ)
PENRM	Use of non-renewable primary energy resources used as raw materials (MJ)
PENRT	Total use of non-renewable primary energy resources (MJ)
SM	Use of secondary material (kg)
RSF	Use of renewable secondary fuels (MJ)
NRSF	Use of non-renewable secondary fuels (MJ)
FW	Use of net fresh water (m ³)
HW	Hazardous Waste (disposed) (kg)
NHW	Non-Hazardous Waste (disposed) (kg)
RW	Radioactive Waste (disposed) (kg)
CFR	Components for Reuse (kg)
MR	Material for Recycling (kg)
MER	Materials for Energy Recovery (kg)
EEE	Exported Energy. Electricity (MJ)
EET	Exported Energy. Thermal (MJ)
SVHC	Substances of Very High Concern
MJ	Megajoule
kg	Kilogram

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- m³ Cubic Meter
 - NM VOC Non-Methane Volatile Organic Compounds
 - Sb eq. Antimony Equivalents
 - P eq. Phosphorus Equivalents
 - N eq. Nitrogen Equivalents
 - CFC-11 eq. Chlorofluorocarbon-11 Equivalents
 - CO₂ eq. Carbon Dioxide Equivalents
 - kg C Kilograms of Carbon
 - kg CO₂ eq. Kilograms of Carbon Dioxide Equivalent
 - ND Not Declared

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VERSION HISTORY

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