ENVIRONMENTAL PRODUCT DECLARATION

Tate Duo

In accordance with: ISO 14025:2006, EN 15804:2012+A2:2019/AC:2021, ISO 21930:2017

Products included in the EPD:

Tate Duo

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
Tate North America

Programme
International EPD System
www.environdec.com

Programme operator
EPD International AB

Licensee
EPD-North America

Registration number
EPD-IES-0019889:005

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2025-06-27

Validity date
2030-05-12

NORTH AMERICA EPD
INTERNATIONAL EPD SYSTEM

ECO PLATFORM EPD VERIFIED

Tate

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 and ISO standard ISO 21930 serve as the core Product Category Rules (PCR)	
Product Category Rules (PCR)	PCR 2019:14 Construction products (EN 15804+A2) (version 1.3.4) (expired) (1.3.4)
PCR review was conducted by	PCR review was conducted by: The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/support.

VERIFICATION

LCA accountability	zoe@hhc.earth, zoe@hhc.earth, Tate North America
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 pre-verified LCA/EPD tool
Third-party verifier	Angela Fisher (Aspire Sustainability)
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. International EPD System.

OWNERSHIP AND LIMITATIONS ON USE OF EPD

Limitations

EPDs within the same product category but registered 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 version number up to the first two digits) 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.

Ownership

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

INFORMATION ABOUT EPD OWNER

EPD Owner	Tate North America
Contact person name	Emma Johnson
Contact person e-mail	ejohnson@tateinc.com
Organisation address	USA Jessup 20794 7510 Montevideo Road

Description of the organisation of the EPD Owner

For over 60 years, Tate has been an industry leading global manufacturer of data center solutions. We work collaboratively with our data center clients to provide structural ceilings, containment systems, airflow grills and security cages that are reliable, innovative, and high performing. Our team of professional and highly qualified technical engineers are on hand to support our clients with their specific data centre project requirements.
We have a long-term commitment to delivering a sustainable agenda as part of Kingspan Group's 10-year Planet Passionate program, that addresses climate change, circularity and protection of our natural world. We believe these can only be met through true collaboration and partnership, and are delighted that together our initiatives have been recognized by global environmental impact non-profit CDP since 2016, for driving climate change. As a member of RE100, together with Kingspan Group, we are actively committed to 100% renewable electricity and have joined as a key global partner with the World's GBC's.

PRODUCT INFORMATION

Product name	Tate Duo
Product identification	UN CPC class 4219, Metal Structural Ceiling product
Product description	Tate Duo is pre-engineered, and factory produced structural ceilings capable of directly supporting cable trays, utilities, light fixtures, HVAC registers and other accessories as indicated per area of work. High strength and performance with the ability to suspend a uniform load of 2.4kN/m2. Continuously threaded M10 bottom slot to allow multiple containment configurations. This LCA is based on a 1200mm x 600mm configuration. The Tate Duo structural ceiling belongs to the UN CPC class 4219. This LCA describes a specific product, with no consideration of different sizes or configurations.
Technical purpose of product	Tate Duo is pre-engineered and factory produced structural ceilings capable of directly supporting cable trays, utilities, light fixtures, HVAC registers and other accessories as indicated per area of work. High strength and performance with the ability to suspend a uniform load of 2.4kN/m2. Continuously threaded M10 bottom slot to allow multiple containment configurations.
Manufacturing or service provision description	Tate purchases parts from their suppliers. The parts are cut at Tate's facilities in Pennsylvania. The parts for the Duo are sawed to the appropriate size. Then, the parts are notched by a notching machine. The total electricity needed for Duo is 0.22 kWh/m2. Tate's facility does not have submetering on the machinery that is used. The electricity use is based on the power of each machine and the amount of aluminum processed. No other energy inputs, like water, diesel or natural gas are used in the production of these structural ceilings. The production process does not result in any direct emissions to air, soil or water. The facility has solar panels for the production of renewable electricity, which produce 22% of the total energy used by Tate. The electricity is modeled with 22% photovoltaic panels (0.069 kg CO2-eq./kWh) and 78% RFC grid mix without renewable energy (0.572 kg CO2-eq./kWh). The scrap from the production process is not production waste, but a co-product (see PCR2019:14 v1.3.1). The scraps value and its revenue is negligible, compared to the revenue generated by the Duo. Therefore, no environmental burden (or benefit) was allocated to the scrap that leaves the product system in A3. All environmental burdens in A3 were allocated to the primary product under study.
Material properties	Bulk density (kg/m^3), 861
Production site	Tate Access Floors USA Red Lion 17356 52 Springvale Rd
UN CPC code	4219. Other structures (except prefabricated buildings) and parts of structures, of iron, steel or aluminium; plates, rods, angles, shapes, sections, profiles, tubes and the like, prepared for use in structures, of iron, steel or aluminium; props and similar eq
Geographical scope(s)	North America

Actual or technical lifespan	30
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 IMAGES

TECHNICAL CHARACTERISTICS AND PERFORMANCE

Technical performance

Product name	Hanger configuration	Max. Safe working uniform load	Max. allowable deflection	Max. Safe working point load	Ultimate load
Tate Duo	1200 mm x 600 mm	5.0 kN/m2	10 mm	3.56 kN	7.12 kN

CONTENT DECLARATION

PRODUCT CONTENT					
Content name	**Weight, kg**	**Post-consumer recycled material, weight-% of product**	**Biogenic material, weight-% of product**	**Biogenic material[1], kg C/declared unit**	**Biogenic material kg CO_2, eq./declared unit**
Extruded aluminum	4.32	30.5	0	0	0
Total	**4.32**	**30.5**	**0**	**0**	**0**
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2				

PACKAGING MATERIALS				
Material name	**Weight, kg**	**Weight-% (versus the product)**	**Biogenic material[1], kg C/declared unit**	**Biogenic material kg CO_2, eq./declared unit**
Cardboard	0.08	5	0.03	0.11
Pallet	0.94	23	0.44	1.61
Total	**1.02**	**28**	**0.47**	**1.72**
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	Duo structural ceiling Area (m^2), 1
Conversion factor to mass	0.24
Data sources used for this EPD	ecoinvent database (general) ecoinvent 3.10 database
LCA Software	SimaPro SimaPro 9.5
Additional information about the underlying LCA-based information	Pre-consumer scrap, leaving the product system from modules A1-A3, shall be allocated as a co-product. Scrap entering a product system shall come with an environmental burden if it originated from modules A1-A3 of a previous product system, and the calculation of this burden shall be based on co-product allocation. However, if the pre-consumer scrap has zero or negative value, it will not be allocated any environmental burden even if co-product allocation is applied (PCR 2019:14 v1.3.1)
Version of the EN 15804 reference package	EF Reference Package 3.1
Characterisation methods	All identified environmental interventions have been translated into environmental effects. Direct emissions from the inventory are all characterized with TRACI [29], as described in the ISO 21930 via the characterization methods of CML [10], IPCC [9], WMO [13], Heijungs et al. [10], Hauschild and Wenzel [11] and Goedkoop et al. [12]. In addition, the impact categories as listed in the EN 15804:2012+A2:2019/AC:2021 are characterized with characterization methods from IPCC [9], WMO [13], van Oers [12], Seppälä et al. [15], Jenkin & Hayman [14], Posch et al. [16], Struijs et al. [15], Van Zelm et al. [18], CML [10], Guinée et al. [19], van Oers et al. [20], Boulay et al. [21], Vigon et al. [22], Frischknecht et al. [23], Usetox v2 [24] and LANCA [25]. The impact category GWP-GHG, as required by the PCR 2019:14, is calculated with the characterization factors as described in EF 3.0, while biogenic CO2 has a characterization factor of 0 as described in the PCR 2019:14.
Technology description including background system	The EPD describes the Tate Duo, a structural ceiling made of extruded aluminum (with 30.5% recycled content). It's packaging materials are considered as well. The aluminum is sawed and notched at the production site. The construction stage considers the average transport of the product in the US market, as well as the average energy use for installation. The steel and aluminum installation materials are also considered in the construction stage. There are no known emissions in the use stage. The end-of-life stage is based on average data of the US market.
Scrap (recycled material) inputs contribution level	Less than 10% of the GWP-GHG results in modules A1-A3 come from scrap inputs
Infrastructure and capital goods	Excluded

Data quality assessment and reference years

DATA QUALITY ASSESSMENT AND REFERENCE YEARS					
Process name	**Source type**	**Source**	**Reference year**	**Data category**	**Share of primary data, of GWP-GHG results for A1-A3**
Production stage	Bill of Materials, production data	EPD owner	2023-12-31 - 2024-12-30	Primary data	90%
Construction stage	Average data	EPD owner	2023-12-31 - 2024-12-30	Secondary data	
End-of-Life stage	Database and literature	Ecoinvent and US EPA	2023-12-31 - 2024-12-30	Secondary data	
Benefits and loads outside the system boundary	Database	Ecoinvent	2023-12-31 - 2024-12-30	Secondary data	
Total share of primary data, of GWP-GHG results for A1-A3					**90%**
Note	The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that do not capture all relevant aspects of data quality. The indicator is not comparable across product categories.				

ELECTRICITY USED IN THE MANUFACTURING PROCESS IN A3		
Type of electricity mix	Residual electricity mix on the market	
Energy sources	Hydro	0%
	Wind	0%
	Solar	22%
	Biomass	0%
	Geothermal	0%
	Waste	0%
	Nuclear	0%
	Natural gas	0%
	Coal	0%
	Oil	0%
	Peat	0%
	Other	78%
Climate impact (GWP-GHG):	0.46 kg CO_2 eq./kWh	

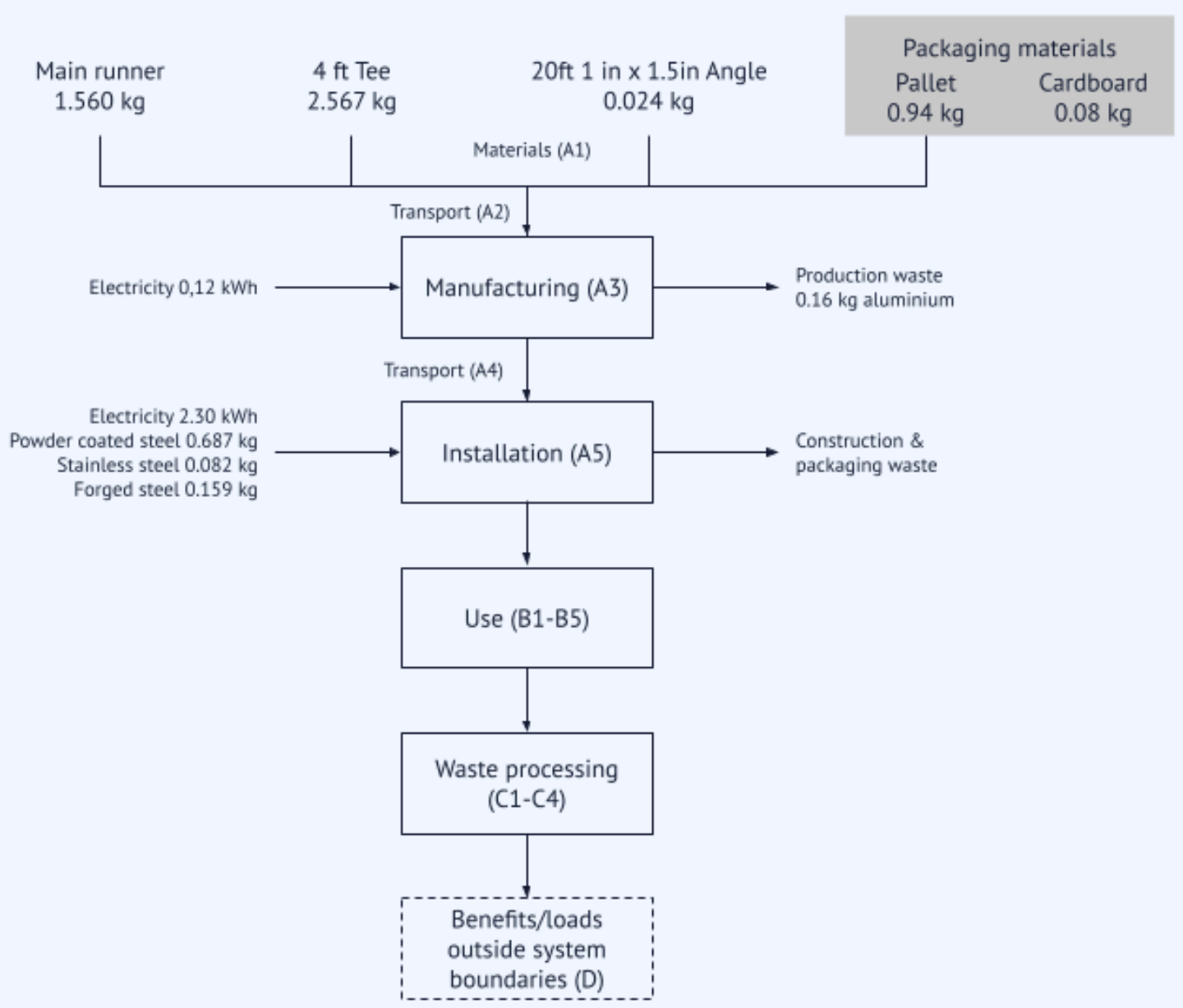
SYSTEM BOUNDARY

Description of the System boundary	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	There are no known emissions in the use stage, this stage is omitted.

	Product stage			Construction process stage		Use stage							End of life stage				Beyond product life cycle
	Raw material supply	Transport	Manufacturing	Transport to site	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	Global	Global	USA	Global	USA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	USA	USA	USA	USA	USA
Share of specific data	90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF THE PROCESS FLOW DIAGRAM(S)

Process flow diagram(s) related images



SCENARIOS

Name of the default scenario	Default scenario (US)
Description of the default scenario	The transport to the building site is based on averages. The installation materials and energy are based on average data of a 300m2 installation of the product. The end-of-life scenario is based on data of the US market.

Module A4: Transport to the building site

Explanatory name of the default scenario in module A4	Average transport US
Description of the default scenario in module A4	Transport is based on an average distance of Tate's clients. The transport mode is assumed to be truck, as modelled in the ecoinvent 3.10 dataset 'market group for transport, freight, lorry, unspecified | transport, freight, lorry, unspecified | Cutoff, U [GLO]'

Module A4 information	Value	Unit
Distance	1450	km
Capacity utilization (including empty returns)	Default	%
Bulk density of transported products	861	kg/m^3
Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products)	1	N/A
Fuel consumption per km Lorry 3.5-7.5t	5.94E-05	kg
Fuel consumption per km Lorry 7.5-16t	2.57E-05	kg
Fuel consumption per km Lorry 16t-32t	1.86E-05	kg
Fuel consumption per km Lorry >32t	1.05E-05	kg

Module A5: Installation in the building

Explanatory name of the default scenario in module A5	Installation US
Description of the default scenario in module A5	The installation required additional parts, like screws, connectors and bolt. These parts are made of steel and aluminum. Tate's suppliers did not deliver information on the materials, so database references were used to model the installation parts. Energy inputs required for installation are calculated based on a case where 300m2 of ceiling was installed.

Module A5 information	Value	Unit
Net fresh water consumption during installation	0	m^3
Ancillary material, steel	0.928	kg
Electricity, grid mix USA	2.3	kWh/cycle
Packaging waste, wooden pallet	0.94	kg
Wood for landfill	0.632	kg
Wood for incineration	0.148	kg
Wood for recycling	0.161	kg
Packaging waste, cardboard	0.075	kg
Cardboard for landfill	0.0129	kg
Cardboard for incineration	0.005	kg
Cardboard for recycling	0.051	kg

Reference service life

Description of the default scenario in reference service life	The product functions as a structural ceiling, from which heavy items can be suspended. The functional unit does not include the mineral fiber ceiling tile. The service life of Duo is 30 years.

Reference service life information	Value	Unit
Reference service life	30	years
Product properties	Extruded Aluminum, 6063-T6 Alloy. Steel Connectors and Accessories	N/A
Application parameters	Interior Installation Only	N/A
Assumed quality of work when installed per manufacturer's recommendation installation instructions	Capable of supporting up to 800 pounds of static load	N/A
Use conditions	Data Centers, Static Loading, Conditioned Environments	N/A
Maintenance	Connectors, Accessories and Grid member do not need to be replaced when installed within the manufacturer's recommendations and operated under the manufacturers recommended guidelines	N/A

Module C: End-of-life

Explanatory name of the default scenario in module C	Waste treatment US
Description of the default scenario in module C	Transportation distance to waste treatment facilities in the US is set to 20 miles, or 32 km. This is based on the default transportation distance as described in the WARM documentation. The distribution of waste materials over different waste treatments is based on the 2018 fact sheet on Advancing Sustainable Materials Management.

Module C information	Value	Unit
Separate waste collection	5.078	kg
Recycling of aluminum	0.714	kg
Recycling of steel	0.307	kg
Incineration of aluminum	0.598	kg
Incineration of steel	0.111	kg
Landfill of aluminum	2.839	kg
Landfill of steel	0.509	kg
Transportation to waste processing sites	32	km

Module D: Beyond product life cycle

Explanatory name of the default scenario in module D	Recycling benefits
Description of the default scenario in module D	No benefits were calculated for the incineration of steel or aluminum, since these are usually not completely oxidized. Instead, it is collected from the bottom of the incinerator. To assume the worst case scenario, no benefits are attributed to this. Benefits and burdens are calculated over the recycled materials.

Module D information	Value	Unit
Aluminum burden	2.022	kg
Steel benefit	0.094	kg

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.	4.59E+1	1.34E+0	5.78E+0	ND	ND	ND	ND	ND	ND	ND	1.10E+0	2.47E-2	4.64E-2	7.57E-2	6.50E-1
Climate change - fossil	GWP-fossil	kg CO_2 eq.	4.75E+1	1.34E+0	4.05E+0	ND	ND	ND	ND	ND	ND	ND	1.10E+0	2.46E-2	4.63E-2	7.56E-2	6.49E-1
Climate change - biogenic	GWP-biogenic	kg CO_2 eq.	-1.64E+0	0.00E+0	1.72E+0	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.	2.82E-2	4.46E-3	2.56E-3	ND	ND	ND	ND	ND	ND	ND	5.70E-4	8.21E-5	6.15E-5	9.16E-5	5.20E-4
Ozone depletion	ODP	kg CFC-11 eq.	2.57E-7	2.25E-8	2.35E-8	ND	ND	ND	ND	ND	ND	ND	7.69E-9	4.15E-10	6.31E-10	1.41E-9	3.77E-9
Acidification	AP	mol H^+ eq.	3.75E-1	6.12E-3	1.87E-2	ND	ND	ND	ND	ND	ND	ND	3.63E-3	1.12E-4	4.33E-4	4.41E-4	2.73E-3
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	2.40E-3	1.29E-5	1.88E-4	ND	ND	ND	ND	ND	ND	ND	7.55E-5	2.38E-7	1.42E-6	1.30E-6	1.28E-5
Eutrophication aquatic marine	EP-marine	kg N eq.	5.16E-2	2.31E-3	3.61E-3	ND	ND	ND	ND	ND	ND	ND	5.03E-4	4.26E-5	1.21E-4	1.84E-4	4.91E-4
Eutrophication terrestrial	EP-terrestrial	mol N eq.	5.76E-1	2.51E-2	3.99E-2	ND	ND	ND	ND	ND	ND	ND	5.84E-3	4.62E-4	1.36E-3	1.67E-3	5.61E-3
Photochemical ozone formation	POCP	kg NMVOC eq.	1.75E-1	8.69E-3	1.35E-2	ND	ND	ND	ND	ND	ND	ND	2.28E-3	1.60E-4	4.06E-4	5.29E-4	1.78E-3
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals[1]	kg Sb eq.	3.34E-4	4.21E-6	3.62E-5	ND	ND	ND	ND	ND	ND	ND	9.20E-6	7.73E-8	1.68E-6	1.92E-7	1.35E-5
Depletion of abiotic resources - fossil fuels	ADP-fossil[1]	MJ, net calorific value	5.05E+2	1.91E+1	5.11E+1	ND	ND	ND	ND	ND	ND	ND	2.02E+1	3.51E-1	6.26E-1	1.30E+0	4.41E+0
Water use	WDP[1]	m^3 world eq. deprived	8.11E+0	9.38E-2	8.61E-1	ND	ND	ND	ND	ND	ND	ND	2.49E-1	1.73E-3	1.24E-2	-4.65E-1	6.51E-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	It is discouraged to use the results of modules A1-A3 without considering the results of module C.																
Disclaimer 1	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator																

Additional mandatory environmental performance indicators

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - GWP-GHG	GWP-GHG[1]	kg CO_2 eq.	4.65E+1	1.36E+0	5.05E+0	ND	ND	ND	ND	ND	ND	ND	1.08E+0	2.51E-2	4.59E-2	7.76E-2	6.45E-1
Acronyms	GWP-GHG = Global warming potential greenhouse gas.																
General disclaimer	It is discouraged to use the results of modules A1-A3 without considering the results of module C.																
Disclaimer 1	The GWP-GHG indicator is termed GWP-IOBC/GHG in the ILCD+EPD+ data format. The indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.																

Additional voluntary environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter emissions	PM	Disease incidence	5.05E-6	1.31E-7	2.51E-7	ND	ND	ND	ND	ND	ND	ND	1.61E-8	2.41E-9	6.78E-9	8.08E-9	4.59E-8
Ionizing radiation - human health	IRP[1]	kBq U235 eq.	1.11E+0	6.83E-3	2.09E-1	ND	ND	ND	ND	ND	ND	ND	1.73E-1	1.26E-4	6.09E-4	1.05E-3	6.30E-3
Eco-toxicity - freshwater	ETP-fw[2]	CTUe	2.60E+2	8.95E+0	7.06E+1	ND	ND	ND	ND	ND	ND	ND	3.32E+0	1.65E-1	1.19E+0	5.00E+2	3.56E+0
Human toxicity - cancer effects	HTP-c[2]	CTUh	2.75E-7	7.15E-9	1.89E-7	ND	ND	ND	ND	ND	ND	ND	1.96E-9	1.31E-10	4.57E-10	3.88E-10	3.39E-9
Human toxicity - non-cancer effects	HTP-nc[2]	CTUh	3.88E-7	1.35E-8	4.41E-8	ND	ND	ND	ND	ND	ND	ND	1.14E-8	2.49E-10	1.59E-9	1.13E-8	1.26E-8
Land-use related impacts/soil quality	SQP[2]	Dimensionless	2.94E+2	1.50E+1	-2.17E+1	ND	ND	ND	ND	ND	ND	ND	3.49E+0	2.76E-1	9.44E-1	2.03E+0	4.24E+0
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	It is discouraged to use the results of modules A1-A3 without considering the results of module C.																
Disclaimer 1	This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.																
Disclaimer 2	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.																

Resource use indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ, net calorific value	3.50E+1	2.92E-1	-2.20E-1	ND	ND	ND	ND	ND	ND	ND	2.49E+0	5.37E-3	5.09E-2	3.61E-2	4.34E-1
PERM	MJ, net calorific value	1.43E+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
PERT	MJ, net calorific value	4.94E+1	2.92E-1	-2.20E-1	ND	ND	ND	ND	ND	ND	ND	2.49E+0	5.37E-3	5.09E-2	3.61E-2	4.34E-1
PENRE	MJ, net calorific value	5.05E+2	1.91E+1	5.11E+1	ND	ND	ND	ND	ND	ND	ND	2.02E+1	3.51E-1	6.26E-1	1.30E+0	4.41E+0
PENRM	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
PENRT	MJ, net calorific value	5.05E+2	1.91E+1	5.11E+1	ND	ND	ND	ND	ND	ND	ND	2.02E+1	3.51E-1	6.26E-1	1.30E+0	4.41E+0
SM	kg	1.27E+0	0.00E+0	8.81E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	-2.08E-1	-9.83E-1	0.00E+0
RSF	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
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	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
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.															
General disclaimer	It is discouraged to use the results of modules A1-A3 without considering the results of module C.															

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	1.71E-1	5.16E-4	2.94E-3	ND	ND	ND	ND	ND	ND	ND	8.90E-4	9.49E-6	6.10E-1	1.36E-2	2.23E-1
NHWD	kg	1.81E+0	1.23E+0	2.81E-1	ND	ND	ND	ND	ND	ND	ND	4.84E-2	2.26E-2	1.98E-2	3.38E+0	1.43E-1
RWD	kg	6.99E-4	4.33E-6	1.20E-4	ND	ND	ND	ND	ND	ND	ND	9.69E-5	7.96E-8	3.76E-7	6.71E-7	3.88E-6
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed.															
General disclaimer	It is discouraged to use the results of modules A1-A3 without considering the results of module C.															

Output flow indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
CRU	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	1.23E+0	0.00E+0	0.00E+0
MER	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	MJ, net calorific value	0.00E+0	0.00E+0	9.41E-1	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	0.00E+0	7.70E-1	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	It is discouraged to use the results of modules A1-A3 without considering the results of module C.															

Version history

Adjusting verification date

Additional environmental information

Conversion factors

Dangerous substances to indoor air, soil, and water during the use stage

Economic and social information

REFERENCES

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- 'ISO 14044: Environmental management - Life cycle assessment - Requirements and guidelines', International Organization for Standardization, ISO14044:2006.
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