

Environmental Product Declaration

 **EPD**
INTERNATIONAL EPD SYSTEM



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

Stainless steel screws

from

SPAX International GmbH & Co. KG



Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Type of EPD:	EPD of multiple products, based on the average results of the product group
EPD registration number:	EPD-IES-0013180:001
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Validity date:	2031-02-11

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



General information

Programme information

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

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): Construction Products, PCR 2019:14, Version 2.0.1 UN CPC code: Nr. Code 42944 Nails, tacks, staples (except staples in strips), screws, bolts, nuts, screw hooks, rivets, cotters, cotter-pins, washers and similar articles, of iron, steel, copper or aluminium
PCR review was conducted by: The Technical Committee of the International EPD System. A full list of members is available on www.environdec.com . The review panel may be contacted via support@environdec.com . Chairs of the PCR review: Rob Rouwette (chair), Noa Meron (co-chair)
Life Cycle Assessment (LCA)
LCA accountability: brands & values GmbH, info@brandsandvalues.com
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by individual verifier Third-party verifier: <i>Marcel Gómez Ferrer, Marcel Gómez Consultoria Ambiental</i> Approved by: The International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Information about EPD owner

Owner of the EPD: SPAX International GmbH & Co. KG, Kölner Straße 71-77, D-58256 Ennepetal, Germany

Contact: Frank Solbrig; frank.solbrig@spax.com

Description of the organisation: Since 1823, the ALTENLOH, BRINCK & CO Group has been active in the field of fastening and plastics technology.

The group of companies combines several independent divisions: the SPAX division with SPAX International GmbH & Co. KG as the parent company, the America division and the Medical Care division with SABEU GmbH & Co. KG.

The SPAX brand has stood for innovative wood fasteners, quality and performance made in Germany since 1967.

Do-it-yourselfers and professional woodworkers all over the world trust SPAX products and services. Today, the SPAX division produces up to 40 million screws every day and stands for the development and marketing professional and easy-to-implement solutions for fastening systems.

Product-related or management system-related certifications: ISO 9001, ISO 14001, ISO 50001

Name and location of production site(s): SPAX International GmbH & Co. KG, Kölner Straße 71-77, D-58256 Ennepetal, Germany

Product information

Product name: SPAX screws made of stainless steel (SPAX self-tapping screws)

UN CPC code: CPC, Version 2.1 - Code 42944

Product identification: SPAX screws can be clearly identified by their unique 13 digit article number or EAN-Code applied to the packaging labels:



Furthermore, they can be identified by the registered brand name SPAX, their distinctive green colour of the packaging and the manufacturer's address on the boxes' backside.

SPAX catalogues show more than 2.000 different article numbers distributed via professional hardware, the retail shops and the Internet (B2C).

Product description:

SPAX screws are self-tapping screws to be used in a wide field of applications such as timber structures, wood-based applications such as windows, doors, furniture, general joinery or carpentry applications and renovation.

They shall be threaded over a part or over the full length providing certain tip geometries such as 4CUT. The screws shall be produced from stainless steel wire and have a nominal outer thread diameter of 3,0 mm to 12,0 mm in lengths from 12 up to 600 mm. They penetrate different timbers or wood-based panels without pre-drilling, in some cases pre-drilling might be required due to limited strength properties of the stainless steel. The screws have different head shapes such as countersunk head, raised countersunk head, Pan Head and others equipped with different recesses such as T-STAR plus or conventional PZ or PH. Corrosion protection is achieved by using different stainless steel grades. An additional lubrication layer might be applied to provide easy installation and reduce drive in torque and friction. In unprotected, weathered or wet outdoor conditions the stainless steel screws are assumed to last for decades, provided that the exposure conditions fit to the required stainless steel grade.



The screws are driven into the timber or wood-based material either by using manual screwdrivers, but mostly by using battery screw driver tools or similar equipment. Collated screws mostly provided with plastic strips allow for faster installation of high numbers of the same screw size, but their share in sales volume is small, just as the range is small itself.

For environmental reasons and ease of use, SPAX screws are predominantly packaged in cardboard boxes (82% recycling). Whereas retailers require plastic packaging with transparent lids for product presentation on store shelves. SPAX is aiming to reduce the share of plastic in the boxes within the next years, and has recently launched the first carton based alternatives. See SPAX's environmental report published on spax.com for details.

At the end of their life cycle SPAX screws can be easily recycled as scrap metal. The product can be reused if there is no damage caused by corrosion or deterioration during lifetime, false assembly or unprofessional disassembly. However, SPAX screws are usually used once, as reuse is generally uneconomical for the small screw dimensions and the time being. But developments on enhancing deconstruction capabilities for timber structures and re-use are a future target for SPAX, including refurbishing services allowing for re-use and a second lifetime (to meet the Green Goals of the European Union) and a more sustainable building sector.

For the use in load-bearing timber structures SPAX screws are regarded as a building product, and they fall under the European Construction Products Regulation (EU) No. 305/2011. Screws'

mechanical properties (called essential characteristics) are documented in European Assessment Document ETA-12/0114 and they bear a CE-Marking on the labels of the packaging to show conformity. A Declaration of Performance DoP can be downloaded on the website spax.com

Specification of the intended use as a building product according to ETA-12/0114:

The screws are used for connections in load bearing timber structures between members of solid timber (softwood), glued laminated timber (softwood), cross-laminated timber, and laminated veneer lumber (softwood), similar glued members, wood-based panels or steel. The screws are also used for connections in load bearing members of solid timber (hardwood), glued laminated timber (hardwood) or laminated veneer lumber (hardwood). SPAX screws with a thread over the full length are also used as tensile or compressive reinforcement perpendicular to the grain or as shear reinforcement in softwood members.

LCA information

Declared unit: 1kg

Service life: 50 years

Time representativeness: 2024

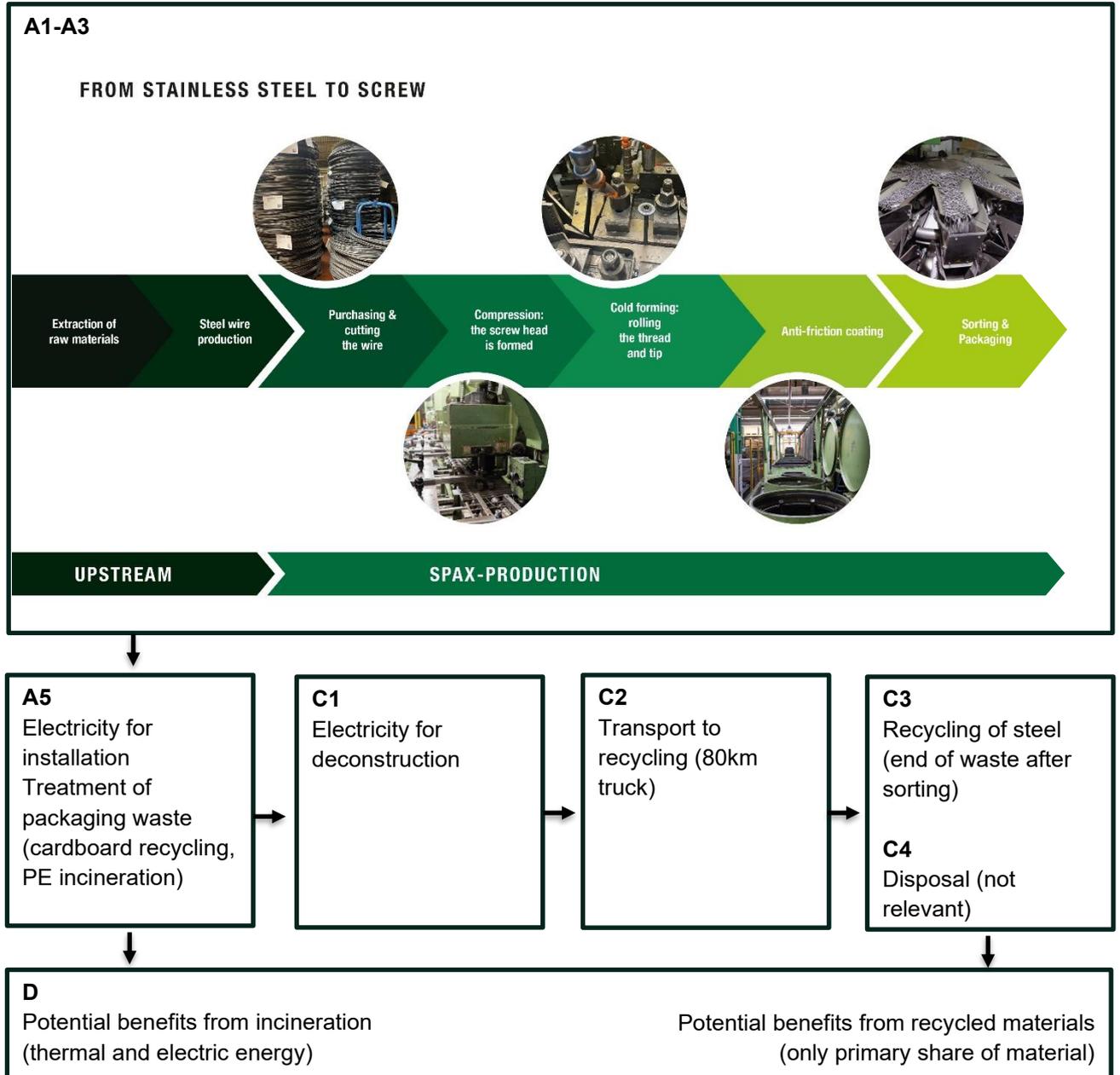
Geographical scope: Europe

Database(s) and LCA software used: LCA for Experts version 10.9; LCA Managed Content (2024.2)ecoinvent 3.9.1 was used when no appropriate dataset in LCA Managed Content was available.

Description of system boundaries: b) Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules). The additional module is A5. The modularity and the polluter payer principles have been followed.

Module A4 is not considered since this will vary depending on the location of the customer. B-modules are not considered since no activities are expected in the use phase.

System diagram:



More information: www.spax.com

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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	
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	EU	EU	DE		EU								EU	EU	EU	EU	EU
Specific data used	2%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<10%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	N/A					-	-	-	-	-	-	-	-	-	-	-	-

Modules declared: (X = included; ND = not declared).

Electricity: For processes controlled by the EPD owner, green electricity with a GWP-GHG of 0.054 kg CO₂e/kWh was modelled.

Infrastructure/capital goods: not considered

Scenario information

In module A5, electricity for installation as well as treatment of the packaging materials is considered.

Module A5: Scenario information	Amount/declared unit
Ancillary materials for installation	None
Water use	None
Other resource use	None
Quantitative description of energy type (regional mix) and consumption during the installation process	0.03 kWh electricity (European grid mix)
Waste materials on the building site before waste processing, generated by the product's installation (specified by type)	None
Output materials (specified by type) as result of waste processing at the building site e.g. of collection for recycling, for energy recovery, disposal (specified by route)	0.135 kg Cardboard (Recycling) 0.002 kg Film (LDPE) (Incineration) 0.003 kg Pallet (multi use) (Reuse)
Direct emissions to ambient air, soil and water	None

At the end-of-life of the product, 100% recycling of the stainless steel is assumed. End-of-waste is assumed after sorting.

Modules C1-C4: Scenario information	Amount/declared unit
Collected separately	0 kg
Collected with mixed construction waste and sorted	1 kg stainless steel
For re-use	0 kg
For recycling	1 kg
For energy recovery	0 kg
For final deposition	0 kg
Assumptions for scenario development, e.g. transportation	0.03 kWh electricity (European grid mix) for deconstruction 80 km truck to waste processing (EURO 5, 17.3 t payload capacity, 0.03 l Diesel/tkm, 50% capacity utilisation, 8000 kg/m ³ , volume capacity utilisation factor = 1)

Potential benefits from the incineration of packaging materials as well as the recycling of steel are declared in module D.

Scenario information	Amount/declared unit
Electric energy	0.014 MJ
Thermal energy	0.024 MJ
Net scrap	0.17 kg

Data quality:

Primary data were collected for the year 2024. A data quality assessment was carried out covering geographical, technical, and temporal representativeness of secondary datasets, as well as precision, completeness, consistency, and data sources of primary data. The assessment included all processes contributing at least 80% to each declared environmental impact indicator. Overall, the data quality is rated as good.

The table below presents the processes contributing more than 10% to the GWP-GHG results of life cycle modules A1–A3.

Process	Source type	Source	Reference year	Data category
Material	Database	Managed LCA Content (Version 2024.2)	2024	Secondary data

Cut-off criteria:

All data collected was taken into account. It can be assumed that the cut-off criteria for considering the use of primary energy and mass according to EN 15804+A2 (<1 % in each case, <5 % in total per declared module) were observed.

Allocation: For secondary materials, the cut-off approach is applied.

Content declaration

The content declaration represents the declared unit of one average kg of screws.

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
Stainless Steel	1.000	0.00%	0.00%	0.00
TOTAL	1.000	0.00%	0.00%	0.00

Note: No specific information on the post-consumer recycled material is available.

Packaging Materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/product or declared unit
Cardboard	0.135	13.50%	0.056
Film (LDPE)	0.002	0.21%	0.000
Pallet (multi use)	0.003	0.27%	0.001
TOTAL	0.140	13.97%	0.057

Declaration of Substances

The product does not contain any Substances of Very High Concern (SVHC) that exceeds 0.1% of the product weight.

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. 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).

EN 15804 +A2 (based on EF 3.1) characterisation factors provided in LCA for Experts were applied. Biogenic CO₂ and materially bound primary energy were adjusted manually based on the composition of the declared unit.

Mandatory impact category indicators according to EN 15804

Results per declared unit								
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	4.04E+00	1.75E-02	8.40E-03	9.02E-03	1.44E-02	0.00E+00	-1.09E+00
GWP-biogenic	kg CO ₂ eq.	-1.93E-01	2.08E-01	8.62E-05	2.79E-05	1.09E-04	0.00E+00	-4.45E-04
GWP-luluc	kg CO ₂ eq.	9.79E-03	2.79E-05	1.28E-06	1.48E-04	9.02E-05	0.00E+00	-3.35E-03
GWP-total	kg CO ₂ eq.	3.86E+00	2.26E-01	8.49E-03	9.20E-03	1.46E-02	0.00E+00	-1.09E+00
ODP	kg CFC 11 eq.	6.21E-10	2.19E-13	1.90E-13	1.30E-15	2.04E-13	0.00E+00	-2.69E-14
AP	mol H ⁺ eq.	2.57E-02	2.62E-05	1.62E-05	3.83E-05	4.58E-05	0.00E+00	-6.59E-03
EP-freshwater	kg P eq.	1.07E-05	4.37E-08	3.48E-08	3.76E-08	5.98E-08	0.00E+00	-1.66E-06
EP-marine	kg N eq.	3.02E-03	8.16E-06	4.05E-06	1.81E-05	1.81E-05	0.00E+00	-9.57E-04
EP-terrestrial	mol N eq.	3.32E-02	8.95E-05	4.24E-05	2.03E-04	1.99E-04	0.00E+00	-1.04E-02
POCP	kg NMVOC eq.	9.14E-03	1.95E-05	1.07E-05	3.63E-05	4.10E-05	0.00E+00	-2.90E-03
ADP-minerals&metals*	kg Sb eq.	1.22E-04	2.03E-09	1.57E-09	7.66E-10	2.14E-09	0.00E+00	-5.54E-05
ADP-fossil*	MJ	5.41E+01	2.21E-01	1.76E-01	1.16E-01	2.58E-01	0.00E+00	-1.39E+01
WDP*	m ³	1.52E+00	3.26E-03	2.32E-03	1.36E-04	2.56E-03	0.00E+00	-5.12E-01
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption							

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Additional mandatory and voluntary impact category indicators

Results per declared unit								
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ eq.	4.05E+00	1.75E-02	8.40E-03	9.17E-03	1.45E-02	0.00E+00	-1.09E+00

¹ This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO₂ is set to zero.

Resource use indicators

Results per declared unit								
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
PERE	MJ	1.99E+01	2.42E+00	1.27E-01	9.98E-03	1.42E-01	0.00E+00	-2.93E+00
PERM	MJ	2.27E+00	-2.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.21E+01	1.48E-01	1.27E-01	9.98E-03	1.42E-01	0.00E+00	-2.93E+00
PENRE	MJ	5.40E+01	3.09E-01	1.76E-01	1.16E-01	2.58E-01	0.00E+00	-1.39E+01
PENRM	MJ	8.87E-02	-8.87E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	5.41E+01	2.21E-01	1.76E-01	1.16E-01	2.58E-01	0.00E+00	-1.39E+01
SM	MJ	9.55E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-01
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m ³	4.42E-02	1.27E-04	9.75E-05	1.11E-05	1.11E-04	0.00E+00	-2.10E-02
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							

Waste indicators

Results per declared unit								
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	4.62E-06	2.93E-10	2.55E-10	4.44E-12	2.74E-10	0.00E+00	-9.94E-05
Non-hazardous waste disposed	kg	4.03E-01	1.95E-04	1.45E-04	1.89E-05	1.66E-04	0.00E+00	3.32E-03
Radioactive waste disposed	kg	1.82E-03	3.23E-05	2.82E-05	2.11E-07	3.02E-05	0.00E+00	-1.13E-04

Output flow indicators

Results per declared unit								
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	2.69E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00						
Exported energy, electricity	MJ	0.00E+00	1.37E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	2.44E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Abbreviations

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PCR	Product Category Rules
CEN	European Committee for Standardization
CPC	Central product classification
Environmental Impact Indicators (EN 15804)	
GHG	Greenhouse gas
GWP	Global Warming Potential (kg CO ₂ eq.)
GWP-fossil	Global Warming Potential from fossil sources (kg CO ₂ eq.)
GWP-biogenic	Global Warming Potential from biogenic sources (kg CO ₂ eq.)
GWP-luluc	Global Warming Potential from land use and land use change (kg CO ₂ eq.)
GWP-total	Total Global Warming Potential (kg CO ₂ eq.)
GWP-GHG	Global Warming Potential for greenhouse gases (kg CO ₂ eq.)
ODP	Ozone Depletion Potential (kg CFC-11 eq.)
AP	Acidification Potential (mol H ⁺ eq.)
EP	Eutrophication Potential
EP-freshwater	Freshwater eutrophication potential (kg P eq.)
EP-marine	Marine eutrophication potential (kg N eq.)
EP-terrestrial	Terrestrial eutrophication potential (mol N eq.)
POCP	Photochemical Ozone Creation Potential (kg NMVOC eq.)
ADP	Abiotic Depletion Potential
ADP-minerals&metals	Abiotic depletion potential for non-fossil resources (kg Sb eq.)
ADP-fossil	Abiotic depletion potential for fossil resources (MJ)
WDP	Water Deprivation Potential (m ³)
Resource Use Indicators	
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)
PERM	Use of renewable primary energy resources used as raw materials (MJ)
PERT	Total use of renewable primary energy resources (MJ)
PENRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ)
PENRM	Use of non-renewable primary energy resources used as raw materials (MJ)
PENRT	Total use of non-renewable primary energy resources (MJ)
SM	Use of secondary material (kg)
RSF	Use of renewable secondary fuels (MJ)
NRSF	Use of non-renewable secondary fuels (MJ)
FW	Use of net fresh water (m ³)
Waste Indicators	
HW	Hazardous Waste (disposed) (kg)
NHW	Non-Hazardous Waste (disposed) (kg)
RW	Radioactive Waste (disposed) (kg)
Output Flow Indicators	
CFR	Components for Reuse (kg)
MR	Material for Recycling (kg)
MER	Materials for Energy Recovery (kg)
EEE	Exported Energy, Electricity (MJ)

EET	Exported Energy, Thermal (MJ)
Lifecycle Stages / Modules	
A1	Raw material supply
A2	Transport
A3	Manufacturing
A4	Transport to site
A5	Construction/Installation
B1	Use
B2	Maintenance
B3	Repair
B4	Replacement
B5	Refurbishment
B6	Operational energy use
B7	Operational water use
C1	Deconstruction/Demolition
C2	Transport to waste processing
C3	Waste processing
C4	Disposal
D	Reuse-Recovery-Recycling potential
Other Relevant Terms	
B2C	Business to consumer
CAS No.	Chemical Abstracts Service Number
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO ₂ eq.	Carbon Dioxide Equivalents
DoP	Declaration of Performance
EC No.	European Community Number
ETA	European Technical Assessment
kg	Kilogram
kg C	Kilograms of Carbon
kg CO ₂ eq.	Kilograms of Carbon Dioxide Equivalent
m ³	Cubic Meter
MJ	Megajoule
N eq.	Nitrogen Equivalents
ND	Not Declared
NMVOG	Non-Methane Volatile Organic Compounds
P eq.	Phosphorus Equivalents
Sb eq.	Antimony Equivalents
SVHC	Substances of Very High Concern

References

ECHA Candidate List

Candidate List of Substances of Very High Concern for Authorisation (ECHA Candidate List), dated 21.01.2025, published in accordance with Article 59(10) of the REACH Regulation. Helsinki: European Chemicals Agency.

ecoinvent 3.9.1

ecoinvent, Allocation, cut-off by classification, ecoinvent database version 3.9.1 (2022).

EN 15804

EN 15804:2012+A2:2019, Sustainability of construction works – Environmental product declarations – Core rules for product category of construction products

EPD International

General Programme Instructions for the International EPD System. Version 5.0.1 www.environdec.com. (2025)

EPD International

Product Category Rules (PCR). PCR2019:14. Version 2.0.1. www.environdec.com. (2025)

ISO 9001:2015

Quality management systems – Requirements

ISO 14001: 2015

Environmental management systems - Requirements with guidance for use

ISO 14025:2006

Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

LCA for Experts 10.9

Software and Database for Life Cycle Engineering, Sphera Solutions GmbH, Leinfelden-Echterdingen, 2023 and Managed LCA Content Version (Content Version 2024.2)

Version history

Original Version of the EPD, 2026-02-12

