

Environmental Product Declaration



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

Reactive Sealant

From



Programme:	The International EPD® System, www.environdec.com
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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
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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):
PCR 2019:14 Construction products (EN 15804:A2)(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/contact.

Life Cycle Assessment (LCA)

LCA accountability: *Tyréns Sverige AB*

Third Party Verification

External and independent ('third-party') verification of the declaration and data, according to ISO 14025:2006, via EPD verification through:

☒ Individual EPD verification with a pre-verified LCA/EPD tool

Third-party verifier: Marcus Wendin, Miljögiraff AB

Pre-verified LCA tool or Pre-verified EPD tool: *Tyréns EPD-generator 3.1.0 – FireSeal*

Third-party verifier, accountable for the tool verification:

Marcus Wendin, Miljögiraff AB,

Approved by: The International EPD® System

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

☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but registered in different EPD programs, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterization factors); have equivalent content

declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD:

FireSeal AB, Kista, Sweden

Contact:

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Description of the organisation:

FireSeal AB is a Swedish producer of fire protection products and systems, ranging from certified cable- & pipe penetration seals and HVAC in landbased- as well marine projects, to fire proof barriers for facades and lofts in the construction industry. FireSeal buys raw materials and components from a number of different producers, mainly situated in Europe, combine these components into systems which is tested and certified at accredited fire laboratories and then sell the certified solutions to customers within landbased segments (mainly in the Nordic European countries), as well marine & Offshore applications in the global market.

FireSeal is part of the Bergman & Beving Group, who is listed at the Swedish stock exchange market.

Product-related or management system-related certifications:

FireSeal AB is certified in accordance with

ISO 9001:2015

ISO 14001:2015

Name and location of production site(s):

FireSeal AB, Esbogatan 14, 164 74 Kista, Sweden

Product information

Product name: Reactive Sealant

Product identification: 100731 - 310ml, 100733 - 600ml

Product description: Reactive Sealant is a fire-resistant, water-based acrylic compound with heat-swelling properties. It cures to a semi-flexible seal and prevents the penetration of fire, smoke, gas and water. Reactive is primarily intended for use in various indoor fire sealing applications. Reactive is primarily intended for cable, plastic pipes, ALUPEX and steel pipes in fire cell restrictions in class EI 60 - EI 120 in concrete/brick/lightweight walls and concrete floors.

Climate impact from electricity in production is not declared in the referenced EPD, and can therefore not be declared. For climate impact from electricity in the FireSeal warehouse, see section "Electricity data".

UN CPC code: 3511

Geographical scope:

Module A1 and A2 Material suppliers are Global (European and Asian)

Module A3 production is located in Europe and Asia (Global)

Module C and D scenarios are for Sweden

LCA information

Functional unit / declared unit: 1 kg of fire protection product

Conversion factor for the product is 1 kg per kg

Reference service life: Not applicable

Time representativeness: The LCA is based on production data from 2024 but is deemed to be representative of an average year of production.

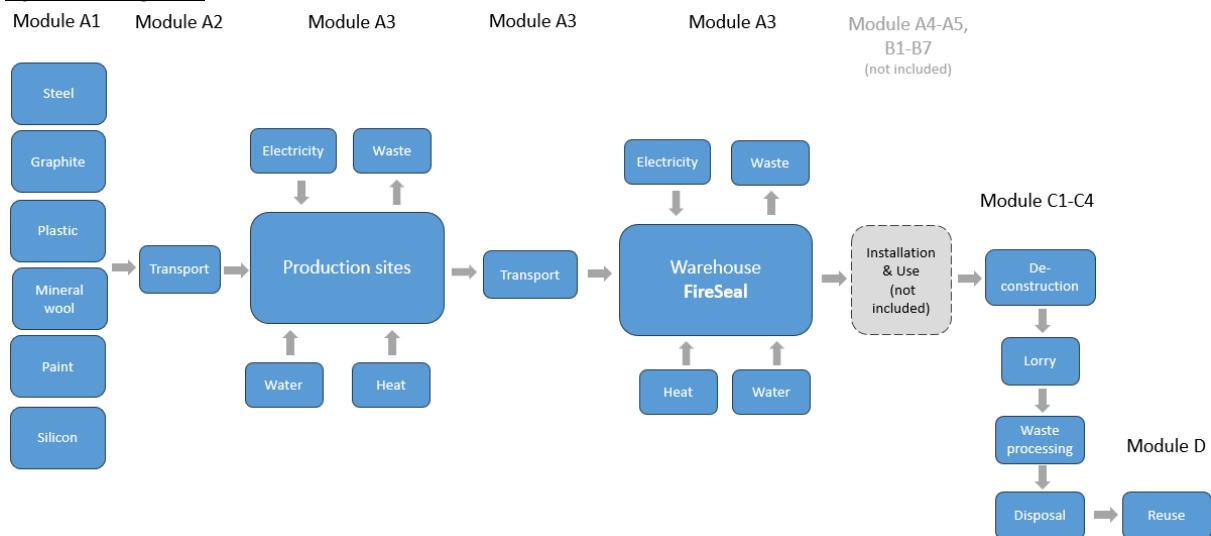
Database(s) and LCA software used: The LCA software is SimaPro Flow version 2.47 and the database is Ecoinvent 3.10. When modelling in Simapro, Ecoinvent data (updated November 2023) has been used for generic data.

Description of system boundaries:

Cradle to gate with options, C1–C4 and module D (A1–A3 + C + D)

Fully pre-verified EPD tool: This EPD is generated by Tyréns EPD-generator 3.1.0 – FireSeal. The tool is verified Marcus Wendin, Miljögiraff AB.

System diagram:



Production

Production is split between 8 producers across Europe and Asia.

The raw materials in the products from FireSeal varies from product to product, depending on producing company and production site, and include for example:

- Graphite
- Steel
- Sealant of silicone, polymer or acrylic mass
- Mineral wool

-Heat expanding (intumescent) paint

Each producer have their own production site, raw material suppliers and production line, and FireSeal AB have no direct control over these factors. Due to confidentiality parts of the production, supplier and logistics chain is undisclosed.

The finished products are transported to a warehouse in Ulricehamn, Sweden, from where FireSeal AB distribute them to retailers.

More information:

LCA practitioners: Johan Albihn and Ida Adolfsson at Tyréns Sverige AB

This EPD is generated with a fully pre-verified EPD tool. All processes are fixed and variable input data for each product governed by a menu. The results of the EPD is checked for plausibility. The review of the EPD-generator its constituent processes and the fixed content of the EPD is accepted based on the verification of the tool and the first EPD verification by the tool. Identification name and version number of the EPD-generator: EPD-generator 3.1.0 – FireSeal.

Results for the additional impact categories particulate matter, ionising radiation, ecotoxicity (freshwater), human toxicity (cancer), human toxicity (non-cancer) and land use is not declared.

EN 15804 reference package based on EF 3.1 has been used.

Electricity data

The electricity mix for each production facility, as well as the warehouse, has been modelled using the residual or market group mix for the respective country.

Climate impact for the residual energy mix used in the warehouse (Ulricehamn, Sweden) are 0.0696 kgCO₂eq. per kWh (GWP-GHG).

Estimates and assumptions

- The electricity mix (A3) is assumed to be residual for factories not using a single EPD as input data, due to the origin being unknown or confidential.
- The dismantling of the product in C1, is allocated to demolition of the building.
- 95% of plastic is assumed to be energy recovered, C3.
- 95 % of steel is assumed to be material recovery, C3
- 5% of plastic and steel are assumed to end up in a landfill, C4.
- Glass fibre, graphite and mineral wool are assumed to end up in its entirety in landfill, C4.
- Sealants are assumed to be inseparable from the material it's attached to, such as gypsum or steel, and therefore a landfilling scenario has been assumed, C4.
- Energy recovery from municipal waste will be replacing Swedish district heating production and Swedish electricity production in D.

Assumptions are made for the full range of products from FireSeal, and all assumptions are therefore not necessarily relevant for the product in this EPD.

Background data

The data quality of the background data is considered good. The assessment considers all available data from the production process, including all raw materials and auxiliary materials used as well as the energy consumption in relation to available Ecoinvent 3.10 datasets and EPD's.

The infrastructure or capital goods used in the product system for underlying processes are included for upstream and downstream processes, as infrastructure or capital goods can NOT be excluded in SimaPro FLOW. Therefore results of the impact categories abiotic depletion of minerals and metals, 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. For core module infrastructure or capital goods are excluded.

Data quality

When modeling in Simapro, Ecoinvent data (updated 2023) has been used for secondary data. The database is considered to be of high quality. For the majority of material supplier's product specific and third party verified EPD's has been used. The EPD's used is of high quality.

Input data are 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 and EPD's from some of the suppliers are primary data. Primary data are collected directly from supplier and production site.

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 one or several EPDs that are used as data source lack information on the share of primary data used.

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.

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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	GLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	SE	SE	SE	SE	SE
Primary data used	29% *			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-

*See data quality

Calculation of primary data used for module A1-A3

Process	Source type and 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 production data (producers and EPD owner) & Electricity data from Ecoinvent v 3.10	2024 (2021*)	Primary data	12%
Transport of materials & packaging to manufacturing site	Databases Ecoinvent v3.10	2024 (2021*)	Primary data	<1%
Production of ingoing materials and packaging	EPDs (Confidential) & Databases Ecoinvent v3.10	< 5 years old	Primary data, secondary data	17%
Total share of primary data, of GWP-GHG results for A1-A3				29%

* Reference year for referenced manufacturer EPD

Content Declaration

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight % and kg C/declared unit
Natural Resin*	0.12	0.00 %	0.00 %
Synthetic Polymer*	0.20	0.00 %	0.00 %
Water*	0.24	0.00 %	0.00 %
Mineral Filler*	0.20	0.00 %	0.00 %
Additives*	0.07	0.00 %	0.00 %
Pigment*	0.17	0.00 %	0.00 %
TOTAL	1.00	0.00 %	0.00 %
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/declared unit
Cardboard	0.01	1.50 %	<0.01
TOTAL	0.01	1.50 %	<0.01
Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
-	-	-	0.00

* Based on ranges given in referenced manufacturer EPD

Environmental Information

LCA results of the product- main environmental performance results

Mandatory impact category indicators according to EN 15804

Results per 1 kg of fire protection product							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	2.35E+00	3.97E-04	1.55E-02	0.00E+00	3.36E-03	0.00E+00
GWP-biogenic	kg CO ₂ eq.	0.00E+00	4.34E-08	1.06E-05	0.00E+00	7.43E-06	0.00E+00
GWP-luluc	kg CO ₂ eq.	1.16E-03	3.45E-08	5.06E-06	0.00E+00	3.40E-07	0.00E+00
GWP-total	kg CO ₂ eq.	2.28E+00	3.97E-04	1.55E-02	0.00E+00	3.37E-03	0.00E+00
ODP	kg CFC 11 eq.	3.16E-09	6.07E-12	3.08E-10	0.00E+00	5.17E-11	0.00E+00
AP	mol H ⁺ eq.	9.66E-03	3.58E-06	4.84E-05	0.00E+00	2.98E-05	0.00E+00
EP-freshwater	kg P eq.	5.43E-05	1.16E-08	1.03E-06	0.00E+00	9.90E-08	0.00E+00
EP-marine	kg N eq.	1.89E-03	1.66E-06	1.63E-05	0.00E+00	1.38E-05	0.00E+00
EP-terrestrial	mol N eq.	2.14E-02	1.82E-05	1.78E-04	0.00E+00	1.51E-04	0.00E+00
POCP	kg NMVOC eq.	6.95E-03	5.42E-06	7.59E-05	0.00E+00	4.52E-05	0.00E+00
ADP-minerals&metal S*	kg Sb eq.	1.27E-06	1.42E-10	4.95E-08	0.00E+00	1.35E-09	0.00E+00
ADP-fossil*	MJ	4.61E+01	2.10E-04	1.78E-02	0.00E+00	1.82E-03	0.00E+00
WDP*	m ³	1.24E-01	1.52E-05	1.21E-03	0.00E+00	1.38E-04	0.00E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption						

Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C. 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.

**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 1 kg of fire protection product							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ eq.	2.35E+00	3.97E-04	1.55E-02	0.00E+00	3.36E-03	0.00E+00

Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C. 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.

Resource use indicators

Results per 1 kg of fire protection product							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	7.34E+00	3.19E-05	3.69E-03	0.00E+00	1.13E-03	0.00E+00
PERM*	MJ	2.99E-01	0.00E+00	0.00E+00	0.00E+00	-5.85E-01	0.00E+00
PERT	MJ	7.63E+00	3.19E-05	3.69E-03	0.00E+00	-5.84E-01	0.00E+00
PENRE	MJ	3.11E+01	2.20E-04	1.86E-02	0.00E+00	1.91E-03	0.00E+00
PENRM*	MJ.	1.29E+01	0.00E+00	0.00E+00	0.00E+00	-1.80E+01	0.00E+00
PENRT	MJ	4.40E+01	2.20E-04	1.86E-02	0.00E+00	-1.80E+01	0.00E+00
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	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
FW	m ³	1.88E-02	6.20E-07	4.37E-05	0.00E+00	5.50E-06	0.00E+00
Acronyms		PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water					

Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C.

**For the PERM and PENRM the new "GUIDANCE TO CALCULATING THE PRIMARY ENERGY USE INDICATORS" in Annex 3 of the PCR is followed and calculated according to option A.*

¹ The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Waste indicators

Results per 1 kg of fire protection product							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	2.75E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radioactive waste disposed	kg	1.09E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C

Output flow indicators

Results per 1 kg of fire protection product							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	2.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	7.33E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	5.34E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	1.79E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C

Additional information

ID: EPD Calculation FireSeal 03-07-2025 11:14

Calculations has been made for the materials that have a mixed disposal scenario, such as 95% incineration and 5% landfilling, and what the results in GWP-GHG [kg CO₂ eq./kg] would be should one scenario be chosen for the entirety of the disposal. The comparison can be seen in the table below. The table can then be used together with the product content declaration to construct custom End-of-Life scenarios for different products.

Material	C1 [kg CO ₂ eq./kg material]	C2 [kg CO ₂ eq./kg material]	C3 [kg CO ₂ eq./kg material]	C4 [kg CO ₂ eq./kg material]	Comment
Steel					
-Material recycling 100%	4.0E-04	1.5E-02	2.6E-02	0	
-Landfill 100%	4.0E-04	1.5E-02	0	3E-03	
Plastic					
- Incineration 100 %	4.0E-04	2.5E-02	2.4E+00	0	
- Landfill 100 %	4.0E-04	1.5E-02	0	3E-03	

Scenarios are made for the full range of products from FireSeal, and all scenarios are therefore not necessarily relevant for the product in this EPD.

Version history

Original Version of the EPD, 2025-06-26

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
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
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	
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
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
CO ₂ eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO ₂ eq.	Kilograms of Carbon Dioxide Equivalent
ND	Not Declared

References

DBC, EFCC, FEICA, IVK (2022). Dispersion-based products, group 2 (EPD-DBC-20220147-IBF1-EN). Institut Bauen und Umwelt e.V. (IBU).

Ecoinvent (2023), *Ecoinvent 3.10*, available database in SimaPro version 9.4.0.2 Multi User, <https://support.ecoinvent.org/ecoinvent-version-3.10> [Referenced: 2025-04-10]

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EPD International (2025). PCR 2019:14 Construction products (EN 15804:A2). Version 2.0.1. www.environdec.com.

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