

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Sto-Soft Fibre Board M 046



Owner of the declaration:

Sto SE & Co. KGaA

Product:

Sto-Soft Fibre Board M 046

Declared unit:

1 m²

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR.

NPCR 012:2022 Part B for Thermal insulation products

Program operator:

EPD-Global

Declaration number:

NEPD-17288-21693

Issue date:

19.08.2026

Valid to:

19.08.2031

EPD software:

LCAno EPD generator ID: 1671844

General information

Product

Sto-Soft Fibre Board M 046

Program operator:

EPD-Global
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-global.com

Declaration number:

NEPD-17288-21693

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR.
NPCR 012:2022 Part B for Thermal insulation products

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD-Global shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Declared unit:

1 m² Sto-Soft Fibre Board M 046

Declared unit with option:

A1-A3, A4, A5, C1, C2, C3, C4, D

Functional unit:

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Global's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Global, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Global's General Programme Instructions for further information on EPD tools

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPD-Global's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Elisabet Amat, GREENIZE projects

(no signature required)

Owner of the declaration:

Sto SE & Co. KGaA
Contact person: Linus Kaltenbach
Phone: +49 7744571010
e-mail: l.kaltenbach@sto.com

Manufacturer:

Sto SE & Co. KGaA
Ehrenbachstraße 1
79780 Stühlingen, Germany

Place of production:

Weizen
Ehrenbachstraße 1
79780 Stühlingen, Germany

Management system:

ISO 14001; ISO 50001; ISO 9001

Organisation no:

DE142834082

Issue date:

19.08.2026

Valid to:

19.08.2031

Year of study:

2024

Comparability:

EPDs of construction products may not be comparable if they do not comply with EN 15804 and are not viewed in a building context.

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD-Global. NEPDT143

Developer of EPD: Linus Kaltenbach

Reviewer of company-specific input data and EPD: Angelica Hultin

Approved:



Håkon Hauan, CEO EPD-Global

Product

Product description:

Sto-Soft Fibre Board M 046 is an insulation board made of soft wood fibre in accordance with EN 13171.

It can be used as insulation board

- in the external wall insulation system StoTherm Wood
- for timber frame construction
- onto mineral, solid substrates (masonry and concrete).

The product can be applied manually or with machinery in accordance with the Technical Data Sheet.

Sto-Soft Fibre Board M 046 is also sold under the product variation:

Sto-Soft Fibre Board M 046 Tongue and Groove

Sto-Soft Fibre Board M 046 Tongue and Groove RC

Sto-Soft Fibre Board M 046 SO

The declared unit is 8.1. kg/m², with a design thermal conductivity λ_D : 0.045 W/(m*K) and a bulk density of 180 kg/m³. Hence the R-value is equal to 1. The result for the individual environmental indicators can be scaled linearly on basis of weight to cover different thicknesses. This EPD calculates a worst case scenario for the product, based on verified supplier data from various production plants.

Product specification

Materials	Value	Unit
Wood	< 90	%
Adhesive	= < 10	%
Polymer	= < 10	%

Technical data:

The technical data stated here is relevant for the use of the declared product. Further information regarding the technical properties can be found on the Technical Data Sheet on www.sto.de or the country specific product page, for example:

<https://www.sto.de/s/p/a1F2p0000NwG5mEAF/stosoft-fibre-board-m-046>

Criterion	Standard / test specification	Value/ Unit
Water vapour diffusion equivalent air layer thickness μ	EN 12086	3
Water absorption	EN 1609	< 1 kg/m ²
Reaction to fire	EN 13501-1	E
Design thermal conductivity λ_D	W/(m*K)	0.045

Market:

Europe

Reference service life, product

The service life of Sto-Soft Fibre Boards is 50 years or longer in accordance with the BBSR table "Service lives of components for life cycle assessment" according to BNB.

A reference service life (RSL) in accordance with ISO 15686-1,-2,-7, and -8 is not declared.

Reference service life, building or construction works

Not relevant

LCA: Calculation rules

Declared unit:

1 m² Sto-Soft Fibre Board M 046

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804+A2. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

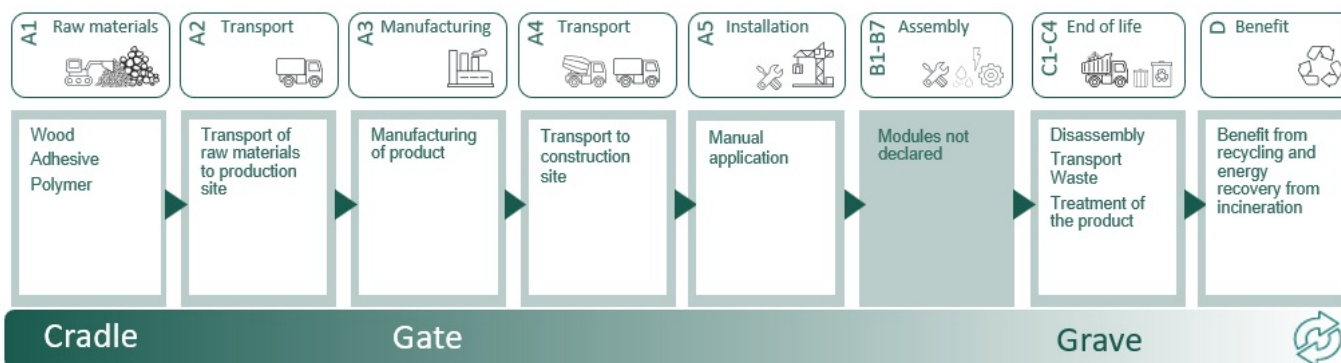
Materials	Source	Data quality	Year
Insulation	Supplier	EPD	2026

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Construction installation stage		Use stage								End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use		De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery- Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7		C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND		X	X	X	X	X

System boundary:

The scope of this EPD is cradle to gate with options, modules C1-C4 and module D. No actions are necessary during User stage.



Additional technical information:

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

A4 (Transport to market/building site): Since the distance to the construction site can vary strongly, a distance of 500 km is used to allow simple scaling for individual projects.

A5 (Installation): The product is applied according to the specification in the Technical Data Sheet at the construction site. The application process is done manually. Waste from the product itself is omitted, due to the high variability if cut to size.

C1 (De-construction, demolition): It is assumed that insulation material is dismantled manually.

C2 (Transport end of life): This stage includes the transportation effects of demolished waste to a waste processing area. The distance between the demolishing area and a waste processing area is assumed to be quite short (less than 100 km). The distance varies depending on the type of waste processing.

C3, C4 (Waste processing): The End of life scenario is incineration. The generated energy is declared in Module D.

D (Environmental costs and benefits of recycling and reuse): Energy credit related to energy recovery from the incineration is included in module D.

Stages not included:

B1-B7: Once installation is complete, no actions or technical operations are required during the use stage until the end of life stage.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (kgkm)	36.7 %	500.00	0.043	l/tkm	21.50
Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (kgkm)	36.7 %	100.00	0.043	l/tkm	4.30
Waste processing (C3)	Unit	Value			
Waste treatment per kg Wood, from incineration (kg)	kg	8.10			
Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of Wood, process per kg ashes and residues (kg)	kg	0.09317			
Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of electricity (MJ)	MJ	5.63			
Substitution of thermal energy, district heating (MJ)	MJ	85.22			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact										
Indicator		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	GWP-total	kg CO ₂ -eq	-7.73E+00	6.62E-01	0	0	1.32E-01	1.38E+01	4.00E-03	-5.12E-01
	GWP-fossil	kg CO ₂ -eq	6.24E+00	6.62E-01	0	0	1.32E-01	9.92E-02	4.00E-03	-4.94E-01
	GWP-biogenic	kg CO ₂ -eq	-1.40E+01	2.74E-04	0	0	5.48E-05	1.37E+01	2.17E-06	-1.02E-03
	GWP-luluc	kg CO ₂ -eq	3.31E-02	2.35E-04	0	0	4.71E-05	1.51E-05	6.46E-07	-1.70E-02
	ODP	kg CFC11 -eq	2.54E-07	1.50E-07	0	0	3.00E-08	8.27E-09	4.75E-10	-3.60E-02
	AP	mol H ⁺ -eq	3.35E-02	1.90E-03	0	0	3.80E-04	1.27E-03	1.49E-05	-4.07E-03
	EP-FreshWater	kg P -eq	1.67E-03	5.29E-06	0	0	1.06E-06	1.66E-06	5.33E-08	-4.39E-05
	EP-Marine	kg N -eq	8.99E-03	3.76E-04	0	0	7.52E-05	6.08E-04	4.71E-06	-1.33E-03
	EP-Terrestrial	mol N -eq	9.52E-02	4.21E-03	0	0	8.42E-04	6.46E-03	5.35E-05	-1.44E-02
	POCP	kg NMVOC -eq	3.89E-02	1.61E-03	0	0	3.22E-04	1.58E-03	1.48E-05	-3.97E-03
	ADP-minerals&metals ¹	kg Sb-eq	5.96E-05	1.83E-05	0	0	3.65E-06	4.01E-07	2.50E-08	-4.91E-06
	ADP-fossil ¹	MJ	1.02E+02	1.00E+01	0	0	2.00E+00	7.91E-01	3.95E-02	-7.07E+00
	WDP ¹	m ³	3.98E+00	9.67E+00	0	0	1.93E+00	1.92E+00	3.66E-01	-8.80E+01

GWP-total = Global Warming Potential total; 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

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Remarks to environmental impacts

Not relevant

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
 PM	Disease incidence	1.28E-06	4.05E-08	0	0	8.10E-09	1.32E-08	1.94E-10	-2.47E-07
 IRP ²	kgBq U235 -eq	3.01E-01	4.37E-02	0	0	8.74E-03	1.54E-03	1.84E-04	-4.51E-02
 ETP-fw ¹	CTUe	2.12E+02	7.41E+00	0	0	1.48E+00	1.58E+00	6.62E-02	-3.84E+01
 HTP-c ¹	CTUh	3.27E-07	0.00E+00	0	0	0.00E+00	2.84E-10	3.00E-12	-7.04E-10
 HTP-nc ¹	CTUh	8.73E-08	8.10E-09	0	0	1.62E-09	1.40E-08	1.19E-10	-3.68E-08
 SQP ¹	dimensionless	4.94E+02	7.00E+00	0	0	1.40E+00	1.17E-01	1.25E-01	-4.72E+01

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
2. 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.

Resource use										
Indicator		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	PERE	MJ	1.12E+02	1.43E-01	0	0	2.86E-02	2.61E-02	2.10E-03	-4.36E+01
	PERM	MJ	1.05E+02	0.00E+00	0	0	0.00E+00	-1.05E+02	0.00E+00	0.00E+00
	PERT	MJ	2.17E+02	1.43E-01	0	0	2.86E-02	-1.05E+02	2.10E-03	-4.36E+01
	PENRE	MJ	8.30E+01	1.00E+01	0	0	2.00E+00	7.91E-01	3.95E-02	-7.06E+00
	PENRM	MJ	1.82E+01	0.00E+00	0	0	0.00E+00	-1.82E+01	0.00E+00	0.00E+00
	PENRT	MJ	1.01E+02	1.00E+01	0	0	2.00E+00	-1.74E+01	3.95E-02	-7.06E+00
	SM	kg	0.00E+00	0.00E+00	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	2.60E+01	5.12E-03	0	0	1.02E-03	6.09E-04	5.23E-05	-7.64E-03
	NRSF	MJ	4.61E-03	1.83E-02	0	0	3.66E-03	0.00E+00	2.87E-02	-2.59E+00
	FW	m ³	4.85E-02	1.07E-03	0	0	2.14E-04	1.65E-03	3.62E-05	-5.26E-02

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 materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

End of life - Waste										
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D	
 HWD	kg	1.23E-02	5.16E-04	0	0	1.03E-04	0.00E+00	6.76E-02	-3.32E-04	
 NHWD	kg	9.79E-01	4.86E-01	0	0	9.73E-02	0.00E+00	2.55E-02	-1.67E-01	
 RWD	kg	1.87E-05	6.81E-05	0	0	1.36E-05	0.00E+00	1.95E-07	-3.70E-05	

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9.0 E-03 = $9.0 \cdot 10^{-3}$ = 0.009"

End of life - Output flow										
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D	
 CRU	kg	0.00E+00	0.00E+00	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
 MFR	kg	0.00E+00	0.00E+00	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
 MER	kg	0.00E+00	0.00E+00	0	0	0.00E+00	8.10E+00	0.00E+00	0.00E+00	
 EEE	MJ	0.00E+00	0.00E+00	0	0	0.00E+00	5.63E+00	0.00E+00	0.00E+00	
 EET	MJ	0.00E+00	0.00E+00	0	0	0.00E+00	8.52E+01	0.00E+00	0.00E+00	

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9.0 E-03 = $9.0 \cdot 10^{-3}$ = 0.009"

Biogenic Carbon Content		
Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	3.74E+00
Biogenic carbon content in accompanying packaging	kg C	0.00E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

Not relevant

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	6.29E+00	6.62E-01	0	0	1.32E-01	1.00E-01	4.15E-03	-5.05E-01

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Bibliography

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NPCR Part A: Construction products and services. Ver. 2.0. April 2021, EPD-Norge.

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