epd-norge
Global program operatør

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Flammotect-A

FLAMRO®

The Norwegian EPD Foundation

Owner of the declaration:
Flamro Brandschutz-Systeme GmbH

Product:
Flammotect-A

Declared unit:
1 kg

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
IBU PCR Part B for coatings with organic binders

Program operator:
The Norwegian EPD Foundation

Declaration number:
NEPD-11061-9977

Registration number:
NEPD-11061-9977

Issue date:
15.05.2025

Valid to:
15.05.2030

EPD software:
LCAno EPD generator ID: 799340

General information

Product

Flammotect-A

Owner of the declaration:

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Contact person:
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Program operator:

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Manufacturer:

Flamro Brandschutz-Systeme GmbH

Declaration number:

NEPD-11061-9977

Place of production:

Flamro Brandschutz-Systeme GmbH
Am Sportplatz 2
56291 Leiningen, Germany

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
IBU PCR Part B for coatings with organic binders

Management system:

ISO 9001 : 2015

Statement of liability:

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

Organisation no:

Declared unit:

1 kg Flammotect-A

Issue date:

15.05.2025

Declared unit with option:

A1, A2, A3, A4

Valid to:

15.05.2030

Year of study:

2024

Functional unit:

Not Relevant.

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

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-Norway'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-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

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 Norway. Company verification tool # : NEPDT80

Developer of EPD: Dr. Poorya Zargaran

Reviewer of company-specific input data and EPD: Dr. Oliver Fastje

Verification of EPD tool:

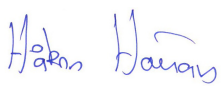
Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Elisabet Amat, GREENIZE projects

(no signature required)

Approved:



Håkon Hauan, CEO EPD-Norge

Product

Product description:

FLAMMOTECT-A is a weather-resistant (use category X), ablative fire protection coating available in three viscosities: paint, solid emulsion and filler. The product is suitable for fire-resistant coating of penetration sealing systems, cables, cable systems, and fire protection joints.
For more information use our website: https://flamro.com/eu/fire-protection-coatings/flammotect-a/

Product specification

FLAMMOTECT-A is an ideal choice for applications requiring a thin dry film coating. When exposed to fire, it undergoes a significant endothermic reaction, forming a protective, microporous carbon layer. This material is engineered for use in various passive fire protection applications within structural and industrial settings. It is particularly effective for protective cable coatings, sealing cable and pipe penetrations, and large-surface bonding on critical substrates. FLAMMOTECT-A is suitable for both indoor use and installation in sheltered outdoor areas.

Within the EU and EFTA, the product falls under the scope of Directive (EU) No. 305/2011 (CPR) for market placement. Compliance with this directive requires a Declaration of Performance in accordance with the relevant European Technical Assessments (ETAs), including ETA 22/0052 for the systems and ETA 18/0237 for linear joint and gap sealing in building components, along with the appropriate CE marking.

The manufacture of FLAMMOTECT-A is optimized for efficiency and continuous improvement, certified to ISO 9001. Preliminary products undergo incoming inspection before use. Each batch is subject to internal quality control to ensure compliance with paint and fire protection standards, supplemented by regular external monitoring. Raw materials are stored securely to prevent environmental release. Worker safety is prioritized with minimal direct contact with raw materials, protective clothing, dust masks, and adequate extraction systems. Waste is sorted, stored, and returned to the recycling process wherever possible.

Flammotect-A is a medium-viscosity coating available in 310 ml cartridges and plastic containers ranging from 5 to 25 kg.

The following waste codes should be taken into account: 08 01 19* – aqueous suspensions containing paint or varnish with organic solvents or other hazardous substances. For additional information, please refer to the product's Safety Data Sheet.

100% of the known ingredients of the product have been considered in the environmental footprint calculation.

Materials	Value	Unit
Titanium dioxide	>= 3 - < 5	wt.%
Preservative	< 0.0015	wt.%
Polymer dispersion	45 - 60	wt.%
Aluminium hydroxide	20 - 40	wt.%
Silicate fibres	< 5	wt.%
Dispersing agents	< 1	wt%

Technical data:

Flammotec-A does not contain hazardous substances exceeding the limit values set by (EC) No 1272/2008 on the classification, labeling, and packaging of substances and mixtures (CLP Regulation), which results in the product being label-free. For more information, please refer to the product's Safety Data Sheet.

Some of the physical and chemical properties of the product are as follows:

Name	Value	Unit
Density	1.34 - 1.48	g/cm3
Viscosity / dynamic	6000 – 40000	mPa·s
Boiling point or initial boiling point	~ 100	°C
pH Value	7.0 - 7.8	

Market:

Europe

Reference service life, product

Flammotect-A has a minimum service life of 10 years when used as intended (MPA Braunschweig test certificate).
It has been used for over 25 years for fire protection on cables, trays, and soft seals, with no expected loss of function during operation. Proper handling and regular inspections are essential for longevity. This information is for guidance only and does not constitute a manufacturer’s guarantee.

Reference service life, building or construction works

Not Relevant.

LCA: Calculation rules

Declared unit:

1 kg Flammotect-A

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. 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.

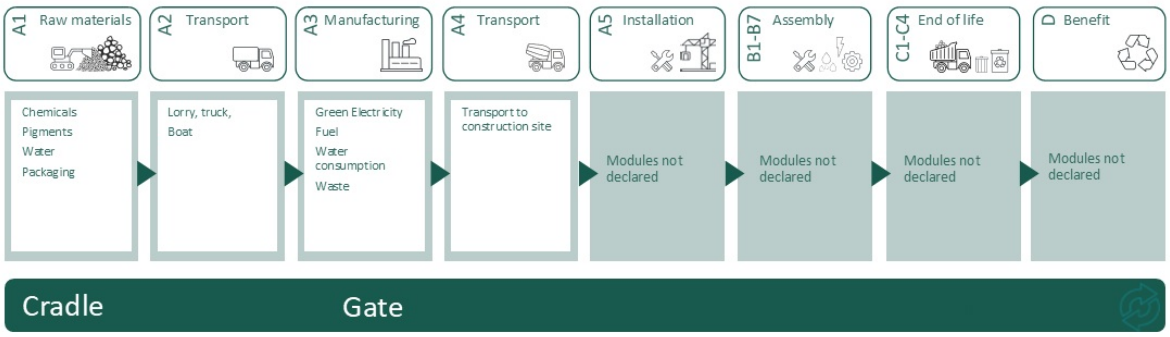
Materials	Source	Data quality	Year
Additives	ecoinvent 3.6	Database	2019
Chemical	ecoinvent 3.6	Database	2019
Pigments	ecoinvent 3.6	Database	2019
Plastic - Ethylene vinyl acetate (EVA)	Ecoinvent 3.6	Database	2019
Water	ecoinvent 3.6	Database	2019

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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

System boundary:

The Construction Installation Stage, Use Stage, End of Life Stage, and Beyond System Boundaries have not been considered for the product, as these stages typically involve no related actions.



Additional technical information:

LCA: Scenarios and additional technical information

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

A4 : Average distance (500 km) to customers in Europe.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, HVO, EURO 6 (km) - Europe	36,7 %	500	0,043	l/tkm	21,50

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	A2	A3	A4
	GWP-total	kg CO_2 -eq	1,55E+00	3,44E-02	5,66E-02	2,02E-02
	GWP-fossil	kg CO_2 -eq	1,55E+00	3,44E-02	5,56E-02	2,02E-02
	GWP-biogenic	kg CO_2 -eq	4,41E-03	1,45E-05	9,86E-04	3,42E-05
	GWP-luluc	kg CO_2 -eq	1,49E-03	1,29E-05	5,78E-05	3,14E-05
	ODP	kg CFC11 -eq	1,38E-07	7,82E-09	4,19E-09	4,16E-09
	AP	mol H+ -eq	6,77E-03	2,22E-04	2,27E-04	1,41E-04
	EP-FreshWater	kg P -eq	2,46E-04	2,79E-07	6,21E-06	7,40E-07
	EP-Marine	kg N -eq	1,24E-03	6,94E-05	6,70E-05	3,74E-05
	EP-Terrestial	mol N -eq	1,37E-02	7,67E-04	7,94E-04	4,18E-04
	POCP	kg NMVOC -eq	5,19E-03	2,21E-04	1,97E-04	1,53E-04
	ADP-minerals&metals[1]	kg Sb-eq	2,03E-05	8,65E-07	3,67E-07	2,45E-06
	ADP-fossil[1]	MJ	3,83E+01	5,24E-01	6,96E-01	4,27E-01
	WDP[1]	m^3	5,56E+01	4,73E-01	5,50E+00	1,26E+00

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"
*INA Indicator Not Assessed

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

The dominance analysis reveals that most environmental impacts and indicators originate from information module A1. Approximately 94% of the Global Warming Potential (GWP) is attributed to material provision in this module, relative to all other information modules.

Additional environmental impact indicators						
Indicator		Unit	A1	A2	A3	A4
	PM	Disease incidence	5,20E-08	2,78E-09	3,29E-09	4,68E-09
	IRP[2]	kgBq U235 -eq	5,22E-02	2,29E-03	2,35E-03	1,39E-03
	ETP-fw[1]	CTUe	2,64E+01	3,90E-01	6,84E-01	6,23E-01
	HTP-c[1]	CTUh	2,38E-09	0,00E+00	2,30E-11	0,00E+00
	HTP-nc[1]	CTUh	4,64E-08	4,96E-10	6,02E-10	1,04E-09
	SQP[1]	dimensionless	4,11E+00	4,32E-01	1,82E-01	7,96E-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"
*INA Indicator Not Assessed

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	A2	A3	A4
	PERE	MJ	1,18E+00	7,34E-03	1,05E-01	1,93E-02
	PERM	MJ	6,80E-03	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	1,19E+00	7,34E-03	1,05E-01	1,93E-02
	PENRE	MJ	2,08E+01	5,24E-01	6,96E-01	4,27E-01
	PENRM	MJ	1,84E+01	0,00E+00	0,00E+00	0,00E+00
	PENRT	MJ	3,92E+01	5,24E-01	6,96E-01	4,27E-01
	SM	kg	1,58E-03	0,00E+00	0,00E+00	0,00E+00
	RSF	MJ	5,47E-02	2,57E-04	3,03E-02	6,28E-04
	NRSF	MJ	8,85E-03	9,57E-04	1,21E-03	2,17E-03
	FW	m^3	2,22E-02	5,82E-05	1,85E-04	1,75E-04

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"
*INA Indicator Not Assessed

End of life - Waste

Indicator		Unit	A1	A2	A3	A4
	HWD	kg	3,36E-03	2,87E-05	5,10E-03	5,99E-05
	NHWD	kg	3,64E-01	3,12E-02	4,11E-03	6,35E-02
	RWD	kg	5,10E-05	3,56E-06	3,20E-06	1,71E-06

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

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Output flow

Indicator		Unit	A1	A2	A3	A4
	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0,00E+00	0,00E+00	2,07E-03	0,00E+00
	MER	kg	0,00E+00	0,00E+00	4,57E-03	0,00E+00
	EEE	MJ	0,00E+00	0,00E+00	1,60E-03	0,00E+00
	EET	MJ	0,00E+00	0,00E+00	2,43E-02	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*10-3 = 0,009"
*INA Indicator Not Assessed

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0,00E+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).

Electricity mix	Source	Amount	Unit
Electricity, Germany (kWh)	ecoinvent 3.6	585,93	g CO2-eq/kWh

Dangerous substances

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

Indoor environment

The coating is classified as low-emission and is free from solvents, borates, plasticizers, halogens, formaldehydes, and alkylphenol ethoxylates (APEO).

Flammotect-A has been classified as VOC emission class A+ based on French regulations concerning the labeling of construction products, wall and floor coverings, paints, and varnishes regarding their emission of volatile pollutants.

Flammotec-A also complies with the health-related evaluation of emissions of volatile organic compounds (VVOC, VOC, and SVOC) from building products established by the German AgBB and meets the VOC requirements of the Italian DM 23 Giugno 2022, n. 254 (GURI n. 183, 6 agosto 2022).

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products					
Indicator	**Unit**	A1	A2	A3	A4
GWPIOBC	kg CO_2 -eq	1,55E+00	3,44E-02	5,86E-02	2,02E-02

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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EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.
ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
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