

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804+A2 

Triflex GmbH & Co. KG
Triflex ProTect



Triflex

Owner of the declaration

Triflex GmbH & Co. KG
Karlstraße 59
32423 Minden
Germany

Product

Triflex ProTect

Declared product / Declared unit

1 kg of applied resin

**This declaration is based on Product
Category Rules**

EN 15804:2012 + A2:2019,
IBU PCR Part B: Requirements on the EPD
for Reaction Resin Products ,
EN 16757:2022 ,
NPCR Part A:2021

Program operator:

EPD Global
Majorstuen P.O. Box 5250
N-0303 Oslo
Norway

Declaration number

NEPD-10728-10728-2

Registration number

NEPD-10728-10728-2

Issue date

12.12.2025

Valid to

11.12.2030

EPD Software

Emidat Platform v1.0.0

General Information

Product

Triflex ProTect

Program Operator

EPD Global
Majorstuen P.O. Box 5250
N-0303 Oslo
Norway
Phone: +47 23 08 80 00
Email: post@epd-norge.no

Declaration Number

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EN 15804:2012 + A2:2019,
IBU PCR Part B: Requirements on the EPD for Reaction
Resin Products ,
EN 16757:2022 ,
NPCR Part A:2021

Statements

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

Declared unit

1 kg of applied resin

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

Charlotte Merlin, FORCE Technology
(no signature required)

Owner of the declaration

Triflex GmbH & Co. KG

Contact person

triflex@emidat.com

Phone

+49 571 38780627

Email

triflex@emidat.com

Manufacturer

Triflex GmbH & Co. KG
Karlstraße 59
32423 Minden, Germany

Place of production

Minden, Germany

Management system

ISO 14001 , ISO 50001 , ISO 9001

Issue date

12.12.2025

Valid to

11.12.2030

Year of study

2023

Comparability

EPDs of construction products may not be comparable if they do not comply with EN 15804 and are not seen in a building context. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database (including primary and secondary data).

Development and verification of EPD

The declaration was created using the Emidat EPD tool v1.0, developed by Emidat GmbH. The EPD tool has been approved by EPD Global.

Developer of EPD: Besnik Hasani

Reviewer of company-specific input data and EPD: Dr.
Arne Hägerbäumer

Approved

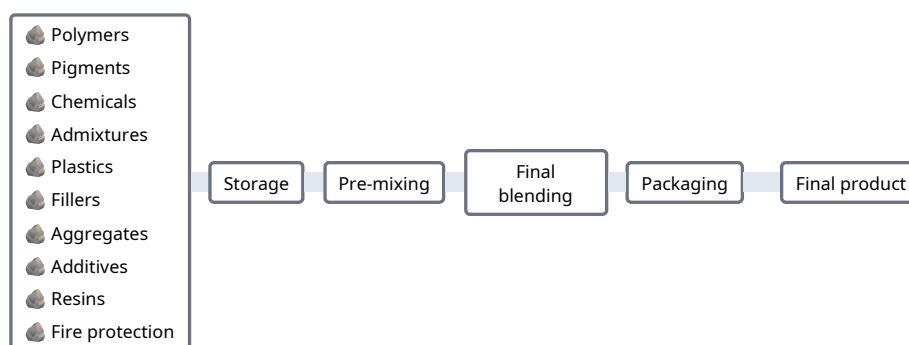


Håkon Hauan, The Norwegian EPD Foundation

Product

Product description

The BBA- and ETA-certified Triflex ProTect waterproofing system based on PMMA is an extremely versatile and, as verified by the KIWA Institute, extremely durable roof waterproofing solution with a service life of 40 years. It is suitable for both renovations and new buildings and is compatible with almost all roof structures and existing substrates, including single-layer roofing membranes.



Even difficult applications such as flat roofs and areas where water accumulates or stands are no problem, as the system does not fail even when submerged in water. This means that, in addition to roof waterproofing, it can also be used in many other areas of application.

It cures exceptionally quickly and is applied completely cold, so installation can be carried out quickly, without hot work and at any time of year. With its long track record and the highest certification and testing standards, Triflex ProTect is one of the leading liquid waterproofing systems and sets the standard in roof waterproofing.

Product specification

Name of ingredient	Share of total weight	Country of origin
Additives	0 - 2 %	Various
Admixtures	2 - 10 %	Various
Aggregates	0 - 2 %	Germany
Chemicals	10 - 25 %	Various
Fillers	0 - 2 %	Germany
Fire protection	25 - 50 %	Various
Pigments	2 - 10 %	Germany
Plastics	10 - 25 %	Germany
Polymers	2 - 10 %	Various
Resins	10 - 25 %	Belgium

Technical data

	Unit	Value
Gross density	kg / m ³	1333
Productiveness	kg / m ²	3

Market

Europe

Recipients

B2B

LCA: Calculation rules

Declared unit

1 kg of applied resin

Reference service life

Not defined

Data quality

The foreground data are based on extensive and detailed data collection at the production site of the manufacturer, covering key processes such as raw material sourcing, formulation, and manufacturing. These foreground data are fully linked with corresponding datasets from the background database (ecoinvent 3.10) or with EN15804+A2-compliant EPDs, ensuring consistency, reliability, and maintaining alignment with the latest industry standards.

The overall data representativeness is rated as good with an overall score of 4.00/5, in accordance with EN 15804+A2 Annex E guidance on data quality assessment, considering geographical, technical, and temporal representativeness.

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

	Production			Installation		Use stage							End-of-Life				Next product system
	Raw material supply	Transport	Manufacturing	Transport	Installation Process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Demolition	Transport	Waste Processing	Disposal	Benefits and loads beyond the system boundary
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	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x
Geography			DE	Europe	Europe	MND	MND	MND	MND	MND	MND	MND	Europe	Europe	Europe	Europe	Europe

For the geographies modeled in A1 and A2, refer to *Product specification*.

Type of EPD: Cradle to gate with options, modules A4-5, C1-C4, and D

Stage of Material Production and Construction

Module A1: Extraction and processing of reaction resin raw materials

Module A2: Transportation of raw material to the reaction resin plant

Module A3: Reaction resin production at the plant and waste treatment

Module A4: Transportation to the construction site

Module A5: Includes all processes associated with the reaction resin installation, as well as the production, transportation, and treatment of unused reaction resin

Disposal Stage

Module C1: Demolition/Dismantling of the building

Module C2: Transportation of mixed construction waste for processing

Module C3: Recycling of reaction resin waste as part of its carrier material. No separation of the reaction resin waste from the carrier material is possible. Concrete is used as the carrier material

Module C4: Final disposal of reaction resin waste in sanitary landfill together with carrier material. No separation of the reaction resin waste from the carrier material is possible. Concrete is used as the carrier material

Credits and burdens outside the system boundaries

Module D: Credits and burdens for the use of production waste in A3 or packaging waste in A5 as a secondary fuel or thermal/electrical energy generation. There are no credits and burdens from the EoL treatment of the reaction resin waste, as it cannot be separated from its carrier material. Concrete is used as the carrier material

Cut-off criteria

No cut-offs were applied.

Allocation

Foreground inventory data (energy and fuels, ancillary materials, emissions and waste) was collected at the production-process level. Using the total output of the production process in 2023, these flows are allocated to the reference product based on mass.

LCA: Scenarios and additional technical information

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

Transport to the building site (A4)	Value	Unit
Transported mass: Product and packaging	1.02	kg
Truck: Distance	600.00	km
Truck: Energy demand	1.58	MJ / t*km
Truck: Activity	transport, freight, lorry >32 metric ton, EURO6	-
Truck: Capacity utilization	53.30	%

Installation into the building (A5)	Value	Unit
Treatment of packaging waste	Incineration	
Installation loss	1.00	%
NMVOC emissions during curing	0.02	kg

Demolition (C1)	Value	Unit
Amount of energy spent by building machines in demolition (Bozdog, 2007)	0.01	kWh / kg

Transport to the waste facility (C2)	Value	Unit
Mass to landfill	0.30	kg
Mass to recycling	0.70	kg
Distance to landfill	50.00	km
Distance to recycling	50.00	km
Truck: Activity	transport, freight, lorry >32 metric ton, EURO6	-
Truck: Capacity utilization	53.30	%
Truck: Distance	50.00	km
Truck: Energy demand	1.58	MJ / t*km

Waste processing (C3)	Value	Unit
Material for recycling	0.70	kg
Recycling rate	70.00	%

Disposal (C4)	Value	Unit
Material for landfill	0.30	kg

Reuse, recovery and/or recycling potentials (D)	Value	Unit
Substitution of electrical energy production	0.02	MJ
Substitution of thermal energy production	0.22	MJ

Calculation of benefits and loads per EN 15804+A2.

LCA: Results

Core environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ -eq.	3.42e+00	6.33e-02	5.93e-02	3.61e-03	5.18e-03	5.07e-03	2.21e-03	-1.86e-02
GWP-fossil	kg CO ₂ -eq.	3.40e+00	6.32e-02	5.92e-02	3.61e-03	5.18e-03	4.29e-03	1.88e-03	-1.84e-02
GWP-biogenic	kg CO ₂ -eq.	1.07e-02	3.17e-05	1.19e-04	3.60e-07	2.60e-06	7.78e-04	3.33e-04	-1.83e-04
GWP-luluc	kg CO ₂ -eq.	2.88e-03	2.24e-05	3.30e-05	3.13e-07	1.84e-06	3.73e-07	9.74e-07	-2.54e-05
ODP	kg CFC-11-Eq	7.83e-08	1.32e-09	1.04e-09	5.52e-11	1.08e-10	6.57e-11	5.42e-11	-7.47e-10
AP	mol H ⁺ -Eq	1.88e-02	1.49e-04	2.17e-04	3.25e-05	1.22e-05	3.87e-05	1.33e-05	-1.51e-05
EP-freshwater	kg P-Eq	6.22e-04	4.45e-06	1.34e-05	1.05e-07	3.64e-07	1.25e-07	1.56e-07	-2.19e-06
EP-marine	kg N-Eq	3.15e-03	3.92e-05	3.90e-05	1.51e-05	3.21e-06	1.80e-05	5.06e-06	-5.36e-06
EP-terrestrial	mol N-Eq	2.79e-02	4.24e-04	3.52e-04	1.65e-04	3.47e-05	1.97e-04	5.53e-05	-5.31e-05
POCP	kg NMVOC-Eq	1.42e-02	2.59e-04	2.27e-02	4.93e-05	2.12e-05	5.87e-05	1.98e-05	-3.25e-05
ADPE	kg Sb-Eq	1.17e-05	1.81e-07	1.90e-07	1.29e-09	1.48e-08	1.54e-09	2.98e-09	-9.29e-09
ADPF	MJ, net calorific value	5.92e+01	9.49e-01	7.23e-01	4.72e-02	7.77e-02	5.61e-02	4.60e-02	-3.01e-01
WDP	m ³ world Eq deprived	1.00e+00	4.77e-03	1.16e-02	1.15e-04	3.90e-04	1.37e-04	1.29e-04	-7.59e-04

GWP-total: Global Warming Potential - total **GWP-fossil:** Global warming potential - fossil **GWP-biogenic:** Global Warming Potential - biogenic **GWP-luluc:** Global Warming Potential - luluc **ODP:** Depletion potential of the stratospheric ozone layer **AP:** Acidification potential, Accumulated Exceedance **EP-freshwater:** Eutrophication potential - freshwater **EP-marine:** Eutrophication potential - marine **EP-terrestrial:** Eutrophication potential - terrestrial **POCP:** Photochemical Ozone Creation Potential **ADPE:** Abiotic depletion potential - non-fossil resources **ADPF:** Abiotic depletion potential - fossil resources **WDP:** Water (user) deprivation potential

Additional indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	disease incidence	1.89e-07	6.16e-09	2.31e-09	9.25e-10	5.04e-10	6.31e-09	3.02e-10	-9.71e-11
IRP	kBq U235-Eq	9.78e-02	1.15e-03	1.58e-03	2.11e-05	9.44e-05	2.51e-05	2.93e-05	-9.02e-04
ETP-fw	CTUe	2.35e+01	2.25e-01	7.98e-01	6.68e-03	1.84e-02	7.95e-03	6.29e-03	-1.92e-02
HTP-c	CTUh	1.72e-08	4.05e-10	2.28e-10	1.41e-11	3.31e-11	1.68e-11	8.48e-12	-2.92e-11
HTP-nc	CTUh	2.02e-07	6.26e-10	3.50e-09	6.40e-12	5.13e-11	7.62e-12	8.26e-12	-3.15e-11
SQP	dimensionless	5.93e+00	9.54e-01	9.56e-02	3.30e-03	7.82e-02	3.93e-03	9.05e-02	-1.25e-02

PM: Potential incidence of disease due to PM 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 - cancer effects **HTP-nc:** Potential Comparative Toxic Unit for humans - non-cancer effects **SQP:** Potential Soil quality index

IRP: 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.

ETP-fw, HTP-c, HTP-nc and SQP: The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with these indicators.

Use of resources

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.56e+00	1.51e-02	2.24e-02	2.89e-04	1.23e-03	3.43e-04	4.26e-04	-9.69e-03
PERM	MJ	6.63e-03	0.00e+00	6.63e-05	0.00e+00	0.00e+00	-4.64e-03	0.00e+00	0.00e+00
PERT	MJ	1.56e+00	1.51e-02	2.25e-02	2.89e-04	1.23e-03	-4.30e-03	4.26e-04	-9.69e-03
PENRE	MJ	4.53e+01	9.49e-01	5.84e-01	4.72e-02	7.77e-02	5.61e-02	4.60e-02	-3.01e-01
PENRM	MJ	1.39e+01	0.00e+00	1.39e-01	0.00e+00	0.00e+00	-9.71e+00	0.00e+00	0.00e+00
PENRT	MJ	5.92e+01	9.49e-01	7.23e-01	4.72e-02	7.77e-02	-9.66e+00	4.60e-02	-3.01e-01
SM	kg	0.00e+00	0.00e+00	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	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	0.00e+00
FW	m³	2.84e-02	1.38e-04	3.32e-04	3.06e-06	1.13e-05	3.65e-06	4.77e-05	-2.26e-05

PERE: Primary energy resources - renewable: use as energy carrier
PERM: Primary energy resources - renewable: used as raw materials
PERT: Primary energy resources - renewable: total
PENRE: Primary energy resources - non-renewable: use as energy carrier
PENRM: Primary energy resources - non-renewable: used as raw materials
PENRT: Primary energy resources - non-renewable: total
SM: Use of secondary material
RSF: Renewable secondary fuels
NRSF: Non-renewable secondary fuels
FW: Net use of fresh water

Waste flows

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	2.70e-03	0.00e+00	2.70e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
NHWD	kg	0.00e+00	0.00e+00	2.76e-02	0.00e+00	0.00e+00	0.00e+00	3.00e-01	0.00e+00
RWD	kg	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00

HWD: Hazardous waste disposed
NHWD: Non hazardous waste disposed
RWD: Radioactive waste disposed

Output flows

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CRU	kg	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
MFR	kg	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	7.00e-01	0.00e+00	0.00e+00
MER	kg	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
EEE	MJ	3.43e-03	0.00e+00	1.27e-02	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
EET	MJ	4.62e-02	0.00e+00	1.72e-01	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00

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

Name	Value	Unit
Biogenic carbon content in product	3.03e-04	kg C
Biogenic carbon content in accompanying packaging	0	kg C

Additional requirements

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

Electricity consumption in the manufacturing phase is composed from the source below certified by Guarantee of Origin . Electricity is represented by data in ecoinvent 3.10 regionalised for Germany.

Electricity	Unit	Value
Hydro	kg CO ₂ -eq. / kWh	0.72

Dangerous substances

The product contains no hazardous substances given by the REACH Candidate List or the Norwegian Priority List.

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
GWP-IOBC	kg CO ₂ -eq.	3.41e+00	6.33e-02	5.92e-02	3.61e-03	5.18e-03	4.29e-03	1.88e-03	-1.84e-02

GWP-IOBC: Global Warming Potential - Instantaneous oxidation of biogenic carbon

Bibliography

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EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
EN 15942:2022-04	Sustainability of construction works - Environmental product declarations - Communication format business-to-business
ISO 14025:2011-10	Environmental labels and declarations - Type III environmental declarations - Principles and procedures
ISO 14040:2021-02	Environmental management - Life cycle assessment - Principles and framework
ISO 14044:2021-02	Environmental management - Life cycle assessment - Requirements and guidelines
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 epd-global Powered by EPD-Norway	Program Operator	Phone	+47 23 08 80 00
	EPD Global	Email	post@epd-norge.no
	P.O. Box 5250 Majorstuen, N-0303 Oslo Norway	Web	www.epd-global.no
 epd-global Powered by EPD-Norway	Publisher	Phone	+47 23 08 80 00
	EPD Global	Email	post@epd-norge.no
	P.O. Box 5250 Majorstuen, N-0303 Oslo Norway	Web	www.epd-global.no
	Owner of the declaration	Phone	+49 571 38780627
	Triflex GmbH & Co. KG	Email	triflex@emidat.com
	Karlstraße 59, 32423 Minden Germany	Web	none
	Author of the life cycle assesment	Phone	+49 571 38780627
	Triflex GmbH & Co. KG	Email	triflex@emidat.com
	Karlstraße 59, 32423 Minden Germany	Web	none
	ECO Platform ECO Portal	Web	www.eco-platform.org
		Web	ECO Portal
 EMIDAT	Developer of EPD generator	Phone	+49 176 56 96 77 91
	Emidat GmbH	Email	epd@emidat.com
	Sandstraße 33, 80335 München Germany	Web	www.emidat.com