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ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804+A2

Triflex GmbH & Co. KG
Triflex SmartTec Fibre

Owner of the declaration
Triflex GmbH & Co. KG
Karlstraße 59
32423 Minden
Germany

Product
Triflex SmartTec Fibre

Declared product / Declared unit
1 kg of applied resin

This declaration is based on Product Category Rules
EN 15804:2012 + A2:2019,
NPCR Part A:2021 ,
IBU PCR Part B: Requirements on the EPD for Reaction Resin Products ,
EN 16757:2022

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

Declaration number
NEPD-10974-10974-2

Registration number
NEPD-10974-10974-2

Issue date
12.02.2026

Valid to
11.02.2031

EPD Software
Emidat Platform v1.0.0

General Information

Product
Triflex SmartTec Fibre

Program Operator
EPD Global
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Norway
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Declaration Number
NEPD-10974-10974-2

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

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 with a reference service life of 25 years

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)

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Place of production
Minden, Germany

Management system
ISO 14001 , ISO 50001 , ISO 9001

Issue date
12.02.2026

Valid to
11.02.2031

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

Triflex SmartTec Fibre is a 1-component liquid applied waterproofing with a polyurethane base. The air humidity-cured product is solvent-free, isocyanate-free, highly elastic, uv-resistant, waterproof, hydrolysis and alkali resistant, fibre-reinforced and low-odour.

Triflex SmartTec Fibre is used for detail waterproofing in areas that are difficult to reach for structural reasons, making it impossible to use a fleece-reinforced waterproofing system.

Product specification

Name of ingredient	Share of total weight	Country of origin
Additives	2 - 10 %	Germany
Admixtures	0 - 2 %	Germany
Chemicals	0 - 2 %	Germany
Fillers	25 - 50 %	Germany
Glass	2 - 10 %	France
Pigments	2 - 10 %	Germany
Polymers	50 - 80 %	Germany

Technical data

	Unit	Value
Gross density	kg / m^3	1200
Productiveness	kg / m^2	3

Market

Europe

Recipients

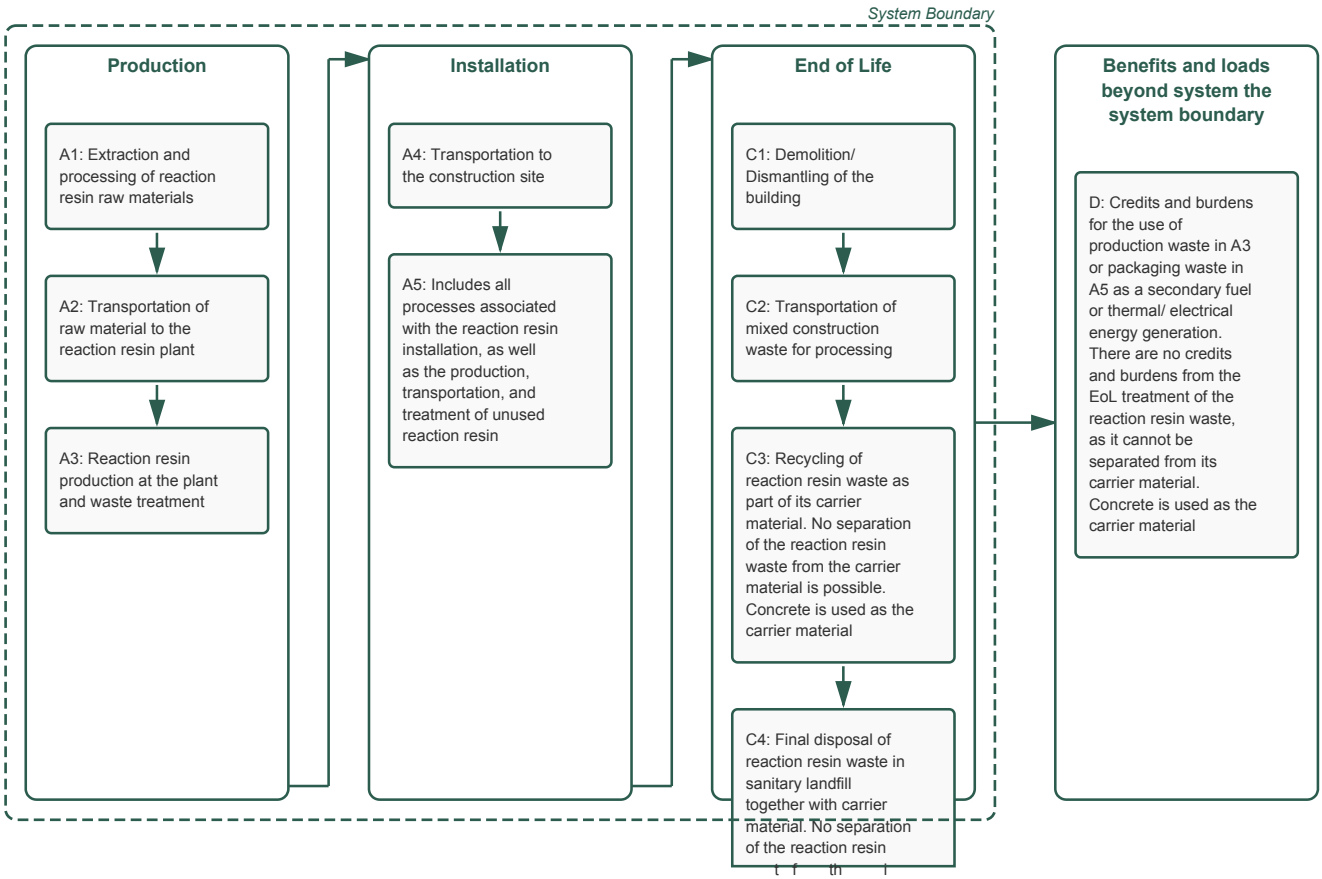
B2B

LCA: Calculation rules

Declared unit
1 kg of applied resin

Reference service life
25 years
This value represents a conventional reference lifespan, not a guaranteed performance duration, and assumes normal exposure conditions, adequate design, and routine maintenance.

System boundary



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.

The following discloses all processes or activities assessed with very poor or poor data representativeness according to EN 15804+A2, as well as those assessed as fair that contribute more than 30 % to any core impact indicator in A1–A3:

Element	Contribution	Indicator	Mininmal Representativeness	Source	Year
Additives	90.0%	ODP	Poor	Ecoinvent 3.10	2023
Polymers	63.4%	ADPE	Poor	Ecoinvent 3.10	2023
Pigments	30.5%	EP-marine	Poor	Ecoinvent 3.10	2023
Polymers	15.8%	ADPE	Poor	Ecoinvent 3.10	2023
Fillers	10.0%	EP-terrestrial	Poor	Ecoinvent 3.10	2023
Polymers	7.2%	GWP-luluc	Poor	Ecoinvent 3.10	2023
Chemicals	3.9%	AP	Poor	Ecoinvent 3.10	2023
Chemicals	3.5%	AP	Poor	Ecoinvent 3.10	2023
Polymers	3.4%	GWP-luluc	Poor	Ecoinvent 3.10	2023
Additives	3.3%	ADPF	Poor	Ecoinvent 3.10	2023
Additives	1.0%	WDP	Poor	Ecoinvent 3.10	2023
Admixtures	0.6%	ADPF	Very poor	Ecoinvent 3.10	2023

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	300.00	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	0.03	kg

Demolition (C1)	Value	Unit
Amount of energy spent by building machines in demolition (Bozdag, 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 recycling	50.00	km
Distance to landfill	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

The following results are based on the market-based electricity approach applied to the foreground system (A3). Further details on electricity data are provided in the Additional Requirements section.

Core environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2-eq.	3.02e+00	3.16e-02	5.50e-02	3.61e-03	5.18e-03	4.29e-03	1.88e-03	-1.77e-02
GWP-fossil	kg CO_2-eq.	3.00e+00	3.16e-02	5.48e-02	3.61e-03	5.18e-03	4.29e-03	1.88e-03	-1.77e-02
GWP-biogenic	kg CO_2-eq.	1.62e-02	1.59e-05	1.62e-04	3.60e-07	2.60e-06	0.00e+00	0.00e+00	-1.41e-05
GWP-luluc	kg CO_2-eq.	5.83e-03	1.12e-05	6.23e-05	3.13e-07	1.84e-06	3.73e-07	9.74e-07	-1.36e-05
ODP	kg CFC-11-Eq	3.79e-06	6.59e-10	3.81e-08	5.52e-11	1.08e-10	6.57e-11	5.42e-11	-7.41e-10
AP	mol H+-Eq	1.71e-02	7.47e-05	2.00e-04	3.25e-05	1.22e-05	3.87e-05	1.33e-05	-1.54e-05
EP-freshwater	kg P-Eq	1.23e-03	2.22e-06	1.95e-05	1.05e-07	3.64e-07	1.25e-07	1.56e-07	-3.96e-07
EP-marine	kg N-Eq	3.99e-03	1.96e-05	4.72e-05	1.51e-05	3.21e-06	1.80e-05	5.06e-06	-5.02e-06
EP-terrestrial	mol N-Eq	2.75e-02	2.12e-04	3.46e-04	1.65e-04	3.47e-05	1.97e-04	5.53e-05	-5.27e-05
POCP	kg NMVOC-Eq	1.30e-02	1.30e-04	2.52e-02	4.93e-05	2.12e-05	5.87e-05	1.98e-05	-3.28e-05
ADPE	kg Sb-Eq	4.95e-05	9.03e-08	5.67e-07	1.29e-09	1.48e-08	1.54e-09	2.98e-09	-8.80e-09
ADPF	MJ, net calorific value	5.93e+01	4.75e-01	7.19e-01	4.72e-02	7.77e-02	5.61e-02	4.60e-02	-2.98e-01
WDP	m^3 world Eq deprived	1.15e+00	2.38e-03	1.31e-02	1.15e-04	3.90e-04	1.37e-04	1.29e-04	-8.95e-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	1.41e-07	3.08e-09	1.80e-09	9.25e-10	5.04e-10	6.31e-09	3.02e-10	-9.70e-11
IRP	kBq U235-Eq	4.07e-01	5.77e-04	4.67e-03	2.11e-05	9.44e-05	2.51e-05	2.93e-05	-1.22e-03
ETP-fw	CTUe	1.95e+02	1.12e-01	2.53e+00	6.68e-03	1.84e-02	7.95e-03	6.29e-03	-1.62e-02
HTP-c	CTUh	2.93e-08	2.02e-10	3.48e-10	1.41e-11	3.31e-11	1.68e-11	8.48e-12	-2.88e-11
HTP-nc	CTUh	3.84e-08	3.13e-10	2.02e-09	6.40e-12	5.13e-11	7.62e-12	8.26e-12	-2.55e-11
SQP	dimensionless	1.29e+01	4.77e-01	1.60e-01	3.30e-03	7.82e-02	3.93e-03	9.05e-02	-7.78e-03

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	4.99e+00	7.53e-03	5.66e-02	2.89e-04	1.23e-03	3.43e-04	4.26e-04	-9.85e-03
PERM	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
PERT	MJ	4.99e+00	7.53e-03	5.66e-02	2.89e-04	1.23e-03	3.43e-04	4.26e-04	-9.85e-03
PENRE	MJ	4.12e+01	4.75e-01	5.38e-01	4.72e-02	7.77e-02	5.61e-02	4.60e-02	-2.98e-01
PENRM	MJ	1.81e+01	0.00e+00	1.81e-01	0.00e+00	0.00e+00	-1.26e+01	0.00e+00	0.00e+00
PENRT	MJ	5.93e+01	4.75e-01	7.19e-01	4.72e-02	7.77e-02	-1.26e+01	4.60e-02	-2.98e-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	m^3	3.16e-02	6.90e-05	3.64e-04	3.06e-06	1.13e-05	3.65e-06	4.77e-05	-2.28e-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	0.00e+00	kg C
Biogenic carbon content in accompanying packaging	0.00e+00	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. This EPD follows the market-based approach.

Electricity	Quantity [kWh]	Emission Factor [kg CO_2e/kWh]
electricity production, hydro, pumped storage (DE)	0.05	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.	3.01e+00	3.16e-02	5.49e-02	3.61e-03	5.18e-03	4.29e-03	1.88e-03	-1.77e-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
EF 3.1	Environmental Footprint (EF) Life Cycle Impact Assessment method - Characterisation Factors version 3.1, European Commission, Joint Research Centre (JRC)
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Kaethner, S. C. & Burridge, J. A., 2012	Embodied CO2 of structural frames, The Structural Engineer, 8.

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