epd-norway
Global Program Operator

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804+A2

Triflex GmbH & Co. KG – Triflex ProDetail

Triflex

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

Product
Triflex ProDetail

Declared product / Declared unit
1 kg of Triflex ProDetail

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 (v3)

Program operator:
EPD Norge

Majorstuen P.O. Box 5250
N 0303 Oslo
Norway

Declaration number
NEPD-9127-8681

Registration number
NEPD-9127-8681

Issue date
13.02.2025

Valid to
13.02.2030

EPD Software
Emidat EPDToolv1.0.0

General Information

Product
Triflex ProDetail

Program Operator
EPD-Norge

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Declaration Number
NEPD-9127-8681

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 (v3)

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

Declared unit
1 kg of Triflex ProDetail

Verification
Independent verification of the declaration and data, according to ISO14025:2010

☐ Internally ☑ Externally

Vito D'Incognito
(Independent verifier approved by EPD Norway)

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Place of production
Minden, Germany

Management system
ISO 14001, ISO 50001, ISO 9001

Issue date
13.02.2025

Valid to
13.02.2030

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 of EPD
The declaration was created using the Emidat EPD tool v1.0, developed by Emidat GmbH.

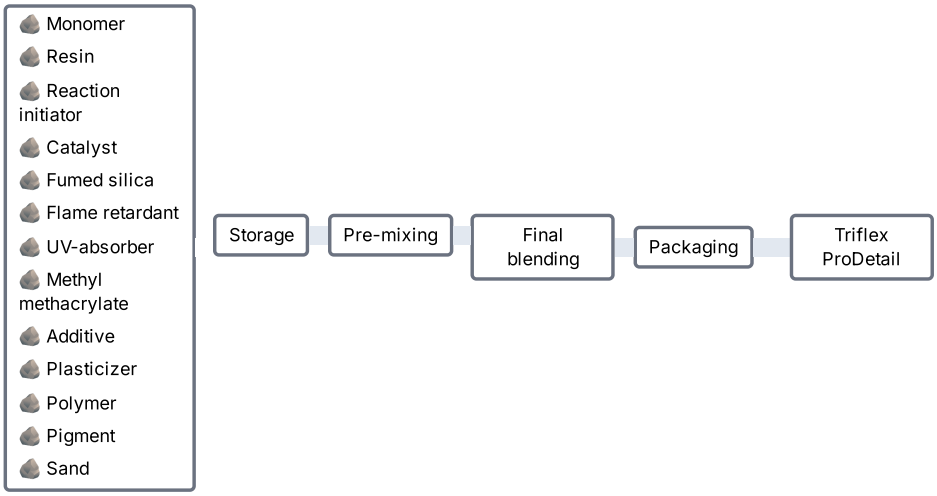
Approved

Håkon Hauan, CEO EPD-Norge

Product

Product description

Waterproofing resins are materials used to create a barrier that prevents the penetration of water and other liquids into surfaces and structures. They are essential in protecting buildings, infrastructure, and various products from water damage, which can lead to deterioration, mold growth, and structural weaknesses.



Waterproofing resins are versatile materials with a wide range of applications across various industries. In the construction sector, they are used to create barriers that protect the structures against water infiltration in foundations and basements, roofing, balconies and terraces, bathrooms and wet areas, as well as in walls and facades.

Product specification

Name of ingredient	Share of total weight	Country of origin
Additive	2 - 10 %	Germany
Additive	0 - 2 %	Belgium
Catalyst	0 - 2 %	Germany
Flame retardant	2 - 10 %	Germany
Flame retardant	25 - 50 %	Netherlands
Fumed silica	0 - 2 %	Germany
Methyl methacrylate	10 - 25 %	United Kingdom
Monomer	10 - 25 %	Germany
Pigment	2 - 10 %	Germany
Plasticizer	2 - 10 %	Germany
Polymer	0 - 2 %	Germany
Reaction initiator	0 - 2 %	Netherlands
Resin	2 - 10 %	United Kingdom
Resin	10 - 25 %	Belgium
Sand	0 - 2 %	Germany
UV-absorber	0 - 2 %	Germany

Technical data

	Unit	Value
Productiveness	kg / m²	3.0
Gross density	kg / m³	1330.0

Market

Germany

Estimated service life

40 years

LCA: Calculation rules

Declared unit
1 kg of Triflex ProDetail

Estimated service life
40 years

Data quality
The Emidat EPD Tool v1.0.0 was used for LCA modeling and calculation. Background data was used from ecoinvent database v3.10.

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	DE	DE	MND	MND	MND	MND	MND	MND	MND	DE	DE	DE	DE	DE

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

Type of EPD: cradle to gate (A1-A3) with options, modules A4, A5, C1-C4 and module 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

Elementary flows (energy and fuels, ancillary materials and waste) data was collected on production-process-level. Using the total output of the production process in 2023, elementary flows are assigned to 1 declared unit 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	1.02	kg
Fuel consumption	2.23e-03	L / 100 km
Average distance from manufacturer to construction site	600.00	km
Transport mode	truck	

Installation into the building (A5)	Value	Unit
Treatment of Steel buckets waste	Landfill	
Installation loss	1.00	%

End of life (C1-C4)	Value	Unit
Material for recycling (total)	0	kg
Distance to waste recycling facility	50	km
Material for landfill (total)	0.30	kg
Distance to waste landfill facility	50	km
Waterproofing to recycling	0	kg
Amount of energy spent by building machines in demolition (Bozdag, 2007)	0.01	kWh / kg

LCA: Results

Core environmental impact indicators

Indicator	Unit	A1-3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2-eq.	3.49e+00	6.33e-02	5.99e-02	3.61e-03	5.18e-03	6.16e-03	2.68e-03	0
GWP-fossil	kg CO_2-eq.	3.48e+00	6.32e-02	5.97e-02	3.61e-03	5.18e-03	4.29e-03	1.88e-03	0
GWP-biogenic	kg CO_2-eq.	1.05e-02	3.17e-05	1.85e-04	3.60e-07	2.60e-06	1.86e-03	7.99e-04	0
GWP-luluc	kg CO_2-eq.	2.97e-03	2.24e-05	3.38e-05	3.13e-07	1.84e-06	3.73e-07	9.74e-07	0
ODP	kg CFC-11-Eq	4.96e-08	1.32e-09	7.47e-10	5.52e-11	1.08e-10	6.57e-11	5.42e-11	0
AP	mol H+-Eq	2.11e-02	1.49e-04	2.40e-04	3.25e-05	1.22e-05	3.87e-05	1.33e-05	0
EP-freshwater	kg P-Eq	6.62e-04	4.45e-06	1.36e-05	1.05e-07	3.64e-07	1.25e-07	1.56e-07	0
EP-marine	kg N-Eq	3.28e-03	3.92e-05	3.99e-05	1.51e-05	3.21e-06	1.80e-05	5.06e-06	0
EP-terrestrial	mol N-Eq	2.86e-02	4.24e-04	3.55e-04	1.65e-04	3.47e-05	1.97e-04	5.53e-05	0
POCP	kg NMVOC-Eq	1.47e-02	2.59e-04	1.77e-04	4.93e-05	2.12e-05	5.87e-05	1.98e-05	0
ADPE	kg Sb-Eq	1.29e-05	1.81e-07	2.01e-07	1.29e-09	1.48e-08	1.54e-09	2.98e-09	0
ADPF	MJ, net calorific value	6.15e+01	9.49e-01	7.43e-01	4.72e-02	7.77e-02	5.61e-02	4.60e-02	0
WDP	m^3 world Eq deprived	1.29e+00	4.77e-03	1.44e-02	1.15e-04	3.90e-04	1.37e-04	1.29e-04	0

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	A1-3	A4	A5	C1	C2	C3	C4	D
PM	disease incidence	1.94e-07	6.16e-09	2.32e-09	9.25e-10	5.04e-10	6.31e-09	3.02e-10	0
IRP	kBq U235-Eq	1.06e-01	1.15e-03	1.66e-03	2.11e-05	9.44e-05	2.51e-05	2.93e-05	0
ETP-fw	CTUe	2.31e+01	2.25e-01	5.94e-01	6.68e-03	1.84e-02	7.95e-03	6.29e-03	0
HTP-c	CTUh	1.80e-08	4.05e-10	2.32e-10	1.41e-11	3.31e-11	1.68e-11	8.48e-12	0
HTP-nc	CTUh	2.69e-07	6.26e-10	2.78e-09	6.40e-12	5.13e-11	7.62e-12	8.26e-12	0
SQP	dimensionless	6.27e+00	9.54e-01	9.83e-02	3.30e-03	7.82e-02	3.93e-03	9.05e-02	0

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	A1-3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.73e+00	1.51e-02	2.41e-02	2.89e-04	1.23e-03	3.43e-04	4.26e-04	0
PERM	MJ	6.65e-03	0	6.65e-05	0	0	-4.65e-03	0	0
PERT	MJ	1.74e+00	1.51e-02	2.41e-02	2.89e-04	1.23e-03	-4.31e-03	4.26e-04	0
PENRE	MJ	4.68e+01	9.49e-01	5.96e-01	4.72e-02	7.77e-02	5.61e-02	4.60e-02	0
PENRM	MJ	1.47e+01	0	1.47e-01	0	0	-1.03e+01	0	0
PENRT	MJ	6.15e+01	9.49e-01	7.43e-01	4.72e-02	7.77e-02	-1.02e+01	4.60e-02	0
SM	kg	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	3.74e-02	1.38e-04	4.21e-04	3.06e-06	1.13e-05	3.65e-06	4.77e-05	0

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	A1-3	A4	A5	C1	C2	C3	C4	D
HWD	kg	5.13e-01	1.38e-03	9.22e-03	5.27e-05	1.13e-04	6.27e-05	5.11e-05	0
NHWD	kg	4.71e+00	2.76e-02	6.03e-02	7.20e-04	2.26e-03	8.57e-04	3.01e-01	0
RWD	kg	2.72e-05	2.85e-07	4.32e-07	5.18e-09	2.34e-08	6.16e-09	7.15e-09	0

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

Output flows

Indicator	Unit	A1-3	A4	A5	C1	C2	C3	C4	D
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

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	3.04e-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 substances given by the REACH candidate list.

Additional environmental information

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

Indicator	Unit	A1-3	A4	A5	C1	C2	C3	C4	D
GWP-IOBC	kg CO_2-eq.	3.49e+00	6.33e-02	5.98e-02	3.61e-03	5.18e-03	4.29e-03	1.88e-03	0

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

Bibliography

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DIN EN ISO 14040:2021-02	Environmental management - Life cycle assessment - Principles and framework
DIN EN ISO 14044:2021-02	Environmental management - Life cycle assessment - Requirements and guidelines
EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
DIN CENTR 15941:2010-11	Sustainability of construction works - Environmental product declarations - Methodology for selection and use of generic data
DIN EN 15942:2022-04	Sustainability of construction works - Environmental product declarations - Communication format business-to-business
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	Basic principles and recommendations for describing the dismantling, post use, and disposal stage of construction products: https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2020-07-06_texte_130-2020_guidance-document-construction-industry.pdf
	ILCD Handbook: https://eplca.jrc.ec.europa.eu/uploads/ILCD-Handbook-LCIA-Background-analysis-online-12March2010.pdf

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