

Environmental Product Declaration (EPD)
According to ISO 14025 and EN 15804



Triflex ProDetail



Registration number:	EPD-Kiwa-EE-155680-EN
Issue date:	01-03-2024
Valid until:	01-03-2029
Declaration owner:	Triflex
Publisher:	Kiwa-Ecobility Experts
Program operator:	Kiwa-Ecobility Experts
Status:	verified

1 General information

1.1 PRODUCT

Triflex ProDetail

1.2 REGISTRATION NUMBER

EPD-Kiwa-EE-155680-EN

1.3 VALIDITY

Issue date: 01-03-2024

Valid until: 01-03-2029

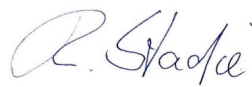
1.4 PROGRAM OPERATOR

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Raoul Mancke

(Head of programme operations, Kiwa-Ecobility Experts)



Dr. Ronny Stadie

(Verification body, Kiwa-Ecobility Experts)

1.5 OWNER OF THE DECLARATION

Manufacturer: Triflex

Address: Karlstrasse 59, 32423 Minden

E-mail: info@triflex.de

Website: www.triflex.de

Production location: Triflex GmbH

Address production location: Karlstraße 59, 32423 Minden

1.6 VERIFICATION OF THE DECLARATION

The independent verification is in accordance with the ISO 14025:2011. The LCA is in compliance with ISO 14040:2006 and ISO 14044:2006. The EN 15804:2012+A2:2019 serves as the core PCR.

Internal External



Lucas Pedro Berman, Senda

1.7 STATEMENTS

The owner of this EPD shall be liable for the underlying information and evidence. The programme operator Kiwa-Ecobility Experts shall not be liable with respect to manufacturer data, life cycle assessment data and evidence.

1.8 PRODUCT CATEGORY RULES

Kiwa-Ecobility Experts (Kiwa-EE) – General Product Category Rules (2022-02-14)

Part B: Requirements on the EPD for Reaction resin products

1.9 COMPARABILITY

In principle, a comparison or assessment of the environmental impacts of different products is only possible if they have been prepared in accordance with EN 15804. For the evaluation of the comparability, the following aspects have to be considered in particular:

1 General information

PCR used, functional or declared unit, geographical reference, the definition of the system boundary, declared modules, data selection (primary or secondary data, background database, data quality), scenarios used for use and disposal phases, and the life cycle inventory (data collection, calculation methods, allocations, validity period). PCRs and general program instructions of different EPDs programs may differ. Comparability needs to be evaluated. For further guidance, see EN 15804+A2 (5.3 Comparability of EPD for construction products) and ISO 14025 (6.7.2 Requirements for comparability).

1.10 CALCULATION BASIS

LCA method R<THiNK: Ecobility Experts | EN15804+A2

LCA software*: Simapro 9.1

Characterization method: EN 15804 +A2 Method v1.0

LCA database profiles: EcolInvent version 3.6

Version database: v3.16 (2024-02-12)

** Used for calculating the characterized results of the Environmental profiles within R<THiNK.*

1.11 LCA BACKGROUND REPORT

This EPD is generated on the basis of the LCA background report 'Triflex ProDetail' with the calculation identifier ReTHiNK-55680.

2 Product

2.1 PRODUCT DESCRIPTION

Acrylate resin products generally comprise of a mixture of different acrylic monomers which form the binder backbone of the cured product. The curing occurs after the reaction is started shortly before usage of the product via organic peroxide as the curing agent.

Furthermore, depending on the exact product type and it's specific intended use, fillers, auxiliaries, additives and pigments can also be contained, for example.

Triflex ProDetail is a fully reinforced, seamless solution that is ideal for the fast and easy waterproofing of virtually all details, including upstands, gutters and roof penetrations. Exceptionally rapid cure times, even at temperatures as low as -5°C, allow the system to be installed all year round, in a simple, single process application.

- Seamless
- Low temperature flexible
- Open to diffusion
- Highly reactive
- Solvent-free
- Highly weather stabilized (UV, IR, etc.)
- Adheres very well to a wide variety of surfaces
- Elastic and crack-bridging
- Mechanically robust and wear-resistant
- Root-proof according to FLL test procedures
- Resistant to air and rainwater commonly found media
- Hydrolysis and alkali resistant
- AbP for building seals with liquid plastics according to PG-FLK according to Building Rules List A, Part 2, Serial No. 2.51 or VV TB, Serial No. C 3.28
- Resistance to flying fire and radiant heat according to DIN EN 13501-5: BROOF (t1), BROOF (t2), BROOF (t3), BROOF (t4)
- Fire behavior according to DIN EN 13501-1: Class E
- European technical assessment according to ETAG 005 with CE marking

2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

Triflex ProDetail is ideal for a whole host of applications. As well as being a repair material, it is also used as a detail solution in the Triflex ProTect roof surface system. The waterproofing resin has technical properties which also make it suitable for use in Triflex systems on balconies and in car parks. Triflex ProDetail is also a proven performer in special applications, such as the preservation of monuments.

2.3 REFERENCE SERVICE LIFE

RSL PRODUCT

The reference service life of ProDetail is found to be at least 40 years via an external third party laboratory analysis done by Kiwa.

USED RSL (YR) IN THIS LCA CALCULATION:

40

RSL PARTS

There are no differentiable product parts as the product is pre mixed and sold as one ready-to-use unit.

2.4 TECHNICAL DATA

Material consumption: 3.00 kg/m² on a smooth, flat surface

Pot life: Approx. 15 minutes at +20 °C

Drying time: Rainproof after approx. 30 minutes at +20 °C

Can be walked on/recoated after approx. 45 minutes at +20 °C

2.5 SUBSTANCES OF VERY HIGH CONCERN

The product does not contain any substances which are classified as SVHC under REACH - (EG) 1907/2006.

2.6 DESCRIPTION PRODUCTION PROCESS

All raw materials are delivered to the production location and are stored. In the next phase pre-mixing of the raw materials takes place. The pre-mixing is followed by final blending after which the product is packed in metal buckets.

2.7 CONSTRUCTION DESCRIPTION

Triflex ProDetail is applied in two layers. A 110g/m² polyester fleece is inserted between the two different layers. The second layer is then applied directly onto the fleece layer. This

2 Product

ensures that the fleece is completely encapsulated by the waterproofing resin. After approx. 60 minutes, the sealing resin has hardened and forms a fully-fledged seal.

3 Calculation rules

3.1 FUNCTIONAL UNIT

1 kg of product

The declared unit in this case shall refer to the mass of the product (1 kg). The density of the product is 1,3 kg/L and the consumption to cover 1 m2 is 3 kg. Thus an appropriate functional unit is kg/m2.

This is in accordance with the PCR of similar products which are stated in:

Kiwa-Ecobility Experts (Kiwa-EE) – General Product Category Rules (2022-02-14)

Part B: Requirements on the EPD for Reaction resin products

reference_unit: kilogram (kg)

3.2 CONVERSION FACTORS

Description	Value	Unit
reference_unit	1	kg
Conversion factor to 1 kg	1.000000	kg

3.3 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with options, modules C1-C4 and module D LCA. The life cycle stages included are as shown below:

(X = module included, ND = module not declared)

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	ND	ND	ND	ND	X	X	X	X	X

The modules of the EN15804 contain the following:

Module A1 = Raw material supply	Module B5 = Refurbishment
Module A2 = Transport	Module B6 = Operational energy use
Module A3 = Manufacturing	Module B7 = Operational water use
Module A4 = Transport	Module C1 = De-construction / Demolition
Module A5 = Construction - Installation process	Module C2 = Transport
Module B1 = Use	Module C3 = Waste Processing
Module B2 = Maintenance	Module C4 = Disposal
Module B3 = Repair	Module D = Benefits and loads beyond the product system boundaries
Module B4 = Replacement	

3.4 REPRESENTATIVENESS

The input data are representative for Triflex ProDetail , a product of Triflex. The data are representative for Germany. The scenarios included are currently in use and are representative for the most likely scenario.

3.5 CUT-OFF CRITERIA

Product Stage (A1-A3)

All input flows (e.g. raw materials, transportation, energy use, packaging, etc.) and output flows (e.g. production waste) are considered in this LCA. The total neglected input flows do

3 Calculation rules

therefore not exceed the limit of 5% of energy use and mass.

The following input flows have been cut-off and excluded of this life cycle stage:

- Manufacturing of equipment used in production, buildings or any other capital asset;
- Transportation of personnel to the plant;
- The transportation of personnel within the plant;
- Research and development activities;
- Long-term emissions.

Construction process stage (A4-A5)

All input flows (e.g. transportation to the construction site, additional raw material use for construction, installation energy (use)of energy use for assembly , etc.) and output flows (e.g. construction waste, packaging waste, etc.) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass

Use stage (B1-B3)

All (known) input flows (e.g. raw materials, transportation, energy use, packaging, etc.) and output flows (e.g. emissions to soil, air and water, construction waste, packaging waste, end-of-life waste, etc.) related to the building fabric are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass.

End of life stage (C1-C4)

All input flows (e.g. energy use for demolition or disassembly, transport to waste processing, etc.) and output flows (e.g. end-of-life waste processing of the product, etc.) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass.

Benefits and Loads beyond the system boundary (Module D)

All benefits and loads beyond the system boundary resulting from reusable products, recyclable materials and/or useful energy carriers leaving the product system are considered in this LCA.

3.6 ALLOCATION

Allocation has not been applied in this LCA.

3.7 DATA COLLECTION & REFERENCE TIME PERIOD

All used data is from the time period 2023.

3.8 DATA QUALITY

The data used is based on the exact formulation (percentages) of the product and the measured energy demand of the production line for 2023.

3.9 GUARANTEES OF ORIGIN

The certificate for the purchase of 100% renewable electricity is embedded under the section "substantiations > project documentaion" for the fiscal year 2023.

4 Scenarios and additional technical information

4.1 TRANSPORT TO CONSTRUCTION SITE (A4)

For the transport from production place to assembly/user, the following scenario is assumed for module A4 of this EPD.

	Value and unit
Vehicle type used for transport	Lorry (Truck), unspecified (default) market group for (GLO)
Fuel type and consumption of vehicle	not available
Distance	500 km
Capacity utilisation (including empty returns)	50 % (loaded up and return empty)
Bulk density of transported products	inapplicable
Volume capacity utilisation factor	1

4.2 ASSEMBLY (A5)

The following information describes the scenarios for flows entering the system and flows leaving the system at module A5.

FLOWS ENTERING THE SYSTEM

For flows entering the system at A5 the following scenario is assumed for module A5.

	Value	Unit
<i>Materials used for installation/assembly</i>		
Chemicals organic production (GLO)	0.0618	kg

FLOWS LEAVING THE SYSTEM

The following output flows leaving the system at module A5 are assumed.

Description	Value	Unit
Output materials as result of loss during construction	3	%
Output materials as result of waste processing of materials used for installation/assembly at the building site	0.062	kg
Output materials as result of waste processing of used packaging	0.103	kg

4.3 USE STAGE (B1)

Emissions to air/soil/water are applicable, the scenario accounted in module B1 is as follows in the table below.:

4 Scenarios and additional technical information

Description	Cycle (yr)	Number of cycles	Amount per cycle	Total Amount	Unit
VOC	40	1	11110	11110	mg

4.4 MAINTENANCE (B2)

For maintenance no input or output flows are modeled.

4.5 REPAIR (B3)

Repairs are not applicable within the functional unit and to achieve the reference service life.

4.6 DE-CONSTRUCTION, DEMOLITION (C1)

The following information describes the scenario for demolition at end of life.

Description	Amount	Unit
Diesel, burned in machine (incl. emissions)	0.001	l

4.7 TRANSPORT END-OF-LIFE (C2)

The following distances and transport conveyance are assumed for transportation during end of life for the different types of waste processing.

Waste Scenario	Transport conveyance	Not removed (stays in work) [km]	Landfill [km]	Incineration [km]	Recycling [km]	Re-use [km]
finishes (adhered to debris) (NMD ID 3)	Lorry (Truck), unspecified (default) market group for (GLO)	0	100	150	50	0
finishes (adhered to wood, plastic, metal) (NMD ID 2)	Lorry (Truck), unspecified (default) market group for (GLO)	0	100	150	50	0

The transport conveyance(s) used in the scenario(s) for transport during end of life has the following characteristics.

Value and unit

4 Scenarios and additional technical information

Vehicle type used for transport	Lorry (Truck), unspecified (default) market group for (GLO)
Fuel type and consumption of vehicle	not available
Capacity utilisation (including empty returns)	50 % (loaded up and return empty)
Bulk density of transported products	inapplicable
Volume capacity utilisation factor	1

4.8 END OF LIFE (C3, C4)

The scenario(s) assumed for end of life of the product are given in the following tables. First the assumed percentages per type of waste processing are displayed, followed by the assumed amounts.

Waste Scenario	Region	Not removed (stays in work) [%]	Landfill [%]	Incineration [%]	Recycling [%]	Re-use [%]
finishes (adhered to debris) (NMD ID 3)	NL	0	100	0	0	0
finishes (adhered to wood, plastic, metal) (NMD ID 2)	NL	0	0	100	0	0

Waste Scenario	Not removed (stays in work) [kg]	Landfill [kg]	Incineration [kg]	Recycling [kg]	Re-use [kg]
finishes (adhered to wood, plastic, metal) (NMD ID 2)	0.000	0.000	0.006	0.000	0.000
finishes (adhered to debris) (NMD ID 3)	0.000	0.994	0.000	0.000	0.000
Total	0.000	0.994	0.006	0.000	0.000

4.9 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY (D)

The presented Benefits and loads beyond the system boundary in this EPD are based on the following calculated Net output flows in kilograms and Energy recovery displayed in MJ Lower Heating Value.

Waste Scenario	Net output flow [kg]	Energy recovery [MJ]
finishes (adhered to debris) (NMD ID 3)	0.000	0.000
finishes (adhered to wood, plastic, metal) (NMD ID 2)	0.000	0.000
Total	0.000	0.000

5 Results

For the impact assessment, the characterization factors of the LCIA method EN 15804 +A2 Method v1.0 are used. Long-term emissions (>100 years) are not considered in the impact assessment. The results of the impact assessment are only relative statements that do not make any statements about end-points of the impact categories, exceedance of threshold values, safety margins or risks. The following tables show the results of the indicators of the impact assessment, of the use of resources as well as of waste and other output flows.

5.1 ENVIRONMENTAL IMPACT INDICATORS PER KILOGRAM

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
AP	mol H+ eqv.	2.15E-2	3.67E-4	1.69E-3	4.32E-4	1.51E-3	0.00E+0	0.00E+0	0.00E+0	4.11E-5	7.85E-5	1.27E-6	8.98E-5	-4.94E-4
GWP-total	kg CO2 eqv.	3.17E+0	6.31E-2	4.96E-1	7.45E-2	4.06E-1	4.70E-2	0.00E+0	0.00E+0	3.94E-3	1.35E-2	1.44E-2	1.19E-1	-1.81E-1
GWP-b	kg CO2 eqv.	-2.68E-3	3.15E-5	1.25E-4	3.44E-5	-2.07E-4	0.00E+0	0.00E+0	0.00E+0	1.09E-6	6.25E-6	5.86E-7	8.64E-5	2.13E-3
GWP-f	kg CO2 eqv.	3.16E+0	6.30E-2	4.95E-1	7.44E-2	4.05E-1	4.70E-2	0.00E+0	0.00E+0	3.93E-3	1.35E-2	1.44E-2	1.19E-1	-1.83E-1
GWP-luluc	kg CO2 eqv.	1.09E-2	2.35E-5	4.39E-4	2.73E-5	3.98E-4	0.00E+0	0.00E+0	0.00E+0	3.10E-7	4.96E-6	2.57E-8	4.80E-6	6.76E-5
EP-m	kg N eqv.	3.13E-3	1.29E-4	2.93E-4	1.52E-4	2.65E-4	0.00E+0	0.00E+0	0.00E+0	1.82E-5	2.77E-5	5.64E-7	3.03E-5	-9.53E-5
EP-fw	kg P eqv.	9.99E-5	6.50E-7	1.56E-5	7.51E-7	7.83E-6	0.00E+0	0.00E+0	0.00E+0	1.43E-8	1.37E-7	1.59E-9	1.82E-7	-3.87E-6
EP-T	mol N eqv.	2.83E-2	1.43E-3	3.32E-3	1.68E-3	2.89E-3	0.00E+0	0.00E+0	0.00E+0	1.99E-4	3.05E-4	6.25E-6	3.34E-4	-8.83E-4
ODP	kg CFC 11 eqv.	1.06E-7	1.39E-8	1.48E-8	1.64E-8	2.04E-8	0.00E+0	0.00E+0	0.00E+0	8.50E-10	2.99E-9	1.33E-11	3.25E-9	-7.32E-10
POCP		1.15E-2	4.07E-4	1.04E-3	4.79E-4	1.15E-3	2.61E-3	0.00E+0	0.00E+0	5.48E-5	8.71E-5	1.54E-6	1.21E-4	-3.60E-4

AP=Acidification (AP) | **GWP-total**=Global warming potential (GWP-total) | **GWP-b**=Global warming potential - Biogenic (GWP-b) | **GWP-f**=Global warming potential - Fossil (GWP-f) | **GWP-luluc**=Global warming potential - Land use and land use change (GWP-luluc) | **EP-m**=Eutrophication marine (EP-m) | **EP-fw**=Eutrophication, freshwater (EP-fw) | **EP-T**=Eutrophication, terrestrial (EP-T) | **ODP**=Ozone depletion (ODP) | **POCP**=Photochemical ozone formation - human health (POCP) | **ADP-f**=Resource use, fossils (ADP-f) | **ADP-mm**=Resource use, minerals and metals (ADP-mm) | **WDP**=Water use (WDP)

5 Results

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
	kg NMVOC eqv.													
ADP-f	MJ	4.91E+1	9.51E-1	4.35E+0	1.12E+0	5.48E+0	0.00E+0	0.00E+0	0.00E+0	5.41E-2	2.04E-1	1.23E-3	2.47E-1	-1.12E+0
ADP-mm	kg Sb- eqv.	1.33E-5	1.59E-6	9.50E-7	1.89E-6	2.14E-6	0.00E+0	0.00E+0	0.00E+0	6.03E-9	3.43E-7	1.12E-9	1.12E-7	4.88E-8
WDP	m3 world eqv.	1.23E+0	3.44E-3	8.09E-2	4.02E-3	1.26E-1	0.00E+0	0.00E+0	0.00E+0	7.26E-5	7.30E-4	-5.96E-5	1.07E-2	-2.19E-2

AP=Acidification (AP) | **GWP-total**=Global warming potential (GWP-total) | **GWP-b**=Global warming potential - Biogenic (GWP-b) | **GWP-f**=Global warming potential - Fossil (GWP-f) | **GWP-luluc**=Global warming potential - Land use and land use change (GWP-luluc) | **EP-m**=Eutrophication marine (EP-m) | **EP-fw**=Eutrophication, freshwater (EP-fw) | **EP-T**=Eutrophication, terrestrial (EP-T) | **ODP**=Ozone depletion (ODP) | **POCP**=Photochemical ozone formation - human health (POCP) | **ADP-f**=Resource use, fossils (ADP-f) | **ADP-mm**=Resource use, minerals and metals (ADP-mm) | **WDP**=Water use (WDP)

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN15084+A2

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
ETP-fw	CTUe	2.82E+1	8.49E-1	5.44E+0	1.00E+0	3.12E+0	2.13E-2	0.00E+0	0.00E+0	3.26E-2	1.82E-1	3.87E-3	2.05E-1	-2.96E+0
PM	disease incidence	1.74E-7	5.66E-9	1.27E-8	6.70E-9	1.32E-8	0.00E+0	0.00E+0	0.00E+0	1.09E-9	1.22E-9	1.01E-11	1.72E-9	-3.19E-9
HTP-c	CTUh	5.05E-9	2.77E-11	9.00E-10	3.25E-11	5.94E-10	0.00E+0	0.00E+0	0.00E+0	1.14E-12	5.90E-12	1.84E-11	1.30E-11	-3.69E-10
HTP-nc	CTUh	4.06E-8	9.29E-10	3.76E-9	1.09E-9	3.40E-9	5.67E-10	0.00E+0	0.00E+0	2.80E-11	1.99E-10	5.62E-11	1.75E-10	9.39E-9
IR	kBq U235 eqv.	2.37E-2	3.99E-3	6.50E-3	4.70E-3	4.63E-3	0.00E+0	0.00E+0	0.00E+0	2.32E-4	8.55E-4	2.59E-6	9.75E-4	-7.76E-4
SQP	Pt	3.39E+0	8.23E-1	1.56E+0	9.73E-1	6.47E-1	0.00E+0	0.00E+0	0.00E+0	6.91E-3	1.77E-1	5.03E-4	5.90E-1	-1.65E-1

ETP-fw=Ecotoxicity, freshwater (ETP-fw) | **PM**=Particulate Matter (PM) | **HTP-c**=Human toxicity, cancer (HTP-c) | **HTP-nc**=Human toxicity, non-cancer (HTP-nc) | **IR**=Ionising radiation, human health (IR) | **SQP**=Land use (SQP)

5 Results

CLASSIFICATION OF DISCLAIMERS TO THE DECLARATION OF CORE AND ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

ILCD classification	Indicator	Disclaimer
ILCD type / level 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD type / level 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
ILCD type / level 3	Potential Human exposure efficiency relative to U235 (IRP)	1
	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
Potential Soil quality index (SQP)	2	

Disclaimer 1 – 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.

Disclaimer 2 – 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.

5 Results

5.2 INDICATORS DESCRIBING RESOURCE USE AND ENVIRONMENTAL INFORMATION BASED ON LIFE CYCLE INVENTORY (LCI)

PARAMETERS DESCRIBING RESOURCE USE

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
PERE	MJ	7.99E-1	1.24E-2	4.79E-1	1.41E-2	1.02E-1	0.00E+0	0.00E+0	0.00E+0	2.93E-4	2.56E-3	3.46E-5	4.30E-3	-5.87E-6
PERM	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ	7.99E-1	1.24E-2	4.79E-1	1.41E-2	1.02E-1	0.00E+0	0.00E+0	0.00E+0	2.93E-4	2.56E-3	3.46E-5	4.30E-3	-5.87E-6
PENRE	MJ	4.93E+1	1.01E+0	4.89E+0	1.19E+0	5.79E+0	0.00E+0	0.00E+0	0.00E+0	5.75E-2	2.17E-1	1.33E-3	2.63E-1	-3.06E-3
PENRM	MJ	3.82E+0	0.00E+0	1.15E-1	0.00E+0	1.18E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	MJ	5.31E+1	1.01E+0	5.00E+0	1.19E+0	5.91E+0	0.00E+0	0.00E+0	0.00E+0	5.75E-2	2.17E-1	1.33E-3	2.63E-1	-3.06E-3
SM	Kg	0.00E+0	0.00E+0	6.69E-3	0.00E+0	2.01E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	M3	2.96E-2	1.18E-4	2.97E-3	1.37E-4	3.10E-3	0.00E+0	0.00E+0	0.00E+0	2.79E-6	2.49E-5	1.10E-6	2.59E-4	-1.59E-7

PERE=renewable primary energy ex. raw materials | **PERM**=renewable primary energy used as raw materials | **PERT**=renewable primary energy total | **PENRE**=non-renewable primary energy ex. raw materials | **PENRM**=non-renewable primary energy used as raw materials | **PENRT**=non-renewable primary energy total | **SM**=use of secondary material | **RSF**=use of renewable secondary fuels | **NRSF**=use of non-renewable secondary fuels | **FW**=use of net fresh water

OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
HWD	Kg	1.16E-5	2.41E-6	1.35E-5	2.84E-6	2.66E-6	0.00E+0	0.00E+0	0.00E+0	1.47E-7	5.17E-7	1.97E-8	3.80E-7	-3.50E-9
NHWD	Kg	4.12E-1	6.00E-2	4.57E-2	7.12E-2	7.28E-2	0.00E+0	0.00E+0	0.00E+0	6.41E-5	1.29E-2	2.40E-4	9.96E-1	-1.11E-6
RWD	Kg	2.93E-5	6.24E-6	7.24E-6	7.37E-6	5.70E-6	0.00E+0	0.00E+0	0.00E+0	3.76E-7	1.34E-6	3.43E-9	1.48E-6	-1.32E-9

HWD=hazardous waste disposed | **NHWD**=non hazardous waste disposed | **RWD**=radioactive waste disposed

5 Results

ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
CRU	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.01E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MER	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	MJ	0.00E+0	0.00E+0	4.10E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.23E-3
EEE	MJ	0.00E+0	0.00E+0	2.38E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.14E-4

CRU=Components for re-use | **MFR**=Materials for recycling | **MER**=Materials for energy recovery | **EET**=Exported Energy Thermic | **EEE**=Exported Energy Electric

5 Results

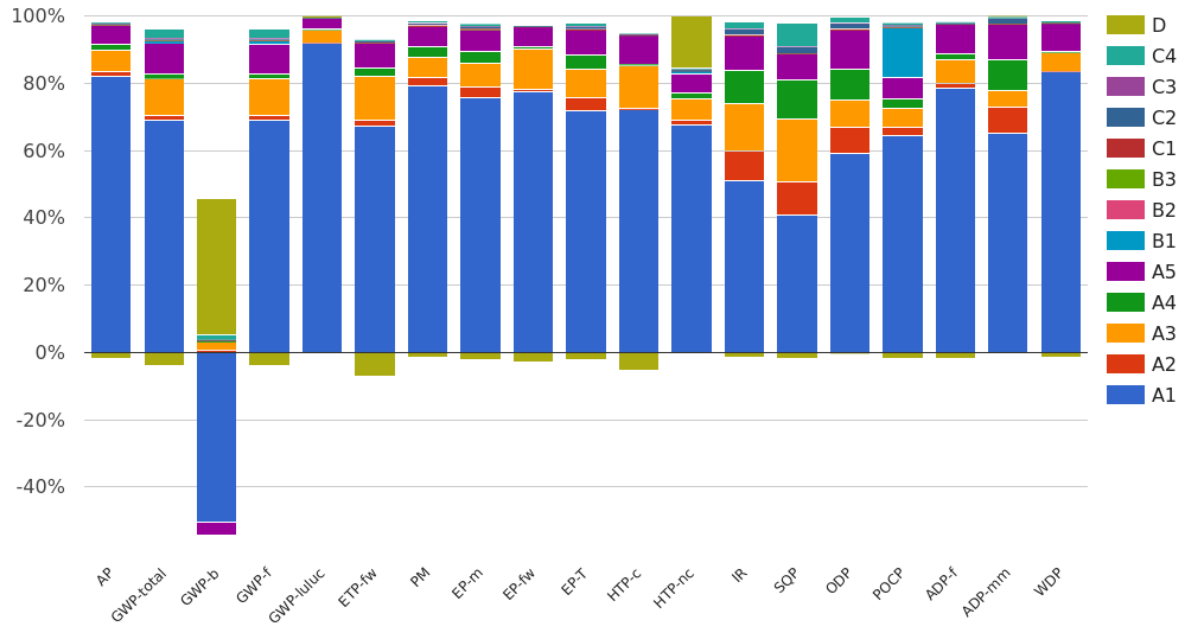
5.3 INFORMATION ON BIOGENIC CARBON CONTENT PER KILOGRAM

BIOGENIC CARBON CONTENT

The following Information describes the biogenic carbon content in (the main parts of) the product at the factory gate per kilogram:

Biogenic carbon content	Amount	Unit
Biogenic carbon content in the product	0	kg C
Biogenic carbon content in accompanying packaging	0	kg C

6 Interpretation of results



The greatest contribution to most of the environmental impacts can be largely found in Phase A1. These impacts can mainly be attributed to the various chemicals that are used in the product and that hold a significant environmental burden.

For POCP it is module B1 due to the VOC emissions.

7 References

ISO 14040

ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework; EN ISO 14040:2006

ISO 14044

ISO 14044:2006-10, Environmental management - Life cycle assessment - Requirements and guidelines; EN ISO 14040:2006

ISO 14025

ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804+A2

EN 15804+A2: 2019: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

General PCR Ecobility Experts

Kiwa-Ecobility Experts (Kiwa-EE) – General Product Category Rules (2022-02-14)

Complementary PCR Institute Construction and Environment e.V. (IBU)

Part B: Requirements on the EPD for Reaction resin products -19/10/2023 v8

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