

Owner: Promal A/S
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Valid to: 18-12-2030

3rd PARTY VERIFIED

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



Owner of declaration

Promal A/S
 Joachim Wellers Vej 27, 7500 Holstebro
 DK20669438
<https://www.promal.dk/>



Issued:
18-12-2025

Valid to:
18-12-2030

Programme

EPD Danmark
www.epddanmark.dk



- Industry EPD
- Product EPD
- Product specific
- Average
- Worst Case

Basis of calculation

This EPD is developed and verified in accordance with the European standard EN 15804+A2.

Comparability

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. 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.

Validity

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

Declared product(s)

Procrete RT

Number of declared datasets/product variations: 1

Production site

Joachim Wellers Vej 27, 7500 Holstebro, Denmark

Use of Guarantees of Origin

- No certificates used
- Electricity covered by GoO
- Biogas covered by GoO

EPD type

- Cradle-to-gate with modules C1-C4 and D
- Cradle-to-gate with options, modules C1-C4 and D
- Cradle-to-grave and module D
- Cradle-to-gate
- Cradle-to-gate with options

Declared/ functional unit

1 kg

Year of production site data (A3)

2024

EPD version

No. 1

CEN standard EN 15804 serves as the core PCR
Independent verification of the declaration and data, according to EN ISO 14025
<input type="checkbox"/> internal <input checked="" type="checkbox"/> external
Third party verifier: Mirko Miseljic LCA Specialists

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 EPD Danmark EPD Danmark

Life cycle stages and modules (MND = module not declared)

Product			Construction process		Use								End of life			Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	MD	ND	ND	ND	X	X	X	X	X

Product information

Product description

The main product components are shown in the table below.

Procrete RT	
Material	Weight-% of declared product
Bio-based polyols and castor-oil systems (PU Binder A).	25.00%
Isocyanates and polyisocyanates (PU-Hærdere B).	25.00%
Mineral fillers and pigments (RT-3)	50.00%

Product Packaging:

The composition of the sales- and transport packaging of the product is shown in the table below.

Procrete RT	
Material	Weight of product packaging [kg]
HDPE plastic container	0.028
Pallet (wood)	0.031
Cardboard	0.004
Material	Weight-% of product packaging
HDPE plastic container	45%
Pallet (wood)	50%
Cardboard	5%

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of resinous coating products on the production site of Promal A/S located in Denmark. Product specific data are based on average values collected in the period 2024. Background data are based on Ecoinvent 3.11 and are less than 10 years old. Generally, the used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

Data quality is assessed in accordance with the criteria defined in the UN Environment Global Guidance on LA database development as prescribed by Annex E in EN 15804+A2:2019.

End-of-life, declared in moduls C1-C4, is modelled representatively of the current Danish context.

Hazardous substances

The product declared not contain substances listed on the "Candidate List of Substances of Very High Concern for authorisation"

(<http://echa.europa.eu/candidate-list-table>)

Product(s) use

The concrete product, Procrete RT, is a three-component coating consisting of a polyol and a corresponding isocyanate hardener, which is mixed with a cement-based filler. Procrete is used for flooring applications requiring exceptional thermal, mechanical, and chemical resistance, such as in the food processing industry where high demands are placed on the durability and resistance of the floor surface. The product comprises an A-component, B-component, and filler, which are mixed together and applied in a single thick layer.

Essential characteristics

Property	Value / range
Product type	3-component PU/cement system
Density (mixed)	~2.0 kg/L
Total solids	100 %
Shore D hardness	> 50 (24 h, 20 °C); > 70 (7 d, 20 °C)
Pot life (A+B+filler)	~15min at 23 °C; ~25 min at 12 °C
Typical consumption	~6 kg/m ² (3 mm); 18 kg/m ² (9 mm)
Recommended thickness based on filler used	2-4 mm (RT-3); 6-9 mm (RT-9); 0,5-1,5 mm (RT-Top)
Application temperature	Best 15-22 °C; min. +10 °C; max. +30 °C
Ambient relative humidity	Best 50-65 % RH; min. 35 % RH; max. 85 % RH
Substrate relative humidity	≤ 97 % RH; surface moisture < 5 %
Adhesion to concrete	> 1.5 N/mm ² (for use in concrete assuming appropriately conditioned surface).

Drying & curing time

- Pot life / working time: Approx. 15-20 minutes depending on temperature (shorter at higher temperature).
- Next coat / topcoat: Subsequent layers (e.g. RT-Top or broadcast sealers) can typically be applied after at least ~20 hours and within

max. 7 days at 23 °C, assuming correct climatic conditions and substrate preparation.

- Development of hardness: Shore D hardness exceeds 50 after 24 h at 23 °C and 70 after 7 days.
- Full cure: 7 days at 24 °C (standard climate).

Actual drying and curing depend on temperature, humidity, air movement, substrate moisture and thickness. Temperature in air and underlayer must be 3°C higher than actual dewpoint during application.

Standards & Conformity

- EN 1504-2 – Concrete surface protection systems.
- EN 13813 – Screed materials and resin floorings.
- REACH Regulation (EC) 1907/2006.
- CLP Regulation (EC) 1272/2008.
- EN ISO 2811 (density).
- EN ISO 868 (hardness).
- EN ISO 3219 (viscosity).

More information about the product can be obtained by contacting the manufacturer or on the manufacturer's website:

<https://www.promal.dk/>

Reference Service Life (RSL)

No Reference Service Life (RSL) is declared as the use stage is not included.

Picture of product(s)

Procrete RT



LCA background

Declared unit

The LCI and LCIA results in this EPD are calculated for 1kg of three-component coating.

	Declared unit	Density	Conversion factor to 1 kg.
Unit	kg	kg/l	-
Procrete RT	1	2	1

Functional unit

Not defined

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804:2012+A2:2019

Energy modelling principles

Foreground system:

No Guarantee of Origin (GoO) certificates are used in this EPD. Consumption of electricity at the production site of Promal A/S is modelled with the residual grid mix in Denmark.

Heat is used by Promal A/S in the production of the declared products, as ambient facility heating.

This heat is modelled with a 100kW light fuel oil boiler, similar to what is used by Promal.

Electricity used by equipment during the formulation of the declared products is modelled using a dataset for the residual grid mix in Denmark.

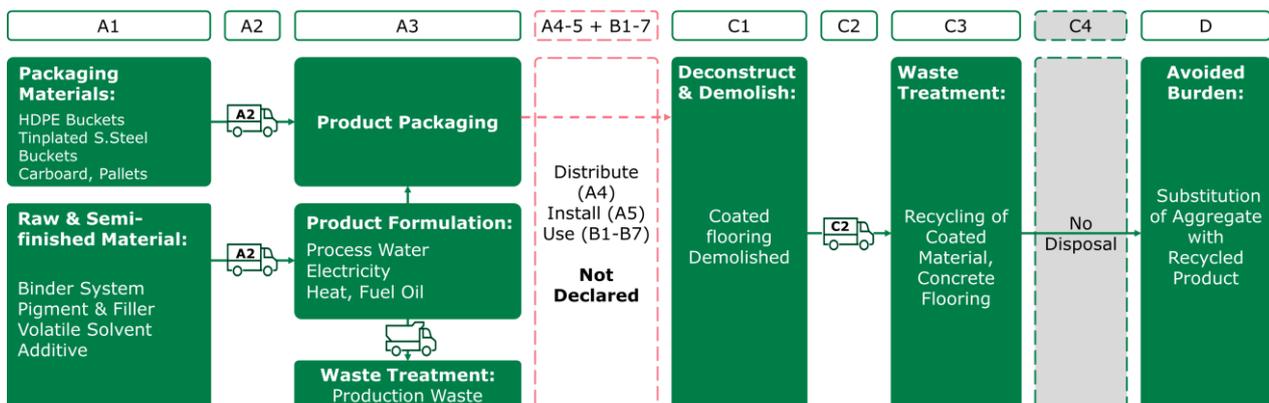
Information about the energy mix in the foreground system:

Energy mix	EF	Unit
Residual grid mix, electricity, medium voltage DK	0,724	kg CO _{2e} /kWh
heat production, light fuel oil, at boiler 100kW, non-modulating Heat, Central or small-scale, other than natural gas Europe without Switzerland.	0,102	kg CO _{2e} /MJ

Background system:

For processes both upstream and downstream of the production process declared in module A3, the background data for electricity consumption is based on average national electrical grid mix consumptions as opposed to a residual grid mix as with the foreground system. To do otherwise is not possible for background data within the ecoinvent datasets.

Flowdiagram



System boundary

This EPD is based on a cradle-to-gate with options, modules C1-C4 and D, LCA, in which over 95 weight-% has been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

This EPD applies the "Cut-off by classification" system boundary according to EN 15804. No upstream environmental burdens are allocated to recycled inputs; all impacts from waste processing and recycling are assigned to the product system generating the waste.

Allocation

The inventory values for 1kg of Procrete RT are calculated by considering the total produced kg of product in 2024. Annual production percentages are taken into account for allocation, according to the ratio of the annual production of the declared product to the total annual production. The annual consumption of Fuel, Electricity, and water consumption as well as packaging materials and waste producer per declared product is allocated uniformly by mass, except for 10% of onsite fuel oil consumption specifically used to heat epoxy resins produced on site, which was allocated by the mass to other products by the epoxy resin they contain as an ingredient, specifically Promal's 2-K Epoxy Resin Coatings.

Product stage (A1-A3) includes:

- A1 – Extraction and processing of raw materials
- A2 – Transport to the production site
- A3 – Manufacturing processes

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, product packaging, transport of waste, and waste processing up to the

"end-of-waste" state or final disposal. The LCA results are declared in aggregated form for the product stage, which means that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

Production takes place at Promal's headquarters in Holstebro, Denmark. The environmental impacts considered for the production stage cover the production of utilities used in manufacturing the declared three-component coating, including electricity, water, and fuel oil. The transport of waste generated is also declared in this module as well as the incineration of waste. The study considers the losses occurring during the manufacturing processes which is based on the quantity of resinous coating sludge cleaned out of machinery between batches being formulated as well as during maintenance.

Upstream materials include binder systems, pigments, fillers, volatile solvents, and packaging that are transported to Promal's facility (A2). During the core production stage (A3), products are formulated in large batch mixes, with ingredients loaded according to product recipes and customer specifications. Process heating is supplied by fuel oil burners, alongside electricity and water inputs going directly into product formulations as well as process water used in cleaning and maintenance processes.

Finished products are packed in HDPE plastic containers and shipped on pallets lined with cardboard.

Construction process stage (A4-A5) includes:

Not included

Use stage (B1-B7) includes:

Not included

End of Life (C1-C4) includes:

The end-of-life stage for the declared product follows the same pathway as the material it is coating which is assumed for the purposes of this EPD to be concrete flooring. Firstly, the coated concrete elements are removed from the building at deconstruction or renovation. Removal is assumed to be performed using standard demolition equipment such as a handheld jackhammer and is electrically powered, with consumption calculated according to typical industry practice.

After dismantling, the demolished building elements, with the coating, are transported an assumed distance of 50 km by truck to a waste treatment facility.

The waste treatment of the coating follows the same end-of-life pathway as the concrete floor it's hardened into, as its currently not designed to be feasibly separated. It is therefore crushed and recycled as a low-grade aggregate for road sub-base material.

None of the declared products are disposed of in landfill.

Re-use, recovery and recycling potential (D) includes:

Module D represents benefits or loads beyond the system boundary. In accordance with the guidelines of EN15804+A2, only virgin materials are credited in module D.

The recycled materials displace the use of virgin gravel as road sub-base material.

LCA results

ENVIRONMENTAL IMPACTS PER KG OF PROCRETE RT							
Parameter	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2.28E+00	3.06E-05	9.34E-03	4.40E-03	0.00E+00	-6.75E-03
GWP-fossil	[kg CO ₂ eq.]	2.19E+00	3.06E-05	9.33E-03	4.40E-03	0.00E+00	-6.67E-03
GWP-biogenic	[kg CO ₂ eq.]	-3.74E-01	-1.82E-08	6.49E-06	2.64E-01	0.00E+00	-8.04E-05
GWP-luluc	[kg CO ₂ eq.]	4.61E-01	1.32E-08	3.14E-06	4.50E-07	0.00E+00	-3.47E-06
ODP	[kg CFC 11 eq.]	3.28E-08	7.57E-13	2.03E-10	6.53E-11	0.00E+00	-1.13E-10
AP	[mol H ⁺ eq.]	1.03E-02	1.78E-07	2.00E-05	3.93E-05	0.00E+00	-4.30E-05
EP-freshwater	[kg P eq.]	1.01E-04	2.29E-09	6.94E-08	1.54E-08	0.00E+00	-1.01E-07
EP-marine	[kg N eq.]	5.12E-03	2.27E-08	4.71E-06	1.83E-05	0.00E+00	-1.39E-05
EP-terrestrial	[mol N eq.]	2.64E-02	2.74E-07	5.21E-05	2.00E-04	0.00E+00	-1.80E-04
POCP	[kg NMVOC eq.]	7.83E-03	7.80E-08	3.18E-05	5.99E-05	0.00E+00	-4.99E-05
ADPm ¹	[kg Sb eq.]	1.70E-05	1.11E-09	3.28E-08	1.62E-09	0.00E+00	-6.54E-08
ADPf ¹	[MJ]	3.76E+01	3.60E-04	1.33E-01	5.73E-02	0.00E+00	-9.81E-02
WDP ¹	[m ³ world eq. deprived]	1.59E+00	5.78E-06	7.00E-04	1.50E-04	0.00E+00	-1.60E-02
Caption	GWP-total = Globale 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 = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water depletion potential						
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.						
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.						

ADDITIONAL ENVIRONMENTAL IMPACTS PER KG OF PROCRETE RT							
Parameter	Unit	A1-A3	C1	C2	C3	C4	D
PM	[Disease incidence]	9.06E-08	7.70E-13	6.96E-10	8.56E-09	0.00E+00	-9.67E-10
IRP ²	[kBq U235 eq.]	4.73E-02	1.76E-07	5.80E-05	9.52E-06	0.00E+00	-4.10E-04
ETP-fw ¹	[CTUe]	2.19E+01	1.30E-04	1.78E-02	3.11E-03	0.00E+00	-2.20E-02
HTP-c ¹	[CTUh]	7.04E-10	1.46E-14	1.57E-12	4.49E-13	0.00E+00	-2.71E-12
HTP-nc ¹	[CTUh]	2.46E-08	9.20E-13	8.36E-11	7.08E-12	0.00E+00	-7.81E-11
SQP ¹	-	7.82E+01	8.92E-05	7.96E-02	3.80E-03	0.00E+00	-1.41E-01
Caption	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 = Soil Quality (dimensionless)						
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.						
Disclaimers	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience 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 PER KG OF PROCRETE RT

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.20E+01	5.30E-04	2.19E-03	3.60E-04	0.00E+00	-1.89E-02
PERM	[MJ]	6.20E+00	0.00E+00	0.00E+00	-6.20E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.87E+01	5.30E-04	2.19E-03	3.60E-04	0.00E+00	-1.89E-02
PENRE	[MJ]	2.79E+01	3.60E-04	1.33E-01	5.73E-02	0.00E+00	-9.81E-02
PENRM	[MJ]	8.80E+00	0.00E+00	0.00E+00	-8.80E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.81E+01	3.60E-04	1.33E-01	5.73E-02	0.00E+00	-9.81E-02
SM	[kg]	1.15E-01	5.48E-07	1.30E-04	3.28E-05	0.00E+00	-2.80E-04
RSF	[MJ]	2.38E-02	8.49E-08	3.04E-05	3.40E-06	0.00E+00	-5.13E-05
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	4.04E-02	1.36E-07	1.62E-05	3.67E-06	0.00E+00	-3.70E-04
Caption	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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water						
	The numbers are declared in scientific notation, e.g. 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.						

WASTE CATEGORIES AND OUTPUT FLOWS PER KG OF PROCRETE RT

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	8.19E-02	8.94E-07	1.40E-04	5.11E-05	0.00E+00	-3.40E-04
NHWD	[kg]	2.97E+00	9.96E-06	1.46E-03	3.80E-04	0.00E+00	-4.16E-03
RWD	[kg]	2.23E-05	1.15E-10	3.95E-08	5.99E-09	0.00E+00	-2.22E-07
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	8.06E-02	6.80E-07	1.20E-04	1.00E+00	0.00E+00	-2.10E-04
MER	[kg]	3.05E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	2.12E+00	1.97E-05	2.58E-05	2.67E-06	0.00E+00	-3.10E-04
EET	[MJ]	3.95E+00	4.96E-08	3.12E-05	1.27E-06	0.00E+00	-3.69E-05
Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy						
	The numbers are declared in scientific notation, e.g. 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.						

BIOGENIC CARBON CONTENT PER KG OF PROCRETE RT

Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	1.16E-01
Biogenic carbon content in accompanying packaging	[kg C]	2.26E-03
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	

Additional information

LCA interpretation

The raw materials used in modules A1 such as binders and resins have the highest impact on results such as global warming potential.

Technical information on scenarios

Transport to the building site (A4)

Not declared

Installation of the product in the building (A5)

Not declared

Reference service life

Not declared

Use (B1-B7)

Not declared

End of life (C1-C4)

Scenario information	Procrete RT	Unit
Collected separately	-	%
Collected with mixed waste	100	%
For reuse	-	kg
For recycling	1	kg
For energy recovery	-	kg
For final disposal	-	kg
Assumptions for scenario development	Product assumed to be used as coating on Concrete Flooring which is then crushed and recycled as aggregate for road/back-fill upon reaching End-of-life	

Re-use, recovery and recycling potential (D)

Scenario information/Material	Procrete RT	Unit
Displaced material	1	kg
Energy recovery from waste incineration	-	MJ

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.

References

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LCA software / background data	OpenLCA 2.5.0 Ecoinvent 3.11 EN 15804 reference package 3.1
3rd party verifier	LCA Specialists Mirko Miseljic +45 23 48 83 78 lcaspecialists@outlook.com Verified according to Verification Checklist 1 v. 2.9.1

General programme instructions

General Programme Instructions, version 3.0, spring 2025

www.epddanmark.dk

Technical Rules and Guidelines

Technical Rules and Guidelines, version 1.0, spring 2025

www.epddanmark.dk

EN 15804

DS/EN 15804 + A2:2019 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

EN 15942

DS/EN 15942:2011 – " Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

ISO 14025

DS/EN ISO 14025:2010 – " Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

ISO 14040

DS/EN ISO 14040:2008 – “ Environmental management – Life cycle assessment – Principles and framework”

ISO 14044

DS/EN ISO 14044:2008 – “ Environmental management – Life cycle assessment – Requirements and guidelines”