

Environmental Product Declaration

according to ISO 14025 and EN 15804



This declaration is for:
Universal Pro Therm SA green

Provided by:
BMI Flachdachsysteme GmbH



program operator
Stichting MRPI®
publisher
Stichting MRPI®
www.mrpi.nl

MRPI® registration
1.1.00300.2022
date of first issue
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21-12-2027





COMPANY INFORMATION



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PRODUCT

Universal Pro Therm SA green

DECLARED UNIT/FUNCTIONAL UNIT

1 m2 waterproof roofing incl. fastening materials for non-sloping substrates and roof pitches up to 20°. Representative for roof areas > 50 m2. Excl. insulation material and the roof construction.

DESCRIPTION OF PRODUCT

Universal cold self-adhesive waterproofing membrane, suitable for extensive and intensive green roofs.

VISUAL PRODUCT



MRPI® REGISTRATION

1.1.00300.2022

DATE OF ISSUE

21-12-2022

EXPIRY DATE

21-12-2027

SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by **Kamiel Jansen, Aveco de Bondt**.

The LCA study has been done by **Wouter Jan van den Berg, BMI Group**.

The certificate is based on an LCA-dossier according to ISO14025 and EN15804+A2/Bepalingsmethode. It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2/Bepalingsmethode. Declaration of SVHC that are listed on the 'Candidate List of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

MORE INFORMATION

<https://www.bmigroup.com/de/p/universal-pro-therm-sa-green-2057695955/>

PROGRAM OPERATOR

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ir. J-P den Hollander, Managing director MRPI®

DEMONSTRATION OF VERIFICATION

CEN standard EN15804 serves as the core PCR[a]

Independent verification of the declaration and data,

according to EN ISO 14025:2010:

internal: external: X

Third party verifier:

Kamiel Jansen, Aveco de Bondt

[a] PCR = Product Category Rules

DETAILED PRODUCT DESCRIPTION

Universal Pro Therm SA green is a cold-adhesive waterproofing membrane Polyolefin copolymer bitumen (POCB), with integrated root protection, glass Polyester composite carrier insert, self-adhesive Power Therm strip, blue syntan coating, double safety seam and T-cut. Universally applicable Sealing membrane for the highest demands for sealing of:

- Used and unused roof areas
- Balconies, loggias and arcades
- under extensive green roofs and intensive green roofs for areas from 0° to 20° inclination.
- Suitable for laying on unlaminated EPS insulation and on mineral fleece and aluminum laminated PU/ PIR insulation.

The reference service life (RSL) is 35 years.

| COMPONENT > 1% of total mass | [%] |
|---|--------------|
| polypropylene | confidential |
| bitumen | confidential |
| reinforcement (consisting of polyester and glass fiber) | confidential |
| adhesive materials (bitumen stripes and syntan coating) | confidential |

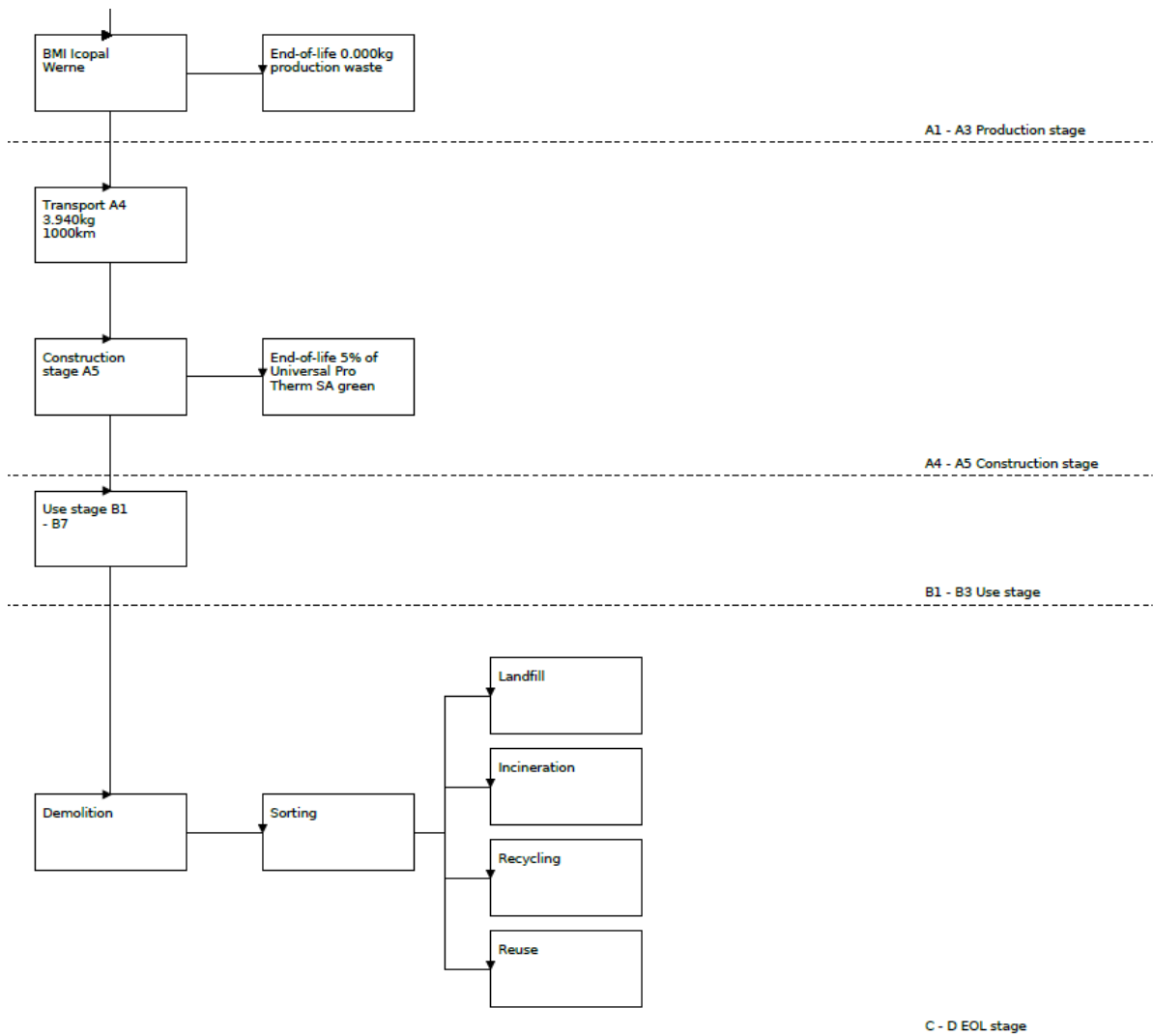
SCOPE AND TYPE

Universal Pro Therm SA Green is produced in Werne (Germany) and sold in the EU. The background database is Ecoinvent 3.6. This MRPI EPD is specific to Universal Pro Therm SA Green.

| PRODUCT STAGE | CONSTRUCTION | | | | | USE STAGE | | | | | | | END OF LIFE | | | | BENEFITS AND |
|---------------------|--------------|---------------|------------------------|----------|-----|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-------------|------------------|----------|--|-------------------|
| | PROCESS | | | | | | | | | | | | STAGE | | | | LOADS BEYOND THE |
| | STAGE | | | | | | | | | | | | | | | | SYSTEM BOUNDARIES |
| Raw material supply | Transport | Manufacturing | Transport gate to site | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse- Recovery- Recycling- potential | |
| 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 | |

X = Modules Assessed

ND = Not Declared



LCA process diagram according to EN 15804 (7.2.1)



REPRESENTATIVENESS

The input data is representative of Universal Pro Therm SA Green, a product of BMI Icopal Werne. The data is representative for the production in Werne, Germany and application in the EU.

ENVIRONMENTAL IMPACT per functional unit or declared unit (indicators A1)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D |
|------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|------|------|------|------|-------------|-------------|-------------|--------------|
| ADPE | kg Sb eq. | 1.37 E-4 | 4.53 E-6 | 8.85 E-6 | 1.50 E-4 | 1.78 E-5 | 8.98 E-6 | 0.00 | 0.00 | 0.00 | 0.00 | 2.84 E-6 | 2.88 E-6 | 1.43 E-7 | 4.70 E-6 |
| ADPF | MJ | 1.46 E+2 | 3.16 E+0 | 1.80 E+2 | 3.30 E+2 | 9.76 E+0 | 1.74 E+1 | 0.00 | 0.00 | 0.00 | 0.00 | 1.21 E+0 | 2.46 E+0 | 3.16 E-1 | -3.73 E+1 |
| GWP | kg CO2 eq. | 3.10 E+0 | 2.18 E-1 | 2.20 E+0 | 5.52 E+0 | 6.51 E-1 | 6.12 E-1 | 0.00 | 0.00 | 0.00 | 0.00 | 8.17 E-2 | 4.60 E+0 | 1.59 E-1 | -2.08 E+0 |
| ODP | kg CFC11 eq. | 1.29 E-6 | 3.80 E-8 | 1.22 E-6 | 2.54 E-6 | 1.19 E-7 | 1.39 E-7 | 0.00 | 0.00 | 0.00 | 0.00 | 1.45 E-8 | 2.77 E-8 | 3.29 E-9 | -2.99 E-7 |
| POCP | kg ethene eq. | 1.23 E-2 | 1.73 E-4 | 1.79 E-3 | 1.43 E-2 | 3.30 E-4 | 7.61 E-4 | 0.00 | 0.00 | 0.00 | 0.00 | 4.15 E-5 | 1.73 E-4 | 3.89 E-5 | -1.48 E-4 |
| AP | kg SO2 eq. | 1.76 E-2 | 2.32 E-3 | 6.90 E-3 | 2.68 E-2 | 2.08 E-3 | 1.64 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 2.71 E-4 | 1.25 E-3 | 1.65 E-4 | -7.24 E-4 |
| EP | kg (PO4)3- eq. | 3.63 E-3 | 3.11 E-4 | 1.08 E-3 | 5.02 E-3 | 3.81 E-4 | 3.17 E-4 | 0.00 | 0.00 | 0.00 | 0.00 | 4.93 E-5 | 2.24 E-4 | 7.39 E-5 | -2.21 E-4 |

Toxicity indicators for Dutch market

| | | | | | | | | | | | | | | | |
|-------|------------|-------------|-------------|-------------|-------------|-------------|-------------|------|------|------|------|-------------|-------------|-------------|--------------|
| HTP | kg DCB eq. | 2.05 E+0 | 1.00 E-1 | 3.56 E-1 | 2.51 E+0 | 2.59 E-1 | 1.70 E-1 | 0.00 | 0.00 | 0.00 | 0.00 | 3.08 E-2 | 2.46 E-1 | 7.81 E-3 | -5.45 E-2 |
| FAETP | kg DCB eq. | 8.29 E-2 | 2.42 E-3 | 1.91 E-2 | 1.04 E-1 | 7.16 E-3 | 6.68 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 8.54 E-4 | 6.88 E-3 | 1.86 E-3 | 6.68 E-5 |
| MAETP | kg DCB eq. | 1.54 E+2 | 9.49 E+0 | 4.51 E+1 | 2.08 E+2 | 2.73 E+1 | 1.62 E+1 | 0.00 | 0.00 | 0.00 | 0.00 | 3.18 E+0 | 1.59 E+1 | 2.08 E+0 | 3.57 E-1 |
| TETP | kg DCB eq. | 1.20 E-2 | 3.31 E-4 | 5.60 E-3 | 1.80 E-2 | 9.17 E-4 | 1.03 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 1.18 E-4 | 6.71 E-4 | 2.30 E-5 | -1.85 E-4 |
| ECI | Euro | 4.98 E-1 | 3.36 E-2 | 2.02 E-1 | 7.33 E-1 | 7.20 E-2 | 6.01 E-2 | 0.00 | 0.00 | 0.00 | 0.00 | 8.91 E-3 | 2.61 E-1 | 1.03 E-2 | -1.17 E-1 |
| ADPF | kg Sb. eq. | 7.03 E-2 | 1.52 E-3 | 8.67 E-2 | 1.59 E-1 | 4.69 E-3 | 8.37 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 5.84 E-4 | 1.18 E-3 | 1.52 E-4 | -1.80 E-2 |

- ADPE = Abiotic Depletion Potential for non-fossil resources
- ADPF = Abiotic Depletion Potential for fossil resources
- GWP = Global Warming Potential
- ODP = Depletion potential of the stratospheric ozone layer
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- AP = Acidification Potential of land and water
- EP = Eutrophication Potential
- HTP = Human Toxicity Potential
- FAETP = Fresh water aquatic ecotoxicity potential
- MAETP = Marine aquatic ecotoxicity potential
- TETP = Terrestrial ecotoxicity potential
- ECI = Environmental Cost Indicator
- ADPF = Abiotic Depletion Potential for fossil resources expressed in [kg Sb-eq.]

ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D |
|-----------------------|-------------------------|--------------|-------------|--------------|--------------|-------------|-------------|------|------|------|------|-------------|-------------|-------------|--------------|
| GWP-total | kg CO2 eq. | 3.19 E+0 | 2.20 E-1 | 2.10 E+0 | 5.51 E+0 | 6.57 E-1 | 1.08 E+0 | 0.00 | 0.00 | 0.00 | 0.00 | 8.25 E-2 | 4.60 E+0 | 1.86 E-1 | -2.08 E+0 |
| GWP-fossil | kg CO2 eq. | 3.21 E+0 | 2.20 E-1 | 2.32 E+0 | 5.75 E+0 | 6.57 E-1 | 6.16 E-1 | 0.00 | 0.00 | 0.00 | 0.00 | 8.24 E-2 | 4.60 E+0 | 1.86 E-1 | -2.09 E+0 |
| GWP-biogenic | kg CO2 eq. | -2.15 E-2 | 5.65 E-5 | -2.25 E-1 | -2.47 E-1 | 3.50 E-4 | 4.65 E-1 | 0.00 | 0.00 | 0.00 | 0.00 | 4.04 E-5 | 7.23 E-5 | 1.18 E-4 | 7.46 E-3 |
| GWP-luluc | kg CO2 eq. | 4.02 E-3 | 1.01 E-4 | 3.91 E-3 | 8.04 E-3 | 2.30 E-4 | 4.30 E-4 | 0.00 | 0.00 | 0.00 | 0.00 | 3.48 E-5 | 1.42 E-4 | 6.77 E-6 | -7.53 E-5 |
| ODP | kg CFC11 eq. | 1.59 E-6 | 4.77 E-8 | 1.39 E-6 | 3.02 E-6 | 1.49 E-7 | 1.65 E-7 | 0.00 | 0.00 | 0.00 | 0.00 | 1.82 E-8 | 3.02 E-8 | 4.09 E-9 | -3.43 E-7 |
| AP | mol H+ eq. | 2.09 E-2 | 2.95 E-3 | 8.62 E-3 | 3.24 E-2 | 2.68 E-3 | 2.02 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 3.50 E-4 | 1.65 E-3 | 2.00 E-4 | -1.10 E-3 |
| EP-freshwater | kg PO4 eq. | 4.33 E-4 | 1.72 E-6 | 7.55 E-5 | 5.10 E-4 | 5.16 E-6 | 2.63 E-5 | 0.00 | 0.00 | 0.00 | 0.00 | 7.62 E-7 | 4.71 E-6 | 2.63 E-7 | 4.17 E-6 |
| EP-marine | kg N eq. | 3.02 E-3 | 8.14 E-4 | 1.93 E-3 | 5.76 E-3 | 7.96 E-4 | 4.33 E-4 | 0.00 | 0.00 | 0.00 | 0.00 | 1.04 E-4 | 5.19 E-4 | 1.58 E-4 | -4.95 E-4 |
| EP-terrestrial | mol N eq. | 3.42 E-2 | 9.03 E-3 | 2.04 E-2 | 6.37 E-2 | 8.80 E-3 | 4.70 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 1.15 E-3 | 5.74 E-3 | 4.28 E-4 | -6.13 E-3 |
| POCP | kg NMVOC eq. | 3.32 E-2 | 2.43 E-3 | 7.76 E-3 | 4.34 E-2 | 2.70 E-3 | 2.60 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 3.49 E-4 | 1.60 E-3 | 1.68 E-4 | -1.51 E-3 |
| ADP-minerals & metals | kg Sb eq. | 1.37 E-4 | 4.53 E-6 | 8.84 E-6 | 1.50 E-4 | 1.78 E-5 | 8.98 E-6 | 0.00 | 0.00 | 0.00 | 0.00 | 2.84 E-6 | 2.88 E-6 | 1.43 E-7 | 4.70 E-6 |
| ADP-fossil | MJ, net calorific value | 1.48 E+2 | 3.18 E+0 | 1.61 E+2 | 3.12 E+2 | 9.90 E+0 | 1.65 E+1 | 0.00 | 0.00 | 0.00 | 0.00 | 1.23 E+0 | 2.38 E+0 | 3.16 E-1 | -3.24 E+1 |
| WDP | m3 world eq. deprived | 1.54 E+0 | 9.01 E-3 | 2.16 E-1 | 1.77 E+0 | 2.76 E-2 | 1.00 E-1 | 0.00 | 0.00 | 0.00 | 0.00 | 3.85 E-3 | 6.56 E-2 | 1.34 E-2 | 3.60 E-2 |

GWP-total = Global 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 = Depletion potential of the stratospheric ozone layer

AP = Acidification Potential, Accumulated Exceedence

EP-freshwater = Eutrophication Potential, fraction of nutrients reaching freshwater end compartment

EP-marine = Eutrophication Potential, fraction of nutrients reaching marine end compartment

EP-terrestrial = Eutrophication Potential, Accumulated Exceedence

POCP = Formation potential of tropospheric ozone photochemical oxidants

ADP-minerals&metals = Abiotic Depletion Potential for non fossil resources [2]

ADP-fossil = Abiotic Depletion for fossil resources potential [2]

WDP = Water (user) deprivation potential, deprivation-weighted water consumption [2]

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 experience with the indicator.

ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D |
|--------|-------------------|-------------|--------------|--------------|-------------|--------------|--------------|------|------|------|------|--------------|--------------|--------------|---------------|
| PM | Disease incidence | 1.57 E-7 | 1.51 E-8 | 4.40 E-8 | 2.16 E-7 | 4.58 E-8 | 1.59 E-8 | 0.00 | 0.00 | 0.00 | 0.00 | 5.33 E-9 | 1.70 E-8 | 2.22 E-9 | 5.26 E-10 |
| IRP | kBq U235 eq. | 4.67 E-1 | 1.35 E-2 | 8.96 E-2 | 5.70 E-1 | 4.33 E-2 | 3.21 E-2 | 0.00 | 0.00 | 0.00 | 0.00 | 5.34 E-3 | 7.64 E-3 | 1.28 E-3 | -1.50 E-2 |
| ETP-fw | CTUe | 8.45 E+1 | 2.56 E+0 | 3.22 E+1 | 1.19 E+2 | 7.93 E+0 | 7.43 E+0 | 0.00 | 0.00 | 0.00 | 0.00 | 1.04 E+0 | 3.77 E+0 | 4.22 E-1 | -3.71 E+0 |
| HTP-c | CTUh | 1.87 E-9 | 9.95 E-11 | 7.36 E-10 | 2.71 E-9 | 2.23 E-10 | 2.72 E-10 | 0.00 | 0.00 | 0.00 | 0.00 | 3.27 E-11 | 7.67 E-10 | 8.85 E-12 | -6.34 E-11 |
| HTP-nc | CTUh | 4.85 E-8 | 2.64 E-9 | 1.49 E-8 | 6.60 E-8 | 8.65 E-9 | 4.91 E-9 | 0.00 | 0.00 | 0.00 | 0.00 | 1.11 E-9 | 5.98 E-9 | 1.81 E-10 | -8.48 E-10 |
| SQP | --- | 1.81 E+1 | 2.02 E+0 | 3.70 E+1 | 5.71 E+1 | 6.83 E+0 | 3.50 E+0 | 0.00 | 0.00 | 0.00 | 0.00 | 7.75 E-1 | 1.81 E+0 | 7.38 E-1 | -1.72 E+1 |

PM = Potential incidence of disease due to PM emissions

IRP = Potential Human exposure efficiency relative to U235 [1]

ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]

HTP-c = Potential Comparative Toxic Unit for humans [2]

HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]

SQP = Potential soil quality index [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 experience with the indicator.

RESOURCE USE per functional unit or declared unit (A1 / A2)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D |
|-------|------|-------------|-------------|-------------|-------------|-------------|-------------|------|------|------|------|-------------|-------------|-------------|--------------|
| PERE | MJ | 2.56 E+0 | 3.63 E-2 | 7.07 E+0 | 9.67 E+0 | 1.40 E-1 | 5.05 E-1 | 0.00 | 0.00 | 0.00 | 0.00 | 2.01 E-2 | 1.34 E-1 | 6.65 E-3 | -3.20 E+0 |
| PERM | MJ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -1.85 E-1 |
| PERT | MJ | 2.56 E+0 | 3.63 E-2 | 7.07 E+0 | 9.67 E+0 | 1.40 E-1 | 5.05 E-1 | 0.00 | 0.00 | 0.00 | 0.00 | 2.01 E-2 | 1.34 E-1 | 6.65 E-3 | -3.39 E+0 |
| PENRE | MJ | 6.60 E+1 | 3.37 E+0 | 1.72 E+2 | 2.42 E+2 | 1.05 E+1 | 1.31 E+1 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 E+0 | 2.54 E+0 | 3.36 E-1 | -3.99 E+1 |
| PENRM | MJ | 1.06 E+2 | 0.00 | 5.82 E+0 | 1.12 E+2 | 0.00 | 5.61 E+0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.69 E+0 |
| PENRT | MJ | 1.72 E+2 | 3.37 E+0 | 1.78 E+2 | 3.54 E+2 | 1.05 E+1 | 1.87 E+1 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 E+0 | 2.54 E+0 | 3.36 E-1 | -3.62 E+1 |
| SM | kg | 5.80 E-1 | 0.00 | 1.21 E-2 | 5.92 E-1 | 0.00 | 2.96 E-2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| RSF | MJ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NRSF | MJ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FW | m3 | 3.75 E-2 | 3.17 E-4 | 8.58 E-3 | 4.64 E-2 | 1.04 E-3 | 2.83 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 1.47 E-4 | 2.90 E-3 | 3.30 E-4 | 1.81 E-3 |

PERE = Use of renewable energy excluding renewable primary energy resources

PERM = Use of renewable energy resources used as raw materials

PERT = Total use of renewable primary energy resources

PENRE = Use of non-renewable primary energy resources excluding non-renewable 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 materials

RSF = Use of renewable secondary fuels

NRSF = Use of non renewable secondary fuels

FW = Use of net fresh water

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 / A2)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D |
|------|------|-------------|-------------|-------------|-------------|-------------|-------------|------|------|------|------|-------------|-------------|-------------|--------------|
| HWD | kg | 4.96 E-5 | 6.79 E-6 | 2.01 E-4 | 2.57 E-4 | 2.60 E-5 | 1.50 E-5 | 0.00 | 0.00 | 0.00 | 0.00 | 3.27 E-6 | 4.19 E-6 | 4.77 E-7 | -4.31 E-5 |
| NHWD | kg | 1.61 E-1 | 1.39 E-1 | 1.72 E-1 | 4.72 E-1 | 4.73 E-1 | 1.61 E-1 | 0.00 | 0.00 | 0.00 | 0.00 | 5.23 E-2 | 1.94 E-1 | 1.24 E+0 | -4.43 E-4 |
| RWD | kg | 7.05 E-4 | 2.14 E-5 | 1.29 E-4 | 8.55 E-4 | 6.75 E-5 | 4.81 E-5 | 0.00 | 0.00 | 0.00 | 0.00 | 8.25 E-6 | 9.10 E-6 | 1.90 E-6 | -2.84 E-5 |
| CRU | kg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MFR | kg | 0.00 | 0.00 | 9.84 E-3 | 9.84 E-3 | 0.00 | 3.86 E-2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.81 E-1 | 0.00 | 0.00 |
| MER | kg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| EEE | MJ | 0.00 | 0.00 | 2.02 E-1 | 2.02 E-1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.11 E+1 |
| ETE | MJ | 0.00 | 0.00 | 3.49 E-1 | 3.49 E-1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.92 E+1 |

HWD = Hazardous Waste Disposed

RWD = Radioactive Waste Disposed

MFR = Materials for recycling

EEE = Exported Electrical Energy

NHWD = Non Hazardous Waste Disposed

CRU = Components for reuse

MER = Materials for energy recovery

ETE = Exported Thermal Energy

BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 / A2)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D |
|-------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|
| BCCpr | kg C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| BCCpa | kg C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

BCCpr = Biogenic carbon content in product
 BCCpa = Biogenic carbon content in packaging

CALCULATION RULES

Production phase (A1-A3)

The production phase includes mining of raw materials, transportation of raw materials and processing of the raw materials into materials and production of the final product. Furthermore, the energy needs of production, external treatments, ancillary materials, packaging and production emissions are included.

Construction phase (A4-A5)

This phase involves the transport from the factory to the construction site and includes the losses at the construction site. The extra production, transport and end-of-life of material losses during the construction phase are included. The end of life of the packaging material up to the end of waste status or landfill is included. The installation of the product includes production, transportation and end-of-life of auxiliary materials and any energy or water used for the construction or management of the construction site.

Use phase (B)

This phase includes the environmental impact of building components or structures during use, including the planned maintenance that is necessary for the product to meet its functional and technical performance and to meet the aesthetic requirements. For this product there is no maintenance during the reference service life. Energy consumption during use or water use is not included.

End of life (C) and environmental benefits and costs beyond system boundaries (D)

At the end of its life, Universal Pro Therm SA Green is recyclable. Due to the absence of a recycling facility in the UK we assumed that the roofing membrane is dealt with according to the average EWA end of life scenario:

- Incineration with energy recovery (45% of the product) and recycling (15% of the product – only sorting process considered)
- Sanitary landfilling operations (40% of the product)

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

The manufacturing takes place at BMI Icopal Germany production site in Werne, Germany.

Bitumen blends production

Bitumen blends are prepared and stored in big holding tanks at +/- 190°C, before being pumped to the production line. POGB blends consist of bitumen, polypropylene, limestone, and other additives (for instance anti-root additives). SBS bitumen blends consist of bitumen, SBS, limestone and other additives (for instance anti-root additives).

Waterproofing production

The reinforcement is unrolled and runs through the production line : first an impregnation step, then the coating step where the bitumen blends are applied on each side. The reinforcement passes between two rollers that achieve the desired thickness.

A polypropylene fleece is applied on the topside of the product, a syntan coating and bituminous adhesive stripes are applied on the backside of the product ; a removable PE foil is then applied on the adhesive stripes. For both heating and cooling needed during production, coolants and hot oil are used in closed systems and is thus not consumed during the manufacturing process.

DECLARATION OF SVHC

No substances that are listed in the latest Candidate List of substances of Very High Concern for authorisation" are included in the product the exceeds the limit for registration.

REFERENCES

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

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

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

EN 15804+A1: 2013: Sustainability of construction works – Environmental Product Declarations – Core rules for the product category of construction products

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

REMARKS

None