

**Environmental
Product
Declaration**

according to ISO 14025 and EN 15804



This declaration is for:
Universal POCB T4

Provided by:
BMI Icopal



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

MRPI® registration
1.1.00298.2022
date of first issue
21-12-2022
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expiry date
21-12-2027





COMPANY INFORMATION



BMI Icopal
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PRODUCT

Universal POCB T4

DECLARED UNIT/FUNCTIONAL UNIT

One m2 waterproof roofing incl. fastening materials for a flat roof with a maximum angle of inclination of 20°. Representative for roof areas > 50 m2. Excl. insulation material and the roof construction.

DESCRIPTION OF PRODUCT

Mechanically fastened single ply waterproofing membrane

MRPI® REGISTRATION

1.1.00298.2022

DATE OF ISSUE

21-12-2022

EXPIRY DATE

21-12-2027

VISUAL PRODUCT



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/uk/icopal-flat-roofing/single-ply-waterproofing/pocb-waterproofing/>

PROGRAM OPERATOR

Stichting MRPI®
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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 POCB T4, mechanically fastened single-ply roofing membrane consist of a combination of different components. The bottom and top layers are made of polypropylene. In between is a layer that mainly consists of bitumen, with a reinforcement mainly consisting of polyester and glass fiber. The mounting materials consist of plastic washers and galvanised screws. The reference service life (RSL) is 35 years.

COMPONENT > 1% of total mass	[%]
bitumen	confidential
polypropylene	confidential
reinforcement (consisting of polyester and glass fiber)	confidential
filler	confidential
mounting materials (plastic washers and galvanised screws)	confidential

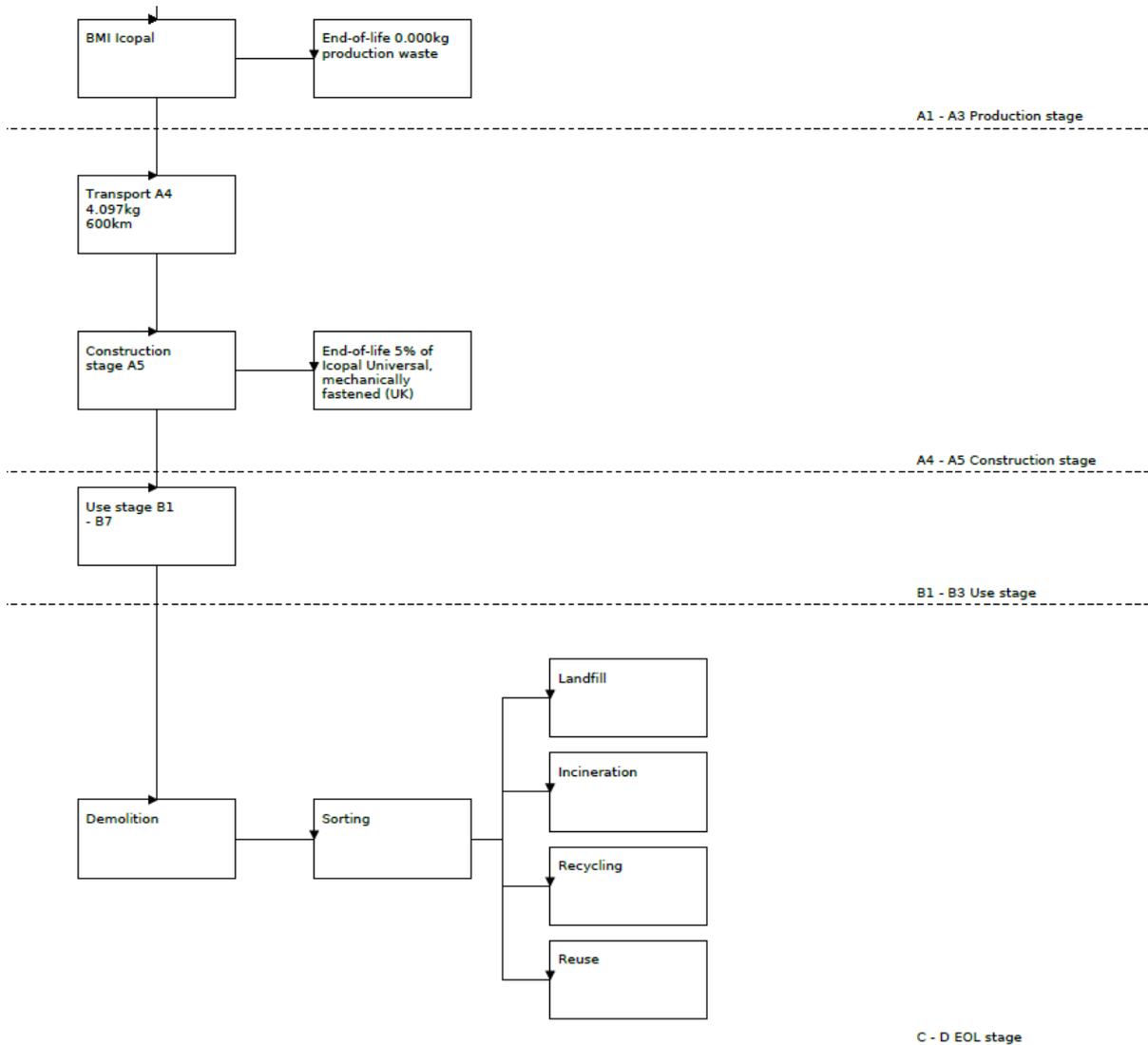
SCOPE AND TYPE

Universal POCB T4 is produced in Groningen (Netherlands) and sold in the UK. The background database is Ecoinvent 3.6. This MRPI EPD is specific to Universal POCB T4.

PRODUCT STAGE	CONSTRUCTION					USE STAGE							END OF LIFE			BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
	PROCESS												STAGE			
	STAGE															
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 PO CB T4, a product of BMI Icopal. The data is representative for the production in Groningen, the Netherlands and application by mechanical fastening in the UK.

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.	5.06 E-5	6.62 E-6	4.72 E-6	6.19 E-5	1.08 E-5	6.68 E-6	0.00	0.00	0.00	0.00	3.29 E-6	4.19 E-6	1.77 E-7	5.45 E-6
ADPF	MJ	1.90 E+2	4.24 E+0	1.04 E+1	2.04 E+2	5.92 E+0	1.66 E+1	0.00	0.00	0.00	0.00	1.35 E+0	3.50 E+0	3.93 E-1	-4.37 E+1
GWP	kg CO2 eq.	4.73 E+0	2.83 E-1	5.76 E-1	5.59 E+0	3.95 E-1	9.13 E-1	0.00	0.00	0.00	0.00	9.13 E-2	4.36 E+0	1.97 E-1	-1.86 E+0
ODP	kg CFC11 eq.	1.39 E-6	4.96 E-8	6.02 E-8	1.50 E-6	7.22 E-8	1.01 E-7	0.00	0.00	0.00	0.00	1.62 E-8	3.37 E-8	4.09 E-9	-3.02 E-7
POCP	kg ethene eq.	5.10 E-3	1.95 E-4	6.06 E-4	5.90 E-3	2.00 E-4	4.80 E-4	0.00	0.00	0.00	0.00	4.52 E-5	2.19 E-4	4.84 E-5	-1.63 E-4
AP	kg SO2 eq.	2.34 E-2	1.97 E-3	1.82 E-3	2.72 E-2	1.26 E-3	2.33 E-3	0.00	0.00	0.00	0.00	2.89 E-4	1.46 E-3	2.05 E-4	-7.90 E-4
EP	kg (PO4)3- eq.	1.03 E-2	3.11 E-4	4.87 E-4	1.11 E-2	2.31 E-4	6.91 E-4	0.00	0.00	0.00	0.00	5.18 E-5	2.55 E-4	9.22 E-5	-1.82 E-4

Toxicity indicators for Dutch market

HTP	kg DCB eq.	3.99 E+0	1.24 E-1	3.07 E-1	4.42 E+0	1.57 E-1	3.33 E-1	0.00	0.00	0.00	0.00	3.38 E-2	3.45 E-1	9.65 E-3	-3.82 E-2
FAETP	kg DCB eq.	1.91 E-1	3.37 E-3	1.02 E-2	2.04 E-1	4.34 E-3	1.29 E-2	0.00	0.00	0.00	0.00	9.30 E-4	7.95 E-3	2.19 E-3	-5.83 E-4
MAETP	kg DCB eq.	1.82 E+2	1.25 E+1	1.29 E+1	2.07 E+2	1.66 E+1	1.80 E+1	0.00	0.00	0.00	0.00	3.48 E+0	1.86 E+1	2.47 E+0	-2.71 E+0
TETP	kg DCB eq.	1.59 E-2	4.26 E-4	2.76 E-3	1.91 E-2	5.56 E-4	1.55 E-3	0.00	0.00	0.00	0.00	1.32 E-4	9.84 E-4	2.86 E-5	2.78 E-4
ECI	Euro	8.32 E-1	3.80 E-2	7.18 E-2	9.42 E-1	4.37 E-2	9.57 E-2	0.00	0.00	0.00	0.00	9.81 E-3	2.60 E-1	1.28 E-2	-1.05 E-1
ADPF	kg Sb. eq.	9.13 E-2	2.04 E-3	5.00 E-3	9.83 E-2	2.85 E-3	7.98 E-3	0.00	0.00	0.00	0.00	6.50 E-4	1.68 E-3	1.89 E-4	-2.10 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.	4.89 E+0	2.85 E-1	2.70 E-1	5.44 E+0	3.98 E-1	9.24 E-1	0.00	0.00	0.00	0.00	9.22 E-2	4.36 E+0	2.31 E-1	-1.88 E+0
GWP-fossil	kg CO2 eq.	4.90 E+0	2.85 E-1	5.86 E-1	5.77 E+0	3.98 E-1	9.31 E-1	0.00	0.00	0.00	0.00	9.21 E-2	4.36 E+0	2.31 E-1	-1.88 E+0
GWP-biogenic	kg CO2 eq.	-2.53 E-2	1.06 E-4	-3.17 E-1	-3.42 E-1	2.12 E-4	-7.08 E-3	0.00	0.00	0.00	0.00	4.55 E-5	-4.26 E-4	1.46 E-4	8.90 E-4
GWP-luluc	kg CO2 eq.	6.91 E-3	1.15 E-4	6.89 E-4	7.72 E-3	1.39 E-4	5.67 E-4	0.00	0.00	0.00	0.00	3.96 E-5	2.02 E-4	8.41 E-6	1.03 E-4
ODP	kg CFC11 eq.	1.67 E-6	6.23 E-8	6.86 E-8	1.80 E-6	9.04 E-8	1.17 E-7	0.00	0.00	0.00	0.00	2.03 E-8	3.74 E-8	5.08 E-9	-3.52 E-7
AP	mol H+ eq.	2.79 E-2	2.55 E-3	2.25 E-3	3.27 E-2	1.63 E-3	2.85 E-3	0.00	0.00	0.00	0.00	3.71 E-4	1.90 E-3	2.49 E-4	-1.08 E-3
EP-freshwater	kg PO4 eq.	2.34 E-3	2.68 E-6	8.03 E-5	2.43 E-3	3.13 E-6	1.32 E-4	0.00	0.00	0.00	0.00	8.41 E-7	6.42 E-6	3.27 E-7	5.11 E-6
EP-marine	kg N eq.	4.28 E-3	7.82 E-4	4.71 E-4	5.54 E-3	4.83 E-4	5.29 E-4	0.00	0.00	0.00	0.00	1.06 E-4	5.85 E-4	1.98 E-4	-4.26 E-4
EP-terrestrial	mol N eq.	4.84 E-2	8.64 E-3	5.35 E-3	6.24 E-2	5.34 E-3	5.87 E-3	0.00	0.00	0.00	0.00	1.18 E-3	6.46 E-3	5.32 E-4	-4.68 E-3
POCP	kg NMVOC eq.	2.06 E-2	2.39 E-3	1.81 E-3	2.48 E-2	1.63 E-3	2.17 E-3	0.00	0.00	0.00	0.00	3.61 E-4	1.86 E-3	2.09 E-4	-1.40 E-3
ADP-minerals & metals	kg Sb eq.	5.06 E-5	6.62 E-6	4.72 E-6	6.19 E-5	1.08 E-5	6.68 E-6	0.00	0.00	0.00	0.00	3.29 E-6	4.19 E-6	1.77 E-7	5.45 E-6
ADP-fossil	MJ, net calorific value	1.89 E+2	4.22 E+0	1.01 E+1	2.03 E+2	6.00 E+0	1.65 E+1	0.00	0.00	0.00	0.00	1.37 E+0	3.42 E+0	3.92 E-1	-3.96 E+1
WDP	m3 world eq. deprived	2.55 E+0	1.42 E-2	1.23 E-1	2.69 E+0	1.67 E-2	2.53 E-1	0.00	0.00	0.00	0.00	4.21 E-3	8.30 E-2	1.66 E-2	-1.30 E+0

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	2.21 E-7	2.37 E-8	4.72 E-8	2.91 E-7	2.77 E-8	2.51 E-8	0.00	0.00	0.00	0.00	5.63 E-9	2.21 E-8	2.75 E-9	4.02 E-9
IRP	kBq U235 eq.	5.02 E-1	1.77 E-2	1.92 E-2	5.39 E-1	2.62 E-2	4.24 E-2	0.00	0.00	0.00	0.00	5.99 E-3	1.08 E-2	1.59 E-3	-1.00 E+0
ETP-fw	CTUe	1.23 E+2	3.66 E+0	1.04 E+1	1.37 E+2	4.81 E+0	1.17 E+1	0.00	0.00	0.00	0.00	1.16 E+0	4.47 E+0	5.25 E-1	-3.50 E+0
HTP-c	CTUh	4.29 E-9	1.29 E-10	4.13 E-10	4.83 E-9	1.35 E-10	5.74 E-10	0.00	0.00	0.00	0.00	3.60 E-11	8.71 E-10	1.10 E-11	-7.82 E-11
HTP-nc	CTUh	8.83 E-8	3.92 E-9	7.70 E-9	1.00 E-7	5.24 E-9	8.80 E-9	0.00	0.00	0.00	0.00	1.22 E-9	7.36 E-9	2.24 E-10	2.20 E-9
SQP	---	2.21 E+1	3.35 E+0	3.21 E+1	5.76 E+1	4.14 E+0	4.38 E+0	0.00	0.00	0.00	0.00	8.18 E-1	2.66 E+0	9.17 E-1	-2.71 E+0

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	3.88 E+0	5.04 E-2	5.64 E+0	9.57 E+0	8.47 E-2	8.18 E-1	0.00	0.00	0.00	0.00	2.32 E-2	1.85 E-1	8.27 E-3	6.45 E-2
PERM	MJ	0.00	0.00	4.35 E-2	4.35 E-2	0.00	2.17 E-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-5.07 E-3
PERT	MJ	3.88 E+0	5.04 E-2	5.68 E+0	9.61 E+0	8.47 E-2	7.97 E-1	0.00	0.00	0.00	0.00	2.32 E-2	1.85 E-1	8.27 E-3	5.94 E-2
PENRE	MJ	1.08 E+2	4.48 E+0	7.83 E+0	1.20 E+2	6.37 E+0	1.16 E+1	0.00	0.00	0.00	0.00	1.45 E+0	3.64 E+0	4.17 E-1	-3.78 E+1
PENRM	MJ	1.10 E+2	0.00	3.38 E+0	1.13 E+2	0.00	7.51 E+0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-5.57 E+0
PENRT	MJ	2.18 E+2	4.48 E+0	1.12 E+1	2.33 E+2	6.37 E+0	1.85 E+1	0.00	0.00	0.00	0.00	1.45 E+0	3.64 E+0	4.17 E-1	-4.33 E+1
SM	kg	6.38 E-1	0.00	1.66 E-2	6.55 E-1	0.00	3.46 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	5.80 E-2	4.85 E-4	4.56 E-3	6.30 E-2	6.32 E-4	6.16 E-3	0.00	0.00	0.00	0.00	1.63 E-4	3.10 E-3	4.10 E-4	-2.96 E-2

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	5.98 E-5	1.00 E-5	7.12 E-6	7.69 E-5	1.57 E-5	1.18 E-5	0.00	0.00	0.00	0.00	3.68 E-6	5.65 E-6	5.93 E-7	-3.73 E-5
NHWD	kg	2.65 E-1	2.42 E-1	1.06 E-1	6.12 E-1	2.87 E-1	1.73 E-1	0.00	0.00	0.00	0.00	5.43 E-2	2.38 E-1	1.55 E+0	7.98 E-3
RWD	kg	7.17 E-4	2.79 E-5	3.64 E-5	7.82 E-4	4.09 E-5	5.43 E-5	0.00	0.00	0.00	0.00	9.24 E-6	1.31 E-5	2.36 E-6	-4.57 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	9.82 E-2	9.82 E-2	0.00	6.68 E-2	0.00	0.00	0.00	0.00	0.00	7.81 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	2.46 E-1	2.46 E-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.38 E+0
ETE	MJ	0.00	0.00	4.23 E-1	4.23 E-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61 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. 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 PO CB T4 is fully 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

Bitumen blends production

Bitumen blends are prepared and stored in big holding tanks at +/- 200°C, before being pumped to the production line. POGB blends consist of bitumen, polypropylene, limestone, and other additives. The dosage is controlled automatically. After mixing, a sample is lab tested and the batch is pumped into a coating storage tank.

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. Another polypropylene fleece is applied on the backside of the product.

The finished product is then cooled down, cut to length, rolled up and packed in a paper foil, before being put on pallets and supported with additional packaging (polyethylene shrink film) before being sent to customers. 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.

Installation step (A5)

The waterproofing membrane is mechanically fastened to the roof with plastic washers and galvanised screws. Overlaps are welded by hot air using an automatic welding machine.



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 that 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