ENVIRONMENTAL PRODUCT DECLARATION

ISO 14025 ISO 21930 EN 15804

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The Norwegian EPD Foundation

Owner of the the declaration	Icopal AS
Program operator	Næringslivets Stiftelse for Miljødeklarasjoner
Publisher	Næringslivets Stiftelse for Miljødeklarasjoner
Declaration number	00209N
Date for approval	01.12.2013
Valid until	01.12.2018

Icopal RMB 400 radon membrane

Product

Icopal AS

Producer

General information

Icopal RMB 400 radonmembrane
Product

Icopal as
Producer

Program operator
Næringslivets Stiftelse for Miljødeklarasjoner
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Owner of the declaration:
Icopal as
Contact person: Snorre Semmingsen
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Declaration number:
00209N

Production location:
Továrenská 1, 943 03 Štúrovo, Slovakia

The Declaration based on PCR:
CEN Standard EN 15804 serves as core PCR
NPCR 22 Roof Waterproofing

Quality/Environmental system:
ISO 9001 and ISO 14001 (2000-OSL-SYMI-8093)

Declared unit:
1 m^2 produced membrane

Org. no.:
NO 911 671 549 MVA

Declared unit with option:
1 m^2 installed membrane with 60 years lifespan.

Approval date
01.12.2013

Functional unit:

Valid until:
01.12.2018

The environmental decalration prepared by:

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Norway

Comparability:
The EPD of construction products is necessarily not comparable if they do not conform to NS-EN 15804 and seen in a building context.

Year of study:
2012

Verification:
Independent verification of data and other environmental information is made according to ISO 14025, 8.1.3.

Approved according to ISO 14025, 8.1.4

externally ☑ internally ☐

Kari Sørnes

(Independent verifier approved by EPD Norway)

Dr. Ing Sverre Fossdal
(Verification manager EPD-Norway)

Declared unit:
1 m^2 produced membrane

Key Indicators	Unit	port A1 - A3	Transport $A4_1$
Emissions	kg CO_2 -ekv	1,3	4,00E-02
Energy	MJ	22,3	7,10E-01
Hazardous substances	*		

* The product contains no substances from the REACH Candidate list or the Norwegian priority list

$A4_1$ Transportation from production site to central warehouse in Norway

Product

Product description:
The product is used for protection againt radon and moisture in the ground.

Technical data:
Weight: 410 g/m2 Thickness: 0,4 mm
SINTEF Byggforsk TG 2397

Product specification
The product is a low density polyethylene (LDPE) membrane with a polyester (PET) reinforcement mesh.

Material	kg	%
PET net	0,04	10
LDPE og hjeøpestpffer	0,37	90

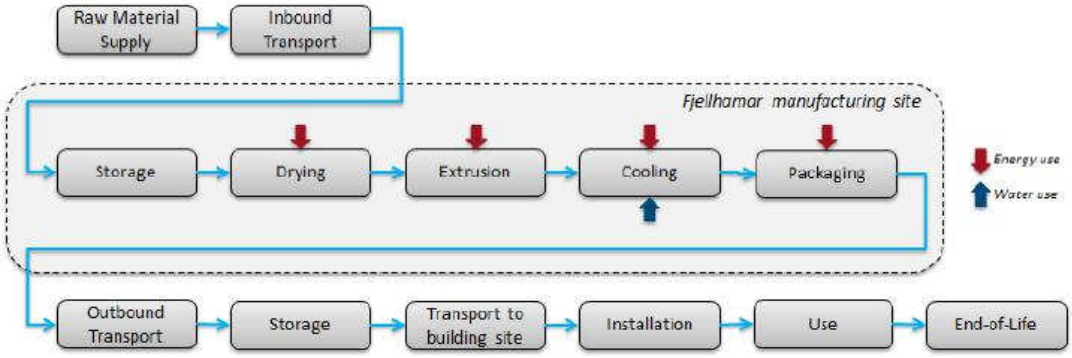
Market area:
Norge , Norden og Europa

Lifespan:
60 year

LCA: Calculation rules

Declared unit with option:
1 m^2 installed membrane with 60 years lifespan.

Systemgrenser:
Cradle to port (A1-A3) with declared unit. Other included lifecycle phases (A4, A5, B1-B7 og C2) with functional device.



Data quality:
The data is based on an average for 2012 and is rated as good. Specific data have been used for all processes, except those outside Icopal`s control. For these, generic data are based on Ecoinvent and other like them.

Cut-off criteria:
All processes are included (no cut-off). No deviation according to PCR.

Allocation:
No allocation, except shared resources on main store. (Allocation according to production volume)

LCA: Scenarios and other technical information

The following information describes the scenarios of the modules in the EPD.

Transport from production site to user(A4)

Type	Utilization capacity incl (%)	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Car	88	Eurokl. 4-5	250	l/tkm	

Additional information: Transport from production site to central warehouse in Norway 1926 km

Construction phase (A5)

	Unit	Value
Materials	kg	0,02
Water consumption	m3	
Electricity consumption	kWh	
Other sources of energy	MJ	
Material loss	kg	0,04
Materials from waste treatment	kg	
Air dust	kg	

Gevinst og belastninger etter endt levetid (D)

For energy recovery	MJ	20
For material recovery	%	100

Transport waste treatment (C2)

Type	Utilization capacity incl (%)	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Car	48	Euroklasse 5	50	l/tkm	

LCA: Results

System limits (X = included, MID = modul not declared, MIR = modul not relevant)

Product phase			Construction installation phase		Usage phase							Final phase				Ended lifespan
Raw materials	Transport	Manufacturing	Transport	Konstruksjoninstallasjonfase	Usage	Maintenance	Repair	Replacements	Renovation	Operasjonellenergibruk	Operasjonellvannbruk	Dismantling	Transport	Waste treatment	Waste to landfill	Gjenbruk-gjenvinning-resirkulering-potensiale
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MIR	MIR	MIR	MIR	MIR	MIR	MIR	MID	X	MID	MID	MID

Environmental impact

Parameter	A1 - A3	A4	A5		C2				
GWP	1,25	5,10E-02	1,92E-01		2,00E-03				
ODP	3,00E-08	6,98E-09	4,11E-09		2,85E-10				
POCP	2,91E-04	5,81E-06	4,36E-05		2,29E-07				
AP	5,69E-03	1,90E-04	8,52E-04		6,07E-06				
EP	9,92E-04	5,00E-05	1,39E-04		1,52E-06				
ADPM	1,70E-02	3,52E-04	2,67E-03		1,43E-05				
ADPE	35,19	7,70E-01	5,55		3,00E-02				

GWP Emissions (kg CO_2-ekv.); **ODP** Potential for degradation of startospheric ozone (kg CFC11-ekv.);

POCP Potential for photochemical oxcide (kg C_2H_4-ekv.); **AP** Pollution potential sources on land and water (kg SO_2-ekv.); **EP** Eutrophication potetial(kg PO_4^{3-}-ekv.); **ADPM** Abiotic drainage potential for non-fossil resources (kg Sb - ekv.); **ADPE** Abiotic drainage potential for fossil resources (MJ)

Resource usage

Parameter	A1 - A3	A4	A5		C2				
FPEE	1,04	7,00E-02	1,50E-01						
FPEM	7,00E-01		9,00E-02						
TFE	1,75	7,00E-02	2,40E-01						
IFPE	21,24	8,20E-01	3,21		3,00E-02				
IFPM	19,16		3,12						
TIFE	40,41	8,20E-01	6,33		3,00E-02				
SM									
FSB									
IFSB									
V	2,00E-02								

FPEE Renewable primary energy used as energy carrier (MJ); **FPEM** Renewable primary energy used as raw materials(MJ); **TFE** Total use of renewable primary energy (MJ); **IFPE** Non renewable primary energy used as energy carrier(MJ); **IFPM** Non renewable primary energy used as raw material(MJ); **TIFE** Total use of non renewable primary energy (MJ); **SM** Use of secondary materials (kg); **FSB** Use of renwable secondary fuels (MJ); **IFSB** Use of non renewable secondary fuel (MJ); **V** Net usage of drinking water (m^3)

Lifespan end - Waste

Parameter	A1 - A3	A4	A5		C2				
FA									
IFA	5,00E-02								
RA									

FA Dispose of harzardous waste (kg); **IFA** Dispose of non-harzardous waste (kg), **RA** Dispose of radioactive waste (kg)

Lifespan end – Output factors

Parameter	A1 - A3	A4	A5		C2				
KG									
MR	2,00E-02		4,00E-02						
MEG									
EEE									
ETE									

KG Components for reuse (kg); MR Materials for resction(kg); **MEG** Materias for energy recovery (kg); **EEE** Exported electrical energy (MJ); **ETE** Exported thermal energy (MJ)

Example for reading: 9,0 E-03 = $9,0*10^{-3}$ = 0,009

Specific Norwegian requirements

Electricity

Norwegian electricity, low woltage, included imports (carbon intensity 0,06 kgCO_2 ekv/kWt)

Emissions: 0,02 kg CO_2 - ekv/MJ

Hazardous substances

The product has not been added to substances from the REACH Candidate List (as of 01.01.2013) on highly-concerned substances, substances on the Norwegian Priority List (as of 01.01.2013) and substances that cause the product to be classified as hazardous waste. The chemical content of the product is in accordance with the Norwegian Product Regulations.

Transport

Transportation from production site to central warehouse in Norway is 1926 km

Indoor air quality

The product has no effect on the indoor air quality.

Clima declaration

No climate declaration has been prepared for the product..

Bibliography

NS-EN ISO 14025:2006	*Ecolabelling and declarations - Environmental declarations Type III - Principles and procedures.*
NS-EN ISO 14044:2006	*Environmental management - Lifetime assessments - Requirements and guidelines*
NS-EN 15804:2012	*Sustainable construction - Environmental declarations - Basic product category rules for building materials*
ISO 21930:2007	*Sustainability in building construction - Environmental declaration of building products*

LCA-report Icopal Universal. 30th May 2013.

NPCR 22 Roof Waterproofing. 10th December 2012.

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