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The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Isola AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-2597-1318-EN
Registration number:	NEPD-2597-1318-EN
ECO Platform reference number:	-
Issue date:	25.01.2021
Valid to:	25.01.2026

Isola Mestertekk

Isola AS

www.epd-norge.no

General information

Product:

Isola Mestertekk

Owner of the declaration:

Isola AS
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Program operator:

The Norwegian EPD Foundation
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Manufacturer:

Isola AS
Prestemoen 9 , 3946 Porsgrunn
Norway

Declaration number:

NEPD-2597-1318-EN

Place of production:

Isola AS Fabrikk Eidanger
Prestemoen 9 , 3946 Porsgrunn
Norway

ECO Platform reference number:

Management system:

ISO 9001 Certificate No: QSC-6011

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A1:2013 serves as core PCR
NPCR 022:2018 Part B for Roof waterproofing

Organisation no:

928 764 745

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Issue date: 25.01.2021

Valid to: 25.01.2026

Declared unit:

1 m2 Isola Mestertekk

Year of study:

2020

Declared unit (cradle to gate) with option:

A1,A2,A3,A4,A5,C1,C2,C3,C4,D

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

Functional unit:

Development and verification of EPD:

The declaration has been developed and verified using EPD tool lca.tools ver EPD2020.11, developed by LCA.no AS. The EPD tool is integrated into the company's environmental management system, and has been approved by EPD-Norway

Developer of EPD:

Morten Schelver

Reviewer of company-specific input data and EPD:

Trond Risberg

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Individual third party verification of each EPD is not required when the EPD tool is i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPDNorway, and iii) the proccess is reviewed annualy. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Michael M. Jenssen, Asplan Viak AS

(no signature required)

Approved:

Sign

Håkon Hauan, CEO EPD-Norge

Product

Product description:

This is a product specific EPD for Isola Mestertekk. Mestertekk is a one-layer roofing sheet for sloping and flat roofs, new built and rehabilitation.

Product specification

The product is made of natural bitumen free of tar, combined with thermoplastic elastomer, natural filler and granulate for UV protection and micrometer-thin foil. Raw materials are mixed separately at a specific range of temperature and successively reinforced with polyester fleece or glass fiber by impregnation. After calendaring and cooling, the roofing sheet is finished with light weight plastic films or slate granules

Technical data:

Weight: 4,6 kg/m^2
Thickness: 3,8 mm

Market:

Norway and Europe

Reference service life, product

30 years

Reference service life, building

60 years

Materials	kg	%
Additives	0,22	4,51
Bitumen	2,55	51,20
Fire-, heat- and UV-stabilizers	0,06	1,15
Raw materials, Mineral	1,78	35,71
Textile - Polyester (PE)	0,20	4,02
Packaging - Pallet	0,13	2,56
Polypropylene (PP)	0,01	0,15
Aluminium	0,03	0,60
Other	0,00	0,10
Total	4,98	

Packaging	kg	
Packaging - Plastic	0,01	
Packaging - Paper	0,09	
Total including packaging	5,08	

LCA: Calculation rules

Declared unit:

1 m2 Isola Mestertekk

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

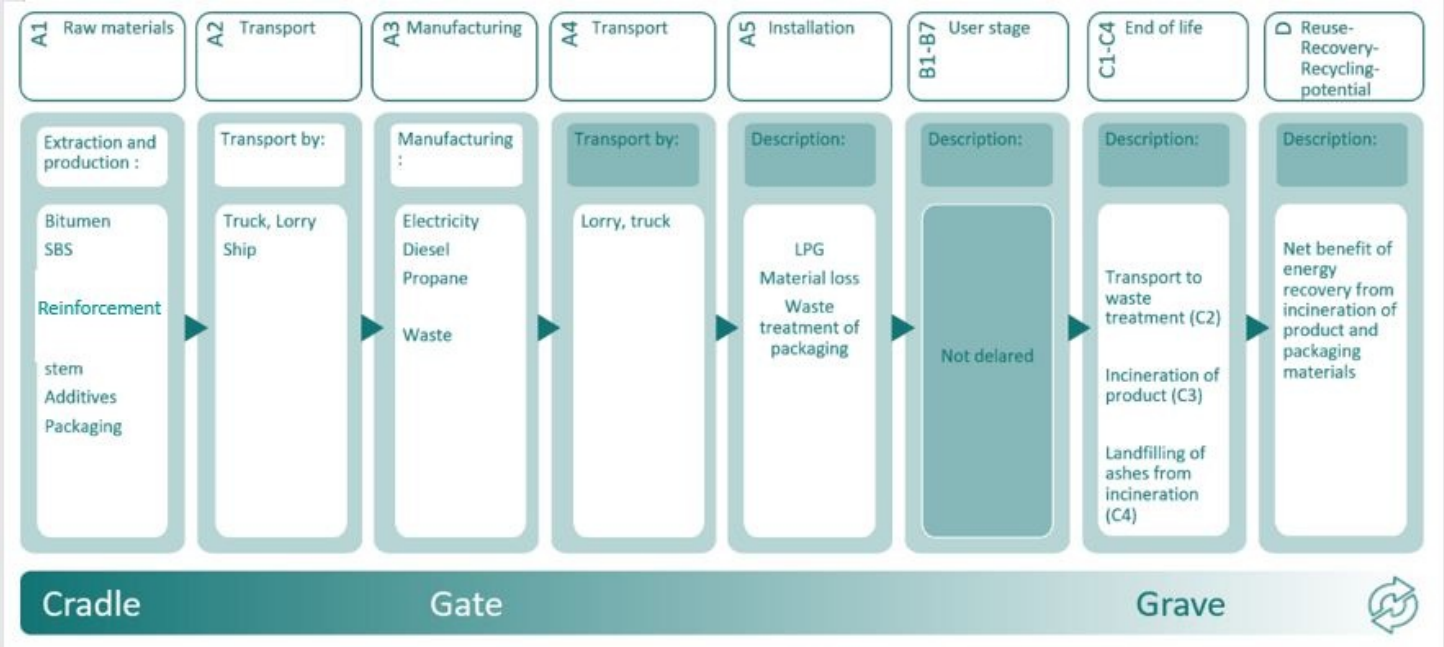
The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Materials	Source	Data quality	Year
Textile - Polyester (PE)	S-P-00172	EPD	2016
Raw materials, Mineral	NEPD-1584-609	EPD	2017
Additives	ecoinvent 3.6	Database	2019
Fire-, heat- and UV-stabilizers	ecoinvent 3.6	Database	2019
Other	ecoinvent 3.6	Database	2019
Packaging - Pallet	ecoinvent 3.6	Database	2019
Packaging - Paper	ecoinvent 3.6	Database	2019
Packaging - Plastic	ecoinvent 3.6	Database	2019
Polypropylene (PP)	ecoinvent 3.6	Database	2019
Raw materials, Mineral	ecoinvent 3.6	Database	2019
Aluminium	NEPD-2263-1034	EPD	2019
Bitumen	Eurobitume LCI for bitumen	LCA study	2019

System boundary:



Additional technical information:

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

The product is installed in A5 using LPG and assuming 2 % material loss. The packaging is waste treated. Module C1 is included but assumed to be zero, since the product is only a minor part of a total building demolition. The product is assumed to be incinerated with energy recovery in C3. The benefit of substituting energy (heat and electricity) is included in module D.

Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	38,8 %	Lastebil, EURO6	300	0,043626	l/tkm	13,09
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

Assembly (A5)

.	Unit	Value
Auxiliary	kg	
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	0,0170
Material loss	kg	
Output materials from waste treatment	kg	
Dust in the air	kg	
VOC emissions	kg	

End of Life (C1, C3, C4)

.	Unit	Value
Hazardous waste disposed	kg	
Collected as mixed construction waste	kg	
Reuse	kg	
Recycling	kg	
Energy recovery	kg	0,2000
To landfill	kg	0,1501

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	38,8 %	Lastebil, EURO6	85	0,043626	l/tkm	3,71
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

..

Benefits and loads beyond the system boundaries (D)

.	Unit	Value
Substitution of electricity, in Norway (MJ)	MJ/DU	12,65
Substitution of thermal energy, district heating, in Norway (MJ)	MJ/DU	87,78

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Construction installation stage		User stage							End of life stage				.	Beyond the system bondaries
Raw materials	Transport	Manufacturing	Transport	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	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	.	X

Environmental impact

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO_2 -eq	2,62E+00	2,20E-01	9,69E-02	0	6,23E-02	1,10E+01	3,86E-02	-8,45E-01
ODP	kg CFC11 -eq	1,36E-07	4,14E-08	1,19E-08	0	1,17E-08	4,23E-08	5,52E-09	-1,83E-07
POCP	kg C_2H_4-eq	1,04E-03	3,33E-05	2,16E-05	0	9,44E-06	9,05E-05	5,59E-06	-7,78E-04
AP	kg SO_2 -eq	1,38E-02	5,17E-04	2,22E-04	0	1,46E-04	2,90E-03	1,37E-04	-4,12E-03
EP	kg PO_4^{3-} -eq	3,70E-03	6,78E-05	3,78E-05	0	1,92E-05	4,32E-04	2,45E-05	-1,07E-03
ADPM	kg Sb -eq	2,02E-06	6,83E-07	4,21E-08	0	1,94E-07	5,80E-07	9,20E-10	-7,01E-06
ADPE	MJ	1,50E+02	3,32E+00	9,93E-01	0	9,41E-01	1,45E+00	5,10E-01	-1,04E+01

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

Resource use

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
RPEE	MJ	6,29E+00	4,90E-02	3,25E+00	0	1,39E-02	1,06E-01	1,86E-02	-4,37E+01
RPEM	MJ	1,38E+01	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	2,37E+01	4,90E-02	3,25E+00	0	1,39E-02	1,06E-01	1,86E-02	-4,37E+01
NRPE	MJ	4,15E+01	3,40E+00	1,27E+00	0	9,63E-01	1,65E+00	5,36E-01	-2,36E+01
NRPM	MJ	1,11E+02	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	1,53E+02	3,40E+00	1,27E+00	0	9,63E-01	1,65E+00	5,36E-01	-2,36E+01
SM	kg	1,53E-01	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	4,26E-04	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	-2,49E-03
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m^3	1,78E-02	6,43E-04	3,07E-04	0	1,82E-04	6,55E-03	5,06E-04	-7,04E-03

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE 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; W Use of net fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Waste

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HW	kg	4,75E+00	2,00E-06	6,49E-07	0	5,67E-07	5,55E-06	7,23E-07	-2,19E-05
NHW	kg	1,00E+02	1,82E-01	1,62E-02	0	5,16E-02	7,27E-02	1,84E+00	-4,80E-01
RW	kg	1,35E-03	2,33E-05	6,41E-06	0	6,61E-06	4,30E-06	3,26E-06	-2,21E-04

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Output flow

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CR	kg	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	3,94E-03	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	kg	3,20E-02	0,00E+00	2,25E-01	0	0,00E+00	2,00E-01	0,00E+00	0,00E+00
EEE	MJ	3,60E-02	0,00E+00	1,90E-01	0	0,00E+00	1,12E+01	0,00E+00	0,00E+00
ETE	MJ	3,74E-01	0,00E+00	2,09E+00	0	0,00E+00	7,71E+01	0,00E+00	0,00E+00

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

Additional Norwegian requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Data source	Amount	Unit
El-mix, Norway (kWh)	ecoinvent 3.4	31,04	g CO2-ekv/kWh

Dangerous substances

No substances given by the REACH Candidate list or the Norwegian priority list are intentionally added to the product.

Indoor environment

Not relevant, the product is intended for outdoor use.

Bibliography

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ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
EN 15804:2012+A1:2013 Environmental product declaration - Core rules for the product category of construction products.
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NPCR 022 Part B for Roof waterproofing. Ver. 2.0 June 2018, EPD-Norge.

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