

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Isola Mestertekk



The Norwegian EPD Foundation

Owner of the declaration:

Isola AS

Produkt:

Isola Mestertekk

Declared unit:

1 m²

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core

PCR

NPCR 022:2022 Part B for Roof waterproofing

Program operator:

The Norwegian EPD Foundation

Declaration number:

NEPD-6374-5636-EN

Registration number:

NEPD-6374-5636-EN

Issue date: 04.04.2024

Valid to: 04.04.2029

EPD software:

LCAno EPD generator ID: 255482

General information

Product:

Isola Mestertekk

Program operator:

Post Box 5250 Majorstuen, 0303 Oslo, Norway
The Norwegian EPD Foundation
Phone: +47 23 08 80 00
web: post@epd-norge.no

Declaration number:

NEPD-6374-5636-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 022:2022 Part B for Roof waterproofing

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.

Declared unit:

1 m2 Isola Mestertekk

Declared unit (cradle to gate) with option:

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

Functional unit:

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. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. 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.

Third party verifier:

Elisabet Amat, GREENIZE projects

(no signature required)

Owner of the declaration:

Isola AS
Contact person: Trond Risberg
Phone: +47 98 89 18 86
e-mail: t.risberg@isola.no

Manufacturer:

Isola AS
Prestemoen 9
3946 Porsgrunn, Norway

Place of production:

Isola AS Fabrikk Eidanger
Prestemoen 9
3946 Porsgrunn, Norway

Management system:

ISO 9001 Certificate No: QSC-6011, ISO 14001:2015

Organisation no:

928 764 745

Issue date:

04.04.2024

Valid to:

04.04.2029

Year of study:

2023

Comparability:

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

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway. NEPDT19

Developer of EPD: Morten Schelver

Reviewer of company-specific input data and EPD: Trond Risberg

Approved:



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, coated with an aluminium foil. After calendaring and cooling, the roofing sheet is finished with light weight plastic films and slate granules

| Materials | kg | % |
|---------------------------------|------|-------|
| Additives | 0,22 | 4,62 |
| Aluminium foil | 0,03 | 0,62 |
| Bitumen | 2,55 | 52,42 |
| Fire-, heat- and UV-stabilizers | 0,07 | 1,42 |
| Plastic - Polypropylene (PP) | 0,01 | 0,15 |
| Raw materials, Mineral | 1,78 | 36,56 |
| Tape | 0,00 | 0,10 |
| Textile - Polyester (PE) | 0,20 | 4,11 |
| Total | 4,87 | |

| Packaging | kg | % |
|-----------------------|------|-------|
| Packaging - Plastic | 0,01 | 3,99 |
| Packaging - Wood | 0,13 | 96,01 |
| Total incl. packaging | 5,00 | |

Technical data:

Weight: 4,6 kg/m²

Thickness: 3,8 mm

Market:

Norway and Europe

Reference service life, product

30 years

Reference service life, building

60 years

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:

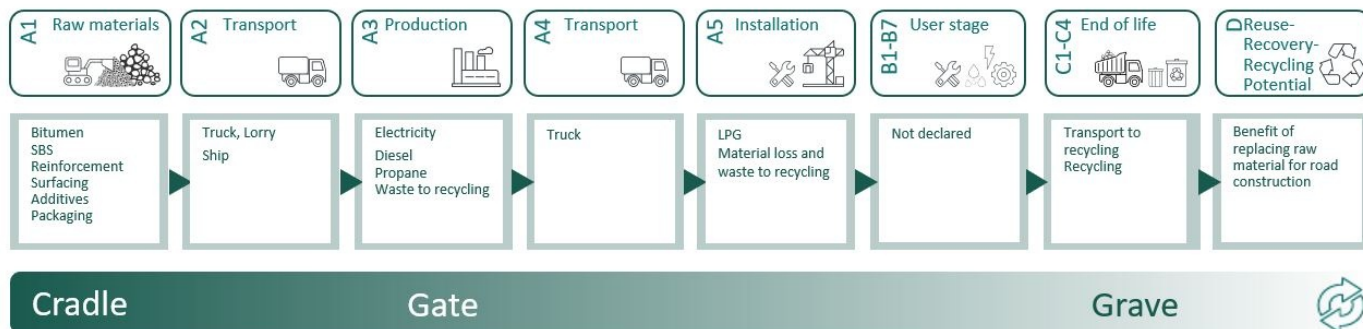
Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other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

| Materials | Source | Data quality | Year |
|---------------------------------|-------------------|----------------------|------|
| Additives | ecoinvent 3.6 | Database | 2019 |
| Aluminium foil | ecoinvent 3.6 | Database | 2019 |
| Bitumen | Eurobitume (2019) | Life Cycle Inventory | 2019 |
| Fire-, heat- and UV-stabilizers | ecoinvent 3.6 | Database | 2019 |
| Packaging - Plastic | ecoinvent 3.6 | Database | 2019 |
| Packaging - Wood | ecoinvent 3.6 | Database | 2019 |
| Plastic - Polypropylene (PP) | ecoinvent 3.6 | Database | 2019 |
| Raw materials, Mineral | ecoinvent 3.6 | Database | 2019 |
| Tape | ecoinvent 3.6 | Database | 2019 |
| Textile - Polyester (PE) | S-P-04186 | EPD | 2020 |

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

| Product stage | | | Construction installation stage | | Use stage | | | | | | | End of life stage | | | | Beyond the system boundaries |
|---------------|-----------|---------------|---------------------------------|----------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|------------------------------------|
| 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 |

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 produced in A3 and installed in A5, assuming a 2% material loss. LPG and electricity are used as energy sources during installation in A5. The packaging waste is treated appropriately. Module C1 is included but assumed to be zero, since the product contributes minimally to the total environmental load of a building demolition. Waste treatment of bituminous materials from installation (A5) and processing of building waste (C3) follow a 100% scenario, wherein all waste is assumed to be recycled for use as raw material in road asphalt production. The loads and benefits from substituting bitumen in road asphalt production are included in module D. Alternative scenarios for waste handling are used in an earlier version of this EPD. Documentation will be given on request.

| Transport from production place to user (A4) | Capacity utilisation (incl. return) % | Distance (km) | Fuel/Energy Consumption | Unit | Value (Liter/tonne) |
|--|---------------------------------------|---------------|-------------------------|-------|---------------------|
| Lastebil, EURO 6 (kgkm) | 36,7 % | 300 | 0,043 | l/tkm | 12,90 |
| Assembly (A5) | | | | | |
| | Unit | Value | | | |
| Propane, burned (kg) | kg/DU | 0,17 | | | |
| Waste bitumen sheet to recycling (kg) | kg/DU | 0,02 | | | |
| Waste treatment, packaging, pallet, EUR wooden pallet, single use (kg) | kg | 0,13 | | | |
| Waste treatment, packaging, plastic film (LDPE) (kg) | kg | 0,01 | | | |
| Transport to waste processing (C2) | | | | | |
| | Capacity utilisation (incl. return) % | Distance (km) | Fuel/Energy Consumption | Unit | Value (Liter/tonne) |
| Ship, Ferry, Sea (kgkm) | 50,0 % | 163 | 0,034 | l/tkm | 5,54 |
| Truck with trailer, EURO 6 (kgkm) | 53,3 % | 237 | 0,023 | l/tkm | 5,44 |
| Waste processing (C3) | | | | | |
| | Unit | Value | | | |
| Waste, bitumen sheet to recycling (kg) | kg/DU | 4,60 | | | |
| Benefits and loads beyond the system boundaries (D) | | | | | |
| | Unit | Value | | | |
| Substitution of primary bitumen (kg) | kg | 4,60 | | | |

LCA: Results

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

| Environmental impact | | | | | | | | | | |
|--|------------------------|-----------|----------|----------|----|----------|----------|----|-----------|--|
| Indicator | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | |
|  GWP-total | kg CO ₂ -eq | 2,46E+00 | 2,26E-01 | 8,90E-01 | 0 | 1,77E-01 | 0,00E+00 | 0 | -9,73E-01 | |
|  GWP-fossil | kg CO ₂ -eq | 2,40E+00 | 2,25E-01 | 6,97E-01 | 0 | 1,77E-01 | 0,00E+00 | 0 | -9,73E-01 | |
|  GWP-biogenic | kg CO ₂ -eq | -1,93E-01 | 9,33E-05 | 1,93E-01 | 0 | 6,19E-05 | 0,00E+00 | 0 | -7,18E-06 | |
|  GWP-luluc | kg CO ₂ -eq | 2,52E-01 | 8,02E-05 | 6,26E-05 | 0 | 8,02E-05 | 0,00E+00 | 0 | -4,07E-04 | |
|  ODP | kg CFC11 -eq | 1,80E-07 | 5,11E-08 | 1,39E-07 | 0 | 3,94E-08 | 0,00E+00 | 0 | -8,05E-08 | |
|  AP | mol H+ -eq | 1,84E-02 | 6,48E-04 | 2,11E-03 | 0 | 3,00E-03 | 0,00E+00 | 0 | -1,00E-02 | |
|  EP-FreshWater | kg P -eq | 2,15E-04 | 1,80E-06 | 3,10E-06 | 0 | 1,07E-06 | 0,00E+00 | 0 | -2,17E-05 | |
|  EP-Marine | kg N -eq | 5,29E-03 | 1,28E-04 | 5,30E-04 | 0 | 7,40E-04 | 0,00E+00 | 0 | -2,21E-03 | |
|  EP-Terrestrial | mol N -eq | 4,48E-02 | 1,43E-03 | 5,82E-03 | 0 | 8,23E-03 | 0,00E+00 | 0 | -2,49E-02 | |
|  POCP | kg NMVOC -eq | 1,31E-02 | 5,49E-04 | 2,01E-03 | 0 | 2,23E-03 | 0,00E+00 | 0 | -8,23E-03 | |
|  ADP-minerals&metals ¹ | kg Sb-eq | 1,22E-05 | 6,23E-06 | 1,29E-06 | 0 | 2,24E-06 | 0,00E+00 | 0 | -1,55E-06 | |
|  ADP-fossil ¹ | MJ | 1,54E+02 | 3,41E+00 | 9,12E+00 | 0 | 2,59E+00 | 0,00E+00 | 0 | -2,08E+02 | |
|  WDP ¹ | m ³ | 1,16E+02 | 3,30E+00 | 2,12E+00 | 0 | 1,38E+00 | 0,00E+00 | 0 | -4,32E-01 | |







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 Exceedance; 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 Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

1. 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 experienced with the indicator

Remarks to environmental impacts



| Additional environmental impact indicators | | | | | | | | | | |
|---|-------------------|----------|----------|----------|----|----------|----------|----|-----------|--|
| Indicator | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | |
|  PM | Disease incidence | 3,06E-07 | 1,38E-08 | 2,36E-08 | 0 | 1,10E-08 | 0,00E+00 | 0 | -2,88E-07 | |
|  IRP ² | kgBq U235 -eq | 5,59E-02 | 1,49E-02 | 3,75E-02 | 0 | 1,13E-02 | 0,00E+00 | 0 | 0,00E+00 | |
|  ETP-fw ¹ | CTUe | 5,36E+01 | 2,53E+00 | 5,35E+00 | 0 | 1,73E+00 | 0,00E+00 | 0 | -4,95E+01 | |
|  HTP-c ¹ | CTUh | 1,32E-08 | 0,00E+00 | 2,25E-10 | 0 | 0,00E+00 | 0,00E+00 | 0 | -6,62E-10 | |
|  HTP-nc ¹ | CTUh | 4,55E-08 | 2,76E-09 | 7,05E-09 | 0 | 1,84E-09 | 0,00E+00 | 0 | -9,97E-09 | |
|  SQP ¹ | dimensionless | 4,55E+01 | 2,38E+00 | 1,24E+00 | 0 | 1,90E+00 | 0,00E+00 | 0 | -3,45E+01 | |

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)

"Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3} = 0,009$ "

*INA Indicator Not Assessed




1. 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 experienced 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 | | | | | | | | | | |
|---|----------------|----------|----------|-----------|----|----------|----------|----|-----------|--|
| Indicator | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | |
|  PERE | MJ | 5,27E+00 | 4,88E-02 | 5,78E-02 | 0 | 2,60E-02 | 0,00E+00 | 0 | -3,80E-01 | |
|  PERM | MJ | 1,84E+00 | 0,00E+00 | -1,77E+00 | 0 | 0,00E+00 | 0,00E+00 | 0 | 0,00E+00 | |
|  PERT | MJ | 7,12E+00 | 4,88E-02 | -1,71E+00 | 0 | 2,60E-02 | 0,00E+00 | 0 | -3,80E-01 | |
|  PENRE | MJ | 5,31E+01 | 3,41E+00 | 9,12E+00 | 0 | 2,59E+00 | 0,00E+00 | 0 | -2,67E+01 | |
|  PENRM | MJ | 1,12E+02 | 0,00E+00 | -2,25E-01 | 0 | 0,00E+00 | 0,00E+00 | 0 | -1,81E+02 | |
|  PENRT | MJ | 1,57E+02 | 3,41E+00 | 8,89E+00 | 0 | 2,59E+00 | 0,00E+00 | 0 | -2,08E+02 | |
|  SM | kg | 1,72E-01 | 0,00E+00 | 0,00E+00 | 0 | 0,00E+00 | 0,00E+00 | 0 | 0,00E+00 | |
|  RSF | MJ | 1,10E-02 | 1,75E-03 | 1,38E-03 | 0 | 8,45E-04 | 0,00E+00 | 0 | 0,00E+00 | |
|  NRSF | MJ | 1,33E-02 | 6,24E-03 | 1,97E-02 | 0 | 2,27E-03 | 0,00E+00 | 0 | 0,00E+00 | |
|  FW | m ³ | 4,63E-02 | 3,64E-04 | 6,28E-04 | 0 | 2,26E-04 | 0,00E+00 | 0 | -1,08E-02 | |

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 materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

*Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"






*INA Indicator Not Assessed

| End of life - Waste | | | | | | | | | | |
|--|------|----------|----------|----------|----|----------|----------|----|-----------|--|
| Indicator | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | |
|  HWD | kg | 1,04E-02 | 1,76E-04 | 6,49E-04 | 0 | 1,27E-04 | 0,00E+00 | 0 | -6,44E-04 | |
|  NHWD | kg | 3,55E-01 | 1,66E-01 | 1,50E-01 | 0 | 1,36E-01 | 0,00E+00 | 0 | -4,60E-02 | |
|  RWD | kg | 1,36E-03 | 2,32E-05 | 6,03E-05 | 0 | 1,79E-05 | 0,00E+00 | 0 | -2,30E-03 | |

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

*Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3} = 0,009$

*INA Indicator Not Assessed

| End of life - Output flow | | | | | | | | | | |
|---|------|----------|----------|----------|----|----------|----------|----|----------|--|
| Indicator | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | |
|  CRU | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0 | 0,00E+00 | 0,00E+00 | 0 | 0,00E+00 | |
|  MFR | kg | 2,76E-01 | 0,00E+00 | 2,27E-02 | 0 | 0,00E+00 | 4,60E+00 | 0 | 0,00E+00 | |
|  MER | kg | 3,38E-06 | 0,00E+00 | 1,26E-01 | 0 | 0,00E+00 | 0,00E+00 | 0 | 0,00E+00 | |
|  EEE | MJ | 9,47E-03 | 0,00E+00 | 8,80E-02 | 0 | 0,00E+00 | 0,00E+00 | 0 | 0,00E+00 | |
|  EET | MJ | 1,43E-01 | 0,00E+00 | 1,33E+00 | 0 | 0,00E+00 | 0,00E+00 | 0 | 0,00E+00 | |

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

*Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3} = 0,009$

*INA Indicator Not Assessed

| Biogenic Carbon Content | | |
|---|------|---------------------|
| Indicator | Unit | At the factory gate |
| Biogenic carbon content in product | kg C | 0,00E+00 |
| Biogenic carbon content in accompanying packaging | kg C | 5,48E-02 |

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂

Additional 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 |
|---------------------------|---------------|--------|---------------------------|
| Electricity, Norway (kWh) | ecoinvent 3.6 | 24,33 | g CO ₂ -eq/kWh |

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

Not relevant, the product is intended for outdoor use.

Additional Environmental Information

| Additional environmental impact indicators required in NPCR Part A for construction products | | | | | | | | | |
|--|------------------------|----------|----------|----------|----|----------|----------|----|-----------|
| Indicator | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
| GWPIOBC | kg CO ₂ -eq | 2,05E+00 | 2,26E-01 | 6,83E-01 | 0 | 1,77E-01 | 0,00E+00 | 0 | -9,73E-01 |

GWPIOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Bibliography

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.

EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.

ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.






ecoinvent v3, Allocation, cut-off by classification, Swiss Centre of Life Cycle Inventories.

Iversen et al., (2018) eEPD v3.0 - Background information for EPD generator system. LCA.no report number 04.18.

Ruttenborg et al., (2023) EPD generator for NPCR022:2022 Part B for Roof waterproofing - Background information for EPD generator application and LCA data, LCA.no report number 10.23

NPCR Part A: Construction products and services. Ver. 2.0. March 2021, EPD-Norge.

NPCR 022 Part B for Roof waterproofing. Ver. 2.0 March 2022, EPD-Norge.

| | | |
|---|--|---|
|  epd-norway <small>Global Program Operator</small> | Program operator and publisher The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo, Norway | Phone: +47 23 08 80 00 e-mail: post@epd-norge.no web: www.epd-norge.no |
|  | Owner of the declaration: Isola AS Prestemoen 9, 3946 Porsgrunn | Phone: +47 98 89 18 86 e-mail: t.risberg@isola.no web: www.isola.no |
|  | Author of the Life Cycle Assessment LCA.no AS Dokka 6B, 1671 | Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no |
|  | Developer of EPD generator LCA.no AS Dokka 6B,1671 Kråkerøy | Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no |
|  | ECO Platform ECO Portal | web: www.eco-platform.org web: ECO Portal |