

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Oldroyd ® Multisafe 1500 PP



The Norwegian EPD Foundation

Owner of the declaration:

Oldroyd AS

Produkt:

Oldroyd ® Multisafe 1500 PP

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-5707-4989-EN

Registration number:

NEPD-5707-4989-EN

Issue date: 03.01.2024

Valid to: 03.01.2029

EPD Software:

LCA.no EPD generator ID: 58737

General information

Product:

Oldroyd ® Multisafe 1500 PP

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-5707-4989-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 Oldroyd ® Multisafe 1500 PP

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:

Oldroyd AS
Contact person: Linda Amanda Celin
Phone: +47 35 98 75 50
e-mail: mail@oldroyd.no

Manufacturer:

Oldroyd AS

Place of production:

Oldroyd AS
Isdammen 25
3960 Stathelle, Norway

Management system:

ISO 9001 and ISO 14001 Certificate No.: 213

Organisation no:

870 890 192

Issue date: 03.01.2024

Valid to: 03.01.2029

Year of study:

2021

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.

Developer of EPD: Nina Carlsen

Reviewer of company-specific input data and EPD: Jan Zielinski

Approved:



Håkon Hauan, CEO EPD-Norge

Product:

Product description:

Flexible polypropylene geomembrane for barrier against water and radon.

OLDROYD® MultiSafe 1500 PP is a 1,5 mm thick membrane of flexible and strong polypropylene with good chemical resistance.

OLDROYD® Multisafe 1500 PP contains up to 10% internally recycled material.

Product specification

OLDROYD® MultiSafe 1500 PP is based on OLDROYD Multi-Layer Technology™ and consists of three layers. OLDROYD® MultiSafe 1500 PP is suitable for hot air welding of all joints and comes on rolls in widths up to 4,2 m and lengths up to 80 m.

Documentation is provided on request.

| Materials | kg | % |
|-------------------------------|------|-------|
| Pigments and Fillers | 0,08 | 6,00 |
| Plastic - Internally recycled | 0,14 | 10,00 |
| Plastics | 1,13 | 84,00 |
| Total | 1,35 | |

| Packaging | kg | % |
|-----------------------|------|--------|
| Packaging - Cardboard | 0,02 | 100,00 |
| Total incl. packaging | 1,37 | |

Technical data:

TDS 0402-CPD-455901

Market:

Scandinavia

Reference service life, product

> 120 years

Reference service life, building

> 60 years

LCA: Calculation rules

Declared unit:

1 m² Oldroyd® Multisafe 1500 PP

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:

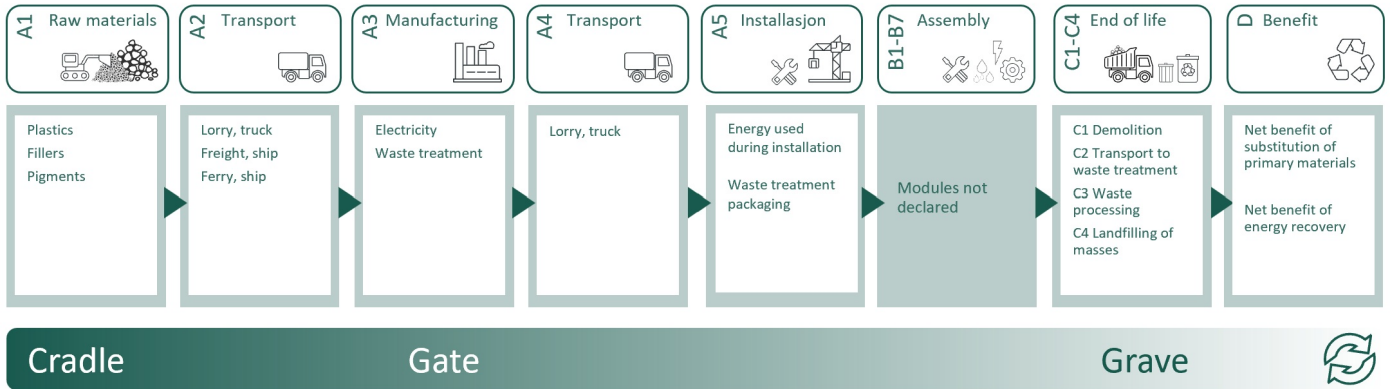
Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other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

| Materials | Source | Data quality | Year |
|-------------------------------|---------------|--------------|------|
| Packaging - Cardboard | ecoinvent 3.6 | Database | 2019 |
| Packaging - Plastic | ecoinvent 3.6 | Database | 2019 |
| Pigments and Fillers | ecoinvent 3.6 | Database | 2019 |
| Plastic - Internally recycled | ecoinvent 3.6 | Database | 2019 |
| Plastics | ecoinvent 3.6 | Database | 2019 |

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 | MNR | MNR | MND | MND | MND | MND | MND | X | X | X | X | X |

System boundary:



Additional technical information:

www.oldroyd.no

LCA: Scenarios and additional technical information














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

Material loss set as 5 % of product weight.

| Transport from production place to user (A4) | Capacity utilisation (incl. return) % | Distance (km) | Fuel/Energy Consumption | Unit | Value (Liter/tonne) |
|--|---------------------------------------|---------------|-------------------------|-------|---------------------|
| Truck, 16-32 tonnes, EURO 6 (kgkm) | 36,7 % | 300 | 0,043 | l/tkm | 12,90 |
| Assembly (A5) | | | | | |
| | Unit | Value | | | |
| Electricity, Norway (kWh) | kWh/DU | 0,01 | | | |
| Material loss from installation, including waste treatment (psc) | Units/DU | 0,05 | | | |
| Waste, packaging, core board, to average treatment (kg) | kg | 0,02 | | | |
| Waste, packaging, plastic tape, to average treatment (kg) | kg | 0,00 | | | |
| Transport to waste processing (C2) | | | | | |
| | Capacity utilisation (incl. return) % | Distance (km) | Fuel/Energy Consumption | Unit | Value (Liter/tonne) |
| Truck, 16-32 tonnes, EURO 6 (kgkm) | 36,7 % | 85 | 0,043 | l/tkm | 3,66 |
| Waste processing (C3) | | | | | |
| | Unit | Value | | | |
| Waste treatment per kg Sealing sheet, thermoplastic poleolefin (TPO), incineration with fly ash extraction (kg) - CH - C3 | kg/DU | 1,35 | | | |
| Disposal (C4) | | | | | |
| | Unit | Value | | | |
| Landfilling of ashes from incineration of Sealing sheet, thermoplastic poleolefin (TPO), process of ashes and residues, process of ashes and residues (kg) - CH - C4 | kg | 0,27 | | | |
| Benefits and loads beyond the system boundaries (D) | | | | | |
| | Unit | Value | | | |
| Substitution of electricity, in Norway (MJ) | MJ | 2,22 | | | |
| Substitution of thermal energy, district heating, in Norway (MJ) | MJ | 33,59 | | | |

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 | 2,77E+00 | 6,72E-02 | 3,51E-01 | 0 | 1,90E-02 | 3,46E+00 | 5,61E-03 | -2,02E-01 | |
|  GWP-fossil | kg CO ₂ -eq | 2,79E+00 | 6,71E-02 | 3,18E-01 | 0 | 1,90E-02 | 3,46E+00 | 5,61E-03 | -1,95E-01 | |
|  GWP-biogenic | kg CO ₂ -eq | -2,06E-02 | 2,78E-05 | 3,29E-02 | 0 | 7,87E-06 | 3,83E-05 | 3,48E-06 | -4,02E-04 | |
|  GWP-luluc | kg CO ₂ -eq | 1,23E-03 | 2,39E-05 | 6,44E-05 | 0 | 6,77E-06 | 4,78E-06 | 1,20E-06 | -6,71E-03 | |
|  ODP | kg CFC11 -eq | 9,08E-08 | 1,52E-08 | 5,79E-09 | 0 | 4,31E-09 | 2,80E-09 | 1,07E-09 | -1,42E-02 | |
|  AP | mol H+ -eq | 1,01E-02 | 1,93E-04 | 5,45E-04 | 0 | 5,47E-05 | 4,27E-04 | 2,80E-05 | -1,60E-03 | |
|  EP-FreshWater | kg P -eq | 4,49E-05 | 5,36E-07 | 2,31E-06 | 0 | 1,52E-07 | 3,10E-07 | 6,76E-08 | -1,73E-05 | |
|  EP-Marine | kg N -eq | 1,72E-03 | 3,82E-05 | 9,98E-05 | 0 | 1,08E-05 | 2,03E-04 | 9,46E-06 | -5,25E-04 | |
|  EP-Terrestrial | mol N -eq | 1,90E-02 | 4,27E-04 | 1,10E-03 | 0 | 1,21E-04 | 2,20E-03 | 1,06E-04 | -5,67E-03 | |
|  POCP | kg NMVOC -eq | 8,55E-03 | 1,64E-04 | 4,68E-04 | 0 | 4,63E-05 | 5,30E-04 | 3,00E-05 | -1,56E-03 | |
|  ADP-minerals&metals ¹ | kg Sb -eq | 2,83E-05 | 1,85E-06 | 1,56E-06 | 0 | 5,25E-07 | 1,38E-07 | 5,85E-08 | -1,94E-06 | |
|  ADP-fossil ¹ | MJ | 9,52E+01 | 1,02E+00 | 4,85E+00 | 0 | 2,88E-01 | 2,36E-01 | 8,30E-02 | -2,79E+00 | |
|  WDP ¹ | m ³ | 1,44E+02 | 9,82E-01 | 7,69E+00 | 0 | 2,78E-01 | 5,60E-01 | 4,15E-01 | -3,47E+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

No impact

| Additional environmental impact indicators | | | | | | | | | | |
|---|-------------------|----------|----------|----------|----|----------|----------|----------|-----------|--|
| Indicator | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | |
|  PM | Disease incidence | 8,92E-08 | 4,11E-09 | 4,88E-09 | 0 | 1,17E-09 | 2,07E-09 | 4,44E-10 | -9,72E-08 | |
|  IRP ² | kgBq U235 -eq | 6,78E-02 | 4,44E-03 | 3,77E-03 | 0 | 1,26E-03 | 4,28E-04 | 3,55E-04 | -1,78E-02 | |
|  ETP-fw ¹ | CTUe | 1,64E+01 | 7,52E-01 | 9,26E-01 | 0 | 2,13E-01 | 7,11E-01 | 8,63E-02 | -1,51E+01 | |
|  HTP-c ¹ | CTUh | 6,31E-10 | 0,00E+00 | 3,60E-11 | 0 | 0,00E+00 | 8,10E-11 | 4,00E-12 | -2,77E-10 | |
|  HTP-nc ¹ | CTUh | 1,90E-08 | 8,22E-10 | 1,19E-09 | 0 | 2,33E-10 | 3,22E-09 | 1,31E-10 | -1,45E-08 | |
|  SQP ¹ | dimensionless | 5,17E+00 | 7,10E-01 | 3,19E-01 | 0 | 2,01E-01 | 3,04E-02 | 1,93E-01 | -1,86E+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*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 | 5,42E+00 | 1,45E-02 | 3,02E-01 | 0 | 4,12E-03 | 7,60E-03 | 2,73E-03 | -1,72E+01 | |
|  PERM | MJ | 2,69E-01 | 0,00E+00 | -2,56E-01 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | |
|  PERT | MJ | 5,69E+00 | 1,45E-02 | 4,57E-02 | 0 | 4,12E-03 | 7,60E-03 | 2,73E-03 | -1,72E+01 | |
|  PENRE | MJ | 5,72E+01 | 1,02E+00 | 2,95E+00 | 0 | 2,88E-01 | 2,36E-01 | 8,30E-02 | -2,78E+00 | |
|  PENRM | MJ | 4,16E+01 | 0,00E+00 | -6,95E-04 | 0 | 0,00E+00 | -4,16E+01 | 0,00E+00 | 0,00E+00 | |
|  PENRT | MJ | 9,88E+01 | 1,02E+00 | 2,95E+00 | 0 | 2,88E-01 | -4,14E+01 | 8,30E-02 | -2,78E+00 | |
|  SM | kg | 1,73E-02 | 0,00E+00 | 8,67E-04 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | |
|  RSF | MJ | 8,26E-02 | 5,20E-04 | 4,20E-03 | 0 | 1,47E-04 | 2,27E-04 | 6,95E-05 | -3,01E-03 | |
|  NRSF | MJ | 2,02E-02 | 1,86E-03 | 1,44E-03 | 0 | 5,27E-04 | 0,00E+00 | 4,88E-03 | -1,02E+00 | |
|  FW | m ³ | 5,78E-02 | 1,09E-04 | 3,16E-03 | 0 | 3,08E-05 | 6,87E-04 | 7,53E-05 | -2,07E-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 | 2,69E-03 | 5,24E-05 | 1,32E-02 | 0 | 1,48E-05 | 0,00E+00 | 2,62E-01 | -1,31E-04 | |
|  NHWD | kg | 1,78E-01 | 4,94E-02 | 3,37E-02 | 0 | 1,40E-02 | 0,00E+00 | 2,91E-02 | -6,58E-02 | |
|  RWD | kg | 6,52E-05 | 6,91E-06 | 3,75E-06 | 0 | 1,96E-06 | 0,00E+00 | 5,08E-07 | -1,46E-05 | |

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 | 0,00E+00 | 0,00E+00 | |
|  MFR | kg | 9,67E-03 | 0,00E+00 | 1,91E-02 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | |
|  MER | kg | 5,88E-05 | 0,00E+00 | 6,89E-02 | 0 | 0,00E+00 | 1,35E+00 | 0,00E+00 | 0,00E+00 | |
|  EEE | MJ | 6,11E-03 | 0,00E+00 | 1,12E-01 | 0 | 0,00E+00 | 2,22E+00 | 0,00E+00 | 0,00E+00 | |
|  EET | MJ | 9,25E-02 | 0,00E+00 | 1,70E+00 | 0 | 0,00E+00 | 3,36E+01 | 0,00E+00 | 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 | 9,26E-03 |

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

No impact

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 | 2,64E+00 | 6,72E-02 | 1,37E-01 | 0 | 1,90E-02 | 3,46E+00 | 5,61E-03 | -1,99E-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

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