Environmental Product Declaration

In accordance with ISO14025:2006 and EN15804:2012+A2:2019

Kullafolie™ 0,20 mm

Owner of the declaration:
Kullaplast AB

Product name:
Kullafolie™

Declared unit:
1 m2

Product category /PCR:
NPCR PART A: Construction Products and Services Ver 2.
.

Program holder and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-5584-4879-EN

Registration number:
NEPD-5584-4879-EN

Issue date: 13.12.2023

Valid to: 13.12.2028

The Norwegian
EPD Foundation

General information

Product:
Kullafolie™ 0,20 mm

Program operator:
The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Tlf: +47 23 08 80 00
e-mail: post@epd-norge.no

Declaration number:
NEPD-5584-4879-EN

This declaration is based on Product Category Rules:
NPCR PART A: Construction Products and Services Ver 2..

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, life cycle assessment data and evidences.

Functional unit:
1 m² of Kullafolie™ in the thicknesses of 0,20 mm.

Verification:
Independent verification of the declaration and data, according to ISO14025:2010

internal ☐ external ☒

Silvia Vilčeková
Independent verifier approved by EPD Norway

Owner of the declaration:
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Manufacturer:
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Place of production:
Höganäs, Sweden

Management system:
ISO14001, ISCC Plus, IQD128 standard, ISO 9001, ISO 22000, SINTEF

Organisation no:
556189-9948

Issue date:
13.12.2023

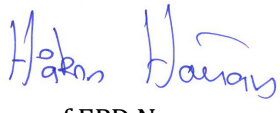
Valid to:
13.12.2028

Year of study:
2022

Comparability:
EPD of construction products may not be able to compare if they do not comply with EN 15804 and are seen in a building context.

The EPD has been worked out by:
Amit Lotan, CarbonZero AB

Approved



Manager of EPD Norway

Company

Company information:

Kullaplast AB is one of Sweden's biggest producers of polyethylene products. Kullaplast is family-owned since the start in 1965. Our factory is in Höganäs, Sweden and our products are mainly supplied to Northern Europe.

Product

Product description:

The Kullafolie™ moisture barrier film produced by Kullaplast is available in three different thicknesses: 0,12 mm, 0,15 mm, and 0,20 mm. Each product has two ways of being packaged; with and without an inside carton roll. This EPD represents the results of the version with the inside carton roll. This product is being sold and used in the construction industry. One of the uses of this product is for waterproofing sheets at placed in roofs. The plastic granulates are processed at different locations and suppliers as described at the geographical scope. The final product is then put in a packaging film and distributed out to the costumer.

Product specification:

Kullafolie™ is a moisture barrier film used to prevent moisture entering inside building structures. Kullafolie™ is manufactured according to the IQD128 standard, which ensures the quality of product manufacturing and verifies product properties and durability for at least 50 years. Our barrier film is CE marked and is approved by Sintef for the Norwegian construction standard.

Kullafolie™ barrier film 0,20 mm

Materials (product)	Value	Unit
LDPE	87,5	%
HDPE	10,0	%
Pigment of colour and UV substance	2,5	%
Materials (packaging)	**Value**	**Unit**
Polyethylene (LDPE)	0,00048	%
Paper	0,00083	%

Technical data:

Kullafolie™ 0,20 mm: 1m^2 – 0,185kg

Market:

Sweden, Norway, Denmark, but is not limited to these markets.

Reference service life, product:

50 years

LCA: Calculation rules

Declared unit:

1 m^2

Cut-off criteria:

The following procedures were followed for the exclusion of inputs and output.

- All input and output flows in a unit process were considered i.e., taking into account the value of all flows in the unit process and the corresponding LCI where data was available.
- Data gaps were filled by conservative assumptions with average or generic data. Any assumptions in such cases were documented.
- The use of cut-off criterion on mass inputs and primary energy at the unit process level (1%) and at the information module level (5%).

All hazardous and toxic materials and substances are included in the inventory and the cut-off rules do not apply.

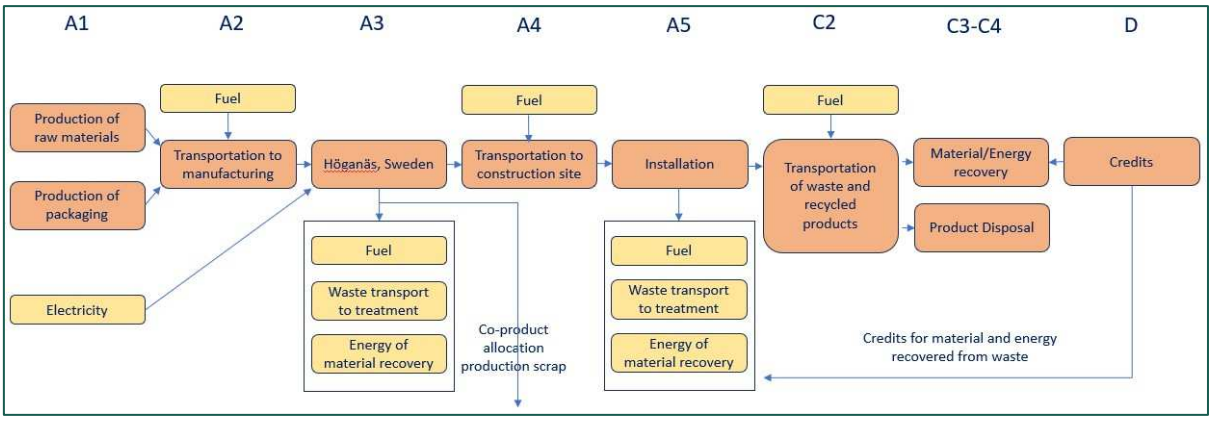
Allocation:

Allocation criteria is based on mass.

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

Product stage			Assembly stage		Use stage							End of life stage				Benefits & loads beyond system boundary
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	MNR	MNR	MNR	MNR	MNR	MNR	X	X	X	X

System boundary:



LCA: Scenarios and additional technical information

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

Transport from production place to assembly/user (A4)

Transport from production place to assembly/user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption
Truck	61	150	1,95 l/tkm diesel

End of Life (C1, C3, C4)

The average waste rates from Sweden and Norway has been used as these are the largest markets for this product.

	Value	Unit
Recycling	43	%
Incineration*	53	%
Landfill	4	%

*Note that the incineration includes energy recovery in module D.

Transport to waste processing (C2)

Transport from production place to assembly/user (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption
Truck	61	50	1,95 l/tkm

LCA: Results

Core environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP - total	kg CO_2 eq	3,70E-01	8,84E-04	6,15E-04	6,19E-03	2,49E-01	5,02E-04	-2,69E-01
GWP - fossil	kg CO_2 eq	3,62E-01	8,89E-04	6,11E-04	6,22E-03	2,49E-01	5,07E-04	-2,69E-01
GWP - biogenic	kg CO_2 eq	7,44E-03	-1,31E-05	4,53E-06	-9,14E-05	6,66E-06	-6,26E-06	-1,97E-05
GWP - luluc	kg CO_2 eq	1,14E-04	8,21E-06	3,24E-09	5,74E-05	2,46E-07	4,19E-07	-2,52E-06
ODP	kg CFC11 eq	4,05E-09	1,15E-16	8,60E-15	8,07E-16	1,18E-14	8,58E-16	-4,91E-14
AP	molc H+ eq	1,04E-03	9,06E-07	1,14E-06	6,34E-06	2,46E-05	1,52E-06	-6,93E-04
EP- freshwater	kg P eq	1,48E-05	3,24E-09	1,77E-09	2,27E-08	2,79E-09	9,77E-08	-3,48E-08
EP -marine	kg N eq	2,66E-04	2,63E-07	3,02E-07	1,84E-06	5,15E-06	3,50E-07	-1,24E-04
EP - terrestrial	molc N eq	2,79E-03	3,30E-06	3,18E-06	2,31E-05	1,15E-04	3,84E-06	-1,34E-03
POCP	kg NMVOC eq	1,58E-03	7,61E-07	8,16E-07	5,33E-06	1,53E-05	1,11E-06	-3,83E-04
ADP-M&M[2]	kg Sb-Eq	1,02E-07	5,87E-11	7,70E-11	4,11E-10	1,10E-10	1,35E-11	-1,55E-08
ADP-fossil[2]	MJ	1,52E+01	1,21E-02	1,22E-02	8,45E-02	2,96E-02	7,62E-03	-8,07E+00
WDP[2]	m^3	4,26E-01	1,07E-05	1,04E-04	7,49E-05	2,30E-02	-7,19E-06	-3,36E-01

GWP-total: *Global Warming Potential;* ***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; See "additional Norwegian requirements" for indicator given as PO4 eq.* ***EP-marine:*** *Eutrophication potential, fraction of nutrients reaching freshwater end compartment;* ***EP-terrestrial:*** *Eutrophication potential, Accumulated Exceedance;* ***POCP****: Formation potential of tropospheric ozone;* ***ADP-M&M****: Abiotic depletion potential for non-fossil resources (minerals and metals);* ***ADP-fossil:*** *Abiotic depletion potential for fossil resources;* ***WDP:*** *Water deprivation potential, deprivation weighted water consumption*

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

Voluntary environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP-GHG	kg CO_2 eq	3,68E-01	8,91E-04	6,15E-04	6,24E-03	1,60E-02	4,62E-03	-4,29E-04

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C2	C3	C4	D
PM	Disease incidence	1,39E-08	1,84E-11	1,06E-11	1,29E-10	1,44E-10	1,48E-11	-2,48E-13
IRP[1]	kBq U235 eq.	1,71E+01	3,38E-06	2,59E-04	2,37E-05	2,88E-04	1,33E-05	-9,63E-09
ETP-fw[2]	CTUe	3,28E+00	8,65E-03	2,69E-03	6,05E-02	1,16E-02	6,48E-03	-2,00E-03
HTP-c[2]	CTUh	4,08E-09	1,75E-13	1,61E-13	1,23E-12	1,61E-12	3,33E-13	-2,22E-02
HTP-nc[2]	CTUh	1,77E-09	7,81E-12	2,81E-12	5,46E-11	1,21E-11	2,66E-11	-2,56E-11
SQP[2]	Dimensionless	7,42E-01	5,04E-03	3,82E-03	3,53E-02	9,31E-03	6,58E-04	-1,23E-10

PM: *Particulate matter emissions;* ***IRP:*** *Ionising radiation, human health;* ***ETP-fw:*** *Ecotoxicity (freshwater);* ***ETP-c:*** *Human toxicity, cancer effects;* ***HTP-nc:*** *Human toxicity, non-cancer effects;* ***SQP:*** *Land use related impacts / soil quality*

[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.

[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 experienced with the indicator

Resource use

Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
RPEE	MJ	6,87E-01	8,78E-04	5,87E-03	6,15E-03	7,54E-03	6,85E-04	-9,09E-01
RPEM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	6,87E-01	8,78E-04	5,87E-03	6,15E-03	7,54E-03	6,85E-04	-9,09E-01
NRPE	MJ	1,52E+01	1,21E-02	1,22E-02	8,48E-02	2,96E-02	7,62E-03	-8,07E+00
NRPM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	1,52E+01	1,21E-02	1,22E-02	8,48E-02	2,96E-02	7,62E-03	-8,07E+00
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m^3	1,05E-02	9,62E-07	4,78E-06	6,73E-06	5,38E-04	7,47E-08	-9,02E-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*** *Nonrenewable primary energy resources used as energy carrier;* ***NRPM*** *Nonrenewable 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.*

End of life – Waste

Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
HW	kg	-9,13E-11	3,75E-14	-3,22E-13	2,63E-13	6,67E-13	6,40E-13	-4,60E-12
NHW	kg	5,97E-04	1,85E-06	-1,11E-04	1,29E-05	9,86E-04	7,37E-03	-5,79E-04
RW	kg	1,76E-04	2,27E-08	1,56E-06	1,59E-07	1,78E-06	9,03E-08	-1,71E-05

HW *Hazardous waste disposed;* ***NHW*** *Non-hazardous waste disposed;* ***RW*** *Radioactive waste disposed.*

End of life – output flow

Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	0,00E+00	0,00E+00	1,99E-02	0,00E+00	6,55E-02	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	9,19E-03	0,00E+00	1,05E-01	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-5,31E-01	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-9,47E-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.*

Information describing the biogenic carbon content at the factory gate

Biogenic carbon content*	Unit	Value
Biogenic carbon content in product	kg C	0
Biogenic carbon content in the accompanying packaging	kg C	1,10E-02

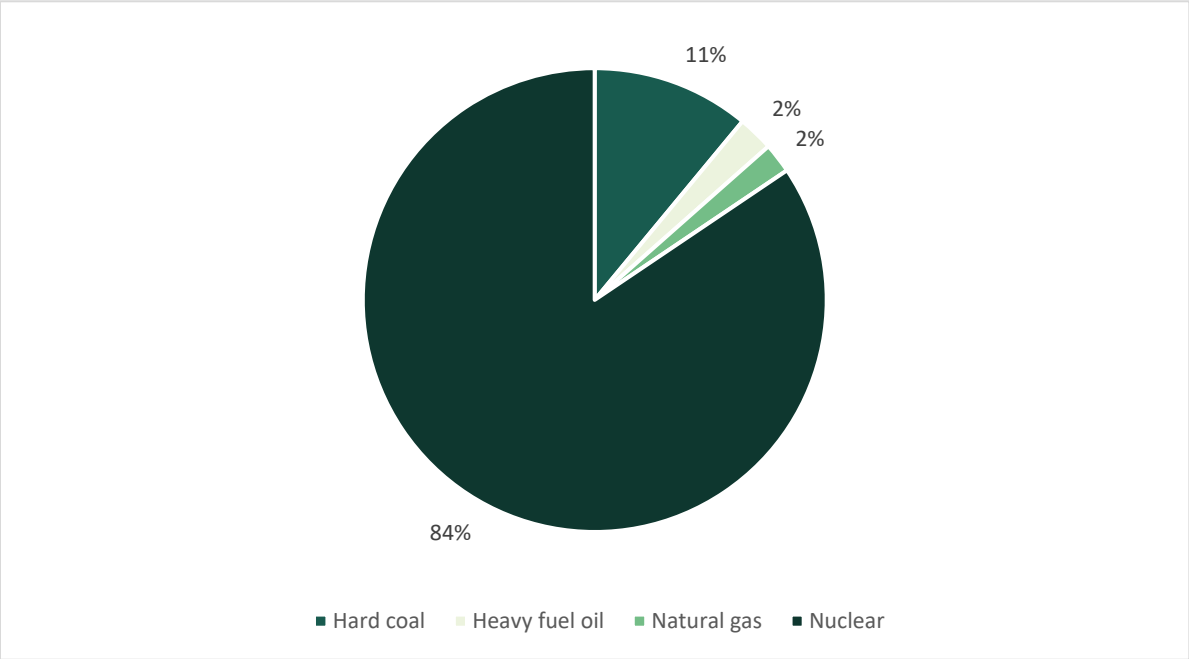
*44/12 is the ratio between the molecular mass of CO2 and C molecules

Additional requirements

Location based electricity mix from the use of electricity in manufacturing

The manufacturing process has been modelled and calculated according to the national residual mix with data retrieved from the Association of Issuing Bodies (2022).

National electricity grid	Data source	GWP excl. biogenic [kg CO2 -eq/kWh]
Swedish residual mix	AIB (2020)	0,037



Indoor Environment

Kullaplast have done emission measurements according to ISO 160000–9:2006 for volatile organic compounds (VOC). The test results are in compliance with the requirements.

Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers. Documentation available upon request to EPD owner.

- ☒ The product contains no substances given by the REACH Candidate list.
- ☐ The product contains substances given by the REACH Candidate list that are less than 0,1 % by weight.
- ☐ The product contains dangerous substances, more then 0,1% by weight, given by the REACH Candidate List, see table.
- ☐ The product contains no substances given by the REACH Candidate list.
- ☐ The product is classified as hazardous waste, see table.

Bibliography

Association of Issuing Bodies	European Residual Mixes 2021 (2022) https://www.aib-net.org/sites/default/files/assets/facts/residual-mix/2021/AIB_2021_Residual_Mix_Results_1_1.pdf (Retrieved 2023-09-20)
EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
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
ISO 21930:2007	Sustainability in building construction - Environmental declaration of building products
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