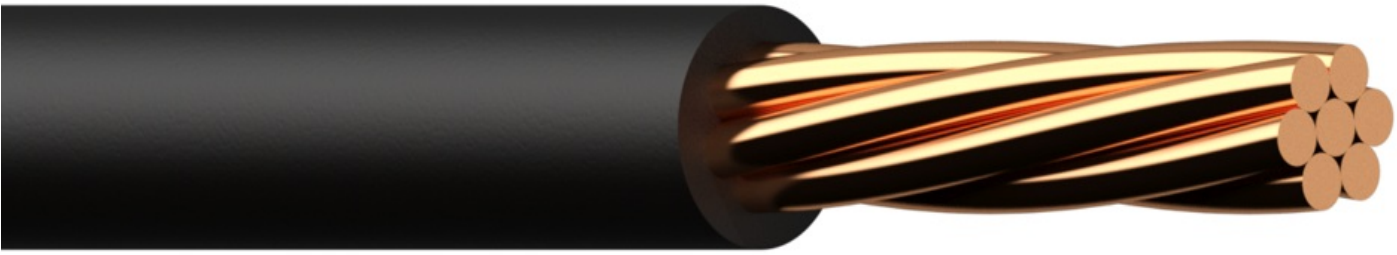
epd-norge
Global program operatør

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

FQ Pure 1,5mm²



prysmian

The Norwegian EPD Foundation

Owner of the declaration:
Prysmian Group Sverige AB

Product:
FQ Pure 1,5mm²

Declared unit:
1 m

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 027:2020 Part B for Electrical cables and wires

Program operator:
The Norwegian EPD Foundation

Declaration number:

NEPD-7115-6504-EN

Registration number:

NEPD-7115-6504-EN

Issue date: 12.07.2024

Valid to: 12.07.2029

EPD software:
LCAno EPD generator ID: 360960

General information

Product

FQ Pure 1,5mm²

Program operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-norge.no

Declaration number:

NEPD-7115-6504-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 027:2020 Part B for Electrical cables and wires

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 m FQ Pure 1,5mm²

Declared unit with option:

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

Functional unit:

1 m of installed FQ Pure 1,5mm² connection cable including waste treatment at end of life.

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. Approval number: NEPDT32.

Third party verifier:

Vito D'Incognito, Take Care International

(no signature required)

Owner of the declaration:

Prysmian Group Sverige AB
Contact person: Anders Sjöland
Phone: +46 706128204
e-mail: anders.sjoland@prysmiangroup.com

Manufacturer:

Prysmian Group Sverige AB
Vallgatan 5
571 41 Nässjö, Sweden

Place of production:

Prysmian Group production site Oulu (Finland)
Johdintie 5
90630 Oulu, Finland

Management system:

ISO 9001, ISO 14001, ISO 45001

Organisation no:

556556-2104

Issue date:

12.07.2024

Valid to:

12.07.2029

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.

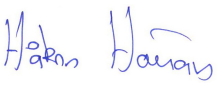
Development and verification of EPD:

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. Approval number: NEPDT33

Developer of EPD: Siri Andersen

Reviewer of company-specific input data and EPD: Kristoffer Berglund

Approved:



Håkon Hauan, CEO EPD-Norge

Product

Product description:

Halogen-free stranded connection cable for retraction in pipes, ducts and cabinets. Also available twisted version.

This product comes in several different options, and this EPD is valid for all following articles:

0435170 FQ Pure 1,5 BLÅ
0435180 FQ Pure 1,5 BRUN
0435190 FQ Pure 1,5 G/G
0435140 FQ Pure 1,5 GRÅ
0435100 FQ Pure 1,5 ORANGE
0435130 FQ Pure 1,5 RÖD
0435120 FQ Pure 1,5 SVART
0435110 FQ Pure 1,5 VIT
0435700 FQ Pure 1,5 ROSA

Product specification

Conductor material: Copper
Conductor surface: Bare
Insulation material: Low smoke zero halogen

Materials	kg	%
Metal - Copper	0,01	61,79
Plastic compound - Halogen free polymer	0,01	38,21
Total	0,02	100,00

Technical data:

Adheres to Construction standard SS-EN 50525-3-31

Reaction-to-fire class (acc. EN 13501-6) Dca
Smoke development class (acc. EN 13501-6) s2
Euro class flaming droplets/particles (acc. EN 13501-6) d2
Euro class acidity (acc. EN 13501-6) a1

Market:

Scandinavia

Reference service life, product

30 years

Reference service life, building or construction works

30 years

LCA: Calculation rules

Declared unit:

1 m FQ Pure 1,5mm^2

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. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

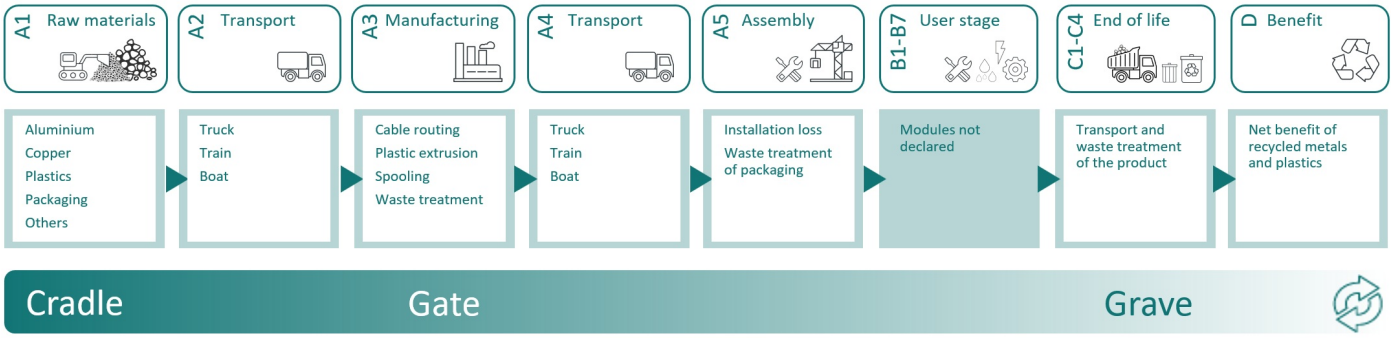
Materials	Source	Data quality	Year
Metal - Copper	Modified ecoinvent 3.6	Database	2019
Plastic compound - Halogen free polymer	Product composition + ecoinvent 3.6	Supplier data + database	2019

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	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

System boundary:

The flowchart below illustrates the system boundaries of the analysis:



Additional technical information:

LCA: Scenarios and additional technical information

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

Module A4 = An average distance between the factory in Oulu and the Scandinavian market is considered.

Installation (A5) and removal (C1) is assumed to be done with other products such as piping systems and should be assessed at a contruction works level.

For B1-B7 the default environmental impact and resource indicators in the EPD are assumed to be zero.

In C2, a distance of 300 km has been added as average transport to nearest waste treatment facilities.

In C3, datasets are developed for the recycling of metals and plastics and for the incinerations of plastic fractions (including energy recovery and fly ash extraction). All other minor raw materials in the product are assumed to be incinerated. Net benefit of material recycling and energy recovery are given in module D.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, over 32 tonnes, EURO 5 (km)	53,3 %	1800	0,023	l/tkm	41,40

Assembly (A5)	Unit	Value			
Product loss during installation (percentage of cable)	Units/DU	0,02			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 5 (km)	36,7 %	300	0,044	l/tkm	13,20

Waste processing (C3)	Unit	Value			
Copper to recycling (kg)	kg	0,01			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0,00			

Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of Plastic mixture, process per kg ashes and residues (kg)	kg	0,00			
Landfilling of copper (kg)	kg	0,01			
Landfilling of plastic mixture (kg)	kg	0,00			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of electricity (MJ)	MJ	0,01			
Substitution of primary copper with net scrap (kg)	kg	0,00			
Substitution of thermal energy, district heating (MJ)	MJ	0,09			

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	A2	A3	A4	A5	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	5,56E-02	6,96E-03	7,66E-03	3,39E-03	1,77E-03	0	1,04E-03	9,36E-03	5,26E-04	-7,93E-03
	GWP-fossil	kg CO_2 -eq	5,52E-02	6,96E-03	7,32E-03	3,39E-03	1,76E-03	0	1,04E-03	9,36E-03	5,25E-04	-7,87E-03
	GWP-biogenic	kg CO_2 -eq	3,62E-04	2,80E-06	2,69E-04	1,39E-06	1,35E-05	0	4,22E-07	2,03E-07	4,04E-08	-3,52E-05
	GWP-luluc	kg CO_2 -eq	6,72E-05	2,38E-06	6,78E-05	9,89E-07	2,78E-06	0	3,62E-07	3,79E-08	3,75E-08	-2,61E-05
	ODP	kg CFC11 -eq	4,95E-09	1,59E-09	8,73E-10	7,82E-10	5,10E-09	0	2,36E-10	2,00E-11	3,30E-11	-3,88E-05
	AP	mol H+ -eq	4,58E-03	3,76E-05	2,80E-05	1,42E-05	9,37E-05	0	4,23E-06	2,05E-06	8,78E-07	-1,24E-03
	EP-FreshWater	kg P -eq	4,04E-05	5,29E-08	2,76E-07	2,58E-08	7,90E-07	0	8,13E-09	1,81E-09	1,74E-09	-8,35E-06
	EP-Marine	kg N -eq	1,83E-04	1,07E-05	5,02E-06	4,28E-06	4,16E-06	0	1,25E-06	9,81E-07	7,84E-07	-5,20E-05
	EP-Terrestial	mol N -eq	2,69E-03	1,19E-04	5,75E-05	4,73E-05	5,93E-05	0	1,39E-05	1,01E-05	3,52E-06	-8,00E-04
	POCP	kg NMVOC -eq	7,97E-04	3,55E-05	1,47E-05	1,52E-05	1,79E-05	0	4,25E-06	2,43E-06	1,10E-06	-2,17E-04
	ADP-minerals&metals[1]	kg Sb-eq	1,36E-05	1,59E-07	5,17E-08	5,78E-08	2,78E-07	0	2,80E-08	1,02E-09	8,60E-10	-6,90E-06
	ADP-fossil[1]	MJ	8,26E-01	1,05E-01	1,89E-01	5,27E-02	2,71E-02	0	1,56E-02	1,29E-03	2,61E-03	-7,31E-02
	WDP[1]	m^3	1,66E+00	9,07E-02	1,04E+01	4,04E-02	2,55E-01	0	1,49E-02	9,29E-03	5,16E-02	3,07E-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	A2	A3	A4	A5	C1	C2	C3	C4	D
	PM	Disease incidence	9,09E-09	5,24E-10	1,30E-10	2,98E-10	2,06E-10	0	7,50E-11	9,00E-12	1,60E-11	-2,73E-09
	IRP[2]	kgBq U235 -eq	2,51E-03	4,60E-04	4,61E-03	2,30E-04	1,60E-04	0	6,82E-05	3,24E-06	1,58E-05	-1,30E-04
	ETP-fw[1]	CTUe	3,79E+01	7,67E-02	1,38E-01	3,85E-02	8,25E-01	0	1,15E-02	1,98E-02	3,17E+00	-1,14E+01
	HTP-c[1]	CTUh	7,57E-10	0,00E+00	3,00E-12	0,00E+00	1,50E-11	0	0,00E+00	1,00E-12	0,00E+00	-1,61E-10
	HTP-nc[1]	CTUh	6,35E-08	8,10E-11	9,70E-11	3,70E-11	1,27E-09	0	1,20E-11	2,50E-11	4,00E-12	-1,37E-08
	SQP[1]	dimensionless	6,92E-01	8,71E-02	1,15E-01	6,04E-02	1,95E-02	0	1,08E-02	2,35E-04	6,39E-03	-1,95E-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 = Potential Soil Quality Index (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	A2	A3	A4	A5	C1	C2	C3	C4	D
	PERE	MJ	1,28E-01	1,40E-03	5,83E-02	6,63E-04	3,94E-03	0	2,20E-04	7,16E-05	2,79E-04	-7,33E-02
	PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	1,28E-01	1,40E-03	5,83E-02	6,63E-04	3,94E-03	0	2,20E-04	7,16E-05	2,79E-04	-7,33E-02
	PENRE	MJ	7,18E-01	1,05E-01	1,95E-01	5,27E-02	2,25E-02	0	1,56E-02	1,29E-03	2,61E-03	-7,31E-02
	PENRM	MJ	1,08E-01	0,00E+00	0,00E+00	0,00E+00	5,80E-05	0	0,00E+00	-1,06E-01	0,00E+00	0,00E+00
	PENRT	MJ	8,26E-01	1,05E-01	1,95E-01	5,27E-02	2,26E-02	0	1,56E-02	-1,05E-01	2,61E-03	-7,31E-02
	SM	kg	4,66E-03	0,00E+00	0,00E+00	0,00E+00	9,32E-05	0	0,00E+00	0,00E+00	0,00E+00	2,15E-03
	RSF	MJ	3,06E-04	4,95E-05	6,82E-04	2,32E-05	3,04E-05	0	7,88E-06	1,54E-06	5,79E-06	1,96E-04
	NRSF	MJ	1,54E-05	1,71E-04	2,18E-03	7,77E-05	4,92E-05	0	2,81E-05	0,00E+00	1,91E-06	-2,35E-03
	FW	m^3	1,07E-03	1,12E-05	2,18E-04	6,00E-06	2,80E-05	0	1,64E-06	1,09E-05	3,36E-06	-2,36E-04

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	A2	A3	A4	A5	C1	C2	C3	C4	D
	HWD	kg	5,90E-04	5,47E-06	4,95E-04	2,88E-06	2,58E-05	0	7,96E-07	0,00E+00	1,96E-04	-8,34E-05
	NHWD	kg	2,01E-02	6,29E-03	9,85E-04	4,58E-03	8,06E-04	0	7,46E-04	0,00E+00	9,15E-03	-3,71E-03
	RWD	kg	2,36E-06	7,19E-07	2,11E-06	3,60E-07	1,13E-07	0	1,06E-07	0,00E+00	1,78E-08	-1,14E-07

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

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

End of life - Output flow

Indicator		Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0,00E+00	0,00E+00	1,23E-05	0,00E+00	1,54E-04	0	0,00E+00	7,67E-03	3,55E-07	-8,40E-05
	MER	kg	0,00E+00	0,00E+00	2,06E-03	0,00E+00	1,19E-04	0	0,00E+00	3,96E-03	8,68E-09	-1,11E-05
	EEE	MJ	0,00E+00	0,00E+00	1,22E-03	0,00E+00	1,44E-04	0	0,00E+00	6,08E-03	5,63E-07	-2,71E-05
	EET	MJ	0,00E+00	0,00E+00	1,84E-02	0,00E+00	2,18E-03	0	0,00E+00	9,19E-02	8,52E-06	-4,10E-04

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*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	0,00E+00

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	Source	Amount	Unit
Electricity, Finland (kWh)	ecoinvent 3.6	255,20	g CO2-eq/kWh

Dangerous substances

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

Indoor environment

No known impacts on indoor environment

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products											
Indicator	**Unit**	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWPIOBC	kg CO_2 -eq	5,56E-02	6,96E-03	9,58E-03	3,39E-03	1,81E-03	0	1,04E-03	9,36E-03	5,52E-04	-4,02E-03

GWP-IOBC: 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. International Organization for Standardization.
ISO 14044:2006. Environmental management - Life cycle assessment - Requirements and guidelines. International Organization for Standardization.
EN 15804:2012+A2:2019. Environmental product declaration - Core rules for the product category of construction products. European Committee for Standardization.
ISO 21930:2017. Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products. International Organization for Standardization.
EN 50693:2019. Product category rules for life cycle assessments of electronic and electrical products and systems. European Committee for Standardization.
Ecoinvent v3, 2019. Allocation, cut-off by classification. Swiss Centre of Life Cycle Inventories.
Iversen et al., (2021). eEPD v2021.09, background information for EPD generator tool system verification, LCA.no. Report number: 07.21. System verification report.
Philis et al., (2022). EPD generator for NPCR 027 part B for electrical wires and cables, background information for EPD generator application and LCA data, LCA.no Report number: 03.22. PCR verification report.
EPD Norway (2022). NPCR Part A: Construction products and services. The Norwegian EPD foundation. Version 2.0 published 24.03.2021.
EPD Norway (2022). NPCR 027 Part B for electrical cables and wires. The Norwegian EPD foundation. Version 2.0 published 01.03.2022.

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ECO PLATFORM EPD VERIFIED	ECO Platform ECO Portal	web: www.eco-platform.org web: ECO Portal