

Product

Product description:

Protecta Service Coat FR-1 is an acrylic based intumescent coating designed to increase the fire resistance of fire seals and protect cables, cable trays and metal pipes.

The coating protects the cables outer plastic or rubber sheath, and thereby protects the conductors to secure continued electrical supply in a fire situation. The product also protects and lowers temperatures in metal services passing through a fire seal, thereby increasing the overall fire resistance.

The coating is non-toxic, durable and can be applied in a thin coat, saving both time and money. It is a hardwearing coat, formulated to the highest specification and offering unsurpassed intensity of colour.

The coating can be tinted; all colours are water-based and provide a smooth, rich and non-reflective finish. Protecta Service Coat FR-1 normally requires no primer and no top coat. The product also has the added benefit of being easy to use and very easy to clean up.

Product specification

Materials	Value	Unit
MATERIALS		
Binder	20-30	%
Pigments	10-11	%
Solvent	18-19	%
Chemical	40-50	%
PACKAGING		
Packaging - Paper	0,00	kg
Packaging - Plastic	0,03	kg
Packaging - Wood	0,07	kg

Technical data:

Specific gravity: 1,4 g/cm³

Solids: 70,1% (theoretical)

pH: 8.0

VOC: 12 g/L

Descriptions of wet film thicknesses and spreadability vary based on the intended application and fire rating; more information can be found in the technical data sheet.

For more information, please see <https://protecta.co.uk/product/service-coat-fire-rated-1/>

Market:

Global. Transport to market is not included in this EPD.

Reference service life, product

The reference service life of the product depends on its application area.

Reference service life, building or construction works

N/A

LCA: Calculation rules

Declared unit:

1 kg Protecta Service Coat FR-1 (pail)

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.

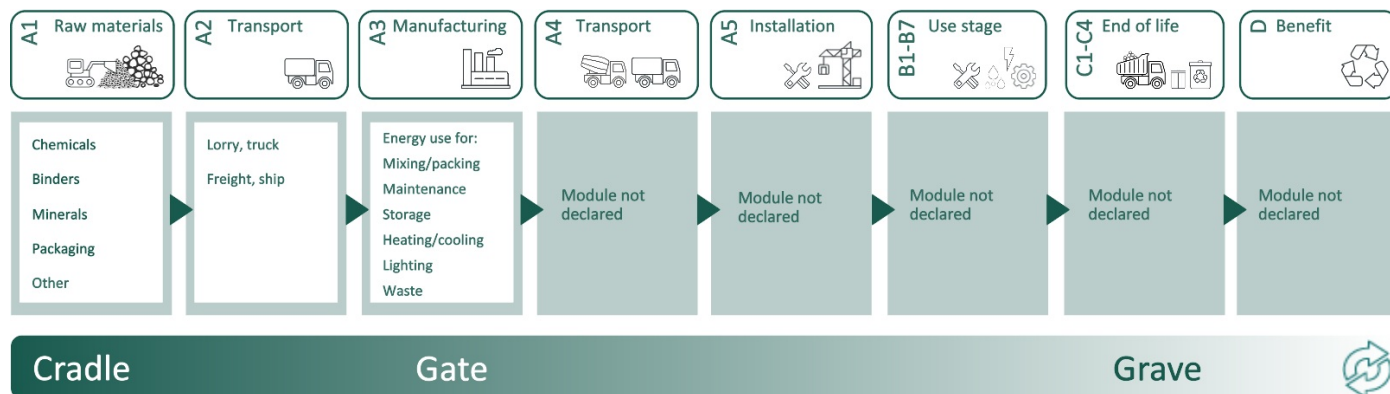
Materials	Source	Data quality	Year
Binder	Modified ecoinvent 3.6	Database	2019
Chemical	ecoinvent 3.6	Database	2019
Packaging - Paper	ecoinvent 3.6	Database	2019
Packaging - Plastic	ecoinvent 3.6	Database	2019
Packaging - Wood	ecoinvent 3.6	Database	2019
Packaging - Wood	Modified ecoinvent 3.6	Database	2019
Pigments	ecoinvent 3.6	Database	2019
Solvent	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

System boundary:

The life cycle analysis is a cradle-to-gate (A1 - A3) study. It includes the extraction and production of raw materials and packaging, transportation to the manufacturing site, as well as the manufacturing process itself.



Additional technical information:

Protecta Service Coat FR-1 can be disposed of at an approved waste facility.

Polyseam's factory is certified according to the ISO 14001 Environmental Management Systems (EMS). It provides a framework for organisations to design and implement an EMS, and continually improve their environmental performance.














Learn more: <https://www.polyseam.com/sustainability/>

LCA: Scenarios and additional technical information

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

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
	GWP-total	kg CO ₂ -eq	2,77E+00	4,25E-02	5,40E-02
	GWP-fossil	kg CO ₂ -eq	2,76E+00	4,25E-02	5,23E-02
	GWP-biogenic	kg CO ₂ -eq	1,03E-02	1,69E-05	1,68E-03
	GWP-luluc	kg CO ₂ -eq	2,07E-03	1,59E-05	5,97E-05
	ODP	kg CFC11 -eq	3,09E-07	9,63E-09	4,67E-09
	AP	mol H ⁺ -eq	2,44E-02	2,89E-04	1,83E-04
	EP-FreshWater	kg P -eq	9,08E-05	3,20E-07	1,34E-06
	EP-Marine	kg N -eq	2,34E-03	7,74E-05	3,70E-05
	EP-Terrestrial	mol N -eq	3,47E-02	8,58E-04	4,03E-04
	POCP	kg NMVOC -eq	8,20E-03	2,48E-04	1,05E-04
	ADP-minerals&metals ¹	kg Sb-eq	1,13E-04	1,03E-06	6,49E-07
	ADP-fossil ¹	MJ	4,54E+01	6,37E-01	1,07E+00
	WDP ¹	m ³	9,00E+01	5,58E-01	4,62E+00







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	
 PM	Disease incidence	1,68E-07	2,88E-09	7,27E-10	
 IRP ²	kgBq U235 -eq	9,36E-02	2,78E-03	1,72E-02	
 ETP-fw ¹	CTUe	5,34E+01	4,60E-01	7,72E-01	
 HTP-c ¹	CTUh	4,15E-09	0,00E+00	1,90E-11	
 HTP-nc ¹	CTUh	4,11E-08	4,98E-10	6,56E-10	
 SQP ¹	dimensionless	1,40E+01	4,41E-01	8,97E-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
	PERE	MJ	2,98E+00	8,53E-03	2,94E-01
	PERM	MJ	4,81E-03	0,00E+00	0,00E+00
	PERT	MJ	2,98E+00	8,53E-03	2,94E-01
	PENRE	MJ	4,58E+01	6,37E-01	1,07E+00
	PENRM	MJ	0,00E+00	0,00E+00	0,00E+00
	PENRT	MJ	4,58E+01	6,37E-01	1,07E+00
	SM	kg	9,29E-03	0,00E+00	0,00E+00
	RSF	MJ	6,23E-02	3,03E-04	4,26E-04
	NRSF	MJ	1,85E-02	1,03E-03	4,96E-04
	FW	m ³	6,49E-02	6,50E-05	4,30E-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
	HWD	kg	8,32E-03	3,23E-05	3,21E-03
	NHWD	kg	6,54E-01	3,07E-02	6,31E-03
	RWD	kg	9,62E-05	4,35E-06	8,58E-06

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	A2	A3
	CRU	kg	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0,00E+00	0,00E+00	1,08E-02
	MER	kg	0,00E+00	0,00E+00	1,42E-02
	EEE	MJ	0,00E+00	0,00E+00	8,41E-03
	EET	MJ	0,00E+00	0,00E+00	1,27E-01

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	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, United Kingdom, Market mix (kWh)	ecoinvent 3.6	386,67	g CO ₂ -eq/kWh
Electricity, United Kingdom, Solar (kWh)	ecoinvent 3.6	78,98	g CO ₂ -eq/kWh

Dangerous substances

The product contains dangerous substances, more than 0,1% by weight, given by the REACH Candidate List, see table:

Name	CASNo	Amount
Melamine	108-78-1	5-10%

Indoor environment

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products				
Indicator	Unit	A1	A2	A3
GWPIOBC	kg CO ₂ -eq	2,79E+00	4,25E-02	6,29E-02

GWPI-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.

