Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

CladSeal EXT

from

SealEco

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): PCR 2019:14 version 1.11 (EPD International, 2021a)
PCR review was conducted by: Martin Erlandsson, IVL Swedish Environmental Research Institute, martin.erlandsson@ivl.se
Life Cycle Assessment (LCA)
LCA accountability: Pär Lindman, Miljögiraff AB
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: Dr Hudai Kara at Metsims Sustainability Consulting, www.metsims.com., Oxford, U.K. Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: SealEco AB

Contact: Jan Wulleman

Description of the organisation: SealEco is a manufacturer of EPDM membranes and offers innovative water and weather protection solutions for increased service life of buildings and other types of constructions. Our offer also includes lining of ponds, tanks and geomembranes for water and waste containment. ElastoSeal is also well proven for use in tanking.
SealEco provides tailor-made sealing solutions for the building envelope and lining applications, improving efficiency and durability with environmental benefits.

Name and location of production site(s): Kävsjövägen 38, Värnamo, Sweden

Product information

Product name: CladSeal EXT

Product description: CladSeal EXT consists of a product range of EPDM strips and accessories with properties that provide a seal against water, moisture and air tightness. The CladSeal system has been developed for weather-resistant seals around window frames, facades, sill insulation and weather protection for other types of building structures and for damp proof course (DPC)

UN CPC code: 54530

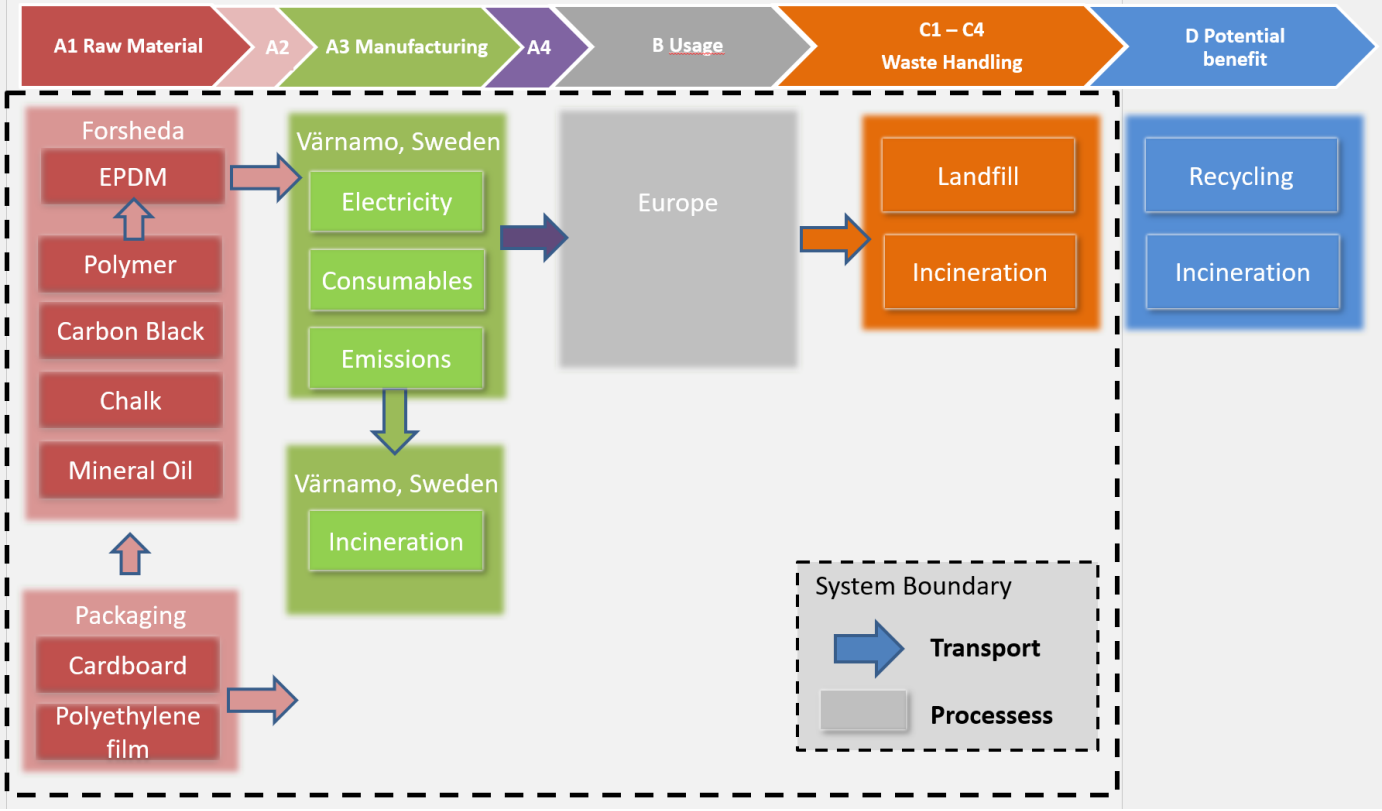
Geographical scope: Manufacturing in Sweden and End-of-Life in Europe

LCA Information	
Functional unit and dimensions:	1m² of finished product with a thickness of 0,75mm (other thicknesses available)
Description of system boundaries:	Cradle to gate with options, A1–A4 + C + D
Time representativeness generic data:	2019-2021
Data collection period specific data	2021
Database and LCA software used:	ecoinvent 3.8 geographical scope Europe, SimaPro 9.3
Description of system boundaries:	Cradle to gate with options, A1–A4 + C + D
Electricity data:	Nordic residual mix based on Grexel 2021 is used for representing electricity in manufacturing
Allocation:	Polluter Pays / Allocation by Classification
Impact Assessment methods:	Potential environmental impacts are calculated with Environmental Footprint (EF) 3.0 method as implemented in SimaPro 9.3. EN 15804 has aligned their impact assessment methodology with the EF 3.0 method, except for their approach on biogenic carbon. Resource use values are calculated from Cumulative Energy Demand v1.11.
Based on LCA Report:	Miljögiraff report 1035 LCA SealEco

Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

	Product stage			Construction process stage		Use stage							End of life stage					Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal		Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**		**D**
Modules declared	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X		X
Geography	EU	EU	SWE	EU	EU								EU	EU	EU	EU		EU
Specific data used	<90%					-	-	-	-	-	-	-	-	-	-	-		-

System diagram:



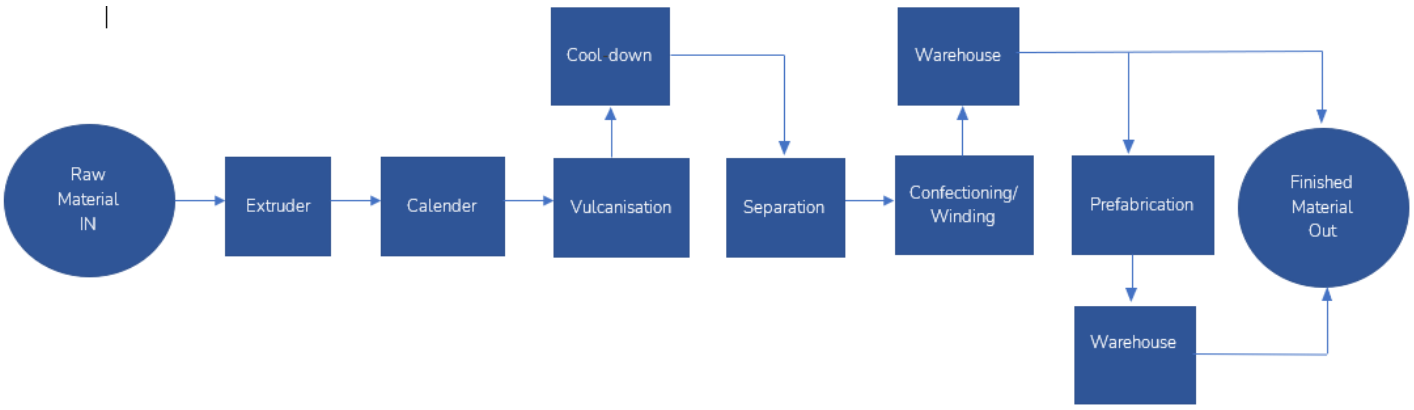
Content information

The product documented within this EPD contains no substances in the REACH Candidate list.
The values % below are rounded figures.

Product components	Weight, %
EPDM polymer	22
Pigment and filler	53
Plasticizer	21
Resin	2
Activator	1
Accelerator	<1
Curative	<1
Packaging materials	**Weight-% (versus the product)**
LDPE	0.5
Cardboard	1.2
TOTAL	1.8

Manufacturing:

First the compound from the supplier is run through a calendar machine, to get the right dimension on the order. Uncured scrap is recycled immediately and processed again through the extruder. Thickness is continuously controlled during calendaring
Secondly the product is moved to the vulcanisation furnaces. The process involves the formation of cross-links between long rubber molecules to achieve improved elasticity, resilience, tensile strength, viscosity, hardness and weather resistance. The vulcanised sheets are through an inspection station and then are cut to the desired width and packed according to specific customer order.



Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804

Results per 1m² of finished product with a thickness of 0,75mm											
Indicator	**Unit**	**A1**	**A2**	**A3**	**Tot.A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2.48E+00	2.45E-03	3.79E-01	2.92E+00	1.06E-01	0.00E+00	4.77E-03	0.00E+00	2.09E+00	-2.05E+00
GWP-biogenic	kg CO_2 eq.	-3.78E-02	2.09E-06	-2.90E-02	-9.57E-02	9.01E-05	0.00E+00	4.07E-06	0.00E+00	2.31E-04	-1.06E-02
GWP-luluc	kg CO_2 eq.	1.15E-03	9.63E-07	1.45E-03	2.79E-03	4.15E-05	0.00E+00	1.87E-06	0.00E+00	1.18E-05	-8.79E-04
GWP-total	kg CO_2 eq.	2.45E+00	2.45E-03	3.52E-01	2.83E+00	1.06E-01	0.00E+00	4.78E-03	0.00E+00	2.09E+00	-2.06E+00
ODP	kg CFC 11 eq.	6.68E-07	5.67E-10	1.84E-08	6.91E-07	2.45E-08	0.00E+00	1.10E-09	0.00E+00	5.00E-09	-1.60E-07
AP	mol H^+ eq.	1.24E-02	9.95E-06	1.01E-03	1.37E-02	4.29E-04	0.00E+00	1.94E-05	0.00E+00	3.14E-04	-4.59E-03
EP-freshwater	kg PO_4^{3-} eq.	1.96E-03	5.84E-07	3.43E-04	2.38E-03	2.52E-05	0.00E+00	1.14E-06	0.00E+00	1.97E-05	-2.26E-03
EP-freshwater	kg P eq.	5.29E-04	1.58E-07	9.27E-05	6.42E-04	6.81E-06	0.00E+00	3.07E-07	0.00E+00	5.33E-06	-6.12E-04
EP-marine	kg N eq.	2.14E-03	3.00E-06	5.40E-04	2.78E-03	1.29E-04	0.00E+00	5.83E-06	0.00E+00	1.22E-04	-1.20E-03
EP-terrestrial	mol N eq.	2.22E-02	3.27E-05	2.78E-03	2.57E-02	1.41E-03	0.00E+00	6.37E-05	0.00E+00	1.32E-03	-1.28E-02
POCP	kg NMVOC eq.	1.19E-02	1.00E-05	5.80E-04	1.27E-02	4.32E-04	0.00E+00	1.95E-05	0.00E+00	3.27E-04	-3.20E-03
ADP-minerals& metals*	kg Sb eq.	2.89E-05	8.52E-09	5.27E-07	2.98E-05	3.67E-07	0.00E+00	1.66E-08	0.00E+00	1.18E-07	-2.60E-06
ADP-fossil*	MJ	7.48E+01	3.71E-02	6.31E+00	8.23E+01	1.60E+00	0.00E+00	7.21E-02	0.00E+00	3.36E-01	-4.01E+01
WDP	m^3	1.73E+00	1.11E-04	3.95E-01	2.16E+00	4.78E-03	0.00E+00	2.16E-04	0.00E+00	2.40E-02	-3.78E-01
Acronyms	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										

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator. The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.*

Potential environmental impact – additional mandatory and voluntary indicators

Results per 1m² of finished product with a thickness of 0,75mm											
Indicator	**Unit**	**A1**	**A2**	**A3**	**Tot.A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2.44E+00	2.43E-03	3.77E-01	2.87E+00	1.05E-01	0.00E+00	4.73E-03	0.00E+00	2.09E+00	-2.03E+00

Use of resources

Results per 1m² of finished product with a thickness of 0,75mm											
Indicator	**Unit**	**A1**	**A2**	**A3**	**Tot.A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2.26E+00	5.22E-04	7.43E-01	3.58E+00	2.25E-02	0.00E+00	1.02E-03	0.00E+00	1.52E-02	-4.67E+00
PERM	MJ	0.00E+00	0.00E+00	2.53E-03	2.53E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.06E-01
PERT	MJ	2.26E+00	5.22E-04	7.46E-01	3.58E+00	2.25E-02	0.00E+00	1.02E-03	0.00E+00	1.52E-02	-4.78E+00
PENRE	MJ	4.23E+01	3.93E-02	6.60E+00	5.02E+01	1.70E+00	0.00E+00	7.66E-02	0.00E+00	3.64E-01	-4.25E+01
PENRM	MJ.	3.71E+01	0.00E+00	2.50E-03	3.71E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	7.94E+01	3.93E-02	6.60E+00	8.73E+01	1.70E+00	0.00E+00	7.66E-02	0.00E+00	3.64E-01	-4.25E+01
SM	kg	0.00E+00	0.00E+00	0.00E+00	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	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	0.00E+00	0.00E+00	0.00E+00
FW	m^3	1.21E-02	6.83E-06	2.07E-02	3.28E-02	2.94E-04	0.00E+00	1.33E-05	0.00E+00	3.02E-03	-8.52E-03
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water										

[1] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Waste production and output flows

Waste production

Results per 1m² of finished product with a thickness of 0,75mm											
Indicator	**Unit**	**A1**	**A2**	**A3**	**Tot.A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	0.00E+00	0.00E+00	1.75E-03	1.75E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	0.00E+00	0.00E+00	2.40E-02	2.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.57E-01	0.00E+00
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Output flows

Results per 1m² of finished product with a thickness of 0,75mm											
Indicator	**Unit**	**A1**	**A2**	**A3**	**Tot.A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	1.20E-02	1.20E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	7.00E-03
Materials for energy recovery	kg	0.00E+00	0.00E+00	3.30E-02	3.30E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.58E-01	6.58E-01
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Information on biogenic carbon content

Results per 1m² of finished product with a thickness of 0,75mm		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in packaging	kg C	3.60E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

Additional information

Exceptional Durability:

SealEco has a strong commitment within the building industry to provide durable solutions for the entire building envelope. The aim is to reduce the usage of energy, natural resources, increase the amount of recycled raw materials and for sure minimize the environmental impact.

CladSeal EPDM has a very good resistance against UV and ozone. EPDM has no yield point, which makes is very suitable for façade applications.
The membrane remains flexible at all times and can withstand mechanical stresses that are common for this application

Cladseal can be used in both cold and hot environments, from the north to the south of Europe, thanks to its cold bending properties below -40°*C* and to a temperature resistance up to 120°C, without significant change to the flexibility of the membrane.

Cladseal has good water vapour permeability, needed for optimal functioning in facades. It is available in different thicknesses to fit all façade applications.

EPDM waterproofing membranes have a life expectancy of more than 50 years. This test was performed by SKZ in 2004.

References

CEN European Committee for Standardisation (2021). EN15804:2012+A2:2019/AC:2021 (CEN 2021), Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

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Lindman, Pär, Miljögiraff report 1035, Life Cycle Assessment of EPDM membranes from SealEco, 2022

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