ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025:2006 AND EN 15804:2012+A2:2019/AC:2021

DEBOVIX 5000 BST/F C195 FC LARSEN
DEBOVIX 5000 WHX/F C195 FC LARSEN
DEBOVIX 5000 BST/F C195 FC ZVB LARSEN
DEBOFLEX 5000 BST/F C195 FC LARSEN
from
SOPREMA - LARSEN

EPD of multiple products, based on the average results of the product group

Programme: The international EPD® system, www.environdec.com
Programme operator: EPD International AB
EPD registration number: EPD-IES-0015684
Publication date: 2024-07-19
Valid until: 2029-07-18
Geographical scope: Europe

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.

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GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	SOPREMA-LARSEN
Address	Bouwelven 5, 2280 Grobbendonk
Contact details	info@soprema.be
Website	www.soprema.com

PRODUCT IDENTIFICATION

Product name	DEBOVIX 5000 BST/F C195 FC LARSEN, DEBOVIX 5000 WHX/F C195 FC LARSEN, DEBOVIX 5000 BST/F C195 FC ZVB LARSEN, DEBOFLEX 5000 BST/F C195 FC LARSEN
Additional label(s)	-
Product number / reference	-
Place(s) of production	Schoten, Belgium
CPC code	5453

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison.

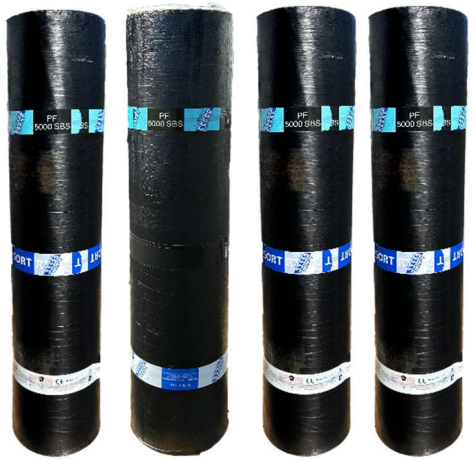
EPD INFORMATION

EPD program operator	The International EPD System
EPD standards	This EPD is in accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the Int'l EPD System PCR 2019:14 Construction products, version 1.3.2, 2023-12-08 is used.
EPD author	Ľudmila Vaculová Mečiarová, Silvia Vilčeková
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☒ External verification
Verification date	2024-07-19
EPD verifier	Joanna Zhuravlova
EPD number	EPD-IES-0015684
ECO Platform nr.	
Publishing date	2024-07-19
EPD valid until	2029-07-18

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Membrane composed of elastomer modified bitumen with fire-retardant additives and a composite polyester reinforcement.
The upper surface is finished with slates and the overlap (*) is protected by a thermofusible film.
The lower surface is protected by a thermofusible film.
(*) product exists also with no overlap



PRODUCT APPLICATION

Used as upper layer within a single or multi layer waterproofing system.

TECHNICAL SPECIFICATIONS

Further information can be found at *https://www.soprema.dk/*

PRODUCT STANDARDS

Product met requirements of EN 1849-1, EN 12311-1, EN 1107-1, EN 12310-1, EN 1109, EN 1110, EN 13501-1. The system can meet the classification Broof (t2) according to EN 13501 part 5.

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at www.soprema.com.

PHYSICAL PROPERTIES OF THE PRODUCT

Composition	Standard	Unit	Value	Tolerance
Mass	EN 1849-1	kg/m^2	5,0	± 15 %
Thickness overlap (indicative)	EN 1849-1	mm	4,2	
Thickness membrane (indicative)	EN 1849-1	mm	4,3	
Tensile force (L / T)	EN 12311-1	N/50 mm	820 / 690	± 20 %
Elongation at max. tensile force (L / T)	EN 12311-1	%	35 / 35	± 15
Resistance to root penetration	EN 13948		NPD	
Resistance to static loading	EN 12730-A EN 12730-B	kg	≥ 15 ≥ 15	
Resistance to impact	EN 12691-A EN 12691-B	mm	≥ 1000 ≥ 1000	
Dimensional stability	EN 1107-1	%	≤ 0,5	
Resistance to tearing (nail shank) (L / T)	EN 12310-1	N	335 / 335	± 25 %
Flexibility at low temperature	EN 1109	°C	≤ -20	
Flexibility at low temperature after aging	EN 1109 / EN 1296	°C	-5	-15/+0
Flow resistance at elevated temperature	EN 1110	°C	≥ 110	
Flow resistance at elevated temperature after aging	EN 1110 / EN 1296	°C	100	-0/+20
Joint properties: peel resistance	EN 12316-1	N/50 mm	135	± 25 %
Joint properties: shear resistance	EN 12317-1	N/50 mm	670	± 25 %
Watertightness	EN 1928-A	kPa/24 h	≥ 10	
Reaction to fire	EN 13501-1	Class	NPD	

NPD = no performance determined

PRODUCT RAW MATERIAL COMPOSITION

Product Material	Weight %	Post-consumer material weight-%	Biogenic material weight-% and kg C/kg
Bitumen	52,08	0	0
Polymers	6,40	0	0
Reinforcements	4,07	50	0
Others	37,48	5,62	0
TOTAL	100	4,14	0
Packaging Material	**Weight %**	**Weight-% (versus the product)**	**Biogenic material weight kg C/kg**
PE	5,43	0,12	0
Tape	1,19	0,03	0
Paper	0,41	0,01	0,0002
Cardboard	31,57	0,69	0,0154
Wooden pallets	61,41	1,33	0,0236
TOTAL	100	2,18	0,039

Mass of the raw materials and packaging include an extra 10% weight for the overlaps.

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The main raw materials for the production of the waterproofing system are bitumen (52,1%), SBS (6,4%), reinforcement (4,1%), minerals as fillers or finishing (35,2%) and other materials (2,3%). The finished packaged product is stored and transported on wooden pallets.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation distance is defined according to PCR. Average distance of transportation from production plant to building site are assumed as 1110 km and the transportation methods are assumed to be lorry. Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation Does not cause losses as product are packaged properly.

Energy consumption during installation represents 1,75 kWh.
Wooden pallets used for transportation of products to client is accounted for in A5. It is assumed that the pallets are incinerated at the nearest municipal incineration plant for energy recovery. The distance is assumed as 50 km and the transportation method assumed to be lorry.

PRODUCT USE AND MAINTENANCE (B1-B7)

Environmental impacts from refurbishment (B5) are included in the study. So, it is considered that the old membrane is covered by a new one after 35 years except under layer. This means that one refurbishment is considered.
Air, soil, and water impacts during the use phase have not been studied.

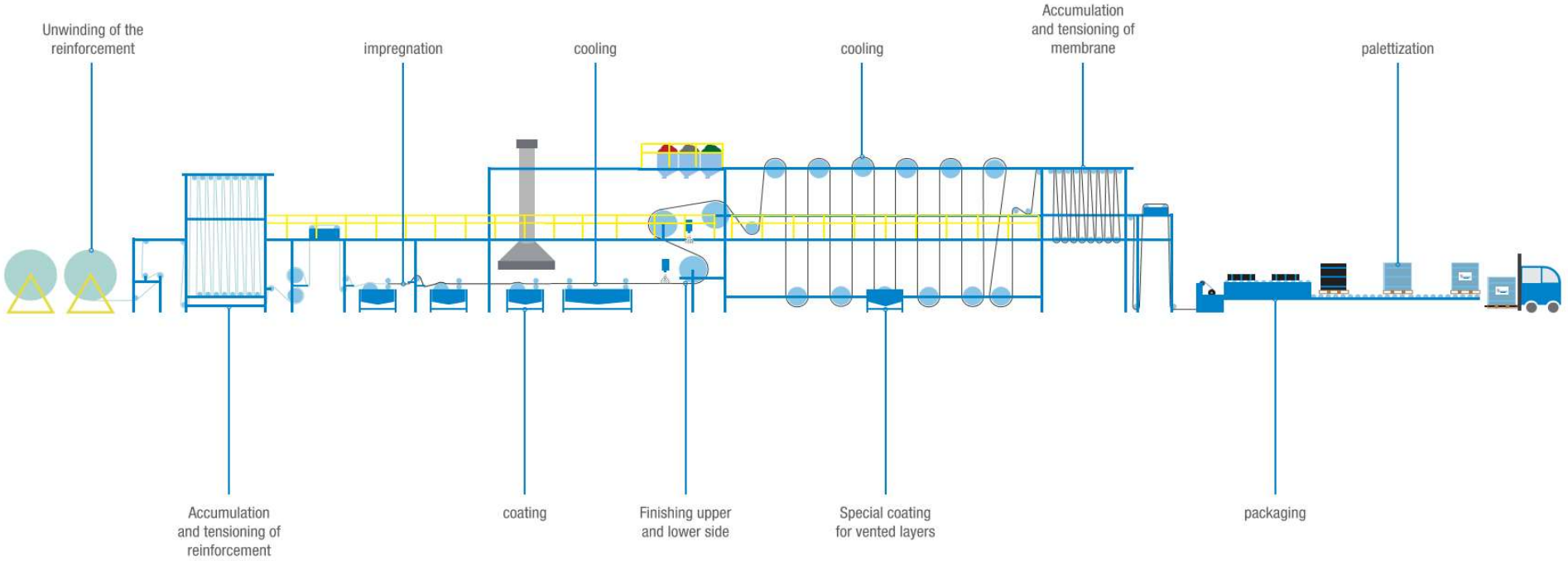
PRODUCT END OF LIFE (C1-C4, D)

The impacts of the disassembly stage are assumed zero, since the consumption of energy and natural resources for disassembling the end-of-life product is negligible.
Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed as lorry which is the most common.

15% of the material is assumed to be recycled and 45% used for energy recovery. 40% of waste is taken to landfill for final disposal.

Module D considers the benefits of recycling and energy recovery which replaces district heat and electricity.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2022

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 m^2
Mass per declared unit	5,368 kg
Functional unit	
Reference service life	70 years

Declared unit includes extra overlaps and installation wastage.

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,039

SYSTEM BOUNDARY

The scope of this EPD is cradle to gate with options, modules C1-C4 and module D, with optional modules A4, A5 and B5.

	Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries
	Raw material supply	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
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	ND	ND	ND	ND	X	ND	ND	X	X	X	X	X
Geography	GLO	EU	BE	EU	EU	-	-	-	-	EU	-	-	EU	EU	EU	EU	EU
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<4%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Modules not declared = ND. Modules not relevant = NR.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances.

The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

Allocation is based on annual production rate and made with high accuracy and precision. The values for 1 m^2 of the product which is used within this study are calculated by considering the total product weight per annual production. The product output is fixed to 1 m^2 and the corresponding amount of product is used in the calculations.

In the production plant, several kinds of products are produced; since the production processes of these products are similar, the annual production percentages are taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total energy consumption, packaging materials and the generated waste per the declared product are allocated.

This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs. All estimations and assumptions are given below.

Module A1: Within the product stage accurate data has been used, with the exception of acrylic tape due to its absence in the database. In this case, it was modelled as close to reality as possible using proxy, representative datapoint.

Module A3: In the plant, lots of different products are produced. Therefore, electricity and natural gas are allocated on yearly consumption.

Module A2, A4 & C2: Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality it may vary but as the role of transportation emission in total results is small and so the variety in load assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by transportation companies to serve the needs of other clients.

Module A4: Transportation doesn't cause losses as products are packaged properly. Also, volume capacity utilisation factor is assumed to be 1 for the nested packaged products. Additionally, transportation distances and vehicle types are assumed according to the delivery in the last year.

Module A5: Energy consumption during installation represents 1.75 kWh. It is assumed that wood pallets are incinerated at the nearest municipal incineration plant for energy recovery. The distance is assumed as 50 km and the transportation method assumed to be lorry.

Module B5: Old membrane is covered by a new one after 35 years except under layer.

Module C1: The impacts of the disassembly stage are assumed zero, since the consumption of energy and natural resources for disassembling the

end-of-life product is negligible.

Module C2: Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed as lorry which is the most common.

Module C3, C4, D: According to the EPD published by EWA, 15% of the material is assumed to be recycled and 45% used for energy recovery. 40% of waste is taken to landfill for final disposal. Module D considers the benefits of recycling and energy recovery which replaces district heat and electricity.

Allocation used in Ecoinvent 3.8 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 -standard.

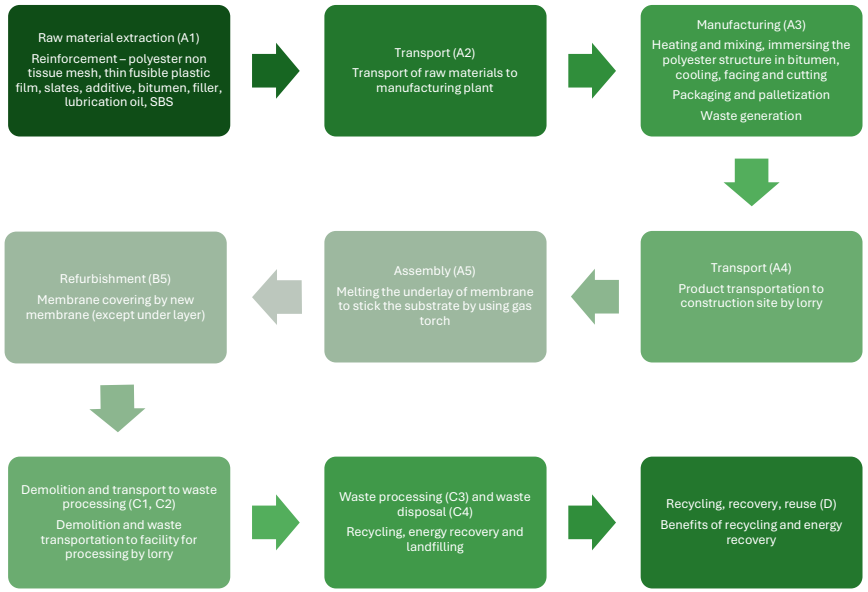
AVERAGES AND VARIABILITY

The results represent impacts for the analysed product. Averages and variability are applicable. EPD is based on the average results of the product group.

The International EPD System additional data requirements

Data specificity and GWP-GHG variability for GWP-GHG for A1-A3.

Supply-chain specific data for GWP-GHG	>90%
Variation in GWP-GHG between products	<4 %
Variation in GWP-GHG between sites	Not relevant



Process diagram

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The use of the results of modules A1-A3 is possible only without considering the results of module C. Note: additional environmental impact data may be presented in annexes.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	3,81E+00	9,94E-01	7,55E-01	MND	MND	MND	MND	4,53E+00	MND	MND	0,00E+00	4,67E-02	1,17E+01	6,44E-01	1,78E+00
GWP – fossil	kg CO_2e	3,82E+00	9,90E-01	6,11E-01	MND	MND	MND	MND	4,39E+00	MND	MND	0,00E+00	4,66E-02	1,17E+01	6,44E-01	1,77E+00
GWP – biogenic	kg CO_2e	-1,42E-01	0,00E+00	1,43E-01	MND	MND	MND	MND	9,25E-03	MND	MND	0,00E+00	0,00E+00	4,03E-04	4,06E-04	3,17E-03
GWP – LULUC	kg CO_2e	1,32E-01	3,96E-04	1,41E-04	MND	MND	MND	MND	1,32E-01	MND	MND	0,00E+00	1,75E-05	2,56E-04	5,11E-05	8,46E-04
Ozone depletion pot.	kg CFC_{-11}e	3,57E-07	2,30E-07	4,31E-08	MND	MND	MND	MND	4,07E-07	MND	MND	0,00E+00	1,16E-08	5,63E-08	1,38E-08	1,56E-06
Acidification potential	mol H^+e	1,71E-02	2,82E-03	1,39E-03	MND	MND	MND	MND	1,85E-02	MND	MND	0,00E+00	1,48E-04	4,34E-03	6,94E-04	1,41E-02
EP-freshwater[2)]	kg Pe	1,10E-04	7,08E-06	4,53E-06	MND	MND	MND	MND	1,13E-04	MND	MND	0,00E+00	3,33E-07	5,42E-06	8,26E-07	4,27E-05
EP-marine	kg Ne	1,82E-02	5,62E-04	4,18E-04	MND	MND	MND	MND	1,86E-02	MND	MND	0,00E+00	3,28E-05	1,25E-03	5,58E-04	1,89E-03
EP-terrestrial	mol Ne	2,71E-02	6,24E-03	4,29E-03	MND	MND	MND	MND	3,11E-02	MND	MND	0,00E+00	3,64E-04	1,15E-02	1,48E-03	2,08E-02
POCP ("smog")[3)]	kg NMVOCe	1,40E-02	2,40E-03	1,49E-03	MND	MND	MND	MND	1,54E-02	MND	MND	0,00E+00	1,43E-04	3,02E-03	5,83E-04	2,02E-01
ADP-minerals & metals[4)]	kg Sbe	4,09E-04	3,58E-06	2,00E-06	MND	MND	MND	MND	4,11E-04	MND	MND	0,00E+00	1,14E-07	2,03E-06	1,62E-07	1,23E-05
ADP-fossil resources	MJ	6,17E+01	1,47E+01	6,19E+00	MND	MND	MND	MND	6,81E+01	MND	MND	0,00E+00	7,45E-01	3,03E+00	1,07E+00	1,11E+02
Water use[5)]	m^3e depr.	2,16E+01	6,91E-02	2,71E-02	MND	MND	MND	MND	2,16E+01	MND	MND	0,00E+00	3,44E-03	4,04E-01	6,70E-03	7,99E-01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	3,86E+01	7,99E-08	1,97E-08	MND	MND	MND	MND	3,86E+01	MND	MND	5,41E-09	2,94E-08	8,12E-09	9,28E-08	8,62E-08
Ionizing radiation[6)]	kBq	2,94E-01	7,74E-02	1,01E-02	MND	MND	MND	MND	3,05E-01	MND	MND	3,84E-03	1,49E-02	5,20E-03	5,07E-01	4,85E-01
Ecotoxicity	CTUe	3,39E+01	1,23E+01	4,58E+00	MND	MND	MND	MND	3,84E+01	MND	MND	6,20E-01	5,38E+00	1,56E+00	6,82E+01	6,61E+01
Human toxicity,	CTUh	9,19E-09	3,78E-10	2,45E-10	MND	MND	MND	MND	9,34E-09	MND	MND	1,61E-11	3,67E-10	3,61E-11	1,48E-09	1,45E-09
Human tox. non-	CTUh	8,72E-01	1,20E-08	5,77E-09	MND	MND	MND	MND	8,72E-01	MND	MND	6,31E-10	1,16E-08	5,70E-10	3,47E-08	3,36E-08
SQP[7)]	-	1,77E+01	1,05E+01	8,03E-01	MND	MND	MND	MND	1,18E+01	MND	MND	8,69E-01	2,51E+00	2,55E+00	1,28E+01	1,20E+01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	2,08E+00	2,15E-01	1,21E-01	MND	MND	MND	MND	1,69E+00	MND	MND	0,00E+00	9,65E-03	1,30E-01	2,18E-02	9,41E-01
Renew. PER as material	MJ	1,35E+00	0,00E+00	-1,35E+00	MND	MND	MND	MND	5,94E-01	MND	MND	0,00E+00	0,00E+00	-1,32E-03	-8,82E-04	0,00E+00
Total use of renew. PER	MJ	3,43E+00	2,15E-01	-1,23E+00	MND	MND	MND	MND	2,28E+00	MND	MND	0,00E+00	9,65E-03	1,29E-01	2,09E-02	9,41E-01
Non-re. PER as energy	MJ	6,16E+01	1,48E+01	6,20E+00	MND	MND	MND	MND	6,79E+01	MND	MND	0,00E+00	7,45E-01	3,03E+00	1,07E+00	6,20E+01
Non-re. PER as material	MJ	1,45E+02	0,00E+00	-6,89E-01	MND	MND	MND	MND	1,45E+02	MND	MND	0,00E+00	0,00E+00	-1,31E+01	-5,19E+01	4,94E+01
Total use of non-re. PER	MJ	2,06E+02	1,48E+01	5,50E+00	MND	MND	MND	MND	2,12E+02	MND	MND	0,00E+00	7,45E-01	-1,01E+01	-5,08E+01	1,11E+02
Secondary materials	kg	3,36E-01	5,02E-03	3,67E-03	MND	MND	MND	MND	3,37E-01	MND	MND	0,00E+00	2,10E-04	2,19E-03	3,78E-04	1,13E-02
Renew. secondary fuels	MJ	2,59E-02	5,53E-05	2,26E-05	MND	MND	MND	MND	4,86E-04	MND	MND	0,00E+00	1,85E-06	2,92E-05	1,45E-05	5,84E-05
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	0,00E+00	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	2,83E-01	1,88E-03	7,10E-04	MND	MND	MND	MND	6,96E-02	MND	MND	0,00E+00	9,88E-05	6,74E-03	1,14E-03	1,90E-02

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1,57E-01	0,00E+00	1,52E-02	MND	MND	MND	MND	1,96E-01	MND	MND	0,00E+00	7,99E-04	0,00E+00	0,00E+00	1,34E-01
Non-hazardous waste	kg	4,10E-01	0,00E+00	4,54E-01	MND	MND	MND	MND	1,06E+00	MND	MND	0,00E+00	1,39E-02	0,00E+00	4,29E+00	1,50E+00
Radioactive waste	kg	1,42E-03	0,00E+00	5,09E-06	MND	MND	MND	MND	1,53E-03	MND	MND	0,00E+00	5,14E-06	0,00E+00	0,00E+00	6,61E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	0,00E+00	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	6,40E-03	MND	MND	MND	MND	0,00E+00	MND	MND	0,00E+00	0,00E+00	1,61E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	5,12E-02	0,00E+00	9,91E-02	MND	MND	MND	MND	0,00E+00	MND	MND	0,00E+00	0,00E+00	4,83E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	0,00E+00	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[10)]	kg CO_2e	3,82E+00	9,90E-01	6,11E-01	MND	MND	MND	MND	4,39E+00	MND	MND	0,00E+00	4,66E-02	1,17E+01	6,44E-01	1,77E+00

10) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value	Data source
Electricity data source and quality	Electricity, Belgium, residual mix	LCA study for country specific residual electricity mixes based on AIB 2019, OneClickLCA 2021
Electricity CO_2e / kWh	0,28 kg CO2e / kWh	
District heating data source and quality	Heat production, natural gas, at industrial furnace >100k	ecoinvent 3.8
District heating CO_2e / kWh	0,0687	

Transport scenario documentation (A4)

Scenario parameter	Value
Specific transport CO_2e emissions, kg CO_2e / tkm	0,16
Average transport distance, km	1110
Capacity utilization (including empty return) %	100
Bulk density of transported products	
Volume capacity utilization factor	1

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	10,7277
Collection process – kg collected with mixed waste	
Recovery process – kg for recycling	1,6092
Recovery process – kg for energy recovery	4,8275
Disposal (total) – kg for final deposition	4,2911
Scenario assumptions e.g. transportation	End-of-life product is transported 50 km with an average lorry.

BIBLIOGRAPHY

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations. Principles and procedures.

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ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

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Ecoinvent database v3.8 (2021) and One Click LCA database.

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Eriksson, O. & Finnveden, G. Energy Recovery from Waste Incineration - The Importance of Technology Data and System Boundaries on CO2 Emissions. Energies, 2017

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ABOUT THE MANUFACTURER

The SOPREMA Group has been developing and diversifying its activities, worldwide, by including, over the years, additional operations to its traditional trade, waterproofing. By becoming the world leader in waterproofing solutions, the group is today a key player in the construction sector. SOPREMA was created in 1908 as an independent family group by Charles Geisen whose great-grandson, Pierre-Etienne Bindschedler, is now at the head of the company. Today we are rolling out millions of square metres of waterproofing, insulating and roofing material. As a result, SOPREMA claims a world-leading position in the design and manufacture of waterproofing solutions as well as roofing materials, sound and thermal insulation. Today, SOPREMA operates all around the world with 101 manufacturing plants, more than 100 subsidiaries and more than 4,000 distributors.

Manufacturer	SOPREMA-LARSEN
EPD author	Ľudmila Vaculová Mečiarová, Silvia Vilčeková
EPD verifier	Joanna Zhuravlova
EPD program operator	The International EPD System
Background data	This EPD is based on Ecoinvent 3.8 (Allocation, cut-off, EN15804) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Bitumen membranes
Calculation method	Potential environmental impacts are calculated following EN 15804:2012 +A2:2019. The characterization models and factors correspond to the defaults list (EF 3.0).

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with EN 15804, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The background report (project report) for this EPD

Why does verification transparency matter? Read more online.

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Joanna Zhuravlova
EPD verification started on	23.05.2024
EPD verification completed on	19.07.2024
Supply-chain specific data %	>90%
Approver of the EPD verifier	The International EPD System

Author & tool verification	Answer
EPD author	Ľudmila Vaculová Mečiarová Silvia Vilčeková
EPD Generator module	Bitumen membranes
Independent software verifier	Ugo Pretato, Studio Fieschi & soci
Software verification date	2021-05-11

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of

- the data collected and used in the LCA calculations,
- the way the LCA-based calculations have been carried out,
- the presentation of environmental data in the EPD, and
- other additional environmental information, as present

with respect to the procedural and methodological requirements in ISO 14025:2010 and EN 15804:2012+A2:2019.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Joanna Zhuravlova

VERIFICATION AND REGISTRATION (INTERNATIONAL EPD SYSTEM)

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

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): *Construction products 2019:14 Version 1.3.2, 2023-12-08*
PCR review was conducted by: Martin Erlandsson, IVL Swedish Environmental Research Institute, martin.erlandsson@ivl.se
Life Cycle Assessment (LCA)
LCA accountability: Ľudmila Vaculová Mečiarová, Silvia Vilčeková
Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: x EPD verification by individual verifier Third-party verifier: Joanna Zhuravlova Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes x No

EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden, E-mail: info@environdec.com

ANNEX 1: ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO2e	3,48E+00	9,84E-01	5,90E-01	MND	MND	MND	MND	4,04E+00	MND	MND	0,00E+00	4,62E-02	1,16E+01	5,23E-01	1,71E+00
Ozone depletion Pot.	kg CFC-11e	2,62E-07	1,82E-07	3,58E-08	MND	MND	MND	MND	3,03E-07	MND	MND	0,00E+00	9,22E-09	5,22E-08	1,09E-08	1,24E-06
Acidification	kg SO2e	1,28E-02	2,31E-03	1,10E-03	MND	MND	MND	MND	1,39E-02	MND	MND	0,00E+00	1,20E-04	3,48E-03	5,72E-04	1,21E-02
Eutrophication	kg PO43e	3,72E-03	4,98E-04	2,24E-03	MND	MND	MND	MND	3,96E-03	MND	MND	0,00E+00	2,55E-05	1,28E-02	3,09E-02	3,34E-03
POCP (“smog”)	kg C2H4e	6,33E-04	1,16E-04	1,41E-04	MND	MND	MND	MND	7,58E-04	MND	MND	0,00E+00	5,62E-06	1,41E-04	1,05E-04	6,90E-04
ADP-elements	kg Sbe	1,07E-05	3,50E-06	2,00E-06	MND	MND	MND	MND	1,27E-05	MND	MND	0,00E+00	1,11E-07	1,36E-06	1,57E-07	1,28E-05
ADP-fossil	MJ	1,90E+02	1,47E+01	6,19E+00	MND	MND	MND	MND	1,96E+02	MND	MND	0,00E+00	7,45E-01	3,03E+00	1,07E+00	1,11E+02

ANNEX 2: LIFE-CYCLE ASSESSMENT RESULT VISUALIZATION