Environmental Product Declaration

In accordance with ISO 14025:2006, EN 15804:2012+A2:2019/AC:2021 for

SOLITEX PLUS
SOLITEX PLUS connect

Reinforced roofing underlay for pitched roofs and weathertight breather membrane for suspended timber floors (for Great Britain and Ireland)

from

pro clima – MOLL bauökologische Produkte GmbH

Covered Product by the EPD:
SOLITEX PLUS (width: 1.5 m / length: 15 m) GTIN 4026639040077
SOLITEX PLUS (width: 1.5 m / length: 50 m) GTIN 4026639040084
SOLITEX PLUS connect (width: 1.5 m / length: 50 m) GTIN 4026639243546

Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Type of EPD	EPD of multiple products, based on a representative product
EPD registration number:	EPD-IES-0032698:001
Version date	30/09/2026
Validity date	30/09/2031

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see 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
E-mail:	support@environdec.com

Product Category Rules (PCR)

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 Construction Products, version 2.0.1

UN CPC code: No. 36330: "Plates, sheets, film, foil and strip, of plastics, not self-adhesive, non-cellular and not reinforced, laminated, supported or similarly combined with other materials"

PCR review was conducted by: The Technical Committee of the International EPD System. A full list of members is available on www.environdec.com. The review panel may be contacted via support@environdec.com. Chairs of the PCR review: Rob Rouwette (chair), Noa Meron (co-chair).

Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

☑ Individual EPD verification without a pre-verified LCA/EPD tool
Third party verifier: Jan Weinzettel, weinzettel@seznam.cz
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 published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit 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 identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.

For further information about comparability, see EN 15804 and ISO 14025.

Information about EPD owner

Owner of the EPD
pro clima / MOLL bauökologische Produkte GmbH
Rheintalstr. 35-43 – 68723 Schwetzingen – Germany
T: +49 (0) 62 02 – 27 82.0; info@proclima.com

Contact
Michael Förster: support@proclima.com

Life Cycle Assessment (LCA)
LCA accountability: Jannik Schulz, María Díaz Cáceres
brands & values GmbH, info@brandsandvalues.com

Description of the organisation
pro clima is a pioneer in the intelligent, reliable sealing of building envelopes. The company develops and markets product systems for achieving maximum protection against moisture damage to structures and mould:

- Humidity-variable hydrosafe® high-performance vapour check and airtightness membranes for interior sealing on new buildings and renovation projects.
- Roofing underlays and breather membranes (WRBs) with active moisture transport for permanently protected exterior sealing of roofs and walls.
- Special adhesives and waterproof tapes.
- Sealing grommets as detailed solutions.

Highest quality for optimal performance

- The system products are manufactured using state-of-the-art production processes at leading production facilities in Germany.
- Production is subject to the highest quality standards, ensuring that insulation is reliably protected against moisture damage and mould.
- Highest effectiveness of thermal insulation.
- Reduction of heating costs due to optimal air sealing.
- Dry insulation materials.
- Best possible protection against moisture damage to structures and mould.
- Comfortable interiors in summer and winter.
- Healthy indoor climates.

Together towards a successful future
People are the focus of every decision at pro clima, and the company's guiding mission is to advance building culture as a whole. To achieve this goal, system products have been developed for over 30 years that are consistently geared to meet the health and comfort needs of users. Many of pro clima's pioneering developments are now established as state-of-the-art approaches. Today, these products are successfully used in over 40 countries worldwide.

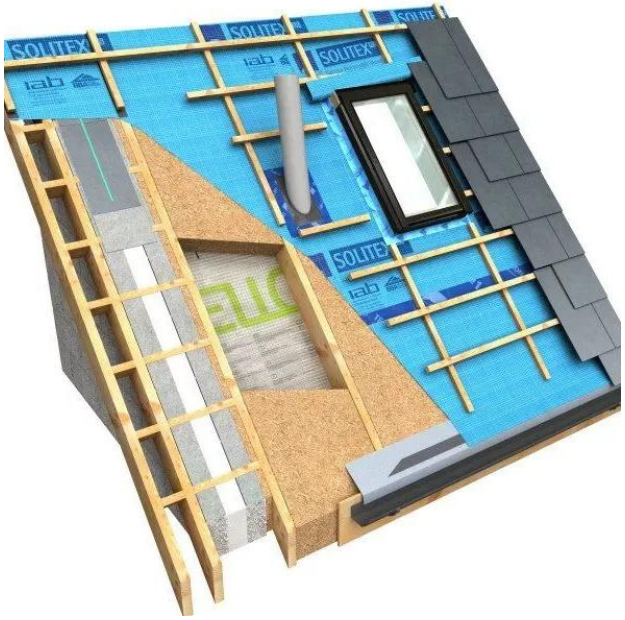
Product-related or management system-related certifications
All production sites are ISO 9001 certified.

Product information

Product name
SOLITEX PLUS connect

Product identification
Reinforced roofing underlay for pitched roofs and weathertight breather membrane for suspended timber floors (for Great Britain and Ireland)

Visual representation of the product



UN CPC code
No. 36330: "Plates, sheets, film, foil and strip, of plastics, not self-adhesive, non-cellular and not reinforced, laminated, supported or similarly combined with other materials"

Products covered by this EPD
SOLITEX PLUS (width: 1.5 m / length: 15 m) GTIN 4026639040077
SOLITEX PLUS (width: 1.5 m / length: 50 m) GTIN 4026639040084
SOLITEX PLUS connect (width: 1.5 m / length: 50 m) GTIN 4026639243546

The declared product – SOLITEX PLUS connect – was selected as the representative product because it contains an additional integrated 'connect' self-adhesive strips on the long edges of the membrane. These modifications are intended to meet specific customer and application requirements and do not significantly influence the environmental profile of the product itself.
A variability assessment was performed across all covered variants. (See additional environmental information). The results show that the deviations for all environmental indicators are within a range of –83% to 0% (for modules A-C) compared to the declared representative product. Since the worst-case product was selected for the assessment of this EPD - and thus a conservative approach was taken - the use of a single representative EPD for the entire product group is justified.

Product description
SOLITEX PLUS for Great Britain and Ireland has the following components:
Protective and covering fleece: Polypropylene microfibre; Functional film: Monolithic TEEE; Reinforcement: Polypropylene non-woven fabric; Self-adhesive strips: Water-resistant SOLID adhesive.

Applications
Diffusion-open roofing underlay for installation hanging freely across the rafters or else over roof sheathing, MDF and wood-fibre underlay panels and thermal insulation materials of all kinds, including blown-in insulation.
The membrane can also be used to windproof the underside of an insulated suspended timber floor.

Properties

Dry building structures: pore-free TEEE functional film. High tear-resistance thanks to reinforcement: suitable for blown-in insulation, particularly good protection against penetration, high nail tear-resistance. Flexible planning of construction schedules thanks to 3 months of outdoor exposure. High ageing resistance and thermal stability thanks to the TEEE functional film. Provides protection during the construction period: suitable as a temporary covering. Quick and reliable adhesion thanks to the integrated self-adhesive strips on the long edges of the 'connect' variant of this membrane.

Name and location of production site(s)

Manufacturer: pro clima / MOLL bauökologische Produkte GmbH
Location of manufacturing sites: Germany
The declared product is manufactured at two production sites in Germany under contract for pro clima / MOLL bauökologische Produkte GmbH. The cities is not disclosed in this public EPD for reasons of commercial confidentiality, as publication would reveal commercially sensitive supply chain information. The exact production sites are documented in the background report and have been made available to the independent verifier.
Final warehouse and quality control: pro clima / MOLL bauökologische Produkte GmbH, Schwetzingen, Germany
Further information can be found under https://proclima.com/

Technical specifications

Property	Regulation	Value
Colour	N/A	Light blue
Surface weight	EN 1849-2	170 g/m²
Thickness	EN 1849-2	0.55 mm
Water vapour resistance factor μ	EN ISO 12572	73
s_d value	EN ISO 12572	0.04 m
s_d value, humidity-variable	N/A	0.02 m
g value	N/A	0.20 MN·s/g
g value, humidity-variable	N/A	0.10 MN·s/g
Reaction to fire classification	EN 13501-1	E
Outdoor exposure	N/A	3 months
Watertight joints with 'connect' adhesive strips or TESCON tape	EN 13859-1	W1
Roofing underlay category (Germany)	ZVDH-Produktdatenblatt 2024	USB / UDB
Suitable as temporary roof covering (Germany)	ZVDH	Yes
Water column	EN ISO 811	> 2 500 mm
Watertightness, non-aged/aged*	EN 1928	W1 / W1
Tensile strength MD/CD	EN 13859-1 (A)	495 N/5 cm / 310 N/5 cm
Tensile strength MD/CD, aged*	EN 13859-1 (A)	495 N/5 cm / 350 N/5 cm
Elongation MD/CD	EN 13859-1 (A)	25% / 20%
Elongation MD/CD, aged*	EN 13859-1 (A)	15% / 15%
Nail tear-resistance MD/CD	EN 13859-1 (B)	270 N / 270 N
*) Durability after artificial ageing	EN 1297	Passed
Flexibility at low temperature	EN 1109	-40 °C
Adhesion of 'connect' strips	N/A	Above +0 °C
Temperature resistance	N/A	Permanent -40 °C to 100 °C
Thermal conductivity	N/A	0.04 W/(m·K)
CE labelling	EN 13859-1	Yes

Content declaration

The content declaration refers to the declared unit of 1m² of SOLITEX PLUS (GB/IRL) external windtightness membrane

Product components	Weight, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product
Additives	0.037	0.0%	0 kg C/kg
Adhesives	0.008	0.0%	0 kg C/kg
Non-woven (PP)	0.120	0.0%	0 kg C/kg
Scrim (PP)	0.022	0.0%	0 kg C/kg
Printing ink	0.001	0.0%	0 kg C/kg
Total product	0.188	0.0%	0 %- 0 kg C/kg
Packaging materials	**Weight, kg**	**Weight-% (relative to the product)**	**Weight biogenic carbon, [kg C/kg]**
Film (PP)	0.003	1.5%	0 kg C/kg
Cardboard	0.005	2.4%	0.002 kg C/kg
Pallet	0.016	7.3%	0.008 kg C/kg
Film (PE)	0.006	2.9%	0 kg C/kg
Total packaging	0.031	14.1%	0.01 kg C/kg
TOTAL Product with packaging	**0.2190**	**100%**	**0.01 kg C/kg**

The biogenic carbon content of product and packaging is 0.036 kg CO_2 eq. per declared unit.

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
None	Not applicable	Not applicable	Not applicable

LCA information

The EPD conducted is for the representative product SOLITEX PLUS (GB/IRL) external windtightness membrane

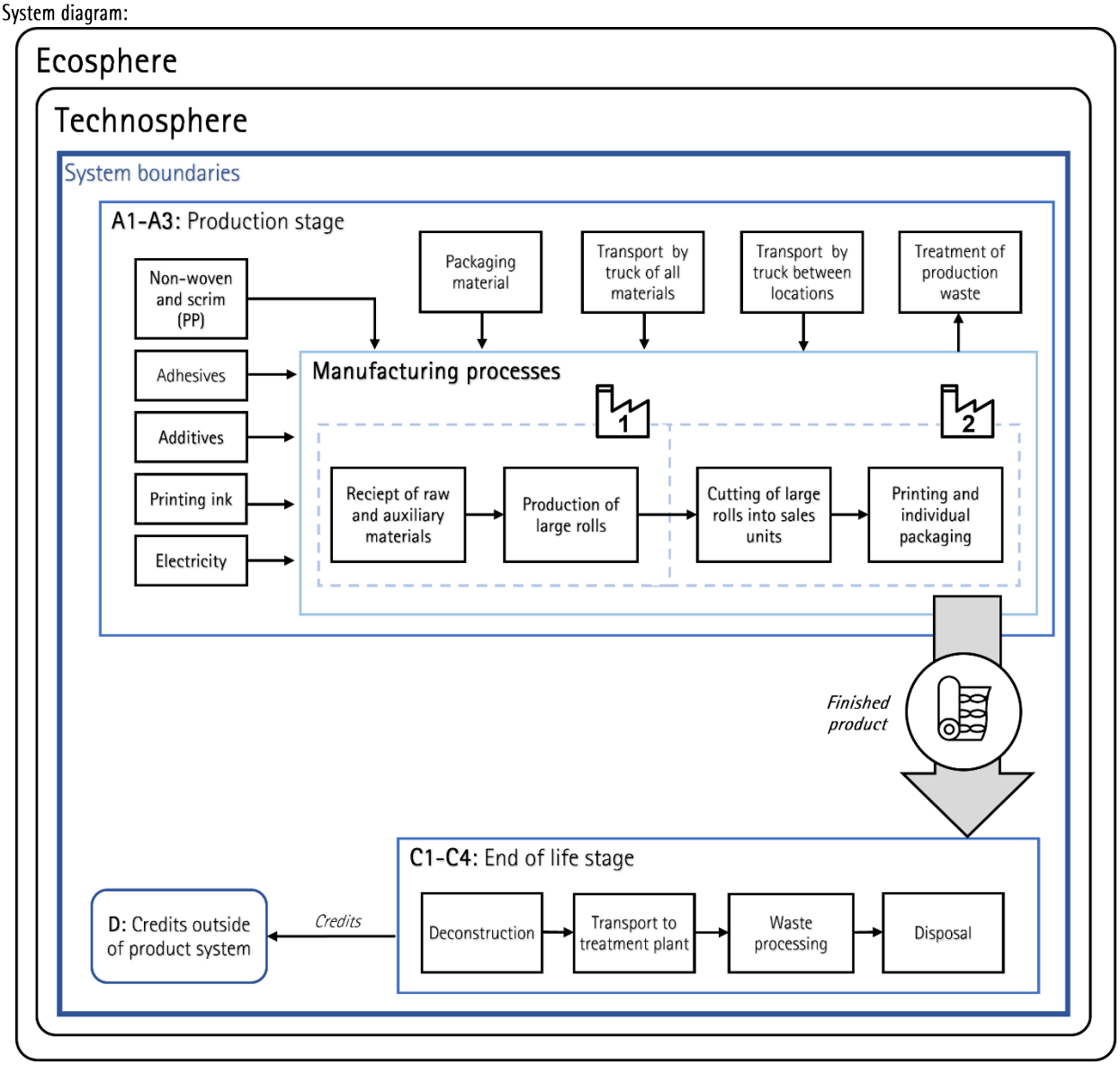
Declared unit: 1m² of SOLITEX PLUS (GB/IRL) external windtightness membrane
Conversion factor to mass: 0.188 kg/m²
Reference service life: 30 years
Time representativeness: Based on yearly manufacturing data from 01/01/2023 until 31/12/2023.
Geographical Scope: Global
Database and LCA software used: For the LCA model, the software system for holistic balancing (LCA for Experts) version 10.9 was used. Background data sets from the current version of the LCA for experts (GaBi) database service pack 2026.1 were used entirely. EN 15804 +A2 (based on EF 3.1) characterisation factors provided in LCA for Experts were applied

Description of the manufacturing processes:
The SOLITEX PLUS reinforced roofing underlay for pitched roofs and weathertight breather membrane for suspended timber floors is produced by bonding and laminating two fleece layers (front and back), the reinforcement and a functional film layer to create large rolls. These rolls are printed and then cut into smaller rolls, which are the sales units. On the 'connect' product variant, adhesive strips and release films are fitted to the long edges of the membranes to create the self-adhesive 'connect' strips (one on the printed front surface, one on the back surface). These rolls are then packaged and sent for storage and distribution, first to the central warehouse in Germany, and then all over the world for further sale.

Description of system boundaries:
a) "Cradle to gate with modules C1–C4 and module D"

- The entirety of non-woven fleece polypropylene was modelled as primary material to account for a worst-case scenario.
- All processing steps and locations are balanced within the system boundaries.
- The LCI data manufacturing data was gathered for the specific declared product, and no co-product allocation was necessary.
- The allocation of waste follows the polluter-pays principle. The system boundary to the next product system is set when the waste reaches the end-of-waste state. The impacts of waste treatment from production are included in Module A3. The impacts of waste treatment during end-of-life are included in Module C, where the product reaches the end-of-waste status.
- All the LCI data in Modules A2-A3 corresponds to primary data collected from the manufacturing plant and contracted suppliers, including material and energy inputs, and waste and emission outputs.
- Modules A4, A5 and B1–B7 are not declared.

System diagram:



Description of scenarios
The system boundaries cover the following modules:

A1. Raw Material Supply

- Extraction and processing of raw materials required for manufacturing the defined external windtightness membrane: Non-woven and scrim (PP), additives and printing ink.
- Extraction and processing of raw materials required for packaging the 1 m² of finished product, airtightness, and vapour control membrane: Cardboard, film (PE and PP) and wood pallet.
- Extraction and processing of raw materials of internal packaging, used for transportation between all production locations. Internal packaging includes film (PE), cardboard and wood pallet.
- Generation of electricity from primary energy resources to supply the production sites with energy.

A2. Transportation

- Transportation of the raw materials was modelled based on the providers specific locations and transportation via truck to the production location #1 in Germany. All materials are procured from providers within less than 800 km.
- After production, the large rolls are transported to the production location #2 for cutting of the large rolls into sales units, printing, individual packaging and labelling of the sales units. The sales units are then packed with film (PE) for transportation on pallets. The transportation of raw materials for packaging as well as the transportation of the large rolls from the production location #1 for finishing manufacturing in the production location #2 is modelled in Module A2.

A3. Manufacturing

- The core production processes which are under control of the manufacturer are depicted within the dashed lines in the system diagram. Each processing step within the system boundaries is marked with an icon and number (#1 and #2.), indicating the specific production site where it occurs.
- Manufacturing of the defined external windtightness membrane occurs in Germany.
- The production of the large membrane roll is done in the production location #1, by bonding and laminating the polymers and the non-woven.
- In location #2, the membrane is confectioned, by adding the adhesive and release film. The membrane is cut into sale units. The products are then packed on pallets for further transportation.
- Treatment of waste generated from the manufacturing processes is included in the model. The model includes processing up to the end-of-waste status or disposal of final residues including any packaging not leaving the factory gate.
- Electricity for production in module A3 is modelled with the German Residual electricity mix.

C1-C4. End of Life

- Module C2 contains the environmental impact of transportation (0.188 kg product, 130 km by truck, Diesel, 20 - 26t gross weight / 17.3t payload capacity, 50% capacity utilisation, volume capacity utilisation factor = 1) of the product to the waste treatment plant.
- The product is treated as waste in module C3 by means of incineration.
- The loads for waste treatment are mapped here until the end of the waste property is reached. Emissions are assigned to module C3.

D. Reuse, recovery, recycling potential

- Module D accounts for potential benefits as material or energy inputs for a downstream product system in the form of the energy recovered from the waste-to-energy treatment and material recovery.
- The value flows resulting from the treatment of waste (Module C3) are accounted for completely in module D as credits outside of product system.

Allocation

The production is modelled with specific data for the declared products; there are no co-products where allocation is needed. The total energy consumption for manufacturing was calculated by the manufacturer based on the maximum power consumption of the equipment, using a conservative approach. For the input of secondary material, the cut-off method is applied. Therefore, secondary materials enter the system under consideration without any environmental loads. This applies to wastepaper for cardboard production in modules A1-A3.

Cut-off criteria

The impact associated with the disregarded mass shares is less than 5% of the impact categories per module. In addition, less than 1% of the total mass and the primary energy used is cut-off. No substances or processes with high environmental relevance were cut-off. The resulting inventory fulfils EN 15804+A2 completeness requirements, covering >99% of total mass and energy inflows and at least 95% per life-cycle stage (A1–A3, C1–C4, D)

Data quality assessment

Primary data include internal production and environmental data, supplier information and energy supply. Data were checked for plausibility and consistency, with attention to completeness and alignment with ISO 14044 requirements. For the upstream processes, generic data was selected. LCI data corresponds to manufacturer-provided data, including material inputs, outputs, and energy demands. The data collection period represents the production year 2023.

Background datasets were selected from Sphera Managed LCA Content databases (Servicepack 2026.1) and are generally not older than 10 years. Overall, the data are considered representative of standard production, with good consistency and completeness.

Overall, data quality is rated as good in accordance with EN 15941, with scores of 1.7 and 2.7 for the specific data and the background datasets used, respectively. There are no inventories with poor data quality.

Climate impact of energy

The energy requirement for production were modelled using the Residual electricity mix of the electricity supplier on the market. In this case the LCA for Experts dataset of Residual grid mix; AC, technology mix; consumption mix, to consumer; <1kV in Germany. The modelled electricity has a GWP-GHG value of 0.799 kg CO2e/kWh.

More information

- Additional information can be obtained by contacting pro clima at info@proclima.com
- LCA practitioner: brands & values GmbH, info@brandsandvalues.com

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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	DE	DE	DE										GLO	GLO	GLO	GLO	GLO
Specific data used*	7%																
Variation – products*	0%/-2%																
Variation – sites*	0%																

*Based on the GWP-GHG results for modules A1–A3

Modules declared: (X = included; ND = not declared).

The table below presents the processes contributing more than 10% to the GWP-GHG results of life cycle modules A1–A3.

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Adhesives	Collected data, database	pro clima, LCA FE (2026.1)	2023	Secondary data	0%
Packaging	Collected data, database	pro clima, LCA FE (2026.1)	2023	Secondary data	0%
Non-woven	Collected data, database	pro clima, LCA FE (2026.1)	2023	Secondary data	0%
Total share of primary data of the processes listed in this table for GWP-GHG results in modules A1-A3					0%

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

Maximum variations in the results of individual products compared to the representative product in %:
Only one of the environmental indicators present a variation in the result of an impact category over the life cycle (modules A-C) greater than 10%. Variation of products ranges from -83% to 0%.

Environmental performance

LCA results of the product(s) - main environmental performance results

EN 15804 +A2 (based on EF 3.1) characterisation factors provided in LCA for Experts were applied. Biogenic CO2 and materially bound primary energy were adjusted manually based on the composition of the declared unit.

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 results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

The biogenic carbon and primary energy leaving the product system in module A5 have been balanced out already in modules A1-A3.

Mandatory impact category indicators according to EN 15804

Potential environmental impact – mandatory indicators according to EN 15804

Results per functional or declared unit							
Indicator	Unit	Tot. A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	6.40E-01	0.00E+00	2.74E-03	5.48E-01	0.00E+00	-2.39E-01
GWP-biogenic	kg CO_2 eq.	2.30E-03	0.00E+00	3.27E-06	1.94E-05	0.00E+00	-1.23E-03
GWP-luluc	kg CO_2 eq.	4.64E-04	0.00E+00	1.16E-05	4.26E-06	0.00E+00	-3.06E-04
GWP-total	kg CO_2 eq.	6.42E-01	0.00E+00	2.75E-03	5.48E-01	0.00E+00	-2.40E-01
ODP	kg CFC 11 eq.	2.02E-11	0.00E+00	1.28E-15	6.66E-14	0.00E+00	-4.42E-12
AP	mol H^+ eq.	1.13E-03	0.00E+00	5.39E-06	5.68E-05	0.00E+00	-3.11E-04
EP-freshwater	kg P eq.	1.40E-06	0.00E+00	6.86E-09	2.64E-09	0.00E+00	-1.13E-07
EP-marine	kg N eq.	3.48E-04	0.00E+00	2.31E-06	1.30E-05	0.00E+00	-9.04E-05
EP-terrestrial	mol N eq.	3.73E-03	0.00E+00	2.50E-05	2.70E-04	0.00E+00	-1.04E-03
POCP	kg NMVOC eq.	1.33E-03	0.00E+00	4.96E-06	3.76E-05	0.00E+00	-2.35E-04
ADP-minerals&metals	kg Sb eq.	9.42E-08	0.00E+00	1.96E-10	6.01E-10	0.00E+00	-2.94E-08
ADP-fossil*	MJ	1.73E+01	0.00E+00	3.53E-02	6.84E-02	0.00E+00	-4.08E+00
WDP	m^3	6.50E-02	0.00E+00	1.10E-05	5.04E-02	0.00E+00	-1.99E-02
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.

Potential environmental impact – additional mandatory and voluntary indicators

Results per functional or declared unit							
Indicator	Unit	Tot. A1-A3	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2 eq.	6.40E-01	0.00E+00	2.75E-03	5.48E-01	0.00E+00	-2.39E-01
PM	Disease incidence	1.44E-08	0.00E+00	4.54E-11	3.32E-10	0.00E+00	-2.57E-09
IR	kBq U235 eq.	2.51E-02	0.00E+00	7.25E-06	4.72E-04	0.00E+00	-4.00E-02
ETP-fw	CTUe	9.74E+00	0.00E+00	3.04E-02	2.71E-02	0.00E+00	-4.86E-01
HTP-c	CTUh	2.07E-10	0.00E+00	6.02E-13	3.40E-12	0.00E+00	-4.09E-11
HTP-nc	CTUh	6.16E-09	0.00E+00	3.12E-11	2.37E-11	0.00E+00	-9.75E-10
SQP	dimensionless	2.64E+00	0.00E+00	9.47E-03	2.12E-02	0.00E+00	-7.94E-01
Acronyms	GWP-GHG = This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO2 is set to zero; PM = Particulate matter emissions; IR = Ionizing radiation, human health; ETP-fw = Eco-toxicity - freshwater; HTP-c = Human toxicity, cancer effect; HTP-nc = Human toxicity, non-cancer effects; SQP = Land use related impacts/Soil quality						

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO2 is set to zero.

Resource use indicators

Results per functional or declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	2.00E+00	0.00E+00	2.51E-03	2.07E-02	0.00E+00	-1.46E+00
PERM	MJ	1.42E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.00E+00	0.00E+00	2.51E-03	2.07E-02	0.00E+00	-1.46E+00
PENRE	MJ	1.02E+01	0.00E+00	3.53E-02	7.08E+00	0.00E+00	-4.08E+00
PENRM	MJ	7.15E+00	0.00E+00	0.00E+00	-7.01E+00	0.00E+00	0.00E+00
PENRT	MJ	1.73E+01	0.00E+00	3.53E-02	6.84E-02	0.00E+00	-4.08E+00
SM	kg	2.77E-02	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
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	2.86E-03	0.00E+00	7.84E-07	1.18E-03	0.00E+00	-9.23E-04
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 re-sources 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 re-newable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Waste indicators

Results per functional or declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2.47E-08	0.00E+00	1.63E-12	4.25E-11	0.00E+00	-2.91E-09
Non-hazardous waste disposed	kg	8.21E-03	0.00E+00	6.80E-06	2.43E-03	0.00E+00	-2.17E-03
Radioactive waste disposed	kg	1.87E-04	0.00E+00	5.56E-08	3.18E-06	0.00E+00	-2.62E-04

Output flow indicators

Results per functional or declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	7.16E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	2.53E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	1.10E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	1.97E+00	0.00E+00	0.00E+00

Variability

The variation of the environmental impact indicator results for modules A to C between the included products is depicted in the following table:

Highest variations between the declared product and the included products			
Indicator	**Unit**	**Min**	**Max**
GWP-total	%	-2.4%	0.0%
GWP-fossil	%	-2.4%	0.0%
GWP-biogenic	%	-1.7%	0.0%
GWP-luluc	%	-1.0%	0.0%
ODP	%	-82.8%	0.0%
AP	%	-2.3%	0.0%
EP-freshwater	%	-1.3%	0.0%
EP-marine	%	-2.0%	0.0%
EP-terrestrial	%	-2.2%	0.0%
POCP	%	-2.1%	0.0%
ADP-minerals & metals	%	-4.9%	0.0%
ADP-fossil1	%	-3.0%	0.0%
WDP	%	-2.1%	0.0%

The declared representative product is the 'connect' variant of the declared membrane. This version, which features self-adhesive strips on the long edges of the membranes, has a higher environmental impact than its non-connect equivalent due to the additional material and manufacturing processes involved. The relatively large deviation for the ODP indicator results from one of the components (a copolymer) of the self-adhesive strip, which is not present in the variant without the 'connect' strip.

Material Composition: The core material and manufacturing processes are similar across these products, with variations only in the addition of the 'connect' self-adhesive strips on the long edges of the membrane.

Manufacturing Process: The production processes for these membranes are largely consistent, involving similar raw materials and energy inputs. Therefore, the environmental impact per square metre is comparable across the range.

Functional Equivalence: All products fulfil the same fundamental function of providing a weather-resistive barrier. The environmental impact associated with their production is closely related to their shared purpose and material characteristics.

Overall, the declared EPD remains a robust and conservative representation of the product group, as it declares the product with the highest environmental impacts but also accounts for methodological uncertainties and scale effects in select impact categories.

Abbreviations

CAS No.	Chemical Abstracts Service Number
CEN	European Committee for Standardization
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO2 eq.	Carbon Dioxide Equivalents
EF 3.1	Environmental Footprint 3.1 characterization factors
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EU	Europe
GLO	Global
GPI	General Programme Instructions
ISO	Internation Organization for Standardization
kg	Kilogram
kg C	Kilograms of Carbon
kg CO2 eq.	Kilograms of Carbon Dioxide Equivalent
LCA	Life Cycle Assessment
LCI	Life Cycle Inventory
m3	Cubic Meter
MJ	Megajoule
MNR	Module Not Relevant
N eq.	Nitrogen Equivalents
ND	Not Declared
NMVOC	Non-Methane Volatile Organic Compounds
P eq.	Phosphorus Equivalents
PCR	Product Category Rules
RSL	Reference service life
Sb eq.	Antimony Equivalents
SVHC	Substances of Very High Concern
Environmental impact indicators (EN 15804)	
GWP	Global Warming Potential
GWP-GHG	Global Warming Potential for greenhouse gases (kg CO2 eq)
EP	Eutrophication Potential
GWP-total	Total Global Warming Potential(kg CO2 eq.)
GWP-fossil	Global Warming Potential from fossil (kg CO2 eq.)
GWP-biogenic	Global Warming Potential biogenic (kg CO2 eq.)
GWP-luluc	Global Warming Potential land use and land use change (kg CO2 eq.)
ODP	Ozone Depletion Potential (kg CFC-11 eq.)
AP	Acidification potential,(mol H+ eq.)
EP-freshwater	Freshwater eutrophication potential (kg P eq.)
EP-marine	Marine eutrophication potential (kg N eq.)
EP-terrestrial	Terrestrial eutrophication potential (mol N eq.)
POCP	Photochemical Ozone Creation Potential (kg NMVOC eq.)
ADP	Abiotic Depletion Potential
ADP-minerals&metals	Abiotic depletion potential for non-fossil resources (kg Sb eq.)
ADPF	Abiotic depletion potential for fossil resources (MJ)
WDP	Water Deprivation Potential (m^3)
PERE	Renewable primary energy (excluding as raw materials) (MJ)
PERM	Renewable primary energy used as raw materials (MJ)
PERT	Total renewable primary energy (MJ)
PENRE	Non-renewable primary energy (excluding as raw materials) (MJ)
PENRM	Non-renewable primary energy used as raw materials (MJ)
PENRT	Total use of non-renewable primary energy resources (MJ)
SM	Use of secondary material (kg)

RSF	Use of renewable secondary fuels (MJ)
NRSF	Use of non-renewable secondary fuels (MJ)
FW	Use of net fresh water (m3)
HWD	Hazardous waste disposed (kg)
NHWD	Non-hazardous waste disposed (kg)
RWD	Radioactive waste disposed (kg)
CFR	Components for Reuse (kg)
MR	Material for Recycling (kg)
MER	Materials for Energy Recovery (kg)
EEE	Exported Energy, Electricity (MJ)
EET	Exported Energy, Thermal (MJ)

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Cardewlees, Carlisle, Cumbria, CA5 6LF,
United Kingdom

Ireland Ecological Building Systems Ltd.,
Main Street, Athboy. Co. Meath, C15 Y678,
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