SENTINEL HOLDING
INSTITUT

# SHI-PRODUKTPASS

**Produkte finden - Gebäude zertifizieren**

SHI-Produktpass-Nr.:

**12012-10-1109**

# SOLITEX MENTO (connect) 1000-5000

Warengruppe: Schalungsbahnen - Unterdeckbahnen - Unterspannbahnen

pro clima - MOLL bauökologische Produkte GmbH
Rheintalstraße 35-43
68723 Schwetzingen

## Produktqualitäten:

- SHI-Produktbewertung 2024 ✓
- QNG Qualitätssiegel Nachhaltiges Gebäude ✓
- DGNB NEUBAU 2023 ✓
- DGNB NEUBAU 2018 ✓
- BNB-BN NEUBAU V2015 ✓
- EU-Taxonomie ✓
- BREEAM DE NEUBAU 2018 ✓
- LEED v4.1 (outside US) ✓

GEPRÜFT NACHHALTIGES PRODUKT – SHI PRODUKT PASS – SENTINEL HOLDING INSTITUT – www.sentinel-holding.eu

Köttner

**Helmut Köttner**
Wissenschaftlicher Leiter
Freiburg, den 30.03.2026

SENTINEL HOLDING
INSTITUT

Produkt:
**SOLITEX MENTO (connect) 1000-5000**

SHI Produktpass-Nr.:
**12012-10-1109**

pro clima®

# Inhalt


| | |
|---|---|
| SHI-Produktbewertung 2024 | 1 |
| QNG - Qualitätssiegel Nachhaltiges Gebäude | 2 |
| DGNB Neubau 2023 | 3 |
| DGNB Neubau 2018 | 5 |
| BNB-BN Neubau V2015 | 6 |
| EU-Taxonomie | 7 |
| BREEAM DE Neubau 2018 | 8 |
| LEED v4.1 | 9 |
| Produktsiegel | 10 |
| Rechtliche Hinweise | 11 |
| Technisches Datenblatt/Anhänge | 11 |


Wir sind stolz darauf, dass die SHI-Datenbank, die erste und einzige Datenbank für Bauprodukte ist, die ihre umfassenden Prozesse sowie die Aktualität regelmäßig von dem unabhängigen Prüfunternehmen SGS-TÜV Saar überprüfen lässt.

SGS

SGS TÜV SAAR

SENTINEL HOLDING
INSTITUT

Produkt:
**SOLITEX MENTO (connect) 1000-5000**

SHI Produktpass-Nr.:
**12012-10-1109**

pro clima®

# SHI-Produktbewertung 2024

Seit 2008 etabliert die Sentinel Holding Institut GmbH (SHI) einen einzigartigen Standard für schadstoffgeprüfte Produkte. Experten führen unabhängige Produktprüfungen nach klaren und transparenten Kriterien durch. Zusätzlich überprüft das unabhängige Prüfunternehmen SGS-TÜV Saar regelmäßig die Prozesse und Aktualität.

| Kriterium | Produktkategorie | Schadstoffgrenzwert | Bewertung |
|---|---|---|---|
| SHI-Produktbewertung | sonstige Produkte | TVOC ≤ 300 µg/m³<br>Formaldehyd ≤ 24 µg/m³ | Schadstoffgeprüft |
| **Gültig bis: 20.03.2027** | | | |

Produkt:
**SOLITEX MENTO (connect) 1000-5000**

SHI Produktpass-Nr.:
**12012-10-1109**

# QNG - Qualitätssiegel Nachhaltiges Gebäude

Das Qualitätssiegel Nachhaltiges Gebäude, entwickelt durch das Bundesministerium für Wohnen, Stadtentwicklung und Bauwesen (BMWSB), legt Anforderungen an die ökologische, soziokulturelle und ökonomische Qualität von Gebäuden fest. Das Sentinel Holding Institut prüft Bauprodukte gemäß den QNG-Anforderungen für eine Zertifizierung und vergibt das QNG-ready Siegel. Das Einhalten des QNG-Standards ist Voraussetzung für den KfW-Förderkredit. Für bestimmte Produktgruppen hat das QNG derzeit keine spezifischen Anforderungen definiert. Diese Produkte sind als nicht bewertungsrelevant eingestuft, können jedoch in QNG-Projekten genutzt werden.

| Kriterium | Pos. / Bauproduktgruppe | Betrachtete Stoffe | QNG Freigabe |
|---|---|---|---|
| 3.1.3 Schadstoffvermeidung in Baumaterialien | | | QNG-ready nicht bewertungsrelevant |

Produkt:
**SOLITEX MENTO (connect) 1000-5000**

SHI Produktpass-Nr.:
**12012-10-1109**

# DGNB Neubau 2023

Das DGNB-System (Deutsche Gesellschaft für Nachhaltiges Bauen) bewertet die Nachhaltigkeit von Gebäuden verschiedener Art. Das System ist sowohl anwendbar für private und gewerbliche Großprojekte als auch für kleinere Wohngebäude. Die Version 2023 setzt hohe Standards für ökologische, ökonomische, soziokulturelle und funktionale Aspekte während des gesamten Lebenszyklus eines Gebäudes.

| Kriterium | Pos. / Relevante Bauteile / Bau-Materialien / Flächen | Betrachtete Stoffe / Aspekte | Qualitätsstufe |
|---|---|---|---|
| ENV 1.2 Risiken für die lokale Umwelt, 03.05.2024 (3. Auflage) | nicht zutreffend | | nicht bewertungsrelevant |

| Kriterium | Bewertung |
|---|---|
| SOC 1.2 Innenraumluftqualität (*) | Kann Gesamtbewertung positiv beeinflussen |
| **Nachweis:** SHI-Schadstoffgeprüft | |

| Kriterium | Bewertung |
|---|---|
| SOC 1.1 Thermischer Komfort (*) | Kann Gesamtbewertung positiv beeinflussen |
| **Nachweis:** Winddichtheit | |

| Kriterium | Bewertung |
|---|---|
| TEC 1.3 Qualität der Gebäudehülle (*) | Kann Gesamtbewertung positiv beeinflussen |
| **Nachweis:** Winddichtheit | |

| Kriterium | Pos. / Relevante Bauteile / Bau-Materialien / Flächen | Betrachtete Stoffe / Aspekte | Qualitätsstufe |
|---|---|---|---|
| ENV 1.2 Risiken für die lokale Umwelt, 29.05.2025 (4. Auflage) | nicht zutreffend | | nicht bewertungsrelevant |

Produkt:
**SOLITEX MENTO (connect) 1000-5000**

SHI Produktpass-Nr.:
**12012-10-1109**

# DGNB Neubau 2018

Das DGNB-System (Deutsche Gesellschaft für Nachhaltiges Bauen) bewertet die Nachhaltigkeit von Gebäuden verschiedener Art. Das System ist sowohl anwendbar für private und gewerbliche Großprojekte als auch für kleinere Wohngebäude.

| Kriterium | Pos. / Relevante Bauteile / Bau-Materialien / Flächen | Betrachtete Stoffe / Aspekte | Qualitätsstufe |
|---|---|---|---|
| ENV 1.2 Risiken für die lokale Umwelt | nicht zutreffend | nicht zutreffend | nicht bewertungsrelevant |

Produkt:
**SOLITEX MENTO (connect) 1000-5000**

SHI Produktpass-Nr.:
**12012-10-1109**

# BNB-BN Neubau V2015

Das Bewertungssystem Nachhaltiges Bauen ist ein Instrument zur Bewertung von Büro- und Verwaltungsgebäuden, Unterrichtsgebäuden, Laborgebäuden sowie Außenanlagen in Deutschland. Das BNB wurde vom damaligen Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (BMUB) entwickelt und unterliegt heute dem Bundesministerium für Wohnen, Stadtentwicklung und Bauwesen.

| Kriterium | Pos. / Bauprodukttyp | Betrachtete Schadstoffgruppe | Qualitätsniveau |
|---|---|---|---|
| 1.1.6 Risiken für die lokale Umwelt | | | nicht bewertungsrelevant |

Produkt:
**SOLITEX MENTO (connect) 1000-5000**

SHI Produktpass-Nr.:
**12012-10-1109**

# EU-Taxonomie

Die EU-Taxonomie klassifiziert wirtschaftliche Aktivitäten und Produkte nach ihren Umweltauswirkungen. Auf der Produktebene gibt es gemäß der EU-Verordnung klare Anforderungen zu Formaldehyd und flüchtigen organischen Verbindungen (VOC). Die Sentinel Holding Institut GmbH kennzeichnet qualifizierte Produkte, die diesen Standard erfüllen.

| Kriterium | Produkttyp | Betrachtete Stoffe | Bewertung |
|---|---|---|---|
| DNSH - Vermeidung und Verminderung der Umweltverschmutzung | | Stoffe nach Anlage C | EU-Taxonomie konform |
| **Nachweis:** Herstellererklärung vom 01.07.2025 | | | |

Produkt:
**SOLITEX MENTO (connect) 1000-5000**

SHI Produktpass-Nr.:
**12012-10-1109**

# BREEAM DE Neubau 2018

BREEAM (Building Research Establishment Environmental Assessment Methodology) ist ein britisches Gebäudebewertungssystem, welches die Nachhaltigkeit von Neubauten, Sanierungsprojekten und Umbauten einstuft. Das Bewertungssystem wurde vom Building Research Establishment (BRE) entwickelt und zielt darauf ab, ökologische, ökonomische und soziale Auswirkungen von Gebäuden zu bewerten und zu verbessern.

| Kriterium | Produktkategorie | Betrachtete Stoffe | Qualitätsstufe |
|---|---|---|---|
| Hea 02 Qualität der Innenraumluft | | | nicht bewertungsrelevant |

Produkt:
**SOLITEX MENTO (connect) 1000-5000**

SHI Produktpass-Nr.:
**12012-10-1109**

# LEED v4.1

LEED (Leadership in Energy and Environmental Design) ist ein international anerkanntes Gebäudezertifizierungssystem des U.S. Green Building Council. Es zählt zu den weltweit am weitesten verbreiteten Nachhaltigkeitsstandards für Gebäude und wird insbesondere bei international ausgerichteten Projekten eingesetzt. LEED bewertet Gebäude ganzheitlich in Kategorien wie Energieeffizienz, Ressourcenschonung, Materialauswahl, Innenraumqualität und Standortqualität. Je nach erreichter Punktzahl werden die Zertifizierungsstufen LEED Certified, Silver, Gold oder Platinum vergeben.

| Kriterium | Produktkategorie | Bewertung |
|---|---|---|
| EQ Credit: Low-Emitting Materials | | nicht bewertungsrelevant |

Produkt:
**SOLITEX MENTO (connect) 1000-5000**

SHI Produktpass-Nr.:
**12012-10-1109**

# Produktsiegel

In der Baubranche spielt die Auswahl qualitativ hochwertiger Materialien eine zentrale Rolle für die Gesundheit in Gebäuden und deren Nachhaltigkeit. Produktlabels und Zertifikate bieten Orientierung, um diesen Anforderungen gerecht zu werden. Allerdings besitzt jedes Zertifikat und Label eigene Prüfkriterien, die genau betrachtet werden sollten, um sicherzustellen, dass sie den spezifischen Bedürfnissen eines Bauvorhabens entsprechen.

Dieses Produkt ist schadstoffgeprüft und wird vom Sentinel Holding Institut empfohlen. Gesundes Bauen, Modernisieren und Betreiben von Immobilien erfolgt dank des Sentinel Holding Konzepts nach transparenten und nachvollziehbaren Kriterien.

Produkte mit dem QNG-ready Siegel des Sentinel Holding Instituts eignen sich für Projekte, für welche das Qualitätssiegel Nachhaltiges Gebäude (QNG) angestrebt wird. QNG-ready Produkte erfüllen die Anforderungen des QNG Anhangdokument 3.1.3 "Schadstoffvermeidung in Baumaterialien". Das KfW-Kreditprogramm Klimafreundlicher Neubau mit QNG kann eine höhere Fördersumme ermöglichen.

Das International EPD® System ist ein global anerkanntes Programm zur Erstellung und Veröffentlichung von Umweltproduktdeklarationen (EPDs). Es ermöglicht Unternehmen, die Umweltauswirkungen ihrer Produkte transparent darzustellen, basierend auf internationalen Normen wie ISO 14025 und der EN 15804 für Bauprodukte. Das System bietet eine standardisierte Methode zur Bewertung der ökologischen Performance von Produkten über ihren gesamten Lebenszyklus und fördert nachhaltiges Wirtschaften und ökologische Transparenz in verschiedenen Branchen.

Produkt:
**SOLITEX MENTO (connect) 1000-5000**

SHI Produktpass-Nr.:
**12012-10-1109**

# Rechtliche Hinweise

(*) Die Kriterien dieses Steckbriefs beziehen sich auf das gesamte Bauobjekt. Die Bewertung erfolgt auf der Ebene des Gebäudes. Im Rahmen einer sachgemäßen Planung und fachgerechten Installation können einzelne Produkte einen positiven Beitrag zum Gesamtergebnis der Bewertung leisten. Das Sentinel Holding Institut stützt sich einzig auf die Angaben des Herstellers.

**Alle Kriterien finden Sie unter:**
**https://www.sentinel-holding.eu/de/Themenwelten/Pr%C3%BCfkriterien%20f%C3%BCr%20Produkte**

Wir sind stolz darauf, dass die SHI-Datenbank, die erste und einzige Datenbank für Bauprodukte ist, die ihre umfassenden Prozesse sowie die Aktualität regelmäßig von dem unabhängigen Prüfunternehmen SGS-TÜV Saar überprüfen lässt.

## Herausgeber

Sentinel Holding Institut GmbH
Bötzinger Str. 38
79111 Freiburg im Breisgau
Tel.: +49 761 590 481-70
info@sentinel-holding.eu
www.sentinel-holding.eu

# SOLITEX MENTO 1000

Leichte Unterdeck- / Unterspannbahn




## Technische Daten

| | Stoff |
|---|---|
| Schutz- und Deckvlies | Polypropylen-Mikrofaser |
| Membran | TEEE, monolithisch |

| Eigenschaft | Regelwerk | Wert |
|---|---|---|
| Farbe | | anthrazit |
| Flächengewicht | DIN EN 1849-2 | 115 g/m² |
| Dicke | DIN EN 1849-2 | 0,40 mm |
| Dampfdiffusionswiderstandszahl µ | DIN EN ISO 12572 | 125 |
| sd-Wert | DIN EN ISO 12572 | 0,05 m |
| Brandverhalten | DIN EN 13501-1 | E |
| Freibewitterung | | 3 Monate |
| Wasserdichtheit Nähte mit connect Verbindungen oder bei Verklebung mit TESCON VANA | DIN EN 13859-1 | W1 |
| Unterspannbahn / Unterdeckbahn | | für untergeordnete Gebäude, nach Vereinbarung |
| Wassersäule | DIN EN ISO 811 | 10.000 mm |
| Widerstand Wasserdurchgang un-/gealtert* | DIN EN 13859-1 | W1 / W1 |
| Höchstzugkraft längs/quer | DIN EN 13859-1 (A) | 220 N/5 cm / 170 N/5 cm |
| Höchstzugkraft längs/quer gealtert* | DIN EN 13859-1 (A) | 185 N/5 cm / 160 N/5 cm |
| Dehnung längs/quer | DIN EN 13859-1 (A) | 60 % / 70 % |
| Dehnung längs/quer gealtert* | DIN EN 13859-1 (A) | 40 % / 50 % |
| Weiterreißwiderstand längs/quer | DIN EN 13859-1 (B) | 130 N / 135 N |
| *) Dauerhaftigkeit nach künstl. Alterung | DIN EN 1297 / DIN EN 1296 | bestanden |
| Kaltbiegeverhalten | DIN EN 1109 | -40 °C |
| Temperaturbeständigkeit | EN 1109, EN 1296, EN 1297 | dauerhaft -40 °C bis +100 °C |
| Wärmeleitzahl | | 0,04 W/(m·K) |
| QNG Anforderungen | Anhangdokument 3.1.3 | erfüllt |
| CE-Kennzeichnung | DIN EN 13859-1 | vorhanden |

## Anwendung

Einsatz als diffusionsoffene Unterspannung oder Unterdeckung auf Schalungen, MDF und Holzfaserunterdeckplatten sowie allen matten-/plattenförmigen Wärmedämmstoffen.

## Lieferformen

| Art.-Nr. | GTIN | Länge | Breite | Inhalt | Gewicht | VE | Gebinde |
|---|---|---|---|---|---|---|---|
| 11447 | 4026639114471 | 50 m | 1,5 m | 75 m² | 9 kg | 1 | 30 |
| 12263 | 4026639122636 | 50 m | 3 m | 150 m² | 18 kg | 1 | 30 |

Die dargestellten Sachverhalte beziehen sich auf den Stand der aktuellen Forschung und der praktischen Erfahrung. Wir behalten uns Änderungen der empfohlenen Konstruktionen und der Verarbeitung sowie die Weiterentwicklung und die damit verbundene Qualitätsänderung der einzelnen Produkte vor. Wir informieren Sie gern über den aktuellen technischen Kenntnisstand zum Zeitpunkt der Verlegung.

Weitere Informationen über die Verarbeitung und Konstruktionsdetails enthalten die pro clima Planungs- und Anwendungsempfehlungen. Bei Fragen erreichen Sie die technische Hotline von pro clima unter
0 62 02 - 27 82.45.

**MOLL**
**bauökologische Produkte GmbH**
Rheintalstraße 35 - 43
D-68723 Schwetzingen
Fon: +49 (0) 62 02 - 27 82.0
eMail: info@proclima.de

pro clima®

## Vorteile

- Bis zu 3 Monate Freibewitterung
- Sorgt für sichere Bauteile: Hochdiffusionsoffen und maximal schlagregendicht
- Trockene Bauteile: porenfreie TEEE-Funktions-Membran transportiert Feuchte aktiv nach außen ab
- Dauerhafter Schutz durch höchste Alterungs- und Hitzebeständigkeit der TEEE-Membran
- Sicher während der Bauphase: Für Bauzeitabdichtung geeignet (CH)

## Rahmenbedingungen

SOLITEX MENTO Bahnen sollen mit der bedruckten Seite zum Verarbeiter hin zeigend verlegt werden. Sie werden straff und ohne Durchhang waagerecht (parallel zur Traufe) als Unterdeck- wie auch als Unterspannbahn verlegt.
Beim Einsatz als Unterdeckbahn auf planebenen Untergründen.
Beim Einsatz als Unterspannbahn ist der Sparrenabstand auf 100 cm begrenzt.

Befestigungen dürfen nicht in Bereichen erfolgen, in denen Wasser gesammelt abfließt (z. B. in Kehlen).

Bei ungedämmten, nicht ausgebauten Dachgeschossen sollte eine Firstentlüftung vorgesehen werden. Dafür die SOLITEX Bahn 5 cm vor dem First enden lassen. Zusätzlich sollte das unausgebaute Dachgeschoss mit Dauerlüftungseinrichtungen versehen werden.
Die Bahn sollte vor der Langzeitwirkung durch UV-Strahlung geschützt werden (z. B. durch Verdunkelung von Fenstern).

Zum Schutz der Konstruktion während der Bauphase kann die SOLITEX MENTO 1000 Unterdeck- und Unterspannbahn bis zu 3 Monate eingesetzt werden. Die Dachneigung muss in diesem Fall mind. 14° betragen. Dazu sind die Systemkomponenten TESCON NAIDECK Nageldichtungsband, ORCON F Anschlusskleber sowie TESCON VANA für die Verklebung der Überlappungen bzw. von Anschlüssen zu verwenden. Die connect Variante verfügt über zwei Selbstklebezonen für die sichere Außendichtung. Bei der Verlegung und Verklebung sind die Vorgaben des Regelwerks des deutschen Dachdeckerhandwerks zu berücksichtigen.

Diese Bahn erfüllt nicht die Anforderungen des ZVDH (Zentralverband des Deutschen Dachdeckerhandwerks) und kann daher nur nach einzelvertraglicher Vereinbarung für untergeordnete Konstruktionen eingesetzt werden.

GEBÄUDEHÜLLE SCHWEIZ
ENVELOPPE DES ÉDIFICES SUISSE
INVOLUCRO EDILIZIO SVIZZERA
VERBAND SCHWEIZER GEBÄUDEHÜLLEN-UNTERNEHMUNGEN

Schadstoffgeprüft nach AgBB

CE
07
EN 13859-1

Die dargestellten Sachverhalte beziehen sich auf den Stand der aktuellen Forschung und der praktischen Erfahrung. Wir behalten uns Änderungen der empfohlenen Konstruktionen und der Verarbeitung sowie die Weiterentwicklung und die damit verbundene Qualitätsänderung der einzelnen Produkte vor. Wir informieren Sie gern über den aktuellen technischen Kenntnisstand zum Zeitpunkt der Verlegung.

Weitere Informationen über die Verarbeitung und Konstruktionsdetails enthalten die pro clima Planungs- und Anwendungsempfehlungen. Bei Fragen erreichen Sie die technische Hotline von pro clima unter
0 62 02 - 27 82.45.

**MOLL**
**bauökologische Produkte GmbH**
Rheintalstraße 35 - 43
D-68723 Schwetzingen
Fon: +49 (0) 62 02 - 27 82.0
eMail: info@proclima.de

pro clima®

# Environmental Product Declaration

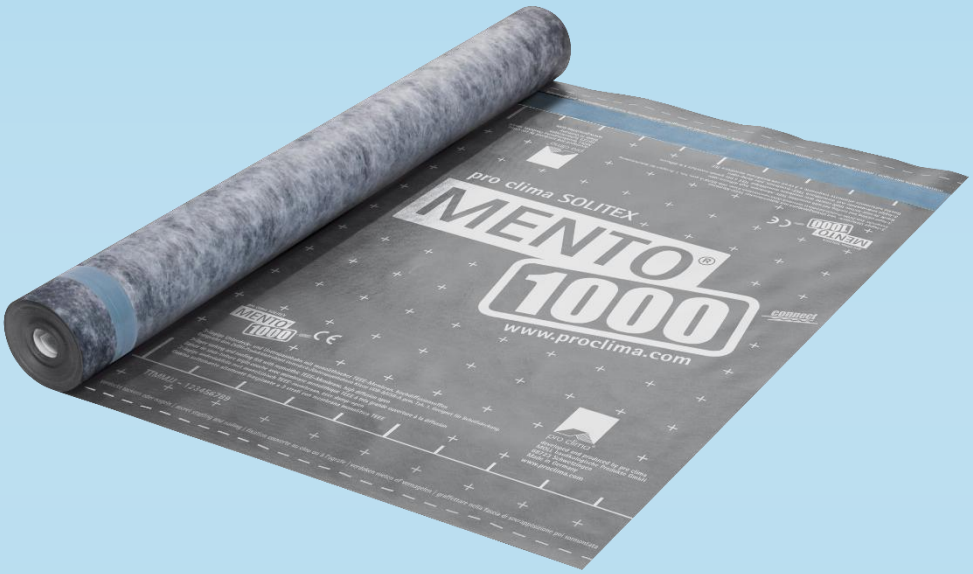
In accordance with ISO 14025:2006, EN 15804:2012+A2:2019/AC:2021 and ISO 21930:2017 for

## SOLITEX MENTO 1000 connect

### Light-weight roofing underlay, with self-adhesive strips

from

### pro clima – MOLL bauökologische Produkte GmbH




| | |
|---|---|
| Programme: | The International EPD® System, www.environdec.com |
| Programme operator: | EPD International AB<br>Box 21060<br>SE-10031 Stockholm, Sweden |
| EPD registration number: | EPD-IES-0018806 |
| Publication date: | 16/04/2025 |
| Valid until: | 16/04/2030 |
| EPD type: | EPD of a specific product |

*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<br>Box 210 60<br>SE-100 31 Stockholm, Sweden |
| Website: | www.environdec.com |
| E-mail: | info@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 1.3.4.

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. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact

**Life Cycle Assessment (LCA)**

LCA accountability: Jannik Schulz, María Díaz Cáceres
brands & values GmbH, info@brandsandvalues.com

**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: 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 registered in different EPD programmes, or not compliant with EN 15804, 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. For further information about comparability, see EN 15804 and ISO 14025.

# Company information

**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

**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.
- Highest ecological value.

**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.

**Name and location of production site(s)**
pro clima / MOLL bauökologische Produkte GmbH – Rheintalstr. 35-43 – 68723 Schwetzingen – Germany.

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

# Product information

**Product name**
SOLITEX MENTO 1000 connect

**Product identification**
Light-weight roofing underlay, with self-adhesive strips

**Product description**
SOLITEX MENTO 1000 connect has the following components:
Protective and covering fleece: Polypropylene microfibre; Functional film: Monolithic TEEE; Self-adhesive strips: Water-resistant SOLID adhesive.

**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 the EPD**
SOLITEX MENTO 1000 connect (width: 1.5 m / length: 50 m) GTIN 4026639122193

**Geographical Scope**
Global

**Applications**
For use as a diffusion-open roofing underlay over roof sheathing, MDF and wood-fibre underlay panels, and over all mat or panel-shaped thermal insulation materials.

**Properties**
Up to 3 months of outdoor exposure. Well-protected building components: highly diffusion-open and maximum protection against driving rain. Dry building components: pore-free TEEE functional film actively transports moisture to the outside. Permanent protection thanks to the high resistance to ageing and heat of the TEEE functional film. Provides protection during the construction period: suitable as a temporary covering. Quick and reliable adhesion thanks to the integrated 'connect' self-adhesive strips on the long edges of the membrane.

## Technical specifications

| Property | Regulation | Value |
|---|---|---|
| Colour | N/A | Anthracite |
| Surface weight | EN 1849-2 | 115 ±5 g/m² ; 0.38 ±0.02 oz/ft² |
| Thickness | EN 1849-2 | 0.40 mm ±0.05 mm ; 16 mils |
| Water vapour resistance factor μ | EN ISO 12572 | 125 |
| $s_d$ value | EN ISO 12572 | 0.05 m |
| g value | N/A | 0.25 MN·s/g |
| Vapour permeance | ASTM E96 | 38 perms |
| Surface burning characteristics | ASTM E96 | Class A (Flame Spread 0; Smoke Developed 85) |
| Fire class | EN 13501-1 | E |
| Fire class/Surface burning characteristics | ASTM E84 | Class A |
| Outdoor exposure | N/A | 3 months |
| Watertight joints with 'connect' adhesive strips or TESCON VANA tape | EN 13859-1 | W1 |
| Water column | EN ISO 811 | 10 000 mm ; 32' 10" |
| Watertightness, non-aged/aged* | EN 13859-1 | NBC part 5.4.1.2.2 |
| CAN/ULC-S741 | Air barrier assembly passed | NBC part 9.27.3.2 |
| CAN/CGBS 51.32 | Passed | W1 / W1 |
| Tensile strength MD/CD | EN 13859-1 (A) | 220 N/5 cm / 170 N/5 cm ; 25 lb/in / 19 lb/in |
| Tensile strength MD/CD, aged* | EN 13859-1 (A) | 185 N/5 cm / 160 N/5 cm ; 21 lb/in / 18 lb/in |
| Elongation MD/CD | EN 13859-1 (A) | 60% / 70% |
| Elongation MD/CD, aged* | EN 13859-1 (A) | 40% / 50% |
| Nail tear resistance MD/CD | EN 13859-1 (B) | 130 N / 135 N ; 29 lbf / 30 lbf |
| *) Durability after artificial ageing | EN 1297 / EN 1296 | Passed |
| Flexibility at low temperature | EN 1109 | -40 °C ; -40 °F |
| Temperature resistance | EN 1109, EN 1296, EN 1297 | Permanent -40 °C to 100 °C ; -40 °F to 212 °F |
| Thermal conductivity | N/A | 0.04 W/(m·K) ; 0.3 BTU·in/(h·ft²·°F) |
| CE labelling | EN 13859-1 | Yes |

# LCA information

**Declared unit:** 1m² of SOLITEX MENTO 1000 connect external windtightness membrane and accompanying packaging.
**Conversion factor to mass:** 0.146 kg/m²
**Reference service life:** 30 years
**Time representativeness:** Based on yearly manufacturing data from 01/01/2023 until 31/12/2023.

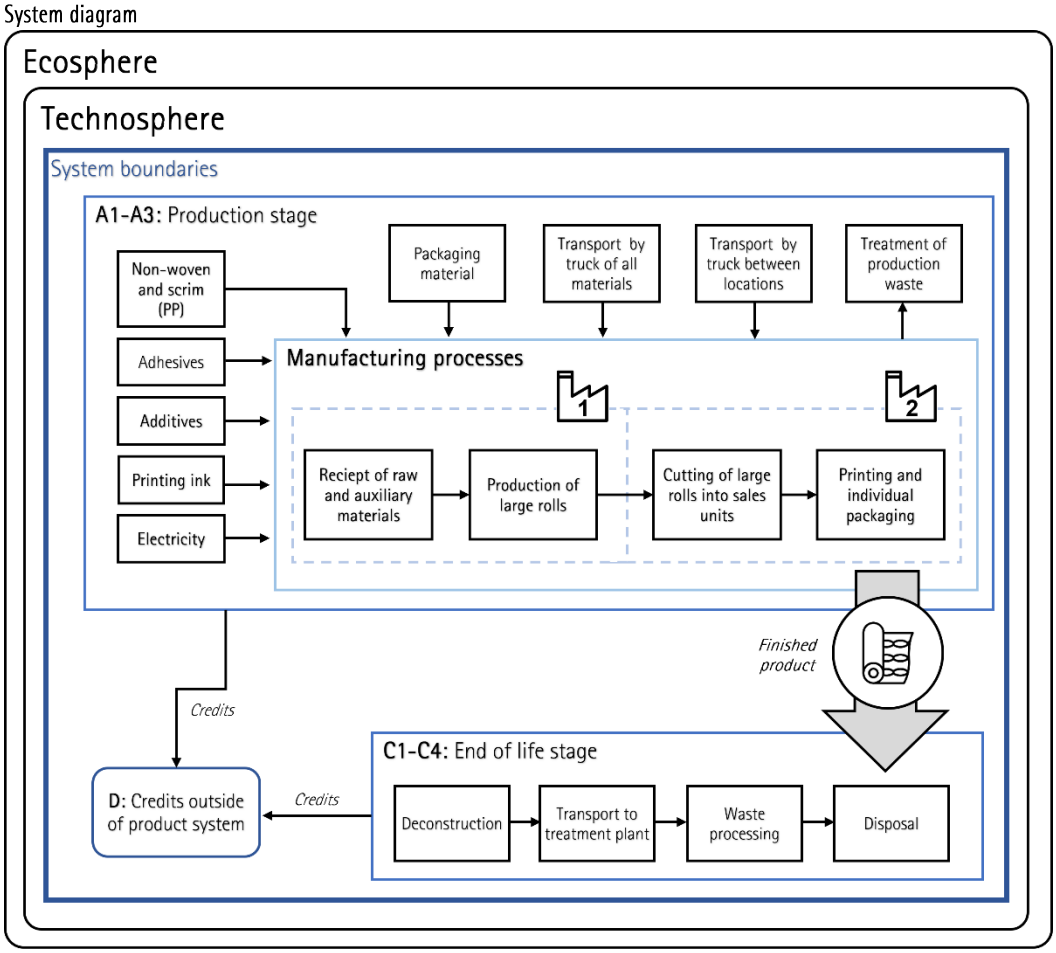
**Description of the manufacturing processes**
The SOLITEX MENTO 1000 connect light-weight roofing underlay with self-adhesive strips is produced by bonding and laminating two fleece layers (front and back) with a functional film layer between them to create large rolls. These rolls are printed and then cut into smaller rolls, which are the sales units. 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.

**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 2024.2 were used entirely.

**Description of system boundaries**
a) Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)

- As module A5 is not declared, the results of modules A1-A3 include the biogenic C of the product packaging and the balancing out of the biogenic carbon flows from module A5.
- Infrastructure and capital goods are excluded from the system boundaries.
- 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 used for modelling in Modules A2 and A3 corresponds to primary data collected from the manufacturing plant and contracted suppliers, including transportation distances from suppliers to production sites, transportation distances between production sites, material and energy inputs, and waste and emission outputs.

System diagram




Each processing step within the system boundaries is marked with an icon and number (#1, #2, etc.), indicating the specific production site where it occurs. 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 (PP), Additives and adhesives, Printing ink.
- Extraction and processing of raw materials required for packaging the 1 m² of finished product, external windtightness membrane: Film (PE), Cardboard, Pallet.
- Extraction and processing of raw materials of internal packaging, used for transportation between all production locations. Internal packaging includes: Film (PE), Cardboard and 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.
- The transportation of raw materials for packaging, as well as the transportation of the large rolls from the production location #1 to location #2 is modelled in Module A2.

**A3. Manufacturing**

- 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. Resulting credits are assigned to module D.
- Electricity for production in module A3 is modelled with the German Residual electricity mix.

C1-C4. End of Life

- The external windtightness membrane is treated as waste in module C3 by means of incineration with energy recovery.
- Module C2 contains the environmental impact of transportation of the product to the waste treatment plant.
- Module C3 contains the necessary processes for waste treatment at the end of the product life cycle. The loads for waste treatment are mapped here until the end of the waste property is reached.
- Emissions are assigned to module C3. Resulting credits are assigned to module D.

D. Reuse, recovery, recycling potential

- This product has no considerable benefits due to reuse, but considerable benefits from material and energy recovery.
- The value flows resulting from the treatment of production waste in module A3 and C3, which can potentially serve as material or energy input for a downstream product system in the form of the energy recovered from the waste-to-energy treatment and material recovery, are accounted for completely in module D as credits outside of product system.

**More information**

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

Electricity use in Module A3 accounts for less than 30% of the GWP-GHG results of modules A1-A3. The energy requirements for production in Module A3 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 from the reference year 2022. The climate impact of the dataset is 0.847 kg $CO_2$ eq./kWh (using the GWP-GHG indicator). A residual mix represents the production mix of a country corrected with generation attributes which are explicitly tracked. Residual mix is used to determine the energy origin of untracked consumption, i.e. consumption, which has not been disclosed with explicit tracking instruments such as Guarantees of Origin. The Residual grid mix in question includes the following energy sources: 1.8% from renewable sources, 18.17% from nuclear, 34.57% from lignite, 21.19% from coal, 20.88% from gas, 1.08% from oil and 2.32% from non-specific fossil sources according to the LCA for Experts dataset.

**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 | 5% | | | | | | | | | | | | | | | | |
| Variation – products | 0% | | | | | | | | | | | | | | | | |
| Variation – sites | 0% | | | | | | | | | | | | | | | | |

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

# Content information

| Product components | Weight, kg | Post-consumer material, weight-% | Biogenic material, weight-% and kg C/kg |
|---|---|---|---|
| Non-woven (PP) | 0.090 | 0.0% | 0 %- 0 kg C/kg |
| Scrim (PP) | 0.000 | 0.0% | 0 %- 0 kg C/kg |
| Additives and adhesives | 0.027 | 0.0% | 0 %- 0 kg C/kg |
| Printing ink | 0.001 | 0.0% | 0 %- 0 kg C/kg |
| Total product | 0.118 | 0.0% | 0 %- 0 kg C/kg |
| **Packaging materials** | **Weight, kg** | **Weight-% (relative to the product)** | **Weight biogenic carbon, [kg C/kg]** |
| Film (PE) | 0.006 | 4.4% | 0 kg C/kg |
| Cardboard | 0.005 | 3.7% | 0.002 kg C/kg |
| Pallet | 0.016 | 11.0% | 0.008 kg C/kg |
| Total packaging | 0.028 | 19.0% | 0.01 kg C/kg |
| **TOTAL Product with packaging** | **0.146** | **100%** | **0.01 kg C/kg** |

The biogenic carbon content of product and packaging is 0.039 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 |

# Environmental information

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. According to the EN 15804 standard, the characterization factors of EU-JRC must be applied. The EN 15804 reference package based on EF 3.1. was used for the LCA calculations. The characterization factors are available at the following internet address: http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml

Disclaimer: The use of the results of modules A1-A3 (A1-A5 for services) without considering the results of module C is discouraged.

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. | 3.88E-01 | 0.00E+00 | 9.81E-04 | 3.43E-01 | 0.00E+00 | -1.54E-01 |
| GWP-biogenic | kg $CO_2$ eq. | 1.35E-03 | 0.00E+00 | 3.04E-06 | 1.47E-05 | 0.00E+00 | -7.74E-04 |
| GWP-luluc | kg $CO_2$ eq. | 2.91E-04 | 0.00E+00 | 1.61E-05 | 1.89E-06 | 0.00E+00 | -1.44E-05 |
| GWP-total | kg $CO_2$ eq. | 3.90E-01 | 0.00E+00 | 1.00E-03 | 3.43E-01 | 0.00E+00 | -1.55E-01 |
| ODP | kg CFC 11 eq. | 5.33E-11 | 0.00E+00 | 1.41E-16 | 2.40E-14 | 0.00E+00 | -1.43E-12 |
| AP | mol H+ eq. | 7.21E-04 | 0.00E+00 | 1.82E-06 | 3.62E-05 | 0.00E+00 | -1.62E-04 |
| EP-freshwater | kg P eq. | 1.26E-06 | 0.00E+00 | 4.09E-09 | 5.45E-09 | 0.00E+00 | -2.69E-07 |
| EP-marine | kg N eq. | 2.37E-04 | 0.00E+00 | 7.42E-07 | 8.28E-06 | 0.00E+00 | -4.98E-05 |
| EP-terrestrial | mol N eq. | 2.55E-03 | 0.00E+00 | 8.58E-06 | 1.72E-04 | 0.00E+00 | -5.34E-04 |
| POCP | kg NMVOC eq. | 8.78E-04 | 0.00E+00 | 1.78E-06 | 2.42E-05 | 0.00E+00 | -1.40E-04 |
| ADP-minerals&metals | kg Sb eq. | 5.19E-08 | 0.00E+00 | 8.34E-11 | 2.45E-10 | 0.00E+00 | -1.36E-08 |
| ADP-fossil* | MJ | 1.08E+01 | 0.00E+00 | 1.26E-02 | 5.01E-02 | 0.00E+00 | -2.73E+00 |
| WDP | $m^3$ | 4.72E-02 | 0.00E+00 | 1.48E-05 | 3.18E-02 | 0.00E+00 | -1.61E-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. | 3.89E-01 | 0.00E+00 | 9.97E-04 | 3.43E-01 | 0.00E+00 | -1.54E-01 |
| PM | Disease incidence | ND | ND | ND | ND | ND | ND |
| IR | kBq U235 eq. | ND | ND | ND | ND | ND | ND |
| ETP-fw | CTUe | ND | ND | ND | ND | ND | ND |
| HTP-c | CTUh | ND | ND | ND | ND | ND | ND |
| HTP-nc | CTUh | ND | ND | ND | ND | ND | ND |
| SQP | dimensionless | ND | ND | ND | ND | ND | ND |
| 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] 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.

Resource use indicators

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| PERE | MJ | 8.30E-01 | 0.00E+00 | 1.09E-03 | 1.44E-02 | 0.00E+00 | -9.33E-01 |
| PERM | MJ | 1.42E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 8.32E-01 | 0.00E+00 | 1.09E-03 | 1.44E-02 | 0.00E+00 | -9.33E-01 |
| PENRE | MJ | 6.25E+00 | 0.00E+00 | 1.26E-02 | 4.45E+00 | 0.00E+00 | -2.73E+00 |
| PENRM | MJ | 4.54E+00 | 0.00E+00 | 0.00E+00 | -4.40E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 1.08E+01 | 0.00E+00 | 1.26E-02 | 5.01E-02 | 0.00E+00 | -2.73E+00 |
| SM | kg | 6.02E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.44E-04 |
| 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 | $m^3$ | 1.74E-03 | 0.00E+00 | 1.21E-06 | 7.45E-04 | 0.00E+00 | -6.89E-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 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 | | | | | | |

Waste indicators

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| Hazardous waste disposed | kg | 3.99E-08 | 0.00E+00 | 4.83E-13 | 3.04E-11 | 0.00E+00 | -1.91E-09 |
| Non-hazardous waste disposed | kg | 4.63E-03 | 0.00E+00 | 2.06E-06 | 3.65E-03 | 0.00E+00 | -1.44E-03 |
| Radioactive waste disposed | kg | 1.48E-04 | 0.00E+00 | 2.30E-08 | 2.53E-06 | 0.00E+00 | -1.98E-04 |

Output flow indicators

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | 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 |
| Material for recycling | kg | 1.30E-03 | 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 | 3.76E-02 | 0.00E+00 | 0.00E+00 | 6.89E-01 | 0.00E+00 | 0.00E+00 |
| Exported energy, thermal | MJ | 8.59E-02 | 0.00E+00 | 0.00E+00 | 1.24E+00 | 0.00E+00 | 0.00E+00 |

# Additional environmental information

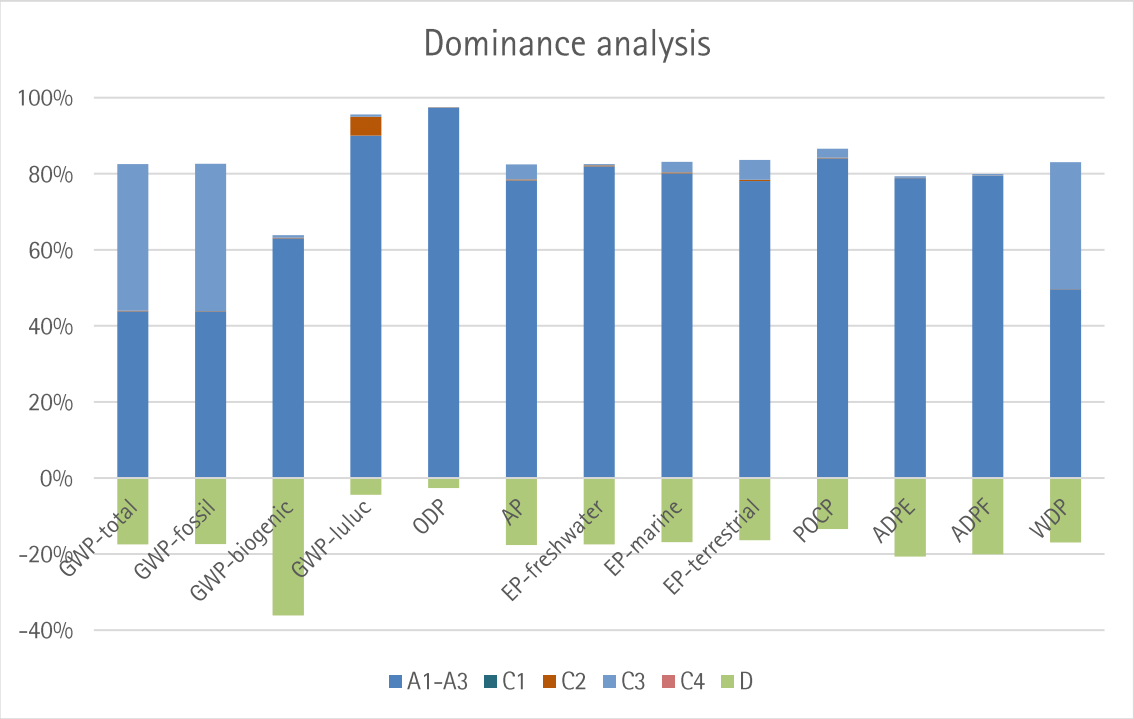
**TRACI Indicators**

The following TRACI indicators v 2.1 were calculated to comply with US Market requirements. The declared specific product complies with the ISO 21930:2017 Standard.

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| Eutrophication | kg N eq. | 6.03E-05 | 0.00E+00 | 1.89E-07 | 1.95E-06 | 0.00E+00 | -1.57E-05 |
| Global Warming Potential, air, excl. biogenic CO2 | kg $CO_2$ eq. | 3.70E-01 | 0.00E+00 | 9.71E-04 | 3.43E-01 | 0.00E+00 | -1.43E-01 |
| Global Warming Potential, air, incl. biogenic CO2 | kg $CO_2$ eq. | 3.59E-01 | 0.00E+00 | 9.44E-04 | 3.43E-01 | 0.00E+00 | -1.43E-01 |
| Ozone Depletion, air | kg CFC 11 eq. | 6.19E-11 | 0.00E+00 | 2.82E-18 | 4.78E-16 | 0.00E+00 | -2.59E-14 |
| Resources, Fossil Fuels | MJ surplus energy | 1.42E+00 | 0.00E+00 | 1.81E-03 | 5.04E-03 | 0.00E+00 | -2.66E-01 |
| Smog Air | kg $O_3$ eq. | 1.41E-02 | 0.00E+00 | 3.49E-05 | 4.88E-04 | 0.00E+00 | -2.73E-03 |
| Acidification | kg $SO_2$ eq. | 6.54E-04 | 0.00E+00 | 1.63E-06 | 3.20E-05 | 0.00E+00 | -1.60E-04 |
| Ecotoxicity | CTUe | 6.28E-02 | 0.00E+00 | 9.13E-05 | 7.60E-05 | 0.00E+00 | -5.18E-04 |
| Human Health Particulate Air | kg PM2.5 eq | 4.33E-05 | 0.00E+00 | 6.54E-08 | 9.52E-07 | 0.00E+00 | -7.35E-06 |
| Human toxicity, cancer | CTUh | 5.15E-10 | 0.00E+00 | 5.51E-13 | 3.59E-12 | 0.00E+00 | -5.89E-11 |
| Human toxicity, non-canc. | CTUh | 3.42E-08 | 0.00E+00 | 8.89E-11 | 1.64E-10 | 0.00E+00 | -1.99E-09 |

# Interpretation

The following dominance analysis examines the individual impact categories and considers them in detail.




The environmental impacts were analysed using the example of global warming potential (GWP total) to identify the responsible sources along the life cycle. Modules A1-A3 (53%) have a dominant influence followed by Module C3 (46.9%) on GWP total and fossil.
The main source of GWP impact is the incineration of non-woven, followed by its production. The production of non-woven is the second source of environmental impact in all main categories, only surpassed in the GWP-fossil by the incineration of Polypropylene (PP).
Transportation of raw materials to and between the manufacturing sites (A2) and disposal transportation of the product in EoL (C2) are not very relevant in terms of GWP total.
The production of non-woven in Modules A1-A3 has the largest contribution to the impacts of all main indicators, except for GWP luluc and GWP fossil. The truck transport in Module A2 is the main contributor for GWP luluc and the incineration of polypropylene (non-woven) in Module C3 for GWP fossil.

The data quality of the relevant generic datasets used is classified as very good, good or satisfactory. Relevant data sets are defined as data sets that together account for at least 80% of the absolute impact of each core indicator included in the EPD across the declared modules with the exception of Module D.

The variation of the environmental impact indicator results for modules A to C between the included products is 0%

# References

ASTM E84, Standard test method for surface burning characteristics of building materials, 2024. https://dx.doi.org/10.1520/E0084-24

ASTM E96, Standard test methods for water vapor transmission of materials, 2017. https://dx.doi.org/10.1520/E0096-00E01

CAN/CGSB-51.34-2022, Polyethylene sheet for use in building construction - material specification, Canadian General Standards Board, 2022. https://publications.gc.ca/site/eng/9.913525/publication.html

CAN/ULC-S741-08(R2020), Standard for air barrier materials – Specification, 20202.

DIN EN 15804. (2019). Sustainability of construction works – Environmental product declarations – Core rules for product category of construction products. Deutsches Institut für Normung DIN. Retrieved from https://doi.org/10.31030/1736947

EN 1109:2013-07, Flexible sheets for waterproofing - Bitumen sheets for roof waterproofing - Determination of flexibility at low temperature, 2013. https://dx.doi.org/10.31030/2007324

EN 1296:2001-03, Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method for artificial ageing by long term exposure to elevated temperature, 2001. https://dx.doi.org/10.31030/9115025

EN 1297:2004-12, Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method of artificial ageing by long term exposure to the combination of UV radiation, elevated temperature and water, 2004. https://dx.doi.org/10.31030/9185565

EN 13501-1:2019-05, Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests, 2019. https://dx.doi.org/10.31030/2870379

EN 13859-1:2014-07, Flexible sheets for waterproofing - Definitions and characteristics of underlays - Part 1: Underlays for discontinuous roofing, 2014. https://dx.doi.org/10.31030/2143338

EN 1849-2:2019-09, Flexible sheets for waterproofing - Determination of thickness and mass per unit area - Part 2: Plastics and rubber sheets for roof waterproofing, 2019. https://dx.doi.org/10.31030/3042454

EN ISO 12572:2017-05, Hygrothermal performance of building materials and products - Determination of water vapour transmission properties - Cup method (ISO 12572:2016), 2017. https://dx.doi.org/10.31030/2429972

EN ISO 811:2018-08, Textiles - Determination of resistance to water penetration - Hydrostatic pressure test (ISO 811:2018), 2018. https://dx.doi.org/10.31030/2807631

EPD International. (2021). General Programme Instructions of the International EPD® System. Version 4.0.

EPD International. (2024). PCR 2019:14 Construction products and construction services. Version 1.3.4.

Sphera Solutions GmbH. (2024). LCA for Experts 10.7: Software and Database for Life Cycle Engineering and the databases (service pack 2023.2). Sphera Solutions GmbH.

TRACI. Bare, J. C. (2012). Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI) Version 2.1 - User's Manual. Version 2: U.S. Environmental Protection Agency | US EPA.

pro clima / MOLL bauökologische Produkte GmbH

www.proclima.com

www.environdec.com

EPD-0023-16/04/2025

# Environmental Product Declaration

In accordance with ISO 14025:2006, EN 15804:2012+A2:2019/AC:2021 and ISO 21930:2017 for

## SOLITEX MENTO 3000

### Medium-weight roofing underlay

from

### pro clima – MOLL bauökologische Produkte GmbH




| | |
|---|---|
| Programme: | The International EPD® System, www.environdec.com |
| Programme operator: | EPD International AB<br>Box 21060<br>SE-10031 Stockholm, Sweden |
| EPD registration number: | EPD-IES-0022279 |
| Publication date: | 16/04/2025 |
| Valid until: | 16/04/2030 |
| EPD type: | EPD of a specific product |

*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<br>Box 210 60<br>SE-100 31 Stockholm, Sweden |
| Website: | www.environdec.com |
| E-mail: | info@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 1.3.4.

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. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact

**Life Cycle Assessment (LCA)**

LCA accountability: Jannik Schulz, María Díaz Cáceres
brands & values GmbH, info@brandsandvalues.com

**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: 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 registered in different EPD programmes, or not compliant with EN 15804, 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. For further information about comparability, see EN 15804 and ISO 14025.

# Company information

**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

**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.
- Highest ecological value.

**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.

**Name and location of production site(s)**
pro clima / MOLL bauökologische Produkte GmbH – Rheintalstr. 35-43 – 68723 Schwetzingen – Germany.

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

# Product information

**Product name**
SOLITEX MENTO 3000

**Product identification**
Medium-weight roofing underlay

**Product description**
SOLITEX MENTO 3000 has the following components:
Protective and covering fleece: Polypropylene microfibre; Functional film: Monolithic TEEE.

**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 the EPD**
SOLITEX MENTO 3000 (width: 0.5 m / length: 50 m) GTIN 4026639150448
SOLITEX MENTO 3000 (width: 1.5 m / length: 50 m) GTIN 4026639129000
SOLITEX MENTO 3000 (width: 1.5 m / length: 50 m) GTIN 4026639136480
SOLITEX MENTO 3000 (width: 3 m / length: 50 m) GTIN 4026639143549
SOLITEX MENTO 3000 (width: 3 m / length: 50 m) GTIN 4026639153906

This EPD relates to a single product – SOLITEX MENTO 3000 – and covers multiple GTINs and product variants. While all variants are essentially the same product, they differ only in their dimensions or customised printing, such as customer logos. These variations meet specific customer requirements, but do not alter the inherent environmental characteristics of the product, thus justifying a common EPD.

**Geographical Scope**
Global

**Applications**
For use as a diffusion-open roofing underlay over roof sheathing, MDF and wood-fibre underlay panels, and over all mat or panel-shaped thermal insulation materials.

**Properties**
Flexible planning of construction schedules thanks to 4 months of outdoor exposure. Well-protected building components: highly diffusion-open and maximum protection against driving rain and hail. Dry building components: pore-free TEEE functional film actively transports moisture to the outside. Permanent protection thanks to the high resistance to ageing and heat of the TEEE functional film. Provides protection during the construction period: suitable as a temporary covering.

## Technical specifications

| Property | Regulation | Value |
|---|---|---|
| Colour | N/A | Anthracite |
| Surface weight | EN 1849-2 | 150 ±5 g/m² ; 0.50 ±0.02 oz/ft² (†) |
| Thickness | EN 1849-2 | 0.45 mm ; 18 mils |
| Water vapour resistance factor μ | EN ISO 12572 | 110 |
| $s_d$ value | EN ISO 12572 | 0.05 m |
| g value | N/A | 0.25 MN·s/g |
| Vapour permeance | ASTM E 96 | 38 perms |
| Fire class | EN 13501-1 | E |
| Outdoor exposure | N/A | 4 months |
| Hail impact resistance | VKF / AEAI | Class HR 5 |
| Watertight joints with 'connect' adhesive strips or TESCON VANA tape | EN 13859-1 | W1 |
| Sarking/roofing underlay membrane (Germany) | ZVDH-Produktdatenblatt 2024 | USB / UDB |
| Suitable as temporary roof covering (Germany) | ZVDH | Yes |
| Water column | EN ISO 811 | 10 000 mm ; 32' 10" |
| Watertightness, non-aged/aged* | EN 13859-1 | W1 / W1 |
| Tensile strength MD/CD | EN 13859-1 (A) | 280 N/5 cm / 220 N/5 cm ; 32 lb/in / 25 lb/in |
| Tensile strength MD/CD, aged* | EN 13859-1 (A) | 240 N/5 cm / 165 N/5 cm ; 27 lb/in / 19 lb/in |
| Elongation MD/CD | EN 13859-1 (A) | 60% / 70% |
| Elongation MD/CD, aged* | EN 13859-1 (A) | 50% / 65% |
| Nail tear resistance MD/CD | EN 13859-1 (B) | 180 N / 230 N ; 40 lbf / 52 lbf |
| *) Durability after artificial ageing at 120 °C ; 248 °F | EN 1297 / EN 1296 | Passed |
| Flexibility at low temperature | EN 1109 | -40 °C ; -40 °F |
| Temperature resistance | EN 1109, EN 1296, EN 1297 | Permanent -40 °C to +120 °C; -40 °F to 248 °F |
| Thermal conductivity | N/A | 0.04 W/(m·K) ; 0.3 BTU·in/(h·ft²·°F) |
| CE labelling | EN 13859-1 | Yes |

(†) The technical data specified here serves as a general guideline value, whereas the modelling calculations are based on exact annual production quantities and are therefore more precise. This creates an apparent discrepancy but actually ensures that the technical data is more consistent.

# LCA information

**Declared unit:** 1m² of SOLITEX MENTO 3000 external windtightness membrane and accompanying packaging.
**Conversion factor to mass:** 0.178 kg/m²
**Reference service life:** 30 years
**Time representativeness:** Based on yearly manufacturing data from 01/01/2023 until 31/12/2023.

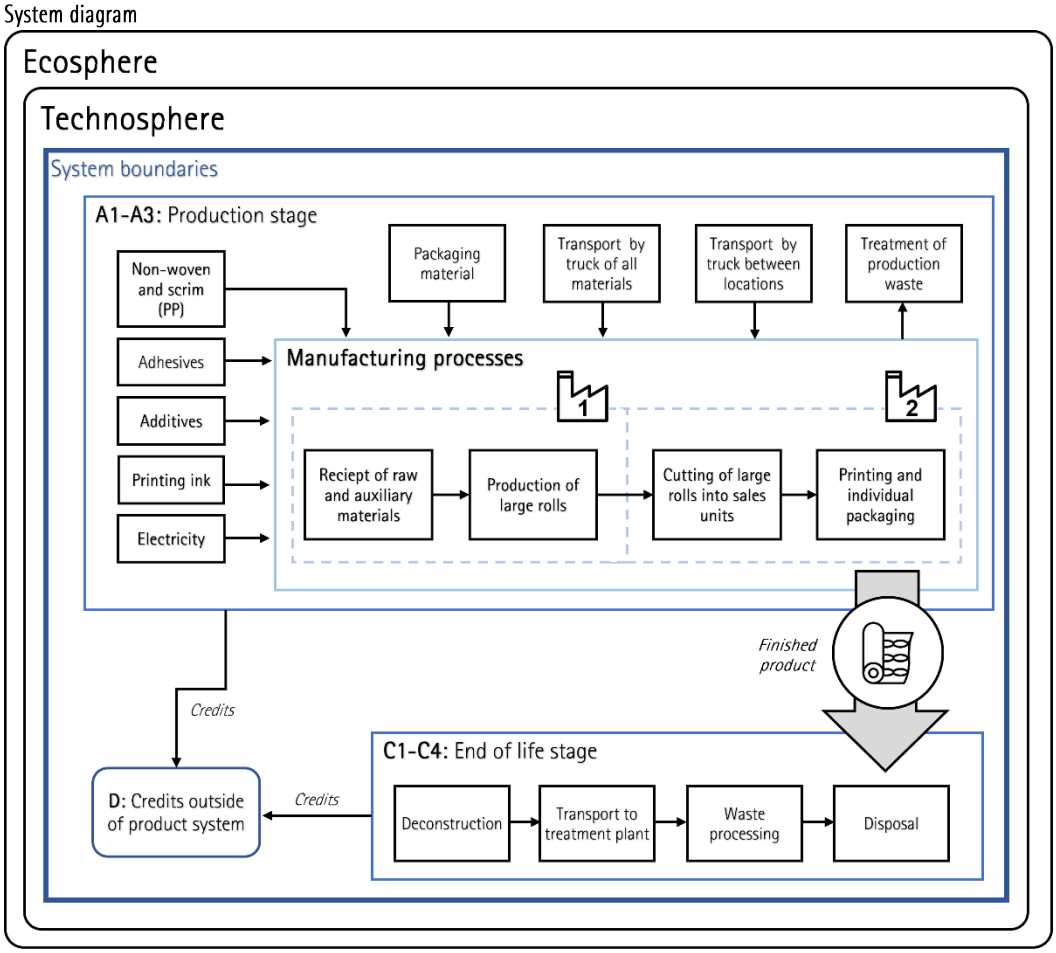
**Description of the manufacturing processes**
The SOLITEX MENTO 3000 medium-weight roofing underlay is produced by bonding and laminating two fleece layers (front and back) with a functional film layer between them to create large rolls. These rolls are printed and then cut into smaller rolls, which are the sales units. 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.

**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 2024.2 were used entirely.

**Description of system boundaries**
a) Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)

- As module A5 is not declared, the results of modules A1-A3 include the biogenic C of the product packaging and the balancing out of the biogenic carbon flows from module A5.
- Infrastructure and capital goods are excluded from the system boundaries.
- 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 used for modelling in Modules A2 and A3 corresponds to primary data collected from the manufacturing plant and contracted suppliers, including transportation distances from suppliers to production sites, transportation distances between production sites, material and energy inputs, and waste and emission outputs.

System diagram




Each processing step within the system boundaries is marked with an icon and number (#1, #2, etc.), indicating the specific production site where it occurs. 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 (PP), Additives and adhesives, Printing ink.
- Extraction and processing of raw materials required for packaging the 1 m² of finished product, external windtightness membrane: Film (PE), Cardboard, Pallet.
- Extraction and processing of raw materials of internal packaging, used for transportation between all production locations. Internal packaging includes: Film (PE), Cardboard and 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.
- The transportation of raw materials for packaging, as well as the transportation of the large rolls from the production location #1 to location #2 is modelled in Module A2.

**A3. Manufacturing**

- 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. Resulting credits are assigned to module D.
- Electricity for production in module A3 is modelled with the German Residual electricity mix.

**C1-C4. End of Life**

- The external windtightness membrane is treated as waste in module C3 by means of incineration with energy recovery.
- Module C2 contains the environmental impact of transportation of the product to the waste treatment plant.
- Module C3 contains the necessary processes for waste treatment at the end of the product life cycle. The loads for waste treatment are mapped here until the end of the waste property is reached.
- Emissions are assigned to module C3. Resulting credits are assigned to module D.

**D. Reuse, recovery, recycling potential**

- This product has no considerable benefits due to reuse, but considerable benefits from material and energy recovery.
- The value flows resulting from the treatment of production waste in module A3 and C3, which can potentially serve as material or energy input for a downstream product system in the form of the energy recovered from the waste-to-energy treatment and material recovery, are accounted for completely in module D as credits outside of product system.

**More information**

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

Electricity use in Module A3 accounts for less than 30% of the GWP-GHG results of modules A1-A3. The energy requirements for production in Module A3 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 from the reference year 2022. The climate impact of the dataset is 0.847 kg $CO_2$ eq./kWh (using the GWP-GHG indicator). A residual mix represents the production mix of a country corrected with generation attributes which are explicitly tracked. Residual mix is used to determine the energy origin of untracked consumption, i.e. consumption, which has not been disclosed with explicit tracking instruments such as Guarantees of Origin. The Residual grid mix in question includes the following energy sources: 1.8% from renewable sources, 18.17% from nuclear, 34.57% from lignite, 21.19% from coal, 20.88% from gas, 1.08% from oil and 2.32% from non-specific fossil sources according to the LCA for Experts dataset.

**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 | 4% | | | | | | | | | | | | | | | | |
| Variation – products | 0% | | | | | | | | | | | | | | | | |
| Variation – sites | 0% | | | | | | | | | | | | | | | | |

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

# Content information

| Product components | Weight, kg | Post-consumer material, weight-% | Biogenic material, weight-% and kg C/kg |
|---|---|---|---|
| Non-woven (PP) | 0.130 | 0.0% | 0 %- 0 kg C/kg |
| Scrim (PP) | 0.000 | 0.0% | 0 %- 0 kg C/kg |
| Additives and adhesives | 0.019 | 0.0% | 0 %- 0 kg C/kg |
| Printing ink | 0.001 | 0.0% | 0 %- 0 kg C/kg |
| **Total product** | **0.150** | **0.0%** | **0 %- 0** kg C/kg |
| Packaging materials | Weight, kg | Weight-% (relative to the product) | Weight biogenic carbon, [kg C/kg] |
| Film (PE) | 0.006 | 3.6% | 0 kg C/kg |
| Cardboard | 0.005 | 3.0% | 0.002 kg C/kg |
| Pallet | 0.016 | 9.0% | 0.008 kg C/kg |
| Total packaging | 0.028 | 15.6% | 0.01 kg C/kg |
| **TOTAL Product with packaging** | **0.178** | **100%** | **0.01 kg C/kg** |

The biogenic carbon content of product and packaging is 0.039 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 |

# Environmental information

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. According to the EN 15804 standard, the characterization factors of EU-JRC must be applied. The EN 15804 reference package based on EF 3.1. was used for the LCA calculations. The characterization factors are available at the following internet address: http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml

Disclaimer: The use of the results of modules A1-A3 (A1-A5 for services) without considering the results of module C is discouraged.

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. | 4.67E-01 | 0.00E+00 | 1.21E-03 | 4.51E-01 | 0.00E+00 | -2.01E-01 |
| GWP-biogenic | kg $CO_2$ eq. | 1.66E-03 | 0.00E+00 | 3.74E-06 | 1.72E-05 | 0.00E+00 | -1.00E-03 |
| GWP-luluc | kg $CO_2$ eq. | 3.45E-04 | 0.00E+00 | 1.98E-05 | 2.08E-06 | 0.00E+00 | -1.86E-05 |
| GWP-total | kg $CO_2$ eq. | 4.69E-01 | 0.00E+00 | 1.23E-03 | 4.51E-01 | 0.00E+00 | -2.02E-01 |
| ODP | kg CFC 11 eq. | 3.69E-11 | 0.00E+00 | 1.74E-16 | 2.84E-14 | 0.00E+00 | -1.86E-12 |
| AP | mol H+ eq. | 9.03E-04 | 0.00E+00 | 2.24E-06 | 4.61E-05 | 0.00E+00 | -2.13E-04 |
| EP-freshwater | kg P eq. | 1.39E-06 | 0.00E+00 | 5.03E-09 | 6.38E-09 | 0.00E+00 | -3.48E-07 |
| EP-marine | kg N eq. | 2.99E-04 | 0.00E+00 | 9.13E-07 | 1.04E-05 | 0.00E+00 | -6.50E-05 |
| EP-terrestrial | mol N eq. | 3.22E-03 | 0.00E+00 | 1.06E-05 | 2.18E-04 | 0.00E+00 | -6.97E-04 |
| POCP | kg NMVOC eq. | 1.12E-03 | 0.00E+00 | 2.19E-06 | 3.07E-05 | 0.00E+00 | -1.83E-04 |
| ADP-minerals&metals | kg Sb eq. | 5.44E-08 | 0.00E+00 | 1.03E-10 | 2.95E-10 | 0.00E+00 | -1.78E-08 |
| ADP-fossil* | MJ | 1.34E+01 | 0.00E+00 | 1.55E-02 | 6.13E-02 | 0.00E+00 | -3.58E+00 |
| WDP | $m^3$ | 6.33E-02 | 0.00E+00 | 1.82E-05 | 4.16E-02 | 0.00E+00 | -2.16E-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. | 4.67E-01 | 0.00E+00 | 1.23E-03 | 4.51E-01 | 0.00E+00 | -2.01E-01 |
| PM | Disease incidence | ND | ND | ND | ND | ND | ND |
| IR | kBq U235 eq. | ND | ND | ND | ND | ND | ND |
| ETP-fw | CTUe | ND | ND | ND | ND | ND | ND |
| HTP-c | CTUh | ND | ND | ND | ND | ND | ND |
| HTP-nc | CTUh | ND | ND | ND | ND | ND | ND |
| SQP | dimensionless | ND | ND | ND | ND | ND | ND |
| 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] 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.

Resource use indicators

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| PERE | MJ | 1.03E+00 | 0.00E+00 | 1.34E-03 | 1.75E-02 | 0.00E+00 | -1.22E+00 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 1.03E+00 | 0.00E+00 | 1.34E-03 | 1.75E-02 | 0.00E+00 | -1.22E+00 |
| PENRE | MJ | 7.50E+00 | 0.00E+00 | 1.55E-02 | 5.95E+00 | 0.00E+00 | -3.58E+00 |
| PENRM | MJ | 5.89E+00 | 0.00E+00 | 0.00E+00 | -5.89E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 1.34E+01 | 0.00E+00 | 1.55E-02 | 6.13E-02 | 0.00E+00 | -3.58E+00 |
| SM | kg | 6.09E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.52E-04 |
| 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 | $m^3$ | 2.16E-03 | 0.00E+00 | 1.49E-06 | 9.75E-04 | 0.00E+00 | -9.19E-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 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 | | | | | | |

Waste indicators

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| Hazardous waste disposed | kg | 2.32E-08 | 0.00E+00 | 5.94E-13 | 3.66E-11 | 0.00E+00 | -2.49E-09 |
| Non-hazardous waste disposed | kg | 5.64E-03 | 0.00E+00 | 2.53E-06 | 4.06E-03 | 0.00E+00 | -1.88E-03 |
| Radioactive waste disposed | kg | 1.91E-04 | 0.00E+00 | 2.83E-08 | 3.26E-06 | 0.00E+00 | -2.64E-04 |

Output flow indicators

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | 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 |
| Material for recycling | kg | 1.38E-03 | 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 | 2.96E-02 | 0.00E+00 | 0.00E+00 | 9.31E-01 | 0.00E+00 | 0.00E+00 |
| Exported energy, thermal | MJ | 6.74E-02 | 0.00E+00 | 0.00E+00 | 1.66E+00 | 0.00E+00 | 0.00E+00 |

# Additional environmental information

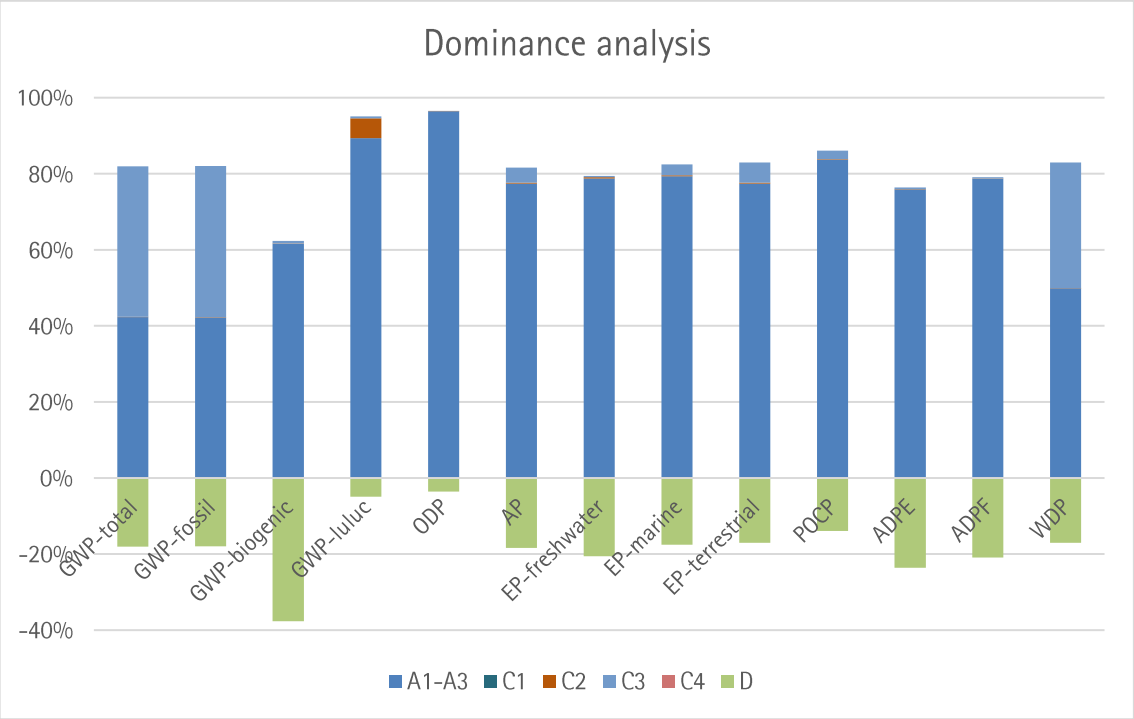
**TRACI Indicators**

The following TRACI indicators v 2.1 were calculated to comply with US Market requirements. The declared specific product complies with the ISO 21930:2017 Standard.

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| Eutrophication | kg N eq. | 7.27E-05 | 0.00E+00 | 2.33E-07 | 2.45E-06 | 0.00E+00 | -2.12E-05 |
| Global Warming Potential, air, excl. biogenic CO2 | kg $CO_2$ eq. | 4.48E-01 | 0.00E+00 | 1.20E-03 | 4.51E-01 | 0.00E+00 | -1.91E-01 |
| Global Warming Potential, air, incl. biogenic CO2 | kg $CO_2$ eq. | 4.38E-01 | 0.00E+00 | 1.16E-03 | 4.51E-01 | 0.00E+00 | -1.91E-01 |
| Ozone Depletion, air | kg CFC 11 eq. | 3.74E-11 | 0.00E+00 | 3.47E-18 | 5.65E-16 | 0.00E+00 | -3.49E-14 |
| Resources, Fossil Fuels | MJ surplus energy | 1.78E+00 | 0.00E+00 | 2.22E-03 | 6.27E-03 | 0.00E+00 | -3.56E-01 |
| Smog Air | kg $O_3$ eq. | 1.80E-02 | 0.00E+00 | 4.30E-05 | 6.14E-04 | 0.00E+00 | -3.67E-03 |
| Acidification | kg $SO_2$ eq. | 8.27E-04 | 0.00E+00 | 2.00E-06 | 3.95E-05 | 0.00E+00 | -2.16E-04 |
| Ecotoxicity | CTUe | 7.29E-02 | 0.00E+00 | 1.12E-04 | 9.62E-05 | 0.00E+00 | -6.89E-04 |
| Human Health Particulate Air | kg PM2.5 eq | 5.51E-05 | 0.00E+00 | 8.05E-08 | 1.17E-06 | 0.00E+00 | -9.90E-06 |
| Human toxicity, cancer | CTUh | 6.02E-10 | 0.00E+00 | 6.78E-13 | 4.39E-12 | 0.00E+00 | -7.91E-11 |
| Human toxicity, non-canc. | CTUh | 4.11E-08 | 0.00E+00 | 1.09E-10 | 1.85E-10 | 0.00E+00 | -2.65E-09 |

# Interpretation

The following dominance analysis examines the individual impact categories and considers them in detail.




The environmental impacts were analysed using the example of global warming potential (GWP total) to identify the responsible sources along the life cycle. Modules A1-A3 (51.5%) have a dominant influence followed by Module C3 (48.4%) on GWP total and fossil.
The main source of GWP impact is the incineration of non-woven, followed by its production. The production of non-woven is the second source of environmental impact in all main categories, only surpassed in the GWP-fossil by the incineration of Polypropylene (PP).
Transportation of raw materials to and between the manufacturing sites (A2) and disposal transportation of the product in EoL (C2) are not very relevant in terms of GWP total.
The production of non-woven in Modules A1-A3 has the largest contribution to the impacts of all main indicators, except for GWP luluc and GWP fossil. The truck transport in Module A2 is the main contributor for GWP luluc and the incineration of polypropylene (non-woven) in Module C3 for GWP fossil.

The data quality of the relevant generic datasets used is classified as very good, good or satisfactory. Relevant data sets are defined as data sets that together account for at least 80% of the absolute impact of each core indicator included in the EPD across the declared modules with the exception of Module D.

The variation of the environmental impact indicator results for modules A to C between the included products is 0%

# References

ASTM E96, Standard test methods for water vapor transmission of materials, 2017. https://dx.doi.org/10.1520/E0096-00E01

DIN EN 15804. (2019). Sustainability of construction works – Environmental product declarations – Core rules for product category of construction products. Deutsches Institut für Normung DIN. Retrieved from https://doi.org/10.31030/1736947

EN 1109:2013-07, Flexible sheets for waterproofing - Bitumen sheets for roof waterproofing - Determination of flexibility at low temperature, 2013. https://dx.doi.org/10.31030/2007324

EN 1296:2001-03, Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method for artificial ageing by long term exposure to elevated temperature, 2001. https://dx.doi.org/10.31030/9115025

EN 1297:2004-12, Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method of artificial ageing by long term exposure to the combination of UV radiation, elevated temperature and water, 2004. https://dx.doi.org/10.31030/9185565

EN 13501-1:2019-05, Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests, 2019. https://dx.doi.org/10.31030/2870379

EN 13859-1:2014-07, Flexible sheets for waterproofing - Definitions and characteristics of underlays - Part 1: Underlays for discontinuous roofing, 2014. https://dx.doi.org/10.31030/2143338

EN 1849-2:2019-09, Flexible sheets for waterproofing - Determination of thickness and mass per unit area - Part 2: Plastics and rubber sheets for roof waterproofing, 2019. https://dx.doi.org/10.31030/3042454

EN ISO 12572:2017-05, Hygrothermal performance of building materials and products - Determination of water vapour transmission properties - Cup method (ISO 12572:2016), 2017. https://dx.doi.org/10.31030/2429972

EN ISO 811:2018-08, Textiles - Determination of resistance to water penetration - Hydrostatic pressure test (ISO 811:2018), 2018. https://dx.doi.org/10.31030/2807631

EPD International. (2021). General Programme Instructions of the International EPD® System. Version 4.0.

EPD International. (2024). PCR 2019:14 Construction products and construction services. Version 1.3.4.

Produktdatenblatt für Unterdeckbahnen und Unterspannbahnen (Product datasheet für roofing underlay membranes), 2024. Published by Zentralverband des Deutschen Dachdeckerhandwerks (Central Association of the German Roofing Trade).

Sphera Solutions GmbH. (2024). LCA for Experts 10.7: Software and Database for Life Cycle Engineering and the databases (service pack 2023.2). Sphera Solutions GmbH.

TRACI. Bare, J. C. (2012). Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI) Version 2.1 - User's Manual. Version 2: U.S. Environmental Protection Agency | US EPA.

VKF / AEAI (2018) Test regulations for hail impact resistance published by the Swiss Association of Cantonal Fire Insurance Institutes.

pro clima / MOLL bauökologische Produkte GmbH

www.proclima.com

www.environdec.com

EPD-0024-16/04/2025

# Environmental Product Declaration

In accordance with ISO 14025:2006, EN 15804:2012+A2:2019/AC:2021 and ISO 21930:2017 for

## SOLITEX MENTO 5000

### Heavy-weight roofing underlay

from

### pro clima – MOLL bauökologische Produkte GmbH




| | |
|---|---|
| Programme: | The International EPD® System, www.environdec.com |
| Programme operator: | EPD International AB<br>Box 21060<br>SE-10031 Stockholm, Sweden |
| EPD registration number: | EPD-IES-0022280 |
| Publication date: | 16/04/2025 |
| Valid until: | 16/04/2030 |
| EPD type: | EPD of a specific product |

*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<br>Box 210 60<br>SE-100 31 Stockholm, Sweden |
| Website: | www.environdec.com |
| E-mail: | info@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 1.3.4.

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. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact

**Life Cycle Assessment (LCA)**

LCA accountability: Jannik Schulz, María Díaz Cáceres
brands & values GmbH, info@brandsandvalues.com

**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: 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 registered in different EPD programmes, or not compliant with EN 15804, 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. For further information about comparability, see EN 15804 and ISO 14025.

# Company information

**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

**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.
- Highest ecological value.

**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.

**Name and location of production site(s)**
pro clima / MOLL bauökologische Produkte GmbH – Rheintalstr. 35-43 – 68723 Schwetzingen – Germany.

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

# Product information

**Product name**
SOLITEX MENTO 5000

**Product identification**
Heavy-weight roofing underlay

**Product description**
SOLITEX MENTO 5000 has the following components:
Protective and covering fleece: Polypropylene microfibre; Functional film: Monolithic TEEE.

**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 the EPD**
SOLITEX MENTO 5000 (width: 1.5 m / length: 50 m) GTIN 4026639129031
SOLITEX MENTO 5000 (width: 1.5 m / length: 50 m) GTIN 4026639218681
SOLITEX MENTO 5000 (width: 3 m / length: 50 m) GTIN 4026639137593
SOLITEX MENTO 5000 (width: 3 m / length: 50 m) GTIN 4026639218704

This EPD relates to a single product – SOLITEX MENTO 5000 – and covers multiple GTINs and product variants. While all variants are essentially the same product, they differ only in their dimensions or customised printing, such as customer logos. These variations meet specific customer requirements, but do not alter the inherent environmental characteristics of the product, thus justifying a common EPD.

**Geographical Scope**
Global

**Applications**
For use as a diffusion-open roofing underlay over roof sheathing, MDF and wood-fibre underlay panels, and over all thermal insulation materials.

**Properties**
Maximal flexibility in planning construction schedules thanks to 6 months of outdoor exposure. Well-protected building components: highly diffusion-open and maximum protection against driving rain and hail. Dry building components: pore-free TEEE functional film actively transports moisture to the outside. Permanent protection thanks to the high resistance to ageing and heat of the TEEE functional film. Provides protection during the construction period: suitable as a temporary covering.

## Technical specifications

| Property | Regulation | Value |
|---|---|---|
| Colour | N/A | Anthracite |
| Surface weight | EN 1849-2 | 215 ±5 g/m² ; 0.70 ±0.02 oz/ft² (†) |
| Thickness | EN 1849-2 | 0.70 mm ; 28 mils |
| Water vapour resistance factor μ | EN ISO 12572 | 114 |
| $s_d$ value | EN ISO 12572 | 0.08 m |
| g value | N/A | 0.4 MN·s/g |
| Vapour permeance | ASTM E 96 | 41 perms |
| Fire class | EN 13501-1 | E |
| Outdoor exposure | N/A | 6 months |
| Hail impact resistance | VKF / AEAI | Class HR 5 |
| Watertight joints with 'connect' adhesive strips or TESCON VANA tape | EN 13859-1 | W1 |
| Sarking/roofing underlay membrane (Germany) | ZVDH-Produktdatenblatt 2024 | USB / UDB |
| Suitable as temporary roof covering (Germany) | ZVDH | Yes |
| Water column | EN ISO 811 | 10 000 mm ; 32' 10" |
| Watertightness, non-aged/aged* | EN 13859-1 | W1 / W1 |
| Tensile strength MD/CD | EN 13859-1 (A) | 350 N/5 cm / 270 N/5 cm ; 40 lb/in / 31 lb/in |
| Tensile strength MD/CD, aged* | EN 13859-1 (A) | 330 N/5 cm / 245 N/5 cm ; 38 lb/in / 28 lb/in |
| Elongation MD/CD | EN 13859-1 (A) | 55% / 65% |
| Elongation MD/CD, aged* | EN 13859-1 (A) | 30% / 40% |
| Nail tear resistance MD/CD | EN 13859-1 (B) | 270 N / 400 N ; 61 lbf / 90 lbf |
| *) Durability after artificial ageing at 120 °C ; 248 °F | EN 1297 / EN 1296 | Passed |
| Flexibility at low temperature | EN 1109 | -40 °C ; -40 °F |
| Temperature resistance | EN 1109, EN 1296, EN 1297 | Permanent -40 °C to +120 °C; -40 °F to 248 °F |
| Thermal conductivity | N/A | 0.04 W/(m·K) ; 0.3 BTU·in/(h·ft²·°F) |
| CE labelling | EN 13859-1 | Yes |

(†) The technical data specified here serves as a general guideline value, whereas the modelling calculations are based on exact annual production quantities and are therefore more precise. This creates an apparent discrepancy, but actually ensures that the technical data is more consistent.

# LCA information

**Declared unit:** 1m² of SOLITEX MENTO 5000 external windtightness membrane and accompanying packaging.
**Conversion factor to mass:** 0.242 kg/m²
**Reference service life:** 30 years
**Time representativeness:** Based on yearly manufacturing data from 01/01/2023 until 31/12/2023.

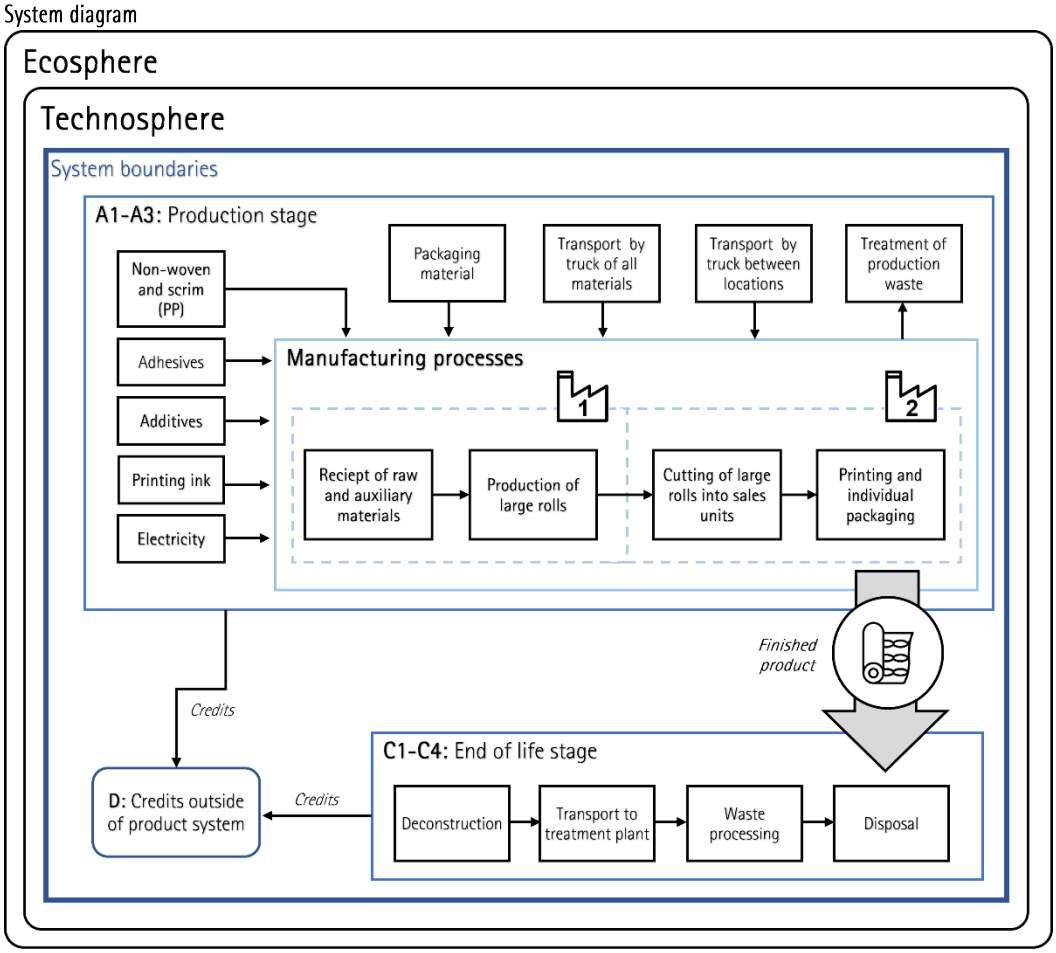
**Description of the manufacturing processes**
The SOLITEX MENTO 5000 heavy-weight roofing underlay is produced by bonding and laminating two fleece layers (front and back) with a functional film layer between them to create large rolls. These rolls are printed and then cut into smaller rolls, which are the sales units. 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.

**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 2024.2 were used entirely.

**Description of system boundaries**
a) Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)

- As module A5 is not declared, the results of modules A1-A3 include the biogenic C of the product packaging and the balancing out of the biogenic carbon flows from module A5.
- Infrastructure and capital goods are excluded from the system boundaries.
- 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 used for modelling in Modules A2 and A3 corresponds to primary data collected from the manufacturing plant and contracted suppliers, including transportation distances from suppliers to production sites, transportation distances between production sites, material and energy inputs, and waste and emission outputs.

System diagram




Each processing step within the system boundaries is marked with an icon and number (#1, #2, etc.), indicating the specific production site where it occurs. 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 (PP), Additives and adhesives, Printing ink.
- Extraction and processing of raw materials required for packaging the 1 m² of finished product, external windtightness membrane: Film (PE), Cardboard, Pallet.
- Extraction and processing of raw materials of internal packaging, used for transportation between all production locations. Internal packaging includes: Film (PE), Cardboard and 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.
- The transportation of raw materials for packaging, as well as the transportation of the large rolls from the production location #1 to location #2 is modelled in Module A2.

**A3. Manufacturing**

- 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. Resulting credits are assigned to module D.
- Electricity for production in module A3 is modelled with the German Residual electricity mix.

**C1-C4. End of Life**

- The external windtightness membrane is treated as waste in module C3 by means of incineration with energy recovery.
- Module C2 contains the environmental impact of transportation of the product to the waste treatment plant.
- Module C3 contains the necessary processes for waste treatment at the end of the product life cycle. The loads for waste treatment are mapped here until the end of the waste property is reached.
- Emissions are assigned to module C3. Resulting credits are assigned to module D.

**D. Reuse, recovery, recycling potential**

- This product has no considerable benefits due to reuse, but considerable benefits from material and energy recovery.
- The value flows resulting from the treatment of production waste in module A3 and C3, which can potentially serve as material or energy input for a downstream product system in the form of the energy recovered from the waste-to-energy treatment and material recovery, are accounted for completely in module D as credits outside of product system.

**More information**

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

Electricity use in Module A3 accounts for less than 30% of the GWP-GHG results of modules A1-A3. The energy requirements for production in Module A3 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 from the reference year 2022. The climate impact of the dataset is 0.847 kg $CO_2$ eq./kWh (using the GWP-GHG indicator). A residual mix represents the production mix of a country corrected with generation attributes which are explicitly tracked. Residual mix is used to determine the energy origin of untracked consumption, i.e. consumption, which has not been disclosed with explicit tracking instruments such as Guarantees of Origin. The Residual grid mix in question includes the following energy sources: 1.8% from renewable sources, 18.17% from nuclear, 34.57% from lignite, 21.19% from coal, 20.88% from gas, 1.08% from oil and 2.32% from non-specific fossil sources according to the LCA for Experts dataset.

**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 | 3% | | | | | | | | | | | | | | | | |
| Variation – products | 0% | | | | | | | | | | | | | | | | |
| Variation – sites | 0% | | | | | | | | | | | | | | | | |

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

# Content information

| Product components | Weight, kg | Post-consumer material, weight-% | Biogenic material, weight-% and kg C/kg |
|---|---|---|---|
| Non-woven (PP) | 0.190 | 0.0% | 0 %- 0 kg C/kg |
| Additives and adhesives | 0.023 | 0.0% | 0 %- 0 kg C/kg |
| Printing ink | 0.001 | 0.0% | 0 %- 0 kg C/kg |
| Total product | 0.214 | 0.0% | 0 %- 0 kg C/kg |
| **Packaging materials** | **Weight, kg** | **Weight-% (relative to the product)** | **Weight biogenic carbon, [kg C/kg]** |
| Film (PE) | 0.006 | 2.6% | 0 kg C/kg |
| Cardboard | 0.005 | 2.2% | 0.002 kg C/kg |
| Pallet | 0.016 | 6.6% | 0.008 kg C/kg |
| Total packaging | 0.028 | 11.4% | 0.01 kg C/kg |
| **TOTAL Product with packaging** | **0.242** | **100%** | **0.01 kg C/kg** |

The biogenic carbon content of product and packaging is 0.039 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 |

# Environmental information

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. According to the EN 15804 standard, the characterization factors of EU-JRC must be applied. The EN 15804 reference package based on EF 3.1. was used for the LCA calculations. The characterization factors are available at the following internet address: http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml

Disclaimer: The use of the results of modules A1-A3 (A1-A5 for services) without considering the results of module C is discouraged.

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. | 6.44E-01 | 0.00E+00 | 1.71E-03 | 6.48E-01 | 0.00E+00 | -2.90E-01 |
| GWP-biogenic | kg $CO_2$ eq. | 2.30E-03 | 0.00E+00 | 5.31E-06 | 2.34E-05 | 0.00E+00 | -1.44E-03 |
| GWP-luluc | kg $CO_2$ eq. | 4.64E-04 | 0.00E+00 | 2.81E-05 | 2.48E-06 | 0.00E+00 | -2.69E-05 |
| GWP-total | kg $CO_2$ eq. | 6.47E-01 | 0.00E+00 | 1.75E-03 | 6.48E-01 | 0.00E+00 | -2.92E-01 |
| ODP | kg CFC 11 eq. | 3.74E-11 | 0.00E+00 | 2.46E-16 | 3.91E-14 | 0.00E+00 | -2.68E-12 |
| AP | mol H+ eq. | 1.26E-03 | 0.00E+00 | 3.17E-06 | 6.57E-05 | 0.00E+00 | -3.07E-04 |
| EP-freshwater | kg P eq. | 1.67E-06 | 0.00E+00 | 7.14E-09 | 8.68E-09 | 0.00E+00 | -5.03E-07 |
| EP-marine | kg N eq. | 4.17E-04 | 0.00E+00 | 1.30E-06 | 1.47E-05 | 0.00E+00 | -9.39E-05 |
| EP-terrestrial | mol N eq. | 4.50E-03 | 0.00E+00 | 1.50E-05 | 3.12E-04 | 0.00E+00 | -1.01E-03 |
| POCP | kg NMVOC eq. | 1.58E-03 | 0.00E+00 | 3.10E-06 | 4.34E-05 | 0.00E+00 | -2.65E-04 |
| ADP-minerals&metals | kg Sb eq. | 6.87E-08 | 0.00E+00 | 1.46E-10 | 4.06E-10 | 0.00E+00 | -2.57E-08 |
| ADP-fossil* | MJ | 1.88E+01 | 0.00E+00 | 2.20E-02 | 8.45E-02 | 0.00E+00 | -5.17E+00 |
| WDP | $m^3$ | 9.08E-02 | 0.00E+00 | 2.59E-05 | 5.98E-02 | 0.00E+00 | -3.13E-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. | 6.45E-01 | 0.00E+00 | 1.74E-03 | 6.48E-01 | 0.00E+00 | -2.90E-01 |
| PM | Disease incidence | ND | ND | ND | ND | ND | ND |
| IR | kBq U235 eq. | ND | ND | ND | ND | ND | ND |
| ETP-fw | CTUe | ND | ND | ND | ND | ND | ND |
| HTP-c | CTUh | ND | ND | ND | ND | ND | ND |
| HTP-nc | CTUh | ND | ND | ND | ND | ND | ND |
| SQP | dimensionless | ND | ND | ND | ND | ND | ND |
| 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] 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.

Resource use indicators

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| PERE | MJ | 1.40E+00 | 0.00E+00 | 1.90E-03 | 2.42E-02 | 0.00E+00 | -1.77E+00 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 1.40E+00 | 0.00E+00 | 1.90E-03 | 2.42E-02 | 0.00E+00 | -1.77E+00 |
| PENRE | MJ | 1.03E+01 | 0.00E+00 | 2.20E-02 | 8.59E+00 | 0.00E+00 | -5.17E+00 |
| PENRM | MJ | 8.50E+00 | 0.00E+00 | 0.00E+00 | -8.50E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 1.88E+01 | 0.00E+00 | 2.20E-02 | 8.45E-02 | 0.00E+00 | -5.17E+00 |
| SM | kg | 6.62E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.17E-04 |
| 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 | $m^3$ | 3.00E-03 | 0.00E+00 | 2.11E-06 | 1.40E-03 | 0.00E+00 | -1.33E-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 | | | | | | |

Waste indicators

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| Hazardous waste disposed | kg | 2.84E-08 | 0.00E+00 | 8.43E-13 | 5.05E-11 | 0.00E+00 | -3.60E-09 |
| Non-hazardous waste disposed | kg | 7.78E-03 | 0.00E+00 | 3.59E-06 | 4.84E-03 | 0.00E+00 | -2.72E-03 |
| Radioactive waste disposed | kg | 2.66E-04 | 0.00E+00 | 4.01E-08 | 4.59E-06 | 0.00E+00 | -3.82E-04 |

Output flow indicators

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | 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 |
| Material for recycling | kg | 1.97E-03 | 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 | 4.25E-02 | 0.00E+00 | 0.00E+00 | 1.35E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy, thermal | MJ | 9.70E-02 | 0.00E+00 | 0.00E+00 | 2.39E+00 | 0.00E+00 | 0.00E+00 |

# Additional environmental information

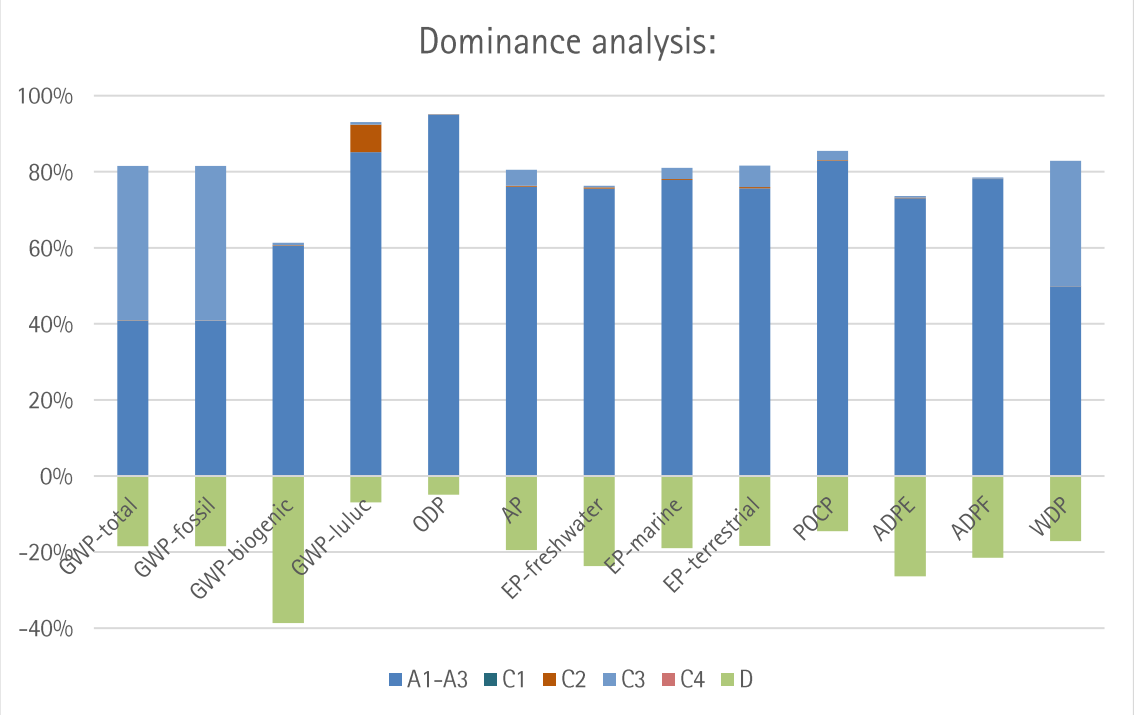
**TRACI Indicators**

The following TRACI indicators v 2.1 were calculated to comply with US Market requirements. The declared specific product complies with the ISO 21930:2017 Standard.

| Results per functional or declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| Eutrophication | kg N eq. | 9.68E-05 | 0.00E+00 | 3.31E-07 | 3.48E-06 | 0.00E+00 | -3.07E-05 |
| Global Warming Potential, air, excl. biogenic CO2 | kg $CO_2$ eq. | 6.18E-01 | 0.00E+00 | 1.70E-03 | 6.48E-01 | 0.00E+00 | -2.77E-01 |
| Global Warming Potential, air, incl. biogenic CO2 | kg $CO_2$ eq. | 6.06E-01 | 0.00E+00 | 1.65E-03 | 6.48E-01 | 0.00E+00 | -2.76E-01 |
| Ozone Depletion, air | kg CFC 11 eq. | 3.74E-11 | 0.00E+00 | 4.93E-18 | 7.78E-16 | 0.00E+00 | -5.05E-14 |
| Resources, Fossil Fuels | MJ surplus energy | 2.51E+00 | 0.00E+00 | 3.15E-03 | 8.76E-03 | 0.00E+00 | -5.15E-01 |
| Smog Air | kg $O_3$ eq. | 2.52E-02 | 0.00E+00 | 6.10E-05 | 8.66E-04 | 0.00E+00 | -5.31E-03 |
| Acidification | kg $SO_2$ eq. | 1.15E-03 | 0.00E+00 | 2.84E-06 | 5.46E-05 | 0.00E+00 | -3.12E-04 |
| Ecotoxicity | CTUe | 9.40E-02 | 0.00E+00 | 1.59E-04 | 1.34E-04 | 0.00E+00 | -9.96E-04 |
| Human Health Particulate Air | kg PM2.5 eq | 7.66E-05 | 0.00E+00 | 1.14E-07 | 1.62E-06 | 0.00E+00 | -1.43E-05 |
| Human toxicity, cancer | CTUh | 7.85E-10 | 0.00E+00 | 9.63E-13 | 5.91E-12 | 0.00E+00 | -1.14E-10 |
| Human toxicity, non-canc. | CTUh | 5.64E-08 | 0.00E+00 | 1.55E-10 | 2.22E-10 | 0.00E+00 | -3.83E-09 |

# Interpretation

The following dominance analysis examines the individual impact categories and considers them in detail.




The environmental impacts were analysed using the example of global warming potential (GWP total) to identify the responsible sources along the life cycle. Modules A1-A3 (50.3%) have a dominant influence followed by Module C3 (49.6%) on GWP total and fossil.
The main source of GWP impact is the incineration of non-woven, followed by its production. The production of non-woven is the second source of environmental impact in all main categories, only surpassed in the GWP-fossil by the incineration of Polypropylene (PP).
Transportation of raw materials to and between the manufacturing sites (A2) and disposal transportation of the product in EoL (C2) are not very relevant in terms of GWP total.
The production of non-woven in Modules A1-A3 has the largest contribution to the impacts of all main indicators, except for GWP luluc and GWP fossil. The truck transport in Module A2 is the main contributor for GWP luluc and the incineration of polypropylene (non-woven) in Module C3 for GWP fossil.

The data quality of the relevant generic datasets used is classified as very good, good or satisfactory. Relevant data sets are defined as data sets that together account for at least 80% of the absolute impact of each core indicator included in the EPD across the declared modules with the exception of Module D.

The variation of the environmental impact indicator results for modules A to C between the included products is 0%

# References

ASTM E96, Standard test methods for water vapor transmission of materials, 2017. https://dx.doi.org/10.1520/E0096-00E01

DIN EN 15804. (2019). Sustainability of construction works – Environmental product declarations – Core rules for product category of construction products. Deutsches Institut für Normung DIN. Retrieved from https://doi.org/10.31030/1736947

EN 1109:2013-07, Flexible sheets for waterproofing - Bitumen sheets for roof waterproofing - Determination of flexibility at low temperature, 2013. https://dx.doi.org/10.31030/2007324

EN 1296:2001-03, Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method for artificial ageing by long term exposure to elevated temperature, 2001. https://dx.doi.org/10.31030/9115025

EN 1297:2004-12, Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method of artificial ageing by long term exposure to the combination of UV radiation, elevated temperature and water, 2004. https://dx.doi.org/10.31030/9185565

EN 13501-1:2019-05, Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests, 2019. https://dx.doi.org/10.31030/2870379

EN 13859-1:2014-07, Flexible sheets for waterproofing - Definitions and characteristics of underlays - Part 1: Underlays for discontinuous roofing, 2014. https://dx.doi.org/10.31030/2143338

EN 1849-2:2019-09, Flexible sheets for waterproofing - Determination of thickness and mass per unit area - Part 2: Plastics and rubber sheets for roof waterproofing, 2019. https://dx.doi.org/10.31030/3042454

EN ISO 12572:2017-05, Hygrothermal performance of building materials and products - Determination of water vapour transmission properties - Cup method (ISO 12572:2016), 2017. https://dx.doi.org/10.31030/2429972

EN ISO 811:2018-08, Textiles - Determination of resistance to water penetration - Hydrostatic pressure test (ISO 811:2018), 2018. https://dx.doi.org/10.31030/2807631

EPD International. (2021). General Programme Instructions of the International EPD® System. Version 4.0.

EPD International. (2024). PCR 2019:14 Construction products and construction services. Version 1.3.4.

Produktdatenblatt für Unterdeckbahnen und Unterspannbahnen (Product datasheet für roofing underlay membranes), 2024. Published by Zentralverband des Deutschen Dachdeckerhandwerks (Central Association of the German Roofing Trade).

Sphera Solutions GmbH. (2024). LCA for Experts 10.7: Software and Database for Life Cycle Engineering and the databases (service pack 2023.2). Sphera Solutions GmbH.

TRACI. Bare, J. C. (2012). Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI) Version 2.1 - User's Manual. Version 2: U.S. Environmental Protection Agency | US EPA.

VKF / AEAI (2018) Test regulations for hail impact resistance published by the Swiss Association of Cantonal Fire Insurance Institutes.

pro clima / MOLL bauökologische Produkte GmbH

www.proclima.com

www.environdec.com

EPD-0025-16/04/2025

MOLL bauökologische Produkte GmbH
Rheintalstraße 35-43 D-68723 Schwetzingen

Sentinel Holding Institut GmbH
Frau Natalie Szczyglowski
Merzhauser Str. 76
79100 FREIBURG
DEUTSCHLAND

MOLL
bauökologische Produkte GmbH
Rheintalstraße 35-43
D-68723 Schwetzingen

Tel: 06202 27 82 0

info@proclima.de
www.proclima.de

Unser Zeichen:
Michael Förster

Fon: 06202 278245
eMail: michael.foerster@proclima.de

1. Juli 2025

**Herstellererklärung SVHC & CMR-Stoffe**

Sehr geehrte Frau Szczyglowski,

gerne bestätige ich Ihnen, dass die folgenden auf dem Sentinel Portal gelisteten pro clima Produkte die Anforderungen SVHC < 0,1% (gemäß REACH-Kandidatenliste, Stand 25.05.2025), sowie CMR-Stoffe mit der Einstufung CMR 1A/1B < 0,1% erfüllen:

- AEROSANA VISCONN, AEROSANA VISCONN FIBRE
- CONTEGA IQ, CONTEGA PV, CONTEGA SL
- CONTEGA SOLIDO SL, CONTEGA SOLIDO EXO-D, CONTEGA SOLIDO IQ-D
- TESCON VANA, TESCON No.1, TESCON PROFECT
- UNI TAPE, UNI TAPE XL
- DUPLEX
- EXTOSEAL ENCORS
- ORCON F, ORCON MULTIBOND
- TESCON NAIDECK, TESCON NAIDECK mono
- TESCON PRIMER RP
- KAFLEX mono, KAFLEX duo, ROFLEX 20, ROFLEX 30-300
- INTELLO, INTELLO X, INTELLO PLUS, INTELLO X PLUS
- DA
- DASAPLANO 0,01 connect
- DB+
- SOLITEX ADHERO 3000, SOLITEX ADHERO VISTO
- SOLITEX FRONTA WA
- SOLITEX MENTO 1000-5000 (connect)
- SOLITEX QUANTHO 3000 connect
- SOLITEX ADHERO SENSIS, SENSIS COLL, SENSIS TAPE

Für weitere Fragen erreichen Sie die technische Hotline von pro clima unter der Nummer 06202 - 2782.45.

Mit freundlichen Grüßen
MOLL bauökologische Produkte GmbH



i.V. Michael Förster
Dipl.-Ing.
Bereichsleitung Technik