

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 21930 & ISO 14025

SLOPESHIELD[®] PLUS SELF-ADHERED

By VaproShield, LLC



EPD HUB, HUB-2899

Published on 04.07.2025, last updated on 04.07.2025, valid until 03.07.2030

GENERAL INFORMATION

MANUFACTURER

| | |
|-----------------|--------------------------------------------|
| Manufacturer | VaproShield LLC |
| Address | 915 26th Ave NW Ste C5, Gig Harbor, WA, US |
| Contact details | info@vaproshield.com |
| Website | www.vaproshield.com |

EPD STANDARDS, SCOPE AND VERIFICATION

| | |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Program operator | EPD Hub, hub@epdhub.com |
| Reference standard | ISO 21930:2017 and ISO 14025 |
| PCR | EPD Hub Core PCR Version 1.1, 5 Dec 2023 |
| Sector | Construction product |
| Category of EPD | Third party verified EPD |
| Parent EPD number | - |
| Scope of the EPD | Cradle to gate with modules C1-C4, D |
| EPD author | Carrie Sell-Salazar - VaproShield, LLC |
| EPD verification | Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification |
| EPD verifier | Sarah Curpen, an authorized verifier acting for EPD Hub Limited |

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with ISO 21930 and if they are not compared in a building context.

PRODUCT

| | |
|-----------------------------------|------------------------------|
| Product name | SlopeShield Plus SA |
| Additional labels | - |
| Product reference | 29309000 |
| Place of production | United States |
| Period for data | October 2023 to October 2024 |
| Averaging in EPD | No averaging |
| Variation in GWP-fossil for A1-A3 | - % |

ENVIRONMENTAL DATA SUMMARY

| | |
|---------------------------------------------|-----------------------------|
| Declared unit | 1 Square Meter WRB Membrane |
| Declared unit mass | 0.391 kg |
| GWP-TRACI, A1-A3 (kgCO ₂ e) | 1.59E+00 |
| Secondary material, inputs (%) | 1.59 |
| Secondary material, outputs (%) | 100 |
| Total energy use, A1-A3 (kWh) | 6.49 |
| Net freshwater use, A1-A3 (m ³) | 0.01 |

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

VaproShield designs and manufactures high performance, vapor permeable, water resistive barriers (WRB) and air barrier (AB) systems and accessories, creating a total solution-based approach to protecting the building envelope. Our innovative WRB/AB systems for roof and walls mitigate moisture damage and control air infiltration (air barrier) leading to a lifetime of improved indoor air quality and energy savings.

PRODUCT DESCRIPTION

SlopeShield Plus SA is a multi-purpose highly water-resistant, UV tolerant, high temperature rated, air barrier and vapor-permeable membrane.

It can be used as:

- (1) Mass timber roof deck/floor deck moisture management solution, as the structure is erected within the roofing assembly, in new, reroof construction, steep slope and residential applications
- (3) A permeable vapor retarder air barrier in recover/reuse roofing projects
- (4) Concrete surface protection

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass % | Material origin |
|-----------------------|----------------|-----------------|
| Metals | 0 | - |
| Minerals | 0 | - |
| Fossil materials | 100 | USA / EU |
| Bio-based materials | 0 | - |

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

| | |
|--------------------------------------------|-----------|
| Biogenic carbon content in product, kg C | 0 |
| Biogenic carbon content in packaging, kg C | 0.0289124 |

FUNCTIONAL UNIT AND SERVICE LIFE

| | |
|------------------------|-----------------------------|
| Declared unit | 1 Square Meter WRB Membrane |
| Mass per declared unit | 0.391 kg |
| Functional unit | - |
| Reference service life | - |

SUBSTANCES, REACH - VERY HIGH CONCERN

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

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

| Product stage | | | Assembly stage | | Use stage | | | | | | | End of life stage | | | | Beyond the system boundaries | | |
|---------------|-----------|---------------|----------------|----------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|------------------------------|----------|-----------|
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D | | |
| X | X | X | MND | MND | MND | MND | MND | MND | MND | MND | MND | X | X | X | X | X | | |
| Raw materials | Transport | Manufacturing | Transport | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction/ demolition | Transport | Waste processing | Disposal | Reuse | Recovery | Recycling |

Modules not declared = MND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

The manufacturing of SlopeShield Plus SA begins in **A1** with the extraction and refining of fossil-based resources to produce polyethylene terephthalate (PET) as polyester, along with the synthesis of coating agent resins. These raw materials are processed into the base polyester fabric and transported to the manufacturing site, generating upstream emissions and energy use. In **A2**, the transportation of these materials—resins, additives, and polyester substrates—to the production facility is accounted for, including fuel use and associated emissions. **A3** includes the manufacturing steps: the polyester substrate is coated with the final formulated resin, followed by a controlled baking or curing process in industrial ovens to ensure adhesion. This stage involves thermal energy consumption, emissions from solvent

evaporation or combustion, and potential VOC capture or treatment. The finished material is then cooled, slit or cut to size, inspected, packaged into cardboard boxes with plastic cores, and palletized. Finally, SlopeShield Plus SA is loaded onto trucks for delivery, completing the A3 phase.

TRANSPORT AND INSTALLATION (A4-A5)

This section was not considered for this study.

PRODUCT USE AND MAINTENANCE (B1-B7)

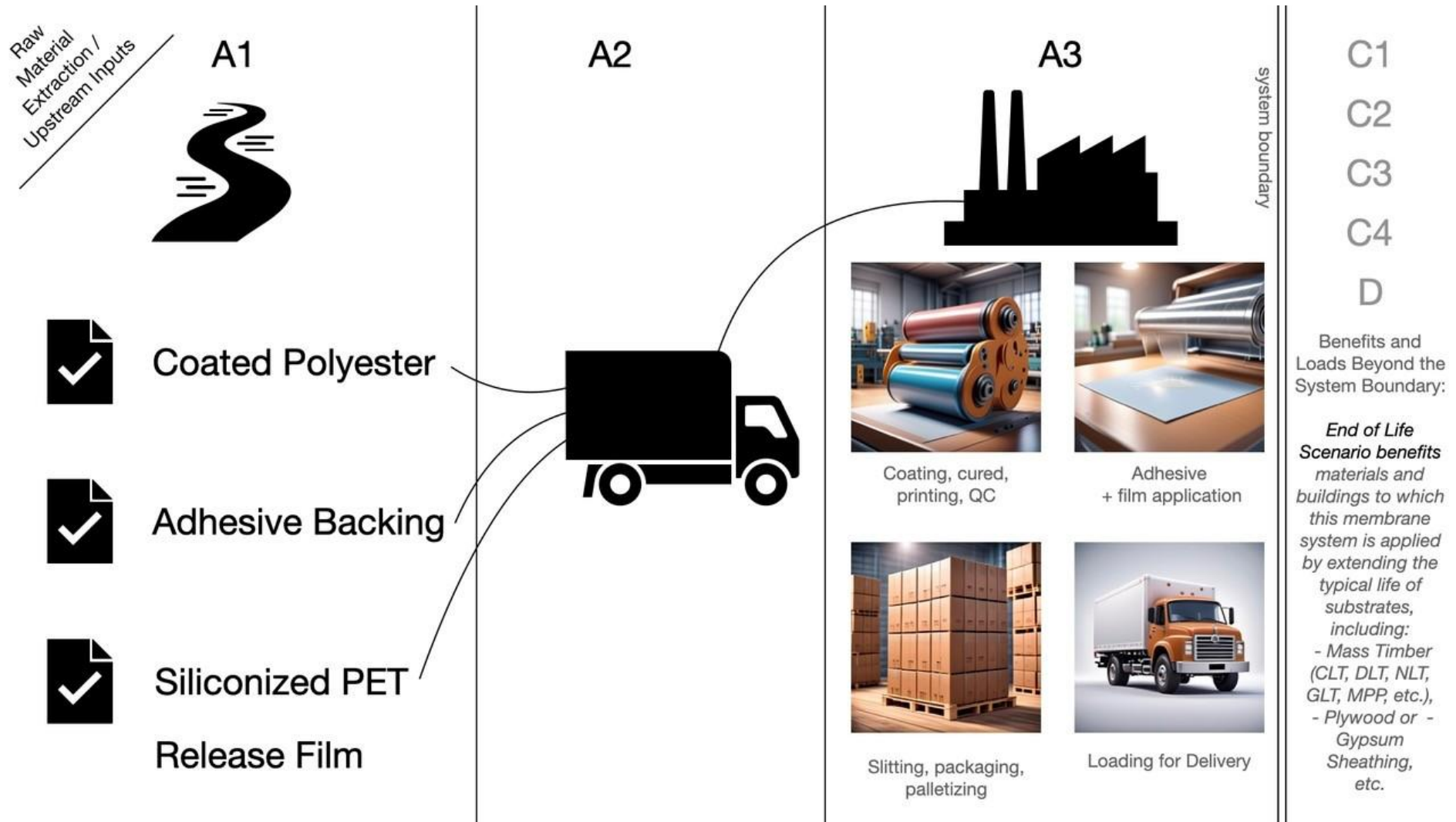
Use phase was not considered for the present study, per applicable PCR. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Self-adhered membrane systems become a semi-permanent composite component of the substrate on which they are installed. End of Life scenarios vary depending on substrate. Common substrates include mass timber (i.e. CLT), plywood, gypsum sheathing, and concrete. These substrate materials, after reuse is exhausted, are ground-up and used for agricultural purposes. VaproShield membrane systems can significantly extend the useful life of these building components.

VaproShield membrane systems can significantly extend the useful life of these building components. The reused material is transported **by truck for about 50 km** to a re-use facility.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

| Data type | Allocation |
|--------------------------------|-----------------------------|
| Raw materials | No allocation |
| Packaging material | Allocated by mass or volume |
| Ancillary materials | Not applicable |
| Manufacturing energy and waste | Allocated by mass or volume |

AVERAGES AND VARIABILITY

| | |
|-----------------------------------|----------------|
| Type of average | No averaging |
| Averaging method | Not applicable |
| Variation in GWP-fossil for A1-A3 | -% |

This EPD represents a single product.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1, EPDs with TRACI methodologies, and the Federal LCA Commons as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

ENVIRONMENTAL IMPACTS – TRACI 2.1. / ISO 21930

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---------------------|------------------------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|-----------|-----------|
| Global Warming Pot. | kg CO ₂ e | 1.45E+00 | 4.01E-02 | 1.02E-01 | 1.59E+00 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 3.95E-06 | 2.84E-03 | 3.18E-03 | 8.02E-04 | -1.34E+00 |
| Ozone Depletion | kg CFC ₁₁ e | 3.81E-08 | 6.20E-10 | 9.09E-10 | 3.96E-08 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 6.46E-14 | 4.42E-11 | 7.69E-12 | 2.98E-12 | -2.62E-05 |
| Acidification | kg SO ₂ e | 5.78E-03 | 6.53E-04 | 1.97E-04 | 6.63E-03 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 3.34E-08 | 8.66E-06 | 7.27E-06 | 7.90E-07 | -5.40E-03 |
| Eutrophication | kg Ne | 1.11E-02 | 2.80E-05 | 8.49E-05 | 1.12E-02 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 2.27E-09 | 9.14E-07 | 1.68E-06 | 1.97E-06 | -2.75E-03 |
| POCP ("smog") | kg O ₃ e | 7.87E-02 | 1.27E-02 | 3.06E-03 | 9.45E-02 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 1.11E-06 | 2.19E-04 | 1.01E-04 | 1.98E-05 | -9.77E-02 |
| ADP-fossil | MJ | 2.15E+01 | 5.34E-01 | 1.08E+00 | 2.31E+01 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 5.24E-05 | 4.14E-02 | 1.24E-02 | -3.50E-01 | -2.46E+01 |

USE OF NATURAL RESOURCES

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|------------------------------------|----------------|----------|----------|-----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|----------|-----------|-----------|-----------|
| Renew. PER as energy ¹⁾ | MJ | 1.29E+00 | 5.51E-03 | -8.67E-01 | 4.24E-01 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 3.32E-07 | 5.67E-04 | -1.10E+00 | 4.05E-05 | -2.87E+00 |
| Renew. PER as material | MJ | 0.00E+00 | 0.00E+00 | 1.10E+00 | 1.10E+00 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 0.00E+00 | 0.00E+00 | -1.10E+00 | 0.00E+00 | 0.00E+00 |
| Total use of renew. PER | MJ | 1.29E+00 | 5.51E-03 | 2.36E-01 | 1.53E+00 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 3.32E-07 | 5.67E-04 | -2.20E+00 | 4.05E-05 | -2.87E+00 |
| Non-re. PER as energy | MJ | 2.13E+01 | 5.33E-01 | 1.08E+00 | 2.30E+01 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 5.24E-05 | 4.14E-02 | 1.22E-02 | -3.50E-01 | -6.94E+00 |
| Non-re. PER as material | MJ | 1.18E+01 | 0.00E+00 | 1.75E-03 | 1.18E+01 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 0.00E+00 | 0.00E+00 | -1.14E+01 | -3.45E-01 | 0.00E+00 |
| Total use of non-re. PER | MJ | 3.31E+01 | 5.33E-01 | 1.08E+00 | 3.47E+01 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 5.24E-05 | 4.14E-02 | -1.14E+01 | -6.95E-01 | -6.94E+00 |
| Secondary materials | kg | 6.22E-03 | 2.43E-04 | 8.04E-02 | 8.68E-02 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 2.18E-08 | 1.79E-05 | 3.67E-05 | 8.76E-07 | 0.00E+00 |
| Renew. secondary fuels | MJ | 1.31E-04 | 1.59E-06 | 1.19E-04 | 2.52E-04 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 5.69E-11 | 2.27E-07 | 1.50E-07 | 1.64E-08 | 0.00E+00 |
| Non-ren. secondary fuels | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Use of net fresh water | m ³ | 1.18E-02 | 5.49E-05 | 1.71E-03 | 1.36E-02 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 3.46E-09 | 5.95E-06 | 6.79E-06 | -3.59E-05 | -1.83E-02 |

1) PER = Primary energy resources.

END OF LIFE – WASTE

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---------------------|------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|----------|-----------|
| Hazardous waste | kg | 1.02E-01 | 7.94E-04 | 2.82E-03 | 1.05E-01 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 5.83E-08 | 7.06E-05 | 1.79E-04 | 4.38E-06 | -7.80E-01 |
| Non-hazardous waste | kg | 4.97E+00 | 1.27E-02 | 1.17E-01 | 5.10E+00 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 7.95E-07 | 1.31E-03 | 3.95E-03 | 4.82E-02 | -7.70E-01 |
| Radioactive waste | kg | 2.15E-05 | 8.27E-08 | 1.39E-06 | 2.29E-05 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 5.69E-12 | 8.66E-09 | 1.53E-08 | 6.39E-10 | -5.15E-07 |

END OF LIFE – OUTPUT FLOWS

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|--------------------------|------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|----------|----------|
| Components for re-use | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 0.00E+00 | 0.00E+00 | 3.91E-01 | 0.00E+00 | 0.00E+00 |
| Materials for recycling | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 0.00E+00 | 0.00E+00 | 6.93E-02 | 0.00E+00 | 0.00E+00 |
| Materials for energy rec | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|----------------------|------------------------------------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|----------|----------|
| Global Warming Pot. | kg CO ₂ e | 1.47E+00 | 4.04E-02 | 1.04E-01 | 1.62E+00 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 3.98E-06 | 2.86E-03 | 3.40E-03 | 8.66E-04 | 0.00E+00 |
| Ozone depletion Pot. | kg CFC ₁₁ e | 2.96E-08 | 4.68E-10 | 7.41E-10 | 3.08E-08 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 4.86E-14 | 3.34E-11 | 6.18E-12 | 2.26E-12 | 0.00E+00 |
| Acidification | kg SO ₂ e | 4.72E-03 | 6.10E-04 | 1.94E-04 | 5.52E-03 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 2.54E-08 | 7.45E-06 | 6.01E-06 | 6.09E-07 | 0.00E+00 |
| Eutrophication | kg PO ₄ ³ e | 2.99E-02 | 7.27E-05 | 8.84E-05 | 3.00E-02 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 5.94E-09 | 1.81E-06 | 2.38E-06 | 1.03E-06 | 0.00E+00 |
| POCP (“smog”) | kg C ₂ H ₄ e | 4.56E-04 | 3.19E-05 | 1.73E-05 | 5.06E-04 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 1.91E-09 | 6.65E-07 | 1.39E-06 | 1.75E-07 | 0.00E+00 |
| ADP-elements | kg Sbe | 1.04E-05 | 6.84E-08 | 1.50E-07 | 1.06E-05 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 1.40E-12 | 8.20E-09 | 1.57E-08 | 2.41E-10 | 0.00E+00 |
| ADP-fossil | MJ | 3.17E+01 | 5.28E-01 | 1.73E+00 | 3.40E+01 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 5.20E-05 | 4.08E-02 | 1.12E-02 | 2.40E-03 | 0.00E+00 |

ENVIRONMENTAL IMPACTS – ISO 21930

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|----------------------------|------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|----------|----------|
| Radioactive waste, high | kg | 5.89E-06 | 2.43E-08 | 4.13E-07 | 6.32E-06 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 1.63E-12 | 2.55E-09 | 4.83E-09 | 1.83E-10 | 0.00E+00 |
| Radioactive waste, int/low | kg | 1.56E-05 | 5.84E-08 | 9.78E-07 | 1.66E-05 | MND | MND | MND | MND | MND | MND | MND | MND | MND | 4.06E-12 | 6.11E-09 | 1.05E-08 | 4.56E-10 | 0.00E+00 |

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

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

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

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

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

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

Sarah Curpen, an authorized verifier acting for EPD Hub Limited
04.07.2025

