Environmental Product Declaration

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

Sheet and Roll Insulation Products

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

Aeroflex Sheet and Roll
Aeroflex Sheet and Roll with PSA
Aeroflex EP FM Approved Sheet and Roll
Aeroflex EP FM Approved Sheet and Roll with PSA
Aeroflex Breathe-EZ Duct Insulation
Aeroflex Breathe-EZ PSA Duct Insulation

from
AEROFLEX USA

Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Licensee:	EPD North America
EPD registration number:	EPD-IES-0032502:001
Version date:	2026-06-10
Validity date:	2031-06-09
Version:	1.0
	An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com

General information

Programme information

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

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
PCR 2019:14 Construction product (v2.0.1) C-PCR-005 (To PCR 2019:14) Thermal Insulation Products (EN 16783:2024) version 1.0.0
Chair of PCR Review: Rob Rouwette (chair), Noa Meron (co-chair) The review panel may be contacted via secretariat https://www.environdec.com/support/
Life Cycle Assessment (LCA)
LCA accountability: WAP Sustainability, LLC
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ Individual EPD verification without a pre-verified LCA/EPD tool Third-party verifier: Stephen Forson, ViridisPride Ltd 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 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.

INFORMATION ABOUT EPD OWNER

Owner of the EPD: Aeroflex USA

Contact: Mark Sylvester, mark.sylvester@aeroflexusa.com

Description of the organisation: Aeroflex USA manufactures the AEROFLEX® brand of EPDM (Ethylene Propylene Diene Monomer) elastomeric closed cell insulation for HVAC piping, ductwork & equipment, refrigeration, and plumbing systems. Aeroflex USA sources materials that minimize hazards to the environment and human health. Most of the products are manufactured in the USA utilizing an energy-efficient production process that yields minimal waste and contributes to favourable energy optimization, indoor environmental quality, and building mechanical system life cycle costs.

Product-related or management system-related certifications: ISO 9001-2015 certified.

Name and location of production site(s): Sweetwater, Tennessee, United States 37874

PRODUCT INFORMATION

Product name: Sheet and Roll Insulation products

UNCPC Code: 362 ('Other rubber products' as per Construction Products PCR 2019:14)

Product Description:
AEROFLEX EPDM™ insulation products include sheet, roll, duct insulation, and pressure-sensitive adhesive (PSA) variants designed to retard heat gain or loss, control condensation, and provide acoustic and thermal insulation performance for plumbing, HVAC, ductwork, and mechanical system applications. These closed-cell EPDM insulation products are suitable for above- and below-ground installations as well as interior and exterior applications. PSA variants incorporate a high-performance scrim-reinforced acrylic pressure-sensitive adhesive that enables efficient installation and strong bonding to a variety of metal, plastic, and composite substrates while offering excellent UV resistance, heat resistance, durability, peel strength, tack, and performance across a wide temperature range.

The products are engineered to provide fiber-free insulation solutions with smooth, easy-to-maintain surfaces and effective resistance to microbiological growth due to the inherent properties of EPDM rubber, without the addition of antimicrobial chemicals. Certain products are designed to provide acoustic attenuation of airborne and structure-borne sound, including fan noise and sheet metal vibration, and are suitable for use in plenums and other building spaces. The insulation products are GREENGUARD Gold Certified for low chemical emissions, can contribute to LEED® credits, and meet ASTM E84 25/50 flame spread and smoke-developed requirements for specified thickness ranges up to 2 inches (51 mm). Product thicknesses vary depending on application requirements and are designed to comply with applicable building and energy efficiency standards, including ASHRAE 90.1, IECC, and relevant state energy codes.

The EPD is based on the average results of the product group, as the Sheet and Roll insulation products within the group have similar manufacturing processes, performance characteristics, and end-use applications.

Table 1. Declared unit details

Product	Weight per declared unit	Unit
AEROFLEX Breathe-EZ Duct Insulation	1.30	kg/m^2
AEROFLEX Breathe-EZ PSA Duct Insulation	1.34	kg/m^2
AEROFLEX Sheet and Roll	1.14	kg/m^2
AEROFLEX Sheet and Roll- with PSA	1.75	kg/m^2
AEROFLEX-EP FM Approved Sheet and Roll	1.18	kg/m^2
AEROFLEX-EP FM Approved Sheet and Roll -with PSA	1.82	kg/m^2
Weighted average	**1.22**	**kg/m^2**

Manufacturing: The manufacturing of insulation products begins with the overseas transport of specialized raw materials from Aeroflex's facility in Thailand to the USA facility. Then, the materials undergo intensive mixing with chemical blowing agents and flame retardants to ensure a homogeneous compound. This mixture is then extruded through specific dies to form either hollow pipe profiles or flat sheets, followed by a foaming stage where heat triggers the expansion of the material into a high-performance, closed-cell structure. Finally, the insulation undergoes curing in thermal ovens to cross-link the polymers, ensuring structural integrity and consistent thermal resistance before the finished goods are packaged for distribution.

Geographical scope: North America

Technical Information

Table 2. Technical data of Sheet and Roll insulation products

Test Method	Test Results
ASTM C518 Steady-State Thermal Transmission Properties	Thermal conductivity = .245 @ 75°F [24°C]
ASTM C411 Hot Surface Performance of High Temperature Thermal Insulation	Service Temperature (Continuous) = -297°F [-183°C] -+257°F [+125°F]
ASTM C209 Cellulosic Fiber Insulating Board	Water Absorption (Volume %) = .2%
ASTM C534 Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet & Tubular Form	Flexibility = Pass
ASTM C692, DIN 1988 Influence of Thermal Insulations on External Stress Corrosion Cracking Tendency of Austenitic Stainless Steel	Non-corrosive
ASTM D635 Rate of Burning and/or Extent and Time of Burning Plastics in a Horizontal Position	Self-extinguishing
ASTM C1338 / G21 / UL 181 Determining Fungi Resistance of Insulation Materials and Facings	No growth
ASTM D1056 Flexible Cellular Materials - Sponge or Expanded Rubber	Closed Cell
ASTM D1171 Rubber Deterioration - Surface Ozone Cracking Outdoors	No cracking
ASTM E84 Surface Burning Characteristics of Building Materials	Pass 25/50 through 2" [50 mm] thickness
ASTM E96 Water Vapor Permeability of Materials	Water Vapor Permeability = .03 perm-inch (ULP = .01 perm-inch)
ASTM G7 Atmospheric Environmental Exposure Testing of Nonmetallic Materials	Minimal Cracking
NFPA 90A / 90B	Meets requirements
UL 94 Flammability of Plastic Materials for Parts in Devices and Appliances	UL-94 V-O
U.S. FDA CPG No. 7117.11 BESN 12868	Nitrosamine Content = None detected

Content Declaration

The intermediate products are manufactured at Aeroflex's Thailand facility. The raw materials for the product were obtained from different suppliers from different locations based in Thailand, South Korea, Japan, and China. These intermediate products are received from the Thailand facility and undergo intensive mixing with chemical blowing agents and flame retardants, followed by extrusion through specific dies, followed by a foaming stage. Finally, the insulation undergoes curing in thermal ovens before the finished goods are packaged for distribution. The general compositions of the products are represented in the table below.

Table 3. Product composition details

Raw Materials	Unit	Composition %	Post-consumer recycled material (%)	Biogenic material %
EPDM Compound	kg/m^2	50% - 60%	0%	0%
EPDM rubber tape	kg/m^2	0%	0%	0%
Masterbatch accelerator -MBB	kg/m^2	0.5% - 1%	0%	0%
Masterbatch accelerator MBW	kg/m^2	0.5% - 2%	0%	0%
Masterbatch accelerator -MBY	kg/m^2	1% - 2%	0%	0%
Masterbatch accelerator PWA	kg/m^2	1% - 2%	0%	0%
Masterbatch Blowing	kg/m^2	10% - 15%	0%	0%
Masterbatch Blowing - MBO	kg/m^2	0.5% - 2%	0%	0%
Masterbatch Curing	kg/m^2	0.2% - 1%	0%	0%
Moisture Adsorbent	kg/m^2	0.2% - 1%	0%	0%
PFM Compound	kg/m^2	2% - 3%	0%	0%
Pressure sensitive tape	kg/m^2	0.5% - 1%	0%	0%
Processing additive	kg/m^2	0.2% - 1%	0%	0%
Talc	kg/m^2	0%	0%	0%
ULS Compound	kg/m^2	25% - 30%	0%	0%
Plastic Jacket	kg/m^2	0%	0%	0%
Total		**100%**	**0%**	**0%**

Note 1: There is no biogenic content in any of the materials listed in the table above
Note 2: No substances in the product are on the Candidate List of Substances of Very High Concern (SVHC), which exceed the limits for registration with the European Chemicals Agency.

All the intermediate products, except talc, pressure-sensitive tape, and plastic jacket, are sourced from the Thailand facility to the manufacturing facility in the US via truck and ship. The talc, pressure-sensitive tape, and plastic jacket materials are sourced from suppliers within the US and are accounted for in the model.

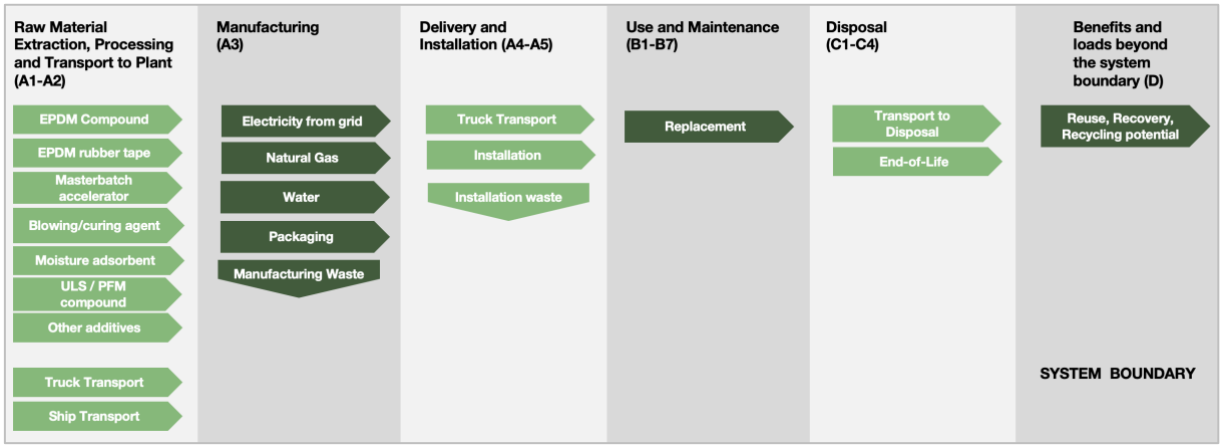
Table 4. Packaging details per declared unit

Packaging materials	Unit	Quantity	Mass % versus the product	Biogenic CO_2 per declared unit (kg CO_2/m)
Plastic bag	kg/m^2	4.40E-01	32.4%	0.69
Wood pallet	kg/m^2	1.85E-03	0.1%	0.00
Metal pallet	kg/m^2	2.37E-03	0.2%	0.00
Cardboard box	kg/m^2	1.22E-01	9.0%	0.19
Total		**5.66E-01**	**42%**	**0.89**

LCA Information

Declared unit	1 m^2 (1.22 kg) of the product as placed on the market
Reference service life	25 years
Description of system boundaries	Cradle to grave and module D
Geographical representativeness	A1-A2: Global A3, A4, A5, B1-B7, C1-C4, D: United States
Time representativeness	Primary data collected for calendar year 2024
Cut-off rules	All flows for which data were provided are included in the assessment, accounting for at least 99% of the energy or mass flows and at least 99% of the environmental impacts from the product system. Production of capital equipment is excluded from this assessment.
Allocation	The allocation was based on EN 15804+A2 and PCR 2019:14. To derive a per-unit value for manufacturing inputs such as electricity, thermal energy, and water, allocation based on total production by mass was adopted.
Data Quality Assessment	The data quality assessment has been addressed in the LCA report as per the methodology given in Annex E of EN 15804. Overall data quality is considered good.
Database and LCA software used	LCA FE 10.9.5.2 (formerly GaBi) MLC Database 2025.2 (formerly GaBi Database)
LCA Report	LCA of Sheet & Roll Insulation Products, WAP Sustainability, March 2026
Scenario Description: A2 Transport to Manufacturing Facility	Fuel Efficiency Truck (full vehicle): 42 L/100km, Capacity Utilization: 67%. Fuel Efficiency Ship (full vehicle): 15,134 L/100km, Capacity Utilization: 53%.
Scenario Description: A3 Manufacturing stage	Electricity Source: country-specific residual mix located in Tennessee region power grid (SRTV). GWP-GHG = 0.58 kg CO_2e/kWh. Energy mix: Natural gas (31%), Hard coal (35.6%), Nuclear (33.3%), Lignite (0.04%), Heavy fuel oil (0.14%)
Scenario Description: A4 Transport to Building Site	Weighted average of products sold to different regions across US 1,229 km by truck. Fuel Efficiency Truck (full vehicle): 42 L/100km, Capacity Utilization: 67%.
Scenario Description: A5 Installation	Manual installation. Hence, no installation resources (material or energy) are consumed. Installation waste of 2% generated in this stage. Disposal of packaging waste: 100% to Plastic to landfill, 100% Wood to incineration and 100% Cardboard to recycling is included in this stage.
Scenario Description: B1, B2, B3, B5, B6, B7 Use stage	There are no impacts from the use phase of the product in these modules except the B4 module replacement.
Scenario Description: B4 Replacement	Considering the RSL of 25 years, and ESL of 75 years, the replacement cycles of the product is 2. No energy consumed during replacement.
Scenario Description: C1- C4 End-of-Life	Diesel consumption in Demolition/deconstruction: 1.1 kWh/tonne. Fuel Efficiency (full vehicle): 42 L/100km, Capacity Utilization: 67%. 100% of the product sent to the landfill, with 80 km distance.
Scenario Description: D Benefits and Loads Beyond the System Boundary	Module D calculates the net environmental benefits or loads from reusing products, recycling materials, and producing energy from end-of-life options. Since the product does not undergo reuse, recycling, or energy recovery, there are no benefits calculated.

System Boundary Diagram



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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Geography	GLO	GLO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Specific data used	32%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-products	-11%/44%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

x = Modules Declared, ND = Modules Not Declared, NA = North America, GLO = Global

Calculation for the share of specific data

Process	Source type	Source	Reference year	Data category	Contribution to A1-A3 GWP-GHG	Share of primary data
Extraction and production of raw materials	Database	Sphera MLC 2025.2	2021-2024	Secondary data	62%	0%
Transportation of raw materials	Collected data	EPD owner	2021-2024	Primary data	7%	100%
Manufacturing of product	Collected data	EPD owner	2021-2024	Primary data	2%	0%
Generation of energy used in manufacturing of product	Database	Sphera MLC 2025.2	2021-2024	Primary data	25%	100%
Extraction and production of packaging materials	Database	Sphera MLC 2025.2	2021-2024	Secondary data	4%	0%
Total share of primary data, of GWP-GHG results for A1-A3 (Contribution * Share of primary data)						**32%**

Results of the Environmental Performance Indicators

Impact results have been calculated using EN15804+A2 (EF 3.1) characterization factors (CEN, 2019). Results presented in this report are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.

All the results are calculated as weighted average results per declared unit (1 m^2) product.

Core Environmental Impact Indicators

Indicator	Unit	A1-A3	A4	A5	B1-B3	B4	B5-B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	4.45E+00	1.73E-01	8.92E-01	0.00E+00	1.36E+01	0.00E+00	5.04E-01	8.06E-03	0.00E+00	7.61E-01	0.00E+00
GWP-fossil	kg CO_2 eq.	5.29E+00	1.73E-01	2.45E-03	0.00E+00	1.35E+01	0.00E+00	5.04E-01	8.06E-03	0.00E+00	7.60E-01	0.00E+00
GWP-biogenic	kg CO_2 eq.	-8.89E-01	0.00E+00	8.89E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	kg CO_2 eq.	5.37E-02	9.15E-05	1.58E-06	0.00E+00	1.09E-01	0.00E+00	2.67E-04	4.27E-06	0.00E+00	4.06E-04	0.00E+00
ODP	kg CFC 11 eq.	8.36E-09	4.08E-14	5.85E-15	0.00E+00	1.67E-08	0.00E+00	1.19E-13	1.91E-15	0.00E+00	2.43E-13	0.00E+00
AP	mol H^+ eq.	1.96E-02	8.60E-04	5.31E-05	0.00E+00	6.43E-02	0.00E+00	4.68E-03	2.49E-05	0.00E+00	6.96E-03	0.00E+00
EP-freshwater	kg P eq.	2.20E-05	3.13E-07	8.72E-08	0.00E+00	4.94E-05	0.00E+00	9.14E-07	1.46E-08	0.00E+00	1.35E-06	0.00E+00
EP-marine	kg N eq.	5.35E-03	4.30E-04	2.40E-05	0.00E+00	2.35E-02	0.00E+00	2.41E-03	1.21E-05	0.00E+00	3.54E-03	0.00E+00
EP-terrestrial	mol N eq.	5.51E-02	4.71E-03	2.89E-04	0.00E+00	2.50E-01	0.00E+00	2.63E-02	1.32E-04	0.00E+00	3.86E-02	0.00E+00
POCP	kg NMVOC eq.	1.37E-02	8.72E-04	6.14E-05	0.00E+00	6.14E-02	0.00E+00	6.49E-03	2.39E-05	0.00E+00	9.56E-03	0.00E+00

ADP-minerals & metals	kg Sb eq.	4.52E-06	2.66E-08	2.74E-10	0.00E+00	9.48E-06	0.00E+00	7.76E-08	1.24E-09	0.00E+00	1.16E-07	0.00E+00
ADP-fossil	MJ	1.02E+02	2.23E+00	3.59E-02	0.00E+00	2.40E+02	0.00E+00	6.50E+00	1.04E-01	0.00E+00	9.86E+00	0.00E+00
WDP*	m^3	4.81E-01	2.44E-03	7.33E-03	0.00E+00	1.02E+00	0.00E+00	7.12E-03	1.14E-04	0.00E+00	1.15E-02	0.00E+00

Resource use indicators

Indicator	Unit	A1-A3	A4	A5	B1-B3	B4	B5-B7	C1	C2	C3	C4	D
PERE	MJ	1.34E+01	9.26E-02	3.65E-03	0.00E+00	2.84E+01	0.00E+00	2.70E-01	4.33E-03	0.00E+00	4.51E-01	0.00E+00
PERM	MJ	8.51E+00	0.00E+00	0.00E+00	0.00E+00	1.70E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.19E+01	9.26E-02	3.65E-03	0.00E+00	4.54E+01	0.00E+00	2.70E-01	4.33E-03	0.00E+00	4.51E-01	0.00E+00
PENRE	MJ	7.44E+01	2.23E+00	3.59E-02	0.00E+00	1.86E+02	0.00E+00	6.50E+00	1.04E-01	0.00E+00	9.86E+00	0.00E+00
PENRM	MJ	2.71E+01	0.00E+00	0.00E+00	0.00E+00	5.43E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.02E+02	2.23E+00	3.59E-02	0.00E+00	2.40E+02	0.00E+00	6.50E+00	1.04E-01	0.00E+00	9.86E+00	0.00E+00
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	1.96E-02	9.99E-05	1.72E-04	0.00E+00	4.13E-02	0.00E+00	2.92E-04	4.67E-06	0.00E+00	4.69E-04	0.00E+00

Waste and Output Flow Indicators

Indicator	Unit	A1-A3	A4	A5	B1-B3	B4	B5-B7	C1	C2	C3	C4	D
HWD	kg	1.06E-05	3.69E-10	9.59E-12	0.00E+00	2.12E-05	0.00E+00	1.08E-09	1.72E-11	0.00E+00	1.66E-09	0.00E+00
NHWD	kg	8.42E-01	2.28E-04	4.26E-03	0.00E+00	4.15E+00	0.00E+00	6.65E-04	1.06E-05	0.00E+00	1.22E+00	0.00E+00
RWD	kg	3.84E-03	7.64E-06	1.06E-06	0.00E+00	7.82E-03	0.00E+00	2.23E-05	3.57E-07	0.00E+00	3.70E-05	0.00E+00
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	0.00E+00	0.00E+00	6.18E-01	0.00E+00	1.24E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	5.38E-02	0.00E+00	5.85E-02	0.00E+00	2.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	2.93E-01	0.00E+00	1.32E-01	0.00E+00	8.49E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	1.18E-01	0.00E+00	2.25E-02	0.00E+00	2.81E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Optional Indicators

Indicator	Unit	A1-A3	A4	A5	B1-B3	B4	B5-B7	C1	C2	C3	C4	D
PM	Disease incidence	3.27E-07	8.75E-09	1.87E-10	0.00E+00	8.67E-07	0.00E+00	3.90E-08	2.76E-10	0.00E+00	5.85E-08	0.00E+00
IRP**	kBq U235	3.51E-01	6.41E-04	8.87E-05	0.00E+00	7.14E-01	0.00E+00	1.87E-03	2.99E-05	0.00E+00	3.13E-03	0.00E+00
ETP-fw*	CTUe	6.18E+01	1.61E+00	1.29E-02	0.00E+00	1.50E+02	0.00E+00	4.69E+00	7.50E-02	0.00E+00	7.02E+00	0.00E+00
HTP-c*	CTUh	1.34E-09	3.90E-11	5.61E-13	0.00E+00	3.21E-09	0.00E+00	8.76E-11	1.38E-12	0.00E+00	1.31E-10	0.00E+00
HTP-nc*	CTUh	4.53E-08	8.19E-10	4.94E-12	0.00E+00	1.04E-07	0.00E+00	2.38E-09	3.79E-11	0.00E+00	3.56E-09	0.00E+00
LU*	Pt	9.97E+01	3.30E-01	4.38E-03	0.00E+00	2.05E+02	0.00E+00	9.63E-01	1.54E-02	0.00E+00	1.43E+00	0.00E+00

** 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.*

*** Disclaimer: This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.*

Additional Indicator

Indicator	Unit	A1-A3	A4	A5	B1-B3	B4	B5-B7	C1	C2	C3	C4	D
GWP-GHG	kg CO_2 eq.	3.39E+00	1.71E-01	2.50E-03	0.00E+00	1.04E+01	0.00E+00	5.01E-01	7.96E-03	3.64E-01	7.55E-01	0.00E+00

Note: Because module C is included, it is discouraged to use the results of A1-A3 without considering module C

Variance-Products

The information below shows the percentage variation in the module A to C impacts between the average result and the lowest impacts, and the highest impact.

Table 5. Variation in Sheet and Roll insulation product group

Impact indicators	Unit	Min (%)	Max (%)
GWP-total	kg CO_2 eq.	-19%	26%
GWP-fossil	kg CO_2 eq.	-7%	44%
GWP-luluc	kg CO_2 eq.	-7%	47%
ODP	kg CFC 11 eq.	-8%	48%
AP	mol H+ eq.	-7%	48%
EP-freshwater	kg P eq.	-9%	48%
EP- marine	kg N eq.	-6%	48%
EP-terrestrial	mol N eq.	-7%	49%
POCP	kg NMVOC eq.	-7%	49%
ADP-minerals & metals	kg Sb eq.	-6%	43%
ADP-fossil	MJ	-10%	44%
WDP	m^3	-6%	46%

Note: GWP-Biogenic is 0 across module A to C, hence no variation provided for GWP-Biogenic.

Additional environmental information

No additional environmental, social, or economic information is declared in this EPD

Information related to the EPD of multiple products

This EPD is based on the average results of the product group, and the justification for the selection of the average result is provided in the 'Product information' section of this EPD.

Abbreviations

- MBB - Masterbatch (Black), Proprietary accelerator used in insulation formulations.
- MBW - Masterbatch (White), Proprietary activator used in insulation formulations.
- MBY - Masterbatch (Yellow), Proprietary accelerator used in insulation formulations.
- MBO - Masterbatch (Orange), Proprietary blowing agent used in insulation formulations.
- MBS - Masterbatch scrap, Proprietary masterbatch with scrap blended used in insulation formulations.
- PWA - Proprietary accelerator and activator used in insulation formulations.
- ULS, PFM - Proprietary rubber compound used in insulation formulations.
- GWP: Global Warming Potential
- Luluc: Land use and land use change
- ODP: Depletion potential of the stratospheric ozone layer
- AP: Acidification Potential
- EP: Eutrophication Potential
- POCP: Formation potential of tropospheric ozone
- ADP: Abiotic Depletion Potential
- WDP: Water Deprivation Potential
- PM: Potential incidence of disease due to PM emissions
- IRP: Potential Human exposure efficiency relative to U235
- ETP: Potential Comparative Toxic Unit for ecosystems
- HTP: Potential Comparative Toxic Unit for humans
- SQP: Potential soil quality index

- SM: Use of secondary materials
- RSF: Use of renewable secondary fuels
- NRSF: Use of non-renewable secondary fuels
- FW: Net use of fresh water
- HWD: Disposed-of-hazardous waste
- NHWD: Disposed-of non-hazardous waste
- RWD: Radioactive waste disposed
- CRU: Components for reuse
- MR: Materials for recycling
- MER: Materials for energy recovery
- EEE: Exported electrical energy
- EET: Exported thermal energy

References

- CEN. (2019). EN 15804+A2: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products. European Committee for Standardization.
- CEN. (2024). EN 15941:2024, Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data.
- EPD International (2025). Thermal Insulation Products (EN 16783:2024), Complementary Product Category Rules (C-PCR) to PCR 2019:14, v1.0.0
- EPD International. (2025). Construction Products PCR 2019:14, v2.0.1.
- EPD International. (2025). General Programme Instructions for the International EPD® System, v5.0.1. www.environdec.com.
- ISO. (2006). ISO 14025: Environmental labels and declarations - Type III environmental declarations - Principles and procedures. Geneva: International Organization for Standardization.
- ISO. (2006). ISO 14040/Amd 1:2020: Environmental management - Life cycle assessment - Principles and framework. Geneva: International Organization for Standardization.
- ISO. (2006). ISO 14044/Amd 1:2017/Amd 2:2020: Environmental Management - Life cycle assessment- Requirements and Guidelines. Geneva: International Organization for Standardization.
- Sphera. (2025). Managed LCA Content (MLC) LCA Databases Modeling Principles 2025.
- Life Cycle Assessment for Pipe Insulation and Sheet & Roll insulation Products, produced by Aeroflex USA. WAP Sustainability, March 2026
- UL Solutions. UL GREENGUARD Certification Program. Available at: UL GREENGUARD Certification Program

References for additional LCA Results provided in Annexure A:

- ISO 21930:2017 Sustainability in Buildings and Civil Engineering Works - Core Rules for Environmental Product Declarations of Construction Products and Services.
- US EPA. (2012). TRACI: The Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts. Version 2.1.

Test method references:

- ASTM International. ASTM C518- Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- ASTM International. ASTM C411- Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation.
- ASTM International. ASTM C209- Standard Test Methods for Cellulosic Fiber Insulating Board.
- ASTM International. ASTM C534- Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form.

- ASTM International. ASTM C692-Standard Test Method for Evaluating the Influence of Thermal Insulations on External Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
- ASTM International. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
- ASTM International. ASTM C1338- Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
- ASTM International. ASTM G21- Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- ASTM International. ASTM D1056 - Standard Specification for Flexible Cellular Materials-Sponge or Expanded Rubber.
- ASTM International. ASTM D1171- Standard Test Method for Rubber Deterioration- Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens).
- ASTM International. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- ASTM International. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials.
- ASTM International. ASTM G7- Practice for Atmospheric Environmental Exposure Testing of Nonmetallic Materials.
- National Fire Protection Association. NFPA 90A- Standard for the Installation of Air-Conditioning and Ventilating Systems.
- National Fire Protection Association. NFPA 90B- Standard for the Installation of Warm Air Heating and Air-Conditioning Systems.
- UL Solutions. UL 94 - Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances.
- U.S. Food and Drug Administration. Compliance Policy Guide (CPG) Sec. 7117.11 (BESN 12868).

Annexure A

Additional LCA results (ISO-21930)

Impact category	Sheet and Roll	Sheet and Roll- With PSA	EP FM Approved Sheet and Roll	EP FM Approved Sheet and Roll-PSA	Breathe-EZ Duct insulation	Breathe-EZ PSA Duct insulation
TRACI 2.1	**A1-A3**	**A1-A3**	**A1-A3**	**A1-A3**	**A1-A3**	**A1-A3**
Acidification Potential [kg SO_2 eq.]	1.56E-02	2.35E-02	1.62E-02	2.46E-02	1.78E-02	1.80E-02
Eutrophication Potential [kg N eq.]	1.97E-03	2.97E-03	1.76E-03	2.68E-03	1.85E-03	1.87E-03
Global Warming Potential [kg CO_2 eq.]	4.95E+00	7.47E+00	4.77E+00	7.26E+00	5.33E+00	5.40E+00
Ozone Depletion Potential [kg CFC 11 eq.]	1.03E-08	1.54E-08	1.09E-08	1.64E-08	1.22E-08	1.22E-08
Fossil Fuel Depletion Potential [MJ Surplus, LHV]	1.10E+01	1.66E+01	1.00E+01	1.52E+01	1.14E+01	1.15E+01
Smog Air Potential [kg O_3 eq.]	2.49E-01	3.77E-01	2.71E-01	4.13E-01	2.99E-01	3.03E-01

Version History

Version 001, 2026-06-10
Original version of the EPD

EPD®

www.environdec.com