FI·VE
ISOLANTI TERMICI INNOVATIVI

Criteri Ambientali Minimi
del fornitore in conformità al Decreto 23 Giugno 2022

FI-VE Isolanti S.r.l. conferma che i pannelli in polistirene espanso estruso (XPS), della linea Stysol®, denominati **STYSOL, STYSOL HD, STYSOL G, STYSOL HD 700** sono conformi ai Criteri Ambientali Minimi - CAM per l'edilizia (D.M. 23 giugno 2022) "Criteri ambientali minimi per l'affidamento del servizio di progettazione di interventi edilizi, per l'affidamento dei lavori per interventi edilizi e per l'affidamento congiunto di progettazione e lavori per interventi edilizi" con riferimento ai punti pertinenti sotto riportati:

- possiedono la marcatura CE che prevede la dichiarazione delle caratteristiche essenziali riferite al requisito di base 6 "risparmio energetico e ritenzione del calore";
- non contengono sostanze incluse nell'elenco di sostanze estremamente preoccupanti candidate all'autorizzazione (SVHC), secondo il regolamento REACH (Regolamento CE n. 1907/2006), in concentrazione superiore allo 0,1 % (peso/peso);
- non sono prodotti con agenti espandenti che causino la riduzione dello strato di ozono; non sono prodotti o formulati utilizzando catalizzatori al piombo quando spruzzati o nel corso della formazione della schiuma di plastica;
- se prodotti da una resina di polistirene espandibile gli agenti espandenti sono inferiori al 6% del peso del prodotto finito;
- contengono materiale riciclato ovvero recuperato o di sottoprodotti, in quantità pari o superiore alla quantità minima indicata, misurata sul peso come somma delle tre frazioni (quantità minima 10% per prodotti XPS).

Il contenuto di materia prima riciclata utilizzata nei pannelli in XPS sopra elencati, in conformità al punto 2.5.7 dei criteri CAM, è certificato dalla Dichiarazione Ambientale di Prodotto di Tipo III (EPD) cod. **EPD-IES-0026557** del **01/12/2025** conforme alle norme UNI EN 15804 e UNI EN ISO 14025.

I presenti requisiti soddisfano anche quanto previsto per i materiali di isolamento termico di cui alla precedente versione dei CAM (rif. D.M. 11 ottobre 2017).

Chignolo d'Isola, 11 dicembre 2025

FI-VE Isolanti S.r.l.

Il legale rappresentante

Bruno Broccanello

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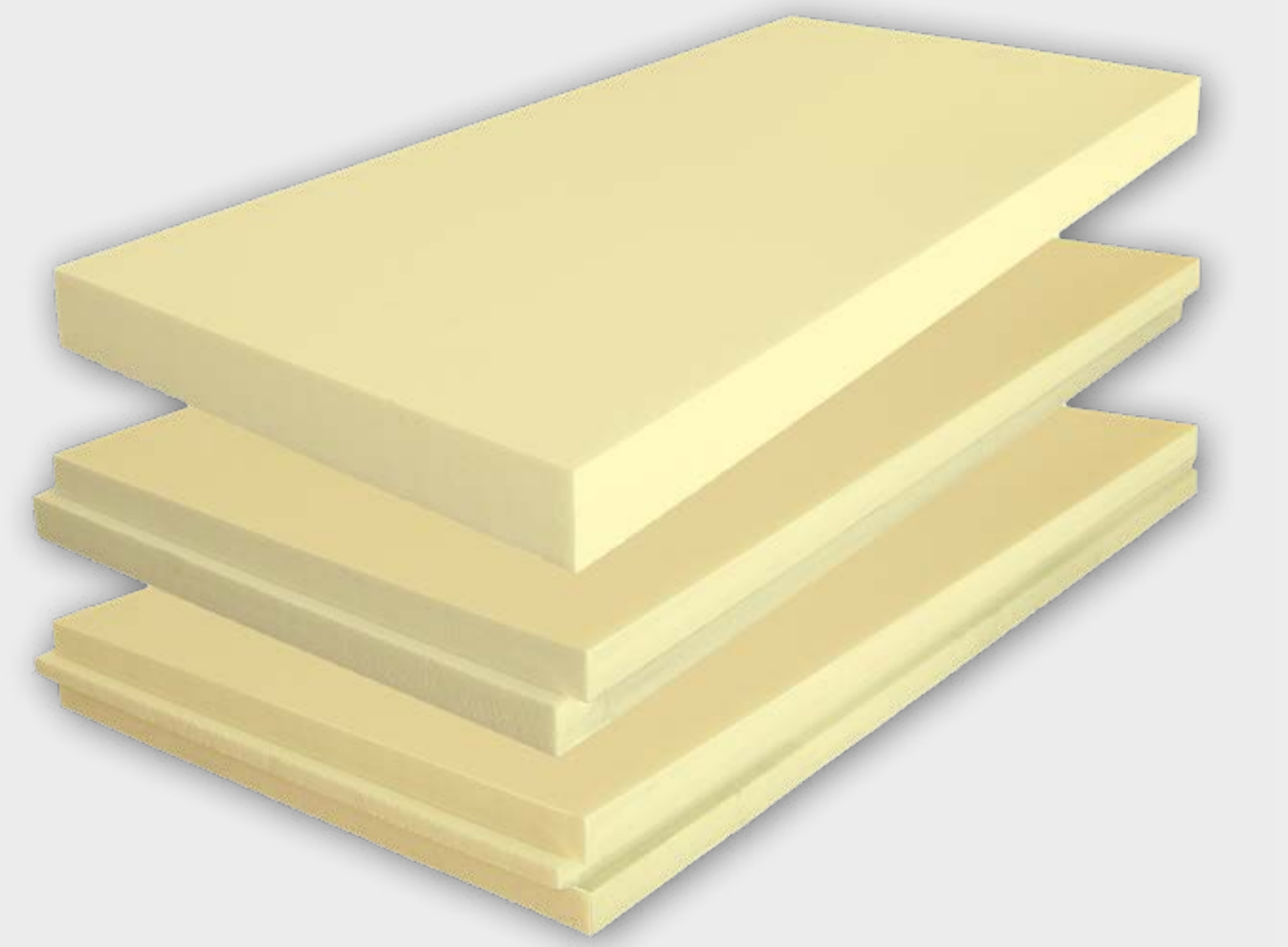
FI·VE
ISOLANTI TERMICI INNOVATIVI

Environmental Product Declaration



STYSOL® | THERMO INSULATING BOARDS – BIBBIANO PLANT

EPD of multiple products, based on the average results of the product group: **STYSOL® – STYSOL G®– STYSOL HD®– STYSOL HD 700®**

PROGRAMME
The International EPD System, www.environdec.com

PROGRAMME OPERATOR
EPD INTERNATIONAL AB

REGISTRATION NUMBER
EPD-IES-0026557

EPD OWNER
FI·VE Isolanti S.r.l.

VERSION DATE
2025-12-01

VALIDITY DATE
2030-11-30

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

EPD INTERNATIONAL EPD SYSTEM

ECO PLATFORM EPD VERIFIED

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 21060, SE-100 31 Stockholm, Sweden

WEBSITE: www.environdec.com

EMAIL: support@environdec.com

PRODUCT CATEGORY RULES (PCR)

CEN STANDARD EN 15804 serves as the Core Product Category Rules (PCR)

PRODUCT CATEGORY RULES (PCR): PCR 2019:14 Construction Products (EN 15804+A2) (VERSION 2.0.1), UN PC CODE 4212

c-PCR: C-PCR-005 (To PCR 2019:14) Thermal Insulation Products (En 16783:2024) (Version 1.0.0) CPC 3699

PCR REVIEW WAS CONDUCTED BY: The Technical Committee Of The International Epd System. See www.environdec.com for a list of members. Review chair: C Rob Rouwette (chair), Noa Meron (co-chair). The review panel may be contacted via the secretariat www.environdec.com/contact.

c-PCR REVIEW WAS CONDUCTED BY: This PCR was developed within CEN standardisation, and adopted as a c-PCR by the International EPD® System. There was thus no additional open consultation period and no additional review in addition to those within standardisation.

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: Certiquality S.r.l. Via G. Giardino, 4 - 20123 Milano, Italy

Accredited by: Accredia, 0027vv

Procedure for follow-up of data during EPD validity involves third party verifier:

☐ YES ☑ NO

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical delcared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

INFORMATION
ABOUT THE EPD OWNER

THE EPD OWNER

EPD OWNER: FI·VE Isolanti S.r.l.

HQ ADDRESS: Via Industriale dell'Isola, 3 - 24040 Chignolo d'Isola (Bergamo)

PRODUCTION SITE: Via Montesanto, 46 42021 Bibbiano (Reggio Emilia)

CONTACT: commerciale@fiveisolanti.it

DESCRIPTION OF THE ORGANIZATION: FI-VE Isolanti is a leading company in the production of high-energy-efficiency insulating materials, thanks to unified production systems and continuous top-level research.

Its commitment to innovation goes hand in hand with a constant focus on product quality—verified through statistical process control—on workplace safety, and on environmental protection.

To best meet market demands, FI-VE Isolanti has strengthened its operational structure, ensuring a wide availability of materials and accessories in stock and an efficient logistics service for prompt deliveries.

A specialist in building insulation and with solid experience in the industrial sector as well, the company is dedicated to achieving full customer satisfaction. Continuous product improvement and the development of new solutions guarantee high performance and a reduced environmental impact. The production of extruded polystyrene and polyurethane foam insulation panels represents the core of its business - a sector that has grown alongside the market's increasing awareness of energy savings and living comfort.

As part of a major industrial group, FI-VE Isolanti offers its clients industry expertise, technological and commercial synergies, all certified by the UNI EN ISO 9001:2015 Quality Management System.

PRODUCT INFORMATION

STYSOL®

Flame-retardant extruded polystyrene (XPS) insulating boards with smooth surfaces on both sides and edge finishing Type A (square edge), Type B (shiplap), or Type C (tongue-and-groove).

CE marked according to UNI EN 13164.

APPLICATION FIELD

Thermal insulation of flat roofs (inverted and ballasted warm roofs), pitched roofs, ventilated pitched roofs, attics, cavity walls, civil floors, and basement walls.

STYSOL G®

Flame-retardant extruded polystyrene (XPS) insulating boards with embossed surfaces on both sides and square edge finishing. CE marked according to UNI EN 13164.

APPLICATION FIELD

Thermal bridge correction on beams, pillars, and slabs, and as a base course for external insulation systems (ETICS).

STYSOL HD®

Flame-retardant extruded polystyrene (XPS) insulating boards with smooth surfaces on both sides and shiplap edge finishing. CE marked according to UNI EN 13164.

APPLICATION FIELD

Thermal insulation of civil and industrial floors, flat roofs (under heavy ballast), parking terraces, and foundations.

STYSOL HD 700®

Flame-retardant extruded polystyrene (XPS) insulating boards with smooth surfaces on both sides and shiplap edge finishing. CE marked according to UNI EN 13164.

APPLICATION FIELD

Thermal insulation of civil and industrial floors, flat roofs (under heavy ballast), parking terraces, and foundations.

PRODUCT INFORMATION

THICKNESS [mm]	RD-VALUES [m2k/W]
20	0.6
30	0.9
40	1.25
50	1.45
60	1.75
80	2.25
100	2.9
120	3.5
140	4.1
160	4.55

UN CPC CPDE: 3699 - Article of plastics n.e.c.

PRODUCTION SITE: Via Montesanto, 46 42021 Bibbiano (Reggio Emilia)

More information available at https://www.fiveisolanti.it/

PRODUCTION PROCCESS: The production of XPS panels begins with the dosing of raw materials into the extruder, following specific formulations. Blowing agents are then injected into the mixture. The materials are mixed and extruded to the desired thickness.

The continuously formed panel is cut to size by cutting units, transported to a stacker that forms the bundle, stacked on pallets, and then stored in the warehouse area.

Debris generated during cutting and milling operations is collected by suction and reintroduced into the production process.

CONTENT DECLARATION

DECLARED UNIT: 1 m² insulating board

The following content declaration represents a weighted average, based on the production volumes of the reference year, for the four products described in the "Product Information" section. It refers to 1 m² of insulating board, including its delivery packaging.

PRODUCT CONTENT	MASS, kg	POST-CONSUMER RECYCLED MATERIAL, MASS-% OF PRODUCT	PRE-CONSUMER RECYCLED MATERIAL, MASS-% OF PRODUCT	BIOGENIC MATERIAL, MASS-% OF PRODUCT	BIOGENIC MATERIAL, kg C/DECLARED UNIT
ADDITIVE	0.03	0%	0%	0%	0.00
BLOWING AGENT	0.02	0%	0%	0%	0.00
POLYSTYRENE	2.05	39%	1%	0%	0.00
SOLVENT	0.01	0%	0%	0%	0.00
TOTAL	**2.09**	**38%**	**1%**	**0%**	**0.00**

PACKAGING MATERIALS	MASS, kg	MASS-% (VERSUS THE PRODUCT)	BIOGENIC MATERIAL, kg C/DECLARED UNIT
PLASTIC	0.05	2%	0.00
PAPER	<1	<1%	<1

FI-VE ISOLANTI S.r.l. is the manufacturer of STYSOL®(XPS insulation product), exempt from the REACH regulation as classified as article that does not intentionally release and does not contain dangerous substances.

The manufacturer has researched the supply chain and confirming that the end use products and materials have been fully inventoried to 100 ppm for chemical ingredients and each substance has been assessed against the Authorization list – Annex XIV, the Restriction list – Annex XVII and the SVHC candidate list.

LCA
INFORMATION

DECLARED UNIT: 1 m^2 of thermal insulation panel intended for use in the construction sector, with a reference thermal resistance value of 2.27 $m^2 \cdot K/W$. The declared panel thickness is 67 mm.

CONVERSION FACTOR TO MASS: 2.09 kg/m^2

REFERENCE SERVICE LIFE OF THE BUILDING: 100 years

THEORETICAL PRODUCT LIFESPAN: 50 years

TYPE OF EPD: From cradle to gate with option, including A4-A5-B4,from C1 to C4, and module D. The modules which were not delared in the study are not applicable to the product life cycle.

LCA SOFTWARE: Simapro v.10.2

GWP GHG A3 [kg CO_2 eq/kWh]: 0.68

SYSTEM BOUNDARIES FLOW DIAGRAM:

A1- RAW MATERIALS SUPPLY

- Production of virgin raw materials contained in the marketed product
- Purchase of pre- and post-consumer recycled polystyrene contained in the marketed product

A2 – RAW MATERIALS TRANSPORT

- Raw material transportation by truck

A3 – MANUFACTURING

- XPS board production process
- Consumption of electricity, fuels and water
- Emission to air and water
- Waste management, transport to disposal site included
- Packaging raw material and transport from supplier
- Raw material production and transport for production scraps

A4 –TRANSPORT TO SITE

- Final product transportation to installation site

A5 – CONSTRUCTION/ INSTALLATION

- Manual assembling of the insulating coat
- Raw material production and transport for installation scraps
- Waste management, transport to disposal site included

B4-REPLACEMENT

- Product replacement after 50 years
- For replacement board impact the module from A1 to A5 is replicated
- Waste management of the replacement board, transport to disposal site included

C2 – WASTE TRANSPORT

- Waste transport by truck, according to the reference PCR

C1 – DECONSTRUCTION/ DEMOLITION

- Fuel consumption for deconstruction/demolition activities according to the reference PCR

C3 – WASTE PROCESSING

- Electricity and fuel consumption for sorting and pre-treatment activities, according to the reference PCR
- Energy recovery of XPS boards: 35%
- Incineration impact

C4 – DISPOSAL

- Diesel consumption for pre-treatment according to the relevant PCR
- Landfilling for XPS boards: 65%

D – BEYOND SYSTEM BOUNDARIES

- The net potential benefit generated by waste incineration considers the avoided production of electricity from the national grid and heat from a domestic boiler.

LCA INFORMATION

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

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
✓	✓	✓	✓	✓	ND	ND	ND	✓	ND	ND	ND	✓	✓	✓	✓	✓
GEOGRAPHY																
EU	EU	IT	EU	EU				EU				EU	EU	EU	EU	EU
PRIMARY DATA USED																
25.62%																
VARIATION – PRODUCTS																
60%/-4%																
VARIATION – SITES																
0%																

✓ = module included in the analysis ND = module not included in the analysis EU = Europe IT = Italy

LCA INFORMATION

ALLOCATION PROCEDURE

The allocation procedure for XPS panel production was performed using a volume-based allocation (m^3) of the process data for the core module across the plant's total annual output. Since the production facility is exclusively dedicated to the manufacture of XPS boards, all collected data refer solely to this activity. The same volume-based approach was also applied to outbound logistics from the plant.

Although four product types are manufactured, their formulations were consolidated into three main recipes. This study focuses on the specific recipe for which detailed consumption data were available for the reference year.

A monetary scaling method was used to estimate the environmental impacts of pre-consumer recycled materials, based on primary data comparing the purchase value of secondary raw materials with that of virgin materials.

LCA
INFORMATION

DATA QUALITY ASSESSMENT

The data quality assessment was carried out based on the PCR 2019:14 v2.0.1 and the EN 15941 standard "Data quality for environmental assessment of products and construction works". The analysis was carried out for all environmental impact indicators, considering all the information used to model the life cycle of the products under study, until reaching 80% coverage of the impacts. The parameters analysed include accuracy, completeness, and the degree of technological, geographical, and temporal coverage of all used datasets.

Data on raw material consumption, processes, and transport to and from the factory come from primary sources,as they were obtained directly from the company. The degrees of geographical, temporal, and technological coverage were evaluated using the assessment table from the EN 15804:2012+A2:2019 standard. In order to globally assess the quality of the data selected for the modelling phase, a numerical score from 1 to 5 was assigned to each dataset evaluation, where 1 represents «very poor» and 5 represents «very good».

By calculating the average score for each evaluation, the mean score obtained for each evaluation parameter was obtained. The evaluation of the three aspects is shown in the table below. Overall, the data quality was assessed as "Good", based on the information collected and the datasets used.In the tables below, in addition to the average score for each coverage criterion, a table is provided listing all processes contributing more than 10% to the GWP-GHG indicator for modules A1-A3, indicating the data source and the share of primary data for the indicator. The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

OVERALL DATA QUALITY

GEOGRAPHICAL REPRESENTATIVENESS SCORE	TECHNOLOGICAL REPRESENTATIVENESS SCORE	TEMPORAL REPRESENTATIVENESS SCORE
4	4	4

PROCESS	SOURCE TYPE	SOURCE	REFERENCE YEAR	DATA CATEGORY	SHARE OF PRIMARY DATA, OF GWP-GHG RESULTS FOR A1-A3
GENERATION OF ELECTRICITY USED IN MANUFACTURING OF PRODUCT	Collected data	EPD Owner	2024	Primary Data	26%

LCA INFORMATION

MODELLING OF INFRASTRUCTURE

Power plants for the generation of electricity and heat, both present in module A3, were included in the LCA model as relevant infrastructures.

DOWNSTREAM STAGES AND MODULE D

C1 DECONSTRUCTION

The demolition process is not directly managed by FI·VE Isolanti; therefore, no primary data is available regarding the material flows required for dismantling the profiles.
As a result, a default value provided by PCR 2019:14 v2.0.1 was used, which indicates a diesel consumption of 0.0011 kWh per kg of dismantled material. The module includes both the production of diesel and the direct emissions resulting from its combustion.

C2 WASTE TRANSPORT

Module C2 includes the transportation of waste to treatment facilities. Since this phase is outside FI-VE's direct control, both the transport distances and the transport modes were defined according to PCR 2019:14 v2.0.1, which specifies a default distance of 80 km for waste sent to landfill or recycling and 130 km for waste sent to incineration with energy recovery. The life cycle inventory for transport is based on the dataset Transport, freight, lorry 16–32 metric ton, EURO5 {RER}.

C3 WASTE TREATMENT

A representative end-of-life scenario was derived from PEF Guidance (Annex C, 2020). The standard specifies that no shares of the product undergoes recycling, while the remaining portion is divided between landfill and energy recovery, in line with the Eurostat scenario for municipal waste. According to PCR 2019:14, default energy consumption values are assigned to the sorting phase: 0.0026 kWh/kg of diesel and 0.0022 kWh/kg of electricity. Of the total product 35% wt goes to incineration with energy recovery, generating thermal and electrical energy. The impact of the incineration process falls within the system boundary of this study.

C4 DISPOSAL

As a result, 65% of the product mass is destined for disposal, assumed to occur in landfill.
The environmental impacts of these treatments are fully allocated to the system under study.

D BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY

The additional Module D enables the assessment of potential benefits resulting from energy recovery operations carried out at the product's end of life, as described in Module C3. These potential benefits are evaluated by comparing the end-of-life treatments with the processes they replace. Energy generated through waste incineration provides an alternative to conventional fossil fuel combustion in power or combined heat and power (CHP) plants. By knowing the polymer feedstock energy and the quantity of polymer (kg/m2), it is possible to evaluate the energy produced per square meter of product.

The relevant values are derived from the dataset Waste polystyrene {GLO} | treatment of waste polystyrene, municipal incineration | Cut-off, U from Ecoinvent 3.11, which considers efficiency factors of 5.05 MJ/kg for electricity production and 9.73 MJ/kg for thermal energy. To calculate the associated impacts, these results are linked to electricity and heat production datasets from Ecoinvent 3.11 .

ENVIRONMENTAL IMPACT ASSESSMENT

The environmental impact was assessed using a dedicated method developed by LCE, in accordance with the EN 15804 standard and third-party verified. The method is based on EF 3.1 package.

LCA INFORMATION

CUT-OFF RULES

All available primary data were incorporated into the model. Where primary data were not available, suitable secondary data were used to ensure the inclusion of all relevant flows, in accordance with the cut-off criteria defined by EN 15804. This approach guarantees that at least 99% of total mass and energy inflows per unit process, and 95% per life-cycle stage (A1–A3, A4–A5, C1–C4, aggregated modules B1–B5 and B6–B7, and Module D), are covered. No data were excluded to conceal information, and proxy data were applied where necessary to achieve 100% completeness of the life cycle inventory.

ENVIRONMENTAL PERFORMANCE

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.
The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

MANDATORY IMPACT CATEGORY INDICATORS ACCORDING TO EN 15804

IMPACT CATEGORY	UNIT	A1-A3	A4	A5	B4	C1	C2	C3	C4	D
GWP,t	kg CO_2 eq	5.40E+00	1.64E-01	2.36E-01	8.37E+00	7.15E-04	3.22E-02	2.37E+00	1.65E-01	-1.28E+00
GWP,f	kg CO_2 eq	5.40E+00	1.64E-01	2.36E-01	8.37E+00	7.15E-04	3.22E-02	2.37E+00	1.65E-01	-1.28E+00
GWP,b	kg CO_2 eq	1.57E-03	5.18E-06	4.08E-05	1.67E-03	3.25E-08	1.01E-06	1.14E-05	3.63E-05	-2.49E-04
GWP,luluc	kg CO_2 eq	1.10E-03	2.60E-06	2.24E-05	1.14E-03	2.94E-08	5.09E-07	3.13E-06	6.58E-06	-6.92E-05
GWP - GHG	kg CO_2 eq	5.40E+00	1.64E-01	2.36E-01	8.37E+00	7.15E-04	3.22E-02	2.37E+00	1.65E-01	-1.28E+00
AP	mol H+ eq	1.37E-06	3.74E-09	2.75E-08	1.40E-06	1.09E-11	7.31E-10	3.02E-10	3.77E-10	-4.07E-08
EPf	kg P eq	2.03E-02	6.53E-04	4.39E-04	2.18E-02	6.60E-06	8.31E-05	2.82E-04	9.86E-05	-2.45E-03
EPm	kg N eq	1.14E-04	1.02E-07	2.29E-06	1.16E-04	6.73E-10	1.99E-08	1.71E-07	1.46E-07	-2.60E-05
EPt	mol N eq	5.42E-03	2.82E-04	1.24E-04	6.05E-03	3.11E-06	3.17E-05	1.38E-04	5.28E-05	-5.53E-04
POCP	kg NMVOC eq	4.34E-02	3.08E-03	1.03E-03	4.98E-02	3.41E-05	3.46E-04	1.48E-03	4.15E-04	-6.10E-03
ODP	kg CFC11 eq	8.08E-02	1.03E-03	1.67E-03	8.42E-02	1.02E-05	1.38E-04	3.62E-04	1.85E-04	-2.55E-03
ADPe*	kg Sb eq	3.36E-06	4.30E-09	6.78E-08	3.44E-06	2.51E-11	8.39E-10	8.06E-09	2.85E-09	-9.89E-09
ADPf*	MJ	1.26E+02	2.19E+00	2.60E+00	1.32E+02	9.35E-03	4.28E-01	1.93E-01	3.25E-01	-1.96E+01
WDP*	m^3 depriv.	5.43E-01	7.16E-04	5.73E-03	3.45E-01	6.99E-06	1.40E-04	1.10E-02	-2.16E-01	-3.53E-02

**The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.*

GWP, t Global Warming Potential - total

GWP,f Global Warming Potential - fossil

GWP,b Global Warming Potential - biogenic

GWP,luluc Global Warming Potential – land use and land use change

GWP,GHG Global Warming Potential - irreversible

ODP Ozone Depletion

AP Acidification

EPf Eutrophication - freshwater

EPm Eutrophication - marine

EPt Eutrophication - terrestrial

POCP Photochemical Ozone Creation Potential

ADPe Abiotic Depletion Potential - non-fossil

ADPf Abiotic Depletion Potential - fossil

WDP Water Deprivation Potential

ENVIRONMENTAL PERFORMANCE

RESOURCE USE INDICATORS ACCORDING TO EN 15804

IMPACT CATEGORY	UNIT	A1-A3	A4	A5	B4	C1	C2	C3	C4	D
PERE	MJ	9.21E+00	5.45E-03	1.75E-01	9.43E+00	2.05E-05	1.04E-03	2.62E-03	2.84E-03	-2.26E-01
PERM	MJ	3.68E-03	0.00E+00	-3.47E-03	2.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	9.22E+00	5.45E-03	1.72E-01	9.43E+00	2.05E-05	1.04E-03	2.62E-03	2.84E-03	-2.26E-01
PENRE	MJ	2.88E+01	2.19E+00	3.76E+00	4.66E+01	9.35E-03	4.28E-01	1.12E+01	3.25E-01	-1.96E+01
PENRM	MJ	9.70E+01	0.00E+00	-1.17E+00	8.49E+01	0.00E+00	0.00E+00	-1.10E+01	0.00E+00	0.00E+00
PENRT	MJ	1.26E+02	2.19E+00	2.60E+00	1.32E+02	9.35E-03	4.28E-01	1.93E-01	3.25E-01	-1.96E+01
SM	kg	1.87E+00	0.00E+00	3.74E-02	1.91E+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
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
FW	m^3	1.50E-02	4.24E-05	1.87E-04	1.06E-02	2.81E-07	8.27E-06	3.65E-04	-5.02E-03	-1.57E-03

Method B reported in Annex 3 of the PCR is adopted for calculation of energy use indicators.

PERE Renewable Primary Energy excluding Primary Energy used as raw material

PERM Renewable Primary Energy used as raw material

PERT Total use of Renewable Primary Energy

PENRE Non-renewable Primary Energy excluding Primary Energy used as raw material

PENRM Non-renewable Primary Energy used as raw material

PENRT Total use of Non-renewable Primary Energy

SM Use of secondary raw materials

ENVIRONMENTAL PERFORMANCE

WASTE AND OUTPUT FLOWS INDICATORS ACCORDING TO EN 15804

IMPACT CATEGORY	UNIT	A1-A3	A4	A5	B4	C1	C2	C3	C4	D
HWD	kg	6.83E-02	3.91E-05	2.12E-03	8.39E-02	5.31E-07	7.64E-06	1.33E-02	1.42E-04	-4.83E-03
NHWD	kg	6.26E-01	3.14E-03	1.82E-01	6.49E+00	9.18E-06	6.13E-04	7.66E-01	4.92E+00	-6.81E-02
RWD	kg	6.35E-04	1.32E-07	1.27E-05	6.48E-04	4.36E-10	2.58E-08	4.91E-08	6.72E-08	-1.39E-05
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
MFR	kg	4.74E-02	0.00E+00	1.93E-02	6.67E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	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
EE	MJ	0.00E+00	0.00E+00	5.57E-01	1.15E+01	0.00E+00	0.00E+00	1.10E+01	0.00E+00	0.00E+00

HWD Hazardous Waste Disposed

NHWD Non-Hazardous Waste Disposed

RWD Radioactive Waste Disposed

CRU Components For Re-Use

MFR Material For Recycling

MER Materials For Energy Recovery

EE Exported Energy

ENVIRONMENTAL PERFORMANCE

RESULTS VARIATION WITH PRODUCT

ENVIRONMENTAL IMPACT

The following table also presents the variations in the main environmental impact categories across the analysed products, compared to the average result, within module A1-A3, as specified by the reference standard. The variation greater than 10% is justified by the unbalanced production volumes, with lower densities accounting for approximately 90% of the annual output compared to the other product types. This difference is primarily due to variations in density, which directly affect raw material consumption and production impacts.

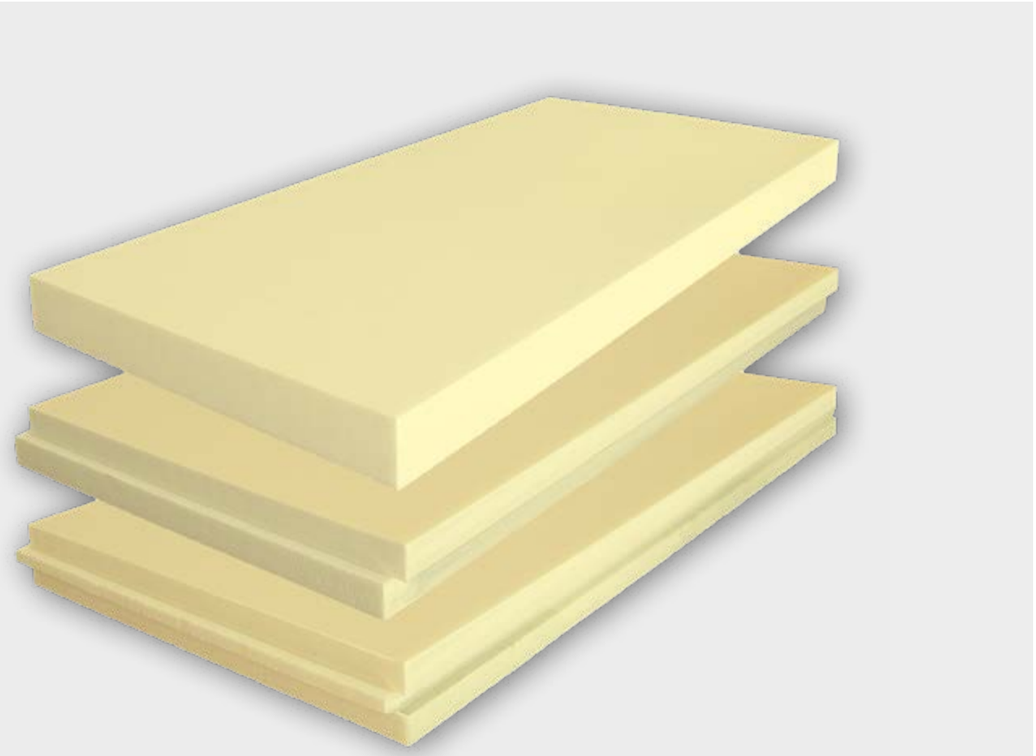
	AVERAGE	STYSOL	STYSOL G	STYSOL HD	STYSOL HD 700
AVERAGE THICKNESS DECLARED [mm]	66.7	67.0	55.6	74.0	81.0
Climate change-Total	0%	-2%	-19%	26%	56%
Climate change-Fossil	0%	-2%	-19%	26%	56%
Climate change-Biogenic	0%	-2%	-18%	25%	54%
Climate change-LU&LU change	0%	-2%	-19%	29%	64%
Climate change - GWP GHG	0%	-2%	-19%	26%	56%
Ozone depletion ODP	0%	-3%	-19%	33%	71%
Acidification	0%	-2%	-19%	27%	60%
Eutrophication, freshwater	0%	-1%	-18%	22%	48%
Eutrophication, marine	0%	-2%	-19%	26%	60%
Eutrophication, terrestrial	0%	-2%	-19%	26%	58%
Photochemical ozone formation	0%	-2%	-19%	28%	69%
ADP for minerals and metals	0%	-1%	-18%	23%	48%
ADP for fossil resources	0%	-2%	-19%	29%	62%
Water use	0%	-2%	-19%	28%	61%

ENVIRONMENTAL PERFORMANCE

RESULTS VARIATION WITH THICKNESS

Given the variety of available thicknesses, it is possible to convert the impact of an XPS insulating board from one thickness to another using the following formula:

$$\textbf{IMPACT}\ \text{thickness (target)} = \frac{\textbf{IMPACT}\ \text{Average thickness declared} \times \textbf{THICKNESS}\ \text{(target)}}{\text{Average thickness declared}}$$



ENVIRONMENTAL PERFORMANCE

RESULTS VARIATION WITH DIFFERENT END-OF-LIFE SCENARIOS

ENVIRONMENTAL IMPACT

100% LANDFILL	A1-A3	A4	A5	B4	C1	C2	C3	C4	D
Climate change-Total	4.96E+00	1.51E-01	1.75E-01	5.55E+00	6.58E-04	2.36E-02	0.00E+00	2.35E-01	0.00E+00
Climate change-Fossil	4.96E+00	1.51E-01	1.75E-01	5.54E+00	6.58E-04	2.36E-02	0.00E+00	2.35E-01	0.00E+00
Climate change-Biogenic standard	1.45E-03	4.76E-06	3.76E-05	1.54E-03	2.99E-08	7.43E-07	0.00E+00	5.16E-05	0.00E+00
Climate change-LU&LU change	1.01E-03	2.39E-06	2.06E-05	1.04E-03	2.71E-08	3.73E-07	0.00E+00	9.36E-06	0.00E+00
Climate change - GWP GHG	4.96E+00	1.51E-01	1.75E-01	5.55E+00	6.58E-04	2.36E-02	0.00E+00	2.35E-01	0.00E+00
Ozone depletion ODP	1.25E-06	3.44E-09	2.52E-08	1.28E-06	1.00E-11	5.37E-10	0.00E+00	5.40E-10	0.00E+00
Acidification	1.86E-02	5.99E-04	3.99E-04	1.98E-02	6.07E-06	6.10E-05	0.00E+00	1.41E-04	0.00E+00
Eutrophication, freshwater	1.04E-04	9.35E-08	2.09E-06	1.07E-04	6.19E-10	1.46E-08	0.00E+00	2.12E-07	0.00E+00
Eutrophication, marine	4.97E-03	2.59E-04	1.11E-04	5.45E-03	2.87E-06	2.33E-05	0.00E+00	7.52E-05	0.00E+00
Eutrophication, terrestrial	3.98E-02	2.83E-03	9.23E-04	4.45E-02	3.14E-05	2.54E-04	0.00E+00	5.91E-04	0.00E+00
Photochemical ozone formation	7.42E-02	9.48E-04	1.53E-03	7.71E-02	9.37E-06	1.01E-04	0.00E+00	2.63E-04	0.00E+00
ADP for minerals and metals	3.08E-06	3.95E-09	6.21E-08	3.15E-06	2.30E-11	6.16E-10	0.00E+00	4.06E-09	0.00E+00
ADP for fossil resources	1.16E+02	2.01E+00	2.38E+00	1.21E+02	8.60E-03	3.14E-01	0.00E+00	4.65E-01	0.00E+00
Water use	4.99E-01	6.58E-04	2.88E-03	1.96E-01	6.43E-06	1.03E-04	0.00E+00	-3.07E-01	0.00E+00

ENVIRONMENTAL PERFORMANCE

RESULTS VARIATION WITH DIFFERENT END-OF-LIFE SCENARIOS

ENVIRONMENTAL IMPACT

100% INCINERATION WITH ENERGY RECOVERY	A1-A3	A4	A5	B4	C1	C2	C3	C4	D
Climate change-Total	4.96E+00	1.51E-01	2.93E-01	1.16E+01	6.58E-04	3.89E-02	6.14E+00	0.00E+00	-3.31E+00
Climate change-Fossil	4.96E+00	1.51E-01	2.93E-01	1.16E+01	6.58E-04	3.89E-02	6.14E+00	0.00E+00	-3.31E+00
Climate change-Biogenic standard	1.45E-03	4.76E-06	3.71E-05	1.52E-03	2.99E-08	1.22E-06	2.99E-05	0.00E+00	-6.45E-04
Climate change-LU&LU change	1.01E-03	2.39E-06	2.06E-05	1.04E-03	2.71E-08	6.14E-07	8.18E-06	0.00E+00	-1.79E-04
Climate change - GWP GHG	4.96E+00	1.51E-01	2.93E-01	1.16E+01	6.58E-04	3.89E-02	6.14E+00	0.00E+00	-3.31E+00
Ozone depletion ODP	1.25E-06	3.44E-09	2.52E-08	1.29E-06	1.00E-11	8.83E-10	8.16E-10	0.00E+00	-1.05E-07
Acidification	1.86E-02	5.99E-04	4.12E-04	2.05E-02	6.07E-06	1.00E-04	7.32E-04	0.00E+00	-6.35E-03
Eutrophication, freshwater	1.04E-04	9.35E-08	2.10E-06	1.07E-04	6.19E-10	2.40E-08	5.06E-07	0.00E+00	-6.73E-05
Eutrophication, marine	4.97E-03	2.59E-04	1.17E-04	5.75E-03	2.87E-06	3.82E-05	3.57E-04	0.00E+00	-1.43E-03
Eutrophication, terrestrial	3.98E-02	2.83E-03	9.91E-04	4.79E-02	3.14E-05	4.18E-04	3.82E-03	0.00E+00	-1.58E-02
Photochemical ozone formation	7.42E-02	9.48E-04	1.54E-03	7.78E-02	9.37E-06	1.66E-04	9.39E-04	0.00E+00	-6.61E-03
ADP for minerals and metals	3.08E-06	3.95E-09	6.25E-08	3.17E-06	2.30E-11	1.01E-09	2.09E-08	0.00E+00	-2.56E-08
ADP for fossil resources	1.16E+02	2.01E+00	2.39E+00	1.21E+02	8.60E-03	5.16E-01	5.24E-01	0.00E+00	-5.09E+01
Water use	4.99E-01	6.58E-04	9.59E-03	5.38E-01	6.43E-06	1.69E-04	2.85E-02	0.00E+00	-9.14E-02

ABBREVIATIONS

STAGES / MODULES	
A1	Raw material supply
A2	Transport
A3	Manufacturing
A4	Transport to site
A5	Construction/Installation
B1	Use
B2	Maintenance
B3	Repair
B4	Replacement
B5	Refurbishment
B6	Operational energy use
B7	Operational water use
C1	Deconstruction/Demolition
C2	Transport to waste processing
C3	Waste processing
C4	Disposal
D	Reuse-Recovery-Recycling potential

OTHER RELEVANT TERMS	
SVHC	Substances of Very High Concern
EC No.	European Community Number
CAS No.	Chemical Abstracts Service Number
MJ	Megajoule
kg	Kilogram
m^3	Cubic Meter
NMVOC	Non-Methane Volatile Organic Compounds
Sb eq.	Antimony Equivalents
P eq.	Phosphorus Equivalents
N eq.	Nitrogen Equivalents
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO_2 eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO_2eq.	Kilograms of Carbon Dioxide Equivalent

REFERENCES

- General Programme Instructions of the International EPD® System. Version 5.0.1.
- Product Category Rules PCR 2019:14 Construction products, version 2.0.1. Published on 2025.04.07 valid until: 2030.04.07, based on the European standard UNI-EN 15804:2012+A2:2020.
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- UNI-EN ISO 14044:2006 – Environmental management – Life Cycle Assessment – Requirements.
- UNI-EN ISO 14025:2006- Labels and environmental declarations.
- EN 15804:2012+A2: Sustainability in construction. Product environmental statements. Commodity category rules for construction products.
- UNI-EN 16783:2004 - Thermal insulation products – Environmental Product Declarations (EPD) – Product Category Rules (PCR) complementary to EN 15804 for factory made and in-situ formed products
- Life Cycle Assessment applied to XPS thermal insulation panels, FI·VE Isolanti S.r.l., 2025
- UNI EN 15941:2024 «Construction Sustainability – Data Quality for the Environmental Assessment of Products and Construction Works – Data Selection and Use"

VERSION HYSTORY

- Version 1, xx/xx/2025 - Original version of the EPD

FI·VE

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