ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2, ISO 14025 AND EN 16783:2024

Austrotherm XPS TOP 50 SF
Austrotherm XPS TOP 50 TB SF

Austrotherm Österreich GmbH

EPD HUB, HUB-6942
Publication date 10 July 2026, Last updated 13 July 2026,
Expiry date 9 July 2031

A life cycle assessment was carried out in accordance with the requirements of EN 15804, EPD Hub PCR Version 1.2 (24 March 2025) and JRC characterisation factors EF 3.1

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Austrotherm Österreich GmbH
Address	Peter Schmid-Gasse 1, 7423 Pinkafeld Austria
Contact details	info@austrotherm.at
Website	www.austrotherm.at

EPD STANDARDS, SCOPE AND VERIFICATION

Programme owner	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 March 2025 EN 16783 Thermal insulation materials
Sector	Construction product
Type of EPD	Related EPDs
Number of the parent EPD	HUB-5748
Scope of the EPD	Cradle to gate with options, A4–A5, and modules C1–C4, D
EPD author	Joachim Zala, Austrotherm Österreich GmbH
EPD verification	Independent verification of this EPD and the data in accordance with ISO 14025: ☐Internal verification☑ External verification
EPD verifier	Haiha Nguyen, an authorised verifier for EPD Hub

This EPD is intended for communication between businesses and/or between businesses and consumers. The manufacturer is solely responsible for the EPD. EPDs for the same product category are not always comparable, particularly if they originate from different schemes or are not assessed in a building context in accordance with EN 15804.

PRODUCT

Product name	Austrotherm XPS TOP 50 SF
Additional designations	Austrotherm XPS TOP 50 TB SF
Place(s) of origin of the raw material	Europe
Place of manufacture	7083 Purbach – Austria
Installation and use location	Europe
Data collection period	January 2024 – December 2024
Averaging in the EPD	No grouping
Deviation in GWP-Fossil A1–A3 (%)	0
GTIN (Global Trade Item Number)	-
A1–A3 specific data (%)	96.9

ENVIRONMENTAL DATA: AT A GLANCE

Declared unit	1 m² XPS TOP 50 SF | XPS TOP 50 TB SF with a thickness of 100 mm and a density of 33 kg/m³
Mass per declared unit	3.3 kg
Packaging mass	0.036 kg
GWP-Fossil, A1–A3 (kg CO_2 eq)	9.43
Total GWP, A1–A3 (kg CO_2 eq)	9.43
Secondary materials, inputs (%)	0.02
Total energy consumption, A1–A3 (kWh)	8.71
Net fresh water consumption, A1–A3 (m³)	0.03

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Austrotherm is an Austrian family-run business and one of Europe's leading manufacturers of insulation materials. The company has over 70 years' experience in the production of insulation materials.
With production sites in Austria and several countries in Central and Eastern Europe, Austrotherm pursues a consistent sustainability strategy. This includes investment in energy-efficient production processes, the use of blowing agents with low global warming potential, and the implementation of recycling and circular economy projects on an industrial scale.
Austrotherm products make a significant contribution to reducing CO_2 emissions in the building sector and provide substantial support for the achievement of national and European climate targets.

PRODUCT DESCRIPTION

Austrotherm XPS® TOP 50 SF and XPS® TOP 50 TB SF insulation boards, compliant with EN 13164, are high-quality, compressive-strength thermal insulation boards made from extruded polystyrene rigid foam (XPS) with a bulk density of 33 kg/m³.

The boards are manufactured as monolithic units in thicknesses ranging from 40 to 160 mm, or using the thermobonding (TB) process in thicknesses ranging from 180 to 400 mm. The TB boards consist of several thin XPS boards that are permanently 'bonded' together using a thermal process. This allows for the production of boards with greater thicknesses.

The insulation boards offer excellent thermal insulation, high compressive strength and virtually complete water resistance. They are ideally suited to applications subject to high mechanical and moisture-related stresses, such as beneath load-bearing foundation slabs, in perimeter areas and on flat roofs.

Features:
Austrotherm XPS® TOP 50 SF (40 – 160 mm)
Smooth surface and all-round stepped rebate (SF)

Austrotherm XPS® TOP 50 TB SF (180 – 400 mm)
Smooth surface and all-round stepped joint (SF).
Manufactured using the thermobonding process (TB).

Further information can be found at:
www.austrotherm.at

MAIN COMPONENT OF THE PRODUCT RAW MATERIAL

Raw material category	Quantity, mass %	Origin
Metals	-	-
Minerals	-	-
Fossilised materials	100	EU
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Biogenic carbon content in the product at the factory gate

Biogenic carbon content in the product, kg C	0
Biogenic carbon content in the packaging, kg C	0

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m² XPS TOP 50 SF | XPS TOP 50 TB SF with a thickness of 100 mm and a density of 33 kg/m³
Mass per declared unit	3.3 kg
Functional unit	-
Reference service life	50 years

SUBSTANCES OF VERY HIGH CONCERN UNDER REACH

The product does not contain any REACH SVHC substances in concentrations exceeding 0.1% (1000 ppm).

PRODUCT LIFE CYCLE

SYSTEM BOUNDARY

This EPD relates to the life cycle modules listed in the table below.

Production stage			Construction stage		Use stage							Disposal stage				Outside the system boundary		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	x	x	ND	ND	ND	N/A	N/A	N/A	N/A	x	x	x	x	x		
Raw material supply	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Renewal	Operational energy consumption	Operational water consumption	Dismantling/demolition	Transport	Waste treatment	Disposal	Reuse	Recovery	Recycling

Undeclared = ND

PRODUCTION AND PACKAGING (A1–A3)

The relevant environmental impacts at the production stage relate to the manufacture of raw materials, packaging materials and other auxiliary materials. The fuels consumed by machinery and the management of waste generated during production processes at the plants are also taken into account in this phase. The study also considers material losses during manufacturing processes as well as losses during electricity transmission.

A market-based approach is used to model the electricity mix used in the factory.

The manufacture of XPS insulation boards begins with the procurement of raw materials (Module A1). The main component is polystyrene, which is processed together with blowing agents, flame retardants and other auxiliary materials. The energy required for production comes from an electricity mix comprising both renewable energy sources, such as wind and hydro power, and fossil fuels. Polyethylene film (PE film) is used as packaging material for the end product. Compliance with all legal obligations under the Austrian Packaging Ordinance is ensured through a licensing partnership with ARA (Altstoff Recycling Austria).

Module A2 takes into account the transport of raw materials to the production site. This is predominantly carried out by lorry. To calculate the environmental impacts, a typical European lorry model with average load capacity and return journeys without a load is used. The average transport distance of the raw materials used to the production site is approximately 470 km.

Module A3 covers the actual manufacturing process. The polystyrene is first melted and homogenised with the additives during a mixing phase. As it exits the flat-slot die, the mixture is extruded through the evaporation of the blowing agent. This creates a closed-cell structure, which is responsible for the material's high thermal insulation performance, compressive strength and water resistance.

After cooling, the panels are initially cut to oversize. The product-related waste generated during this process, as well as that from the subsequent milling process to ensure dimensional accuracy, is fully recycled back into the melting process. Consequently, no production-related waste is generated.

Finally, the panels are packaged and temporarily stored in the open-air warehouse.

TRANSPORT AND INSTALLATION (A4–A5)

The environmental impacts of transporting the finished products from the manufacturer to the construction site (A4) include direct exhaust emissions from fuel combustion, the environmental impacts of fuel production, and the associated infrastructure emissions.

For the transport of XPS insulation boards from the production site to the distributor or the construction site, a sales-weighted average transport distance of 285 km is used as a basis. This distance takes into account both domestic and international deliveries. The products are properly packaged, meaning that no significant losses occur during transport. Weight losses due to the release of residual blowing agents in the product are also not relevant during transport.

When installing the XPS boards on site, a wastage rate of 3 per cent is assumed. As part of a free recycling service, this waste can be collected and returned to the production process for new XPS boards. The average transport distance for the return of the waste material is between 50 and 250 km.

For end-of-life disposal, a conservative assumption of 100% landfill disposal has been made, as this represents the most unfavourable realistic scenario and thus provides a robust basis for the environmental assessment.

PRODUCT USE AND MAINTENANCE (B1–B7)

This EPD does not take the use phase into account, as it is assumed that the panels will remain in situ throughout their entire service life. Impacts on air, soil and water during the use phase have not been investigated. Impacts on air, soil and water during the use phase have not been investigated.

END OF PRODUCT LIFE (C1–C4, D)

The dismantling of XPS insulation boards at the end of their service life is usually carried out manually or mechanically. The consumption of energy and natural resources during the demolition process is considered negligible (Module C1).

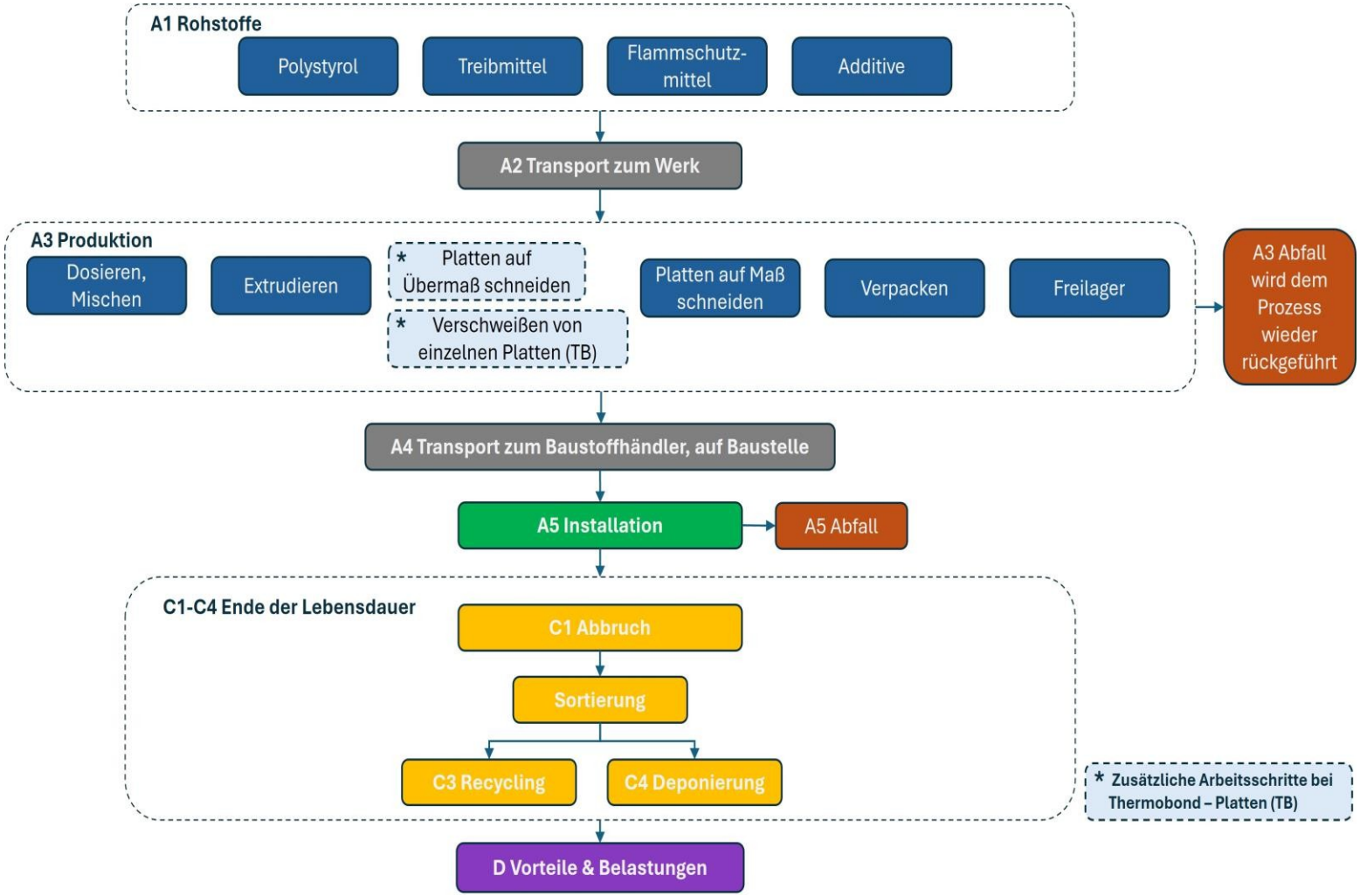
A transport distance of 50 to 250 km is assumed for transport to the disposal site (Module C2). Transport is typically by lorry.

Module C3 takes into account that the blowing agent contained in the product is completely emitted during its service life. No further relevant emissions or end-of-life pre-treatment processes take place.

The end-of-life scenario (Module C4) is based on available statistics for polystyrene insulation materials (Plastics Europe, 2020):
- 9% recycling
- 59% thermal recovery (incineration)
- 32% landfill

The potential environmental benefits arising from material recovery (recycling) and thermal recovery (energy recovery) are accounted for in Module D. These processes enable the substitution of primary raw materials and the recovery of energy, thereby reducing environmental impacts outside the system boundaries.

MANUFACTURING PROCESS AND SYSTEM BOUNDARIES



LIFE CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes specified as mandatory in the reference standard and the applicable PCRs. The study does not exclude any hazardous substances or materials. The study takes into account all significant raw material and energy consumption. All inputs and outputs of the unit processes for which data are available are included in the calculation. There is no unit process that accounts for more than 1 per cent of the total mass or energy flows and is not taken into account. The module-specific sum of the input and output flows not taken into account also does not exceed 5 per cent of energy consumption or mass.

Excluded are the production of capital goods, construction activities and infrastructure, the maintenance and operation of capital goods, personnel-related activities, and energy and water consumption associated with corporate management and sales activities.

VALIDATION OF DATA

Data collection for production, transport and packaging was carried out using time- and location-specific information, as defined in the 'General Information' section on pages 1 and 2. The calculations for upstream processes are based on generic data, as defined in the 'Bibliography' section. Manufacturer-specific and generic data were used for the product's manufacturing phase. The analysis was carried out in the One Click LCA EPD Generator using the 'Cut-Off, EN 15804+A2' allocation method and characterisation factors in accordance with EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required when certain material, energy and waste data for the product under investigation cannot be measured separately. All allocations are carried out in accordance with the reference standards and the applicable PCR. In this study, allocation was carried out as follows:

Data type	Allocation
Raw materials	No allocation
Packaging materials	No allocation
Auxiliary materials	No allocation
Energy and waste during manufacture	Allocation by mass or volume

GROUPING OF PRODUCTS AND PRODUCTION SITES

Type of grouping	No grouping
Grouping method	Not applicable
Deviation in GWP-Fossil for A1–A3, %	0

This EPD is product- and plant-specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD was created using the One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5.

The LCA and the EPD were prepared in accordance with the reference standards and ISO 14040/14044. Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases were used as sources for environmental data. The allocation used in the environmental data sources of Ecoinvent 3.10.1/3.11/3.12 follows the 'Allocation, Cut-off, EN 15804+A2' methodology.

A5 scenario: EUROSTAT. Module C-D scenario: Plastics Europe (2020)

RESULTS OF THE LIFE CYCLE ASSESSMENT

The estimated impact results are merely relative statements that do not contain any information on endpoints of the impact categories, exceedances of limit values, safety margins or risks.

KEY INDICATORS FOR ENVIRONMENTAL IMPACTS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1–A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Total GWP[1)]	kg CO_2 eq.	7.72E+00	2.82E-01	1.43E+00	9.43E+00	9.81E-02	3.43E-01	ND	ND	N/A	ND	ND	ND	ND	0.00E+00	5.43E-02	6.05E+00	1.26E-01	-1.79E+00
GWP – fossil	kg CO_2 eq.	7.72E+00	2.82E-01	1.43E+00	9.43E+00	9.86E-02	3.43E-01	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	5.43E-02	6.05E+00	1.26E-01	-1.79E+00
GWP – biogenic	kg CO_2 eq.	2.63E-04	1.63E-04	2.58E-04	6.83E-04	2.33E-05	-7.82E-06	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	1.16E-05	-7.34E-05	-6.46E-05	2.77E-03
GWP – LULUC	kg CO_2 eq.	9.30E-05	1.05E-04	2.47E-04	4.46E-04	4.60E-05	1.73E-05	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	2.20E-05	4.46E-05	7.62E-06	-4.57E-03
Ozone depletion potential ozone layer	kg CFC11-eq.	4.47E-09	6.35E-09	8.70E-08	9.78E-08	1.59E-09	3.04E-09	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	9.24E-10	9.81E-10	2.97E-10	-1.98E-08
Acidification potential	mol H+-eq.	1.34E-02	6.88E-04	1.73E-03	1.58E-02	2.51E-04	5.02E-04	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	1.78E-04	8.20E-04	8.27E-05	-8.67E-03
EP freshwater [2)]	kg P-eq.	4.22E-05	2.06E-05	1.01E-04	1.64E-04	7.92E-06	5.63E-06	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	3.95E-06	1.33E-05	1.23E-06	-2.87E-04
EP salt water	kg N-eq.	3.57E-03	1.82E-04	5.29E-04	4.28E-03	6.37E-05	2.06E-04	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	5.93E-05	4.33E-04	7.05E-04	-1.26E-03
EP country	mol N-eq.	3.87E-02	1.97E-03	5.54E-03	4.62E-02	6.90E-04	1.49E-03	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	6.45E-04	4.02E-03	3.36E-04	-1.36E-02
POCP ('smog')[3)]	kg NMVOC-eq.	1.53E-02	1.15E-03	3.17E-03	1.96E-02	3.80E-04	6.30E-04	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	2.70E-04	1.01E-03	1.46E-04	-5.69E-03
ADP minerals & metals[4)]	kg Sb-eq.	1.82E-06	8.38E-07	2.05E-06	4.71E-06	2.85E-07	1.65E-07	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	1.63E-07	3.31E-07	2.59E-08	-1.00E-06
ADP fossil resources	MJ	2.35E+02	4.27E+00	2.21E+01	2.61E+02	1.48E+00	7.94E+00	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	7.77E-01	7.22E-01	2.55E-01	-4.02E+01
Water consumption[5)]	m^3 e	4.94E-01	2.47E-02	1.66E-01	6.85E-01	7.32E-03	2.22E-02	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	3.83E-03	1.28E-01	1.27E-03	-1.10E+00

1) GWP = Global Warming Potential 2) EP = Eutrophication Potential. The required characterisation method and data are given in kg P-eq. Multiply by 3.07 to obtain PO4e; 3) POCP = Potential for tropospheric ozone formation; 4) ADP = Potential for abiotic resource scarcity; 5) EN 15804+A2 Disclaimer regarding abiotic scarcity and water consumption, and optional indicators other than particulate matter and ionising radiation, human health. The results of these impact indicators should be used with caution, as they are subject to significant uncertainties or there is only limited experience with the indicator.

ADDITIONAL (OPTIONAL) INDICATORS FOR ENVIRONMENTAL IMPACTS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1–A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1.21E-07	2.79E-08	1.12E-08	1.60E-07	9.69E-09	5.45E-09	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	4.92E-09	4.95E-09	1.85E-09	-9.16E-08
Ionising radiation[6)]	kBq U235-eq.	8.23E-02	4.77E-03	1.73E-02	1.04E-01	1.29E-03	3.27E-03	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	8.12E-04	1.94E-03	2.60E-04	-5.79E-01
Ecotoxicity (freshwater)	CTU equivalent	1.49E+02	3.57E+00	9.62E+00	1.62E+02	2.09E-01	4.91E+00	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	1.06E-01	3.09E+01	3.78E-01	-1.63E+00
Human toxicity, cancer	CTUh	2.48E-09	4.69E-11	1.41E-10	2.67E-09	1.65E-11	8.35E-11	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	9.09E-12	3.82E-10	6.53E-12	-2.13E-10
Human toxicity, non-Cancer	CTUh	4.45E-08	2.75E-09	3.10E-09	5.04E-08	9.56E-10	1.73E-09	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	4.96E-10	1.52E-08	1.03E-09	-7.13E-09
SQP[7)]	-	2.39E+00	4.29E+00	1.45E+00	8.13E+00	1.49E+00	3.76E-01	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	6.44E-01	4.34E-01	5.93E-01	-7.15E+00

6) EN 15804+A2 Exclusion of liability for ionising radiation, human health. *This impact category relates primarily to the potential effects of low doses of ionising radiation on human health in connection with the nuclear fuel cycle. The effects of potential nuclear accidents, occupational exposure or the disposal of radioactive waste in underground facilities are not taken into account here. Potential ionising radiation from the ground, from radon and from certain building materials is also not measured by this indicator. 7) SQP = Land-use-related impacts/soil quality.*

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
Renewable PE as energy [8)]	MJ	2.38E+00	6.58E-02	1.02E+00	3.46E+00	2.03E-02	1.06E-01	ND	ND	ND	ND	ND	N/A	N/A	0.00E+00	1.18E-02	3.42E-02	4.08E-03	-4.50E+00
Renewable PE as a material	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	N/A	N/A	N/A	N/A	N/A	N/A	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total consumption Renewable PE	MJ	2.38E+00	6.58E-02	1.02E+00	3.46E+00	2.03E-02	1.06E-01	ND	ND	ND	ND	N/A	N/A	N/A	0.00E+00	1.18E-02	3.42E-02	4.08E-03	-4.50E+00
Non-renewable PE as energy	MJ	3.11E+00	4.27E+00	2.05E+01	2.79E+01	1.48E+00	-4.33E+00	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	7.77E-01	-7.24E+01	-3.94E+01	-4.13E+01
Non-renewable PE as material	MJ	1.29E+02	0.00E+00	1.53E+00	1.30E+02	0.00E+00	-1.53E+00	N/A	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	0.00E+00	-8.75E+01	-4.12E+01	1.28E+01
Total consumption of non-renewable PE	MJ	1.32E+02	4.27E+00	2.21E+01	1.58E+02	1.48E+00	-5.86E+00	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	7.77E-01	-1.60E+02	-8.06E+01	-2.84E+01
Secondary materials	kg	7.09E-04	1.80E-03	4.18E-03	6.70E-03	6.31E-04	2.88E-04	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	3.41E-04	1.69E-03	9.22E-05	3.18E-01
Renewable secondary Fuels	MJ	7.37E-06	2.38E-05	1.29E-03	1.32E-03	8.03E-06	4.05E-05	ND	ND	ND	ND	N/A	N/A	N/A	0.00E+00	4.33E-06	1.32E-05	1.73E-06	4.16E-07
Non-renewable secondary fuels	MJ	2.87E-27	0.00E+00	0.00E+00	2.87E-27	0.00E+00	8.60E-29	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Freshwater consumption net	m^3	2.19E-02	5.79E-04	3.99E-03	2.65E-02	2.23E-04	4.18E-04	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	1.10E-04	1.80E-03	-3.78E-03	-3.05E-02

8) PE = primary energy sources.

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	6.01E-03	6.24E-03	2.92E-02	4.15E-02	2.50E-03	1.86E-03	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	1.23E-03	5.90E-02	4.51E-04	-7.71E-02
Non-hazardous waste	kg	2.02E-01	1.27E-01	1.23E+00	1.55E+00	4.63E-02	6.00E-01	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	2.40E-02	2.11E+00	5.09E+00	-1.46E+00
Radioactive waste	kg	4.76E-04	1.17E-06	4.29E-06	4.81E-04	3.16E-07	1.45E-05	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	2.00E-07	4.94E-07	6.38E-08	-1.24E-04

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 reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	N/A	N/A	N/A	N/A	N/A	N/A	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-02	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	0.00E+00	2.88E-01	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	ND	N/A	N/A	N/A	N/A	N/A	N/A	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	0.00E+00	2.10E-01	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	0.00E+00	2.31E+01	0.00E+00	0.00E+00
Exported energy – Electricity ratio	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.00E-02	ND	ND	N/A	ND	N/A	N/A	N/A	0.00E+00	0.00E+00	9.72E+00	0.00E+00	0.00E+00
Exported energy – Heat ratio	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-01	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	0.00E+00	1.34E+01	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 Global Warming Potential	kg CO_2 eq.	1.56E-01	2.80E-01	1.42E+00	1.86E+00	9.81E-02	1.15E-01	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	5.40E-02	6.05E+00	1.21E-01	-1.77E+00
Depletion potential of the ozone layer	kg CFC11-eq.	3.64E-09	5.06E-09	7.36E-08	8.23E-08	1.27E-09	2.55E-09	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	7.36E-10	8.31E-10	2.37E-10	-2.38E-08
Acidification	kg SO_2 equivalent	4.24E-04	5.45E-04	1.35E-03	2.31E-03	2.00E-04	9.00E-05	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	1.36E-04	5.80E-04	6.14E-05	-7.34E-03
Eutrophication	kg PO_4^{-3} eq.	9.56E-05	1.41E-04	1.75E-03	1.99E-03	4.78E-05	6.91E-05	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	3.37E-05	2.01E-04	5.59E-05	-6.73E-04
POCP ('smog')	kg C2H4-eq.	3.81E-05	5.42E-05	2.11E-04	3.04E-04	1.90E-05	1.28E-05	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	1.25E-05	3.94E-05	2.32E-05	-4.76E-04
ADP elements	kg Sb-eq.	1.86E-05	8.18E-07	1.89E-06	2.13E-05	2.78E-07	6.63E-07	ND	ND	ND	N/A	N/A	N/A	N/A	0.00E+00	1.59E-07	2.91E-07	2.52E-08	-9.91E-07
ADP fossil	MJ	3.39E+00	4.19E+00	2.18E+01	2.93E+01	1.46E+00	9.73E-01	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	7.64E-01	6.89E-01	2.51E-01	-3.10E+01

ENVIRONMENTAL IMPACTS – GWP-GHD

Impact category	Unit	A1	A2	A3	A1–A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	7.72E+00	2.82E-01	1.43E+00	9.43E+00	9.87E-02	3.43E-01	ND	ND	N/A	N/A	N/A	N/A	N/A	0.00E+00	5.43E-02	6.05E+00	1.26E-01	-1.79E+00

9) This indicator covers all greenhouse gases with the exception of biogenic carbon dioxide uptake and emissions, as well as biogenic carbon stored in the product. In addition, the characterisation factors for the fluxes – fossil CH_4, biogenic CH_4 and nitrous oxide – have been updated. This indicator is identical to the total GWP value in EN 15804:2012+A2:2019, with the exception that the characterisation factor for biogenic CO_2 is set to zero.

SCENARIO DOCUMENTATION

DOCUMENTATION ON THE MANUFACTURING ENERGY SCENARIO

Scenario parameters	Value
Electricity data source and quality	EAA standard mix, Energie Allianz Austria
Electricity kg CO2e/kWh	0.344
Data source and quality of district heating data	**Hydropower**, run-of-river hydropower, Austria, Ecoinvent, 0.0044 kg CO_2e/kWh
	Wind, >3 MW turbine, onshore, Austria, Ecoinvent 0.0297 kgCO_2e/kWh
	Photovoltaics, 570 kWp ground-mounted system, multi-Si, Austria, Ecoinvent, 0.0965 kgCO_2e/kWh
	Natural gas, combined cycle power station, Austria, Ecoinvent, 0.52 kgCO_2e/kWh
	Hard coal, Austria, Ecoinvent, 0.98 kgCO_2e/kWh

DOCUMENTATION OF TRANSPORT SCENARIO A4

Scenario parameters	Value
Fuel and vehicle type	Diesel, EURO 6 lorry >32 tonnes
Average transport distance, km	285
Capacity utilisation (including empty return journeys) %	85
Bulk density of the transported products, kg	3.34
Volume utilisation factor	1

DOCUMENTATION FOR INSTALLATION SCENARIO A5

Scenario parameters	Value
Energy: Type and consumption (MJ or kWh)	-
Water consumption (m^3)	-
Auxiliary materials: Type and mass (kg)	-
Waste materials: Type and mass (kg)	**Plastic packaging**: 0.036 kg **Plastic installation losses**: 0.099 kg
Waste materials: Treatment routes	**Plastic:** Recycling 0.014 kg **Incineration:** 0.013 kg **Landfilling:** 0.107 kg
Direct emissions into the ambient air (kg)	-

DOCUMENTATION ON THE END-OF-LIFE SCENARIO – C1–C4

Scenario parameters	Value
Collection method: collected separately (kg)	3.20
Collection method: mixed waste (kg)	-
Recovery: recycling (kg)	-
Recovery process: recycling (kg)	**Treatment of polyethylene waste for recycling, unsorted, sorting** (reference product: polyethylene waste for recycling, unsorted): 0.29 kg
Recovery process: Energy recovery (kg)	**Treatment of expanded polystyrene waste, municipal incineration** (reference product: expanded polystyrene waste): 1.89 kg
Recovery process: final disposal (kg)	**Treatment of polystyrene waste, disposal at a sanitary landfill** (reference product: polystyrene waste): 1.02 kg
Scenario assumption: e.g. transport	50–250 km, EURO 6 lorry

VERIFICATION STATEMENT

EPD Hub declares that this EPD has been verified by an independent external verifier in accordance with ISO 14025. The life cycle assessment project report and the report(s) on environmentally relevant characteristics are held on file at EPD Hub. The verification checklist of the EPD Hub PCR and the ECO platform are used.

EPD Hub has not identified any unjustified deviations from the PCR and EN 15802+A2 in the Environmental Product Declaration or its project report.

The EPD Hub maintains its independence as an external body; it was not involved in carrying out the life cycle assessment or in developing the declaration, and has no conflicts of interest regarding this verification.

The company-specific data, as well as the upstream and downstream data, have been checked for plausibility and consistency. The publisher is responsible for the factual accuracy and legal compliance of this declaration.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez

Validity of tool verification: 27 March 2025 to 26 March 2028 Haiha

Nguyen as an authorised verifier for EPD Hub Limited 10 July 2026

The software used to prepare this life cycle assessment and EPD was checked by the EPD Hub for compliance with the procedural and methodological requirements of ISO 14025:2010, ISO 14040/14044, EN 15804+A2, as well as the core product category rules and the General Programme Guidelines of the EPD Hub.

APPENDIX 1:

CONVERSION TO 1 m² PER THICKNESS (TOTAL A1–A3 GWP)

Austrotherm XPS TOP 50 SF

Panel thickness	λ_D [W/mK]	R_D [m²K/W]	kg CO_2 eq.	Panel thickness	λ_D [W/mK]	R_D [m²K/W]	kg CO_2 eq.
40 mm	0.033	1.20	3.77	100 mm	0.035	2.85	9.43
50 mm	0.033	1.50	4.72	120 mm	0.035	3.40	11.32
60 mm	0.033	1.80	5.66	140 mm	0.035	4.00	13.20
80 mm	0.035	2.25	7.54	160 mm	0.036	4.40	15.09

Austrotherm XPS TOP 50 TB SF

Panel thickness	λ_D [W/mK]	R_D [m²K/W]	kg CO_2 eq.	Panel thickness	λ_D [W/mK]	R_D [m²K/W]	kg CO_2 eq.
180 mm	0.035	5.10	16.97	300 mm	0.035	8.55	28.29
200 mm	0.035	5.70	18.86	320 mm	0.035	9.10	30.18
220 mm	0.035	6.25	20.75	340 mm	0.035	9.70	32.06
240 mm	0.035	6.85	22.63	360 mm	0.035	10.25	33.95
260 mm	0.035	7.40	24.52	380 mm	0.035	10.85	35.83
280 mm	0.035	8.00	26.40	400 mm	0.035	11.40	37.72