ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH
EN 15804+A2 &
ISO 14025 / ISO 21930

Warmotech thermal insulation boards

UAB ANDERUS

GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	UAB "Anderus"
Address	R. Kalantos str. 49, Kaunas, Lithuania
Contact details	info@warmotech.lt +370 662 30007
Website	www.warmotech.lt

PRODUCT IDENTIFICATION

Product name	Warmotech board
Place of production	R. Kalantos str. 49, Kaunas, Lithuania

Jessica Karhu
RTS EPD Committee secretary

Laura Apilo
Managing Director

EPD INFORMATION

EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD program operator	The Building Information Foundation RTS sr Malminkatu 16 A, 00100 Helsinki, Finland http://cer.rts.fi
EPD standards	This EPD is in accordance with EN 15804 +A2, ISO 14025 and ISO 21930 standards.
Product category rules (PCR)	The CEN standard EN 15804+A2 serves as the core PCR. In addition, the RTS PCR (English version, 26.8.2020) is used.
EPD author	Ipek Goktas, at Bionova Ltd Suvilahdenkatu 10 B 00500 Helsinki, Finland www.bionova.fi
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
EPD verifier	Silvia Vilčeková, Silcert, s.r.o.
Verification date	22.7.2021
EPD number	RTS_139_21
ECO Platform nr.	
Publishing date	23.7.2021
EPD valid until	27.7.2026

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Warmotech panel is thermal insulation boards made of pressed rigid polyurethane (PU) foam material with a very high compressive strength. The thermal insulation boards are composed of milled PU-residues bonded using a binding agent and compressed to form boards. Cutting and milling residues from production, which can include layers (e.g. aluminium foil) without impurities are used. The product is made of at least 85% recycled rigid polyurethane foam.

PRODUCT RAW MATERIAL COMPOSITION

Material	Weight, kg	Post-consumer, %
Briquettes of waste polyurethane	0.90	100
Polymeric isocyanate Pmdi	0.10	0

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Fossil materials	90	Europe
Minerals	7	Europe
Metals	3	Europe
Bio-based materials	-	-

SUBSTANCES, REACH - VERY HIGH CONCERN

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

PRODUCT APPLICATION

The polyurethane (PU) thermal insulation boards are intended to be used as thermal insulation in buildings and construction applications, including floors, wall and roofs where they are protected from mechanical damage, weathering, precipitation and moisture, for construction elements with no contact with water and soil. These boards can also be used in the manufacture of furniture and various ship elements.

TECHNICAL SPECIFICATIONS

Warmotech panels are available in a range of thickness from 10 to 70 mm and various board sizes. Thermal conductivity value is lower than 0,089 W/mK, compressive strength over 7,1 MPa and bending strength over 4,5 MPa.

PRODUCT STANDARDS

European Assessment Document – EAD 040419-00-1201.

PHYSICAL PROPERTIES OF THE PRODUCT

Warmotech panel density is from 500 to 600 kg per cubic meter. Thermal insulation boards have got smooth and rigid surfaces without additional layers, are green in colour, do not melt and are odourless.

ADDITIONAL INFORMATION

Further information: www.warmotech.lt

PRODUCT LIFE CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

A1: This stage considers the extraction and processing of raw materials (polymeric diisocyante MDI, recycled low density polyurethane briquettes), as well as energy consumption.

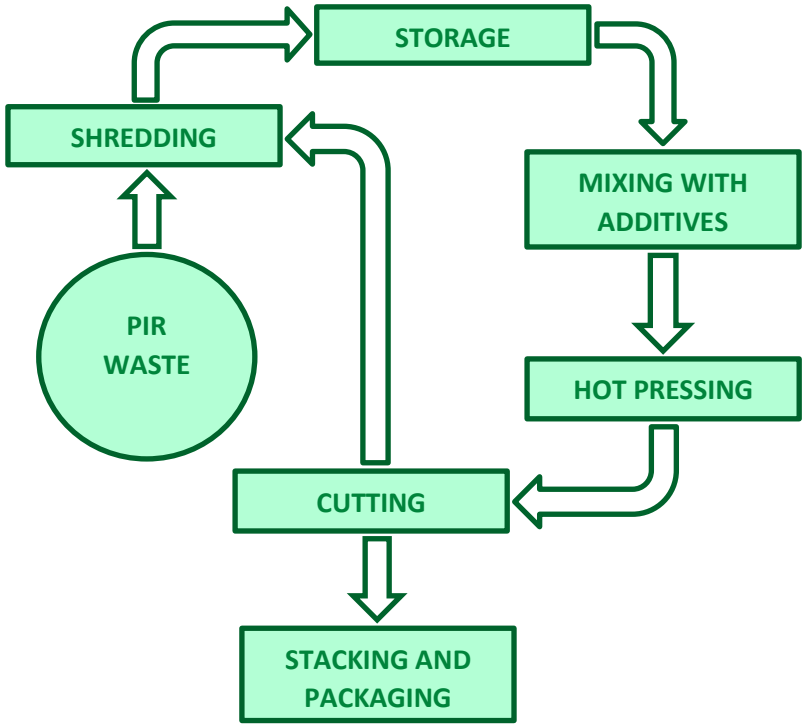
A2: The raw materials are transported to the manufacturing site with road transport for each material.

A3: This stage includes manufacturing and packaging production. It also considers the energy consumption and waste generated in the production plant.

Production process description

The first manufacturing process starts with the shredding of low density polyurethane briquettes and transporting them to large capacity storages. Shredded polyurethane particles are mixed with pMDI and other additives. After mixing for certain time mixed components is heated and pressed in hydraulic press. After being formed, the board is cut in various shapes, stacked and wrapped with a plastic film.

Manufacturing flow chart



TRANSPORT AND INSTALLATION (A4-A5)

Module A4 includes transport from the production facility to the construction or other facility where boards will be installed or processed further. Annual delivery rates are taken into consideration for transportation scenario. Transportation impacts occurred from delivering of the product cover direct exhaust emissions of fuel, environmental impacts of fuel production, as well as related infrastructure emissions. This EPD does not cover installation (A5). Air, soil and water impacts during installation have not been studied.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover use phase. Air, soil and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Consumption of energy and natural resources in demolition process is assumed to be negligible. (C1) The distance for transportation to disposal is assumed as 50 km and the transportation method is assumed to be lorry. (C2) Considering the manufacturer's information, 100% of end-of-life product is assumed to be recovered to energy in incineration plant as it is easy to collect and qualified for energy recovery; however, since the product is considered as hazardous waste when it is burned, incineration impacts are assessed under Module C4. Accordingly, there is no benefit from energy recovering.

LIFE CYCLE ASSESSMENT

LIFE CYCLE ASSESSMENT INFORMATION

Period for data	2019 year

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 kg
Mass per declared unit	1 kg

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product. kg C	-
Biogenic carbon content in packaging. kg C	-

SYSTEM BOUNDARY

The scope of the EPD is "cradle to gate with modules A4, C1-C4 and D". The modules A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), as well as C1 (Deconstruction/ demolition), C2 (Transport at end-of-life), C3 (Waste processing), C4 (Disposal) and D (benefits and loads beyond the system boundary) are included in the study.

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	D	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x	x	x
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the *EN 15804A1:2012+A2:2019* and *RTS 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 which data are available for are included in the calculation. There is no neglected unit process more than 1% of total mass and energy flows. The total neglected input and output flows do also not exceed 5% of energy usage or mass. The life cycle analysis includes all industrial processes from raw material acquisition to production, distribution, and end-of-life stages.

The modules A5, B1-B7 have not been calculated nor included in the LCA calculations.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy, and water use related to company management and sales activities are excluded.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is based on annual production rate and made with high accuracy and precision. The values for 1 kg of the produced product which is used within this study are calculated by considering the total product weight per annual production. The product output is fixed to 1 kg and the corresponding amount of product is used in the calculations.

In the production plant, several kinds of products are produced; since the production processes of these products are similar, the annual production percentages are taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total energy consumption, packaging materials and the generated waste per the declared product are allocated. Subsequently, the produced product output fixed to 1 kg and the corresponding amount of product is used in the calculations.

This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs. All estimations and assumptions are given below.

- Module A2, A4 & C2: Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality it may vary but as the role of transportation emission in total results is small and so the variety in load assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by transportation companies to serve the needs of other clients.
- Module A4: Transportation doesn't cause losses as products are packaged properly. Also, volume capacity utilisation factor is assumed to be 1 for the nested packaged products. Additionally, transportation distances and vehicle types are assumed according to the delivery in the last year.
- Module C1: The impacts of the disassembly stage are assumed zero, since the consumption of energy and natural resources for disassembling the end-of-life product is negligible.
- Module C2: Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed as lorry which is the most common.
- Module C3, C4, D: 100% of the end-of-life product is assumed to be incinerated, since the product is considered hazardous waste when it is burned, all incineration impacts are assumed as disposal method without any benefit.

AVERAGES AND VARIABILITY

Since there is only one production plant, there is no average result.

ENVIRONMENTAL IMPACT DATA

The LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Note: "ENVIRONMENTAL IMPACTS - EN 15804+A1, CML / ISO 21930" and "ENVIRONMENTAL IMPACTS - TRACI 2.1" are presented in ANNEX-1 and ANNEX-2 respectively.

Note: Environmental performance results are presented per declared unit, defined as 1 kg of Warmotech insulation product. Environmental impacts per 1 m^2 of the product with different thicknesses can be calculated by multiplying the environmental impact results by the scaling factors presented in ANNEX-3.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Climate change – total	kg CO_2e	2.57E-01	8.27E-02	4.57E-01	7.97E-01	1.85E-02	MND	MND	0.00E+00	6.38E-03	0.00E+00	2.72E+00	0.00E+00
Climate change – fossil	kg CO_2e	2.56E-01	8.26E-02	4.26E-01	7.65E-01	1.86E-02	MND	MND	0.00E+00	6.37E-03	0.00E+00	2.71E+00	0.00E+00
Climate change – biogenic	kg CO_2e	8.88E-04	5.98E-05	1.85E-02	1.94E-02	1.35E-05	MND	MND	0.00E+00	3.90E-06	0.00E+00	2.26E-04	0.00E+00
Climate change – LULUC	kg CO_2e	2.21E-05	2.49E-05	1.24E-02	1.24E-02	5.61E-06	MND	MND	0.00E+00	2.25E-06	0.00E+00	2.29E-05	0.00E+00
Ozone depletion	kg CFC11e	8.10E-07	1.94E-08	5.54E-08	8.85E-07	4.38E-09	MND	MND	0.00E+00	1.46E-09	0.00E+00	1.43E-08	0.00E+00
Acidification	mol H^+e	5.81E-04	3.47E-04	1.81E-03	2.74E-03	7.83E-05	MND	MND	0.00E+00	2.62E-05	0.00E+00	2.34E-03	0.00E+00
Eutrophication, aquatic freshwater [1]	kg Pe	6.72E-07	6.72E-07	1.30E-05	1.43E-05	1.52E-07	MND	MND	0.00E+00	5.50E-08	0.00E+00	9.93E-07	0.00E+00
Eutrophication, aquatic marine	kg Ne	1.37E-04	1.05E-04	4.20E-04	6.62E-04	2.36E-05	MND	MND	0.00E+00	7.77E-06	0.00E+00	1.30E-03	0.00E+00
Eutrophication, terrestrial	mol Ne	1.55E-03	1.15E-03	4.92E-03	7.62E-03	2.61E-04	MND	MND	0.00E+00	8.59E-05	0.00E+00	1.24E-02	0.00E+00
Photochemical ozone formation	kg NMVOCe	4.89E-04	3.71E-04	4.44E-02	4.53E-02	8.38E-05	MND	MND	0.00E+00	2.70E-05	0.00E+00	2.95E-03	0.00E+00
Abiotic depletion, minerals & metals [2]	kg Sbe	1.87E-06	1.42E-06	2.03E-06	5.32E-06	3.18E-07	MND	MND	0.00E+00	1.59E-07	0.00E+00	1.30E-06	0.00E+00
Abiotic depletion of fossil resources [2]	MJ	6.79E+00	1.28E+00	8.15E+00	1.62E+01	2.90E-01	MND	MND	0.00E+00	9.72E-02	0.00E+00	1.43E+00	0.00E+00
Water use [2]	m^3e deprived	4.82E-02	4.77E-03	1.17E-01	1.70E-01	1.08E-03	MND	MND	0.00E+00	3.45E-04	0.00E+00	1.73E-01	0.00E+00

[1] The required characterisation method and data are in kg P-eq; to get PO_4e, multiply the result by 3.07.

[2] EN 15804+A2 Disclaimer 2: "The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator."

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Particulate matter	Incidence	4.95E-09	7.45E-09	2.33E-08	3.57E-08	1.69E-09	MND	MND	0.00E+00	4.92E-10	0.00E+00	7.50E-09	0.00E+00
Ionizing radiation, human health [3]	kBq U235e	1.26E-01	5.61E-03	3.47E-02	1.67E-01	1.27E-03	MND	MND	0.00E+00	4.25E-04	0.00E+00	1.67E-03	0.00E+00
Eco-toxicity (freshwater) [2]	CTUe	1.40E+00	9.82E-01	5.68E+00	8.07E+00	2.22E-01	MND	MND	0.00E+00	7.59E-02	0.00E+00	7.00E+00	0.00E+00
Human toxicity, cancer effects [2]	CTUh	4.14E-11	2.52E-11	1.90E-10	2.57E-10	5.67E-12	MND	MND	0.00E+00	2.15E-12	0.00E+00	2.36E-10	0.00E+00
Human toxicity, non-cancer effects [2]	CTUh	2.53E-09	1.16E-09	4.13E-09	7.82E-09	2.63E-10	MND	MND	0.00E+00	8.71E-11	0.00E+00	9.46E-09	0.00E+00
Land use related impacts/soil quality [2]	-	4.22E-02	1.93E+00	3.35E-01	2.31E+00	4.38E-01	MND	MND	0.00E+00	1.08E-01	0.00E+00	1.64E-01	0.00E+00

[2] EN 15804+A2 Disclaimer 2: "The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator."

[3] EN 15804+A2 Disclaimer 1: "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."

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Renewable PER used as energy	MJ	1.57E-01	1.62E-02	6.12E+00	6.29E+00	3.65E-03	MND	MND	0.00E+00	1.38E-03	0.00E+00	2.55E-02	0.00E+00
Renewable PER used as materials	MJ	4.51E-03	0.00E+00	0.00E+00	4.51E-03	0.00E+00	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable PER	MJ	1.61E-01	1.62E-02	6.12E+00	6.30E+00	3.65E-03	MND	MND	0.00E+00	1.38E-03	0.00E+00	2.55E-02	0.00E+00
Non-renewable PER used as energy	MJ	5.47E+00	1.28E+00	6.90E+00	1.36E+01	2.90E-01	MND	MND	0.00E+00	9.72E-02	0.00E+00	1.43E+00	0.00E+00
Non-renewable PER used as materials	MJ	1.34E+00	0.00E+00	1.24E+00	2.58E+00	0.00E+00	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable PER	MJ	6.81E+00	1.28E+00	8.15E+00	1.62E+01	2.90E-01	MND	MND	0.00E+00	9.72E-02	0.00E+00	1.43E+00	0.00E+00
Use of secondary materials	kg	2.37E-04	0.00E+00	4.06E-04	6.43E-04	0.00E+00	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m^3	2.24E+00	2.67E-04	2.32E-03	2.24E+00	6.04E-05	MND	MND	0.00E+00	1.84E-05	0.00E+00	5.33E-03	0.00E+00

PER abbreviation stands for primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Hazardous waste	kg	6.84E-04	1.25E-03	1.13E-02	1.32E-02	2.82E-04	MND	MND	0.00E+00	1.01E-04	0.00E+00	3.82E-02	0.00E+00
Non-hazardous waste	kg	1.33E-02	1.38E-01	3.49E-01	5.00E-01	3.12E-02	MND	MND	0.00E+00	8.41E-03	0.00E+00	9.62E-01	0.00E+00
Radioactive waste	kg	7.33E-06	8.82E-06	2.14E-05	3.76E-05	1.99E-06	MND	MND	0.00E+00	6.65E-07	0.00E+00	2.21E-06	0.00E+00

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-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	MND	MND	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	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Climate change – total	kg CO_2e	2.57E-01	8.27E-02	4.57E-01	7.97E-01	1.85E-02	MND	MND	0.00E+00	6.38E-03	0.00E+00	2.72E+00	0.00E+00
Abiotic depletion. minerals & metals [2]	kg Sbe	1.87E-06	1.42E-06	2.03E-06	5.32E-06	3.18E-07	MND	MND	0.00E+00	1.59E-07	0.00E+00	1.30E-06	0.00E+00
Abiotic depletion of fossil resources [2]	MJ	6.79E+00	1.28E+00	8.15E+00	1.62E+01	2.90E-01	MND	MND	0.00E+00	9.72E-02	0.00E+00	1.43E+00	0.00E+00
Water use [2]	m^3e deprived	4.82E-02	4.77E-03	1.17E-01	1.70E-01	1.08E-03	MND	MND	0.00E+00	3.45E-04	0.00E+00	1.73E-01	0.00E+00
Use of secondary materials	kg	2.37E-04	0.00E+00	4.06E-04	6.43E-04	0.00E+00	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content in product	kg C	N/A	N/A	0.00E+00	0.00E+00	N/A	MND	MND	N/A	N/A	N/A	N/A	N/A
Biogenic carbon content in packaging	kg C	N/A	N/A	0.00E+00	0.00E+00	N/A	MND	MND	N/A	N/A	N/A	N/A	N/A

[2] EN 15804+A2 Disclaimer 2: "The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator."

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, high voltage, production mix Ecoinvent v3.6, Lithuania, 2019
Electricity CO2e / kWh	0.25 kg CO2e / kWh
Heating data source and quality	Heat and power co-generation, natural gas Ecoinvent v3.6, World, 2019
District heating CO2e / kWh	0.0268 kg CO2e / kWh

Transport scenario documentation

Scenario parameter	Value
A4 specific transport CO2e emissions, kg CO_2e / tkm	0.0901
A4 average transport distance, km	200

End of life scenario documentation*

Scenario parameter	Value
Collection process – kg collected separately	1
Collection process – kg collected with mixed waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0
Recovery process – kg for energy recovery	0
Disposal (total) – kg for final deposition	1
Scenario assumptions for transportation	End-of-life product is transported 50 km with an average lorry

* The values are based on the manufacturer's information regarding the end-of-life treatment of the product.

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Warmotech LCA Report 16.06.2021

ANNEX-1: ENVIRONMENTAL IMPACTS - EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Global warming potential	kg CO_2e	2.52E-01	8.19E-02	4.29E-01	7.63E-01	1.85E-02	MND	MND	0.00E+00	6.32E-03	0.00E+00	2.71E+00	0.00E+00
Depletion of stratospheric ozone	kg CFC11e	4.81E-09	1.54E-08	4.59E-08	6.61E-08	3.48E-09	MND	MND	0.00E+00	1.16E-09	0.00E+00	1.30E-08	0.00E+00
Acidification	kg SO_2e	4.86E-04	1.68E-04	1.43E-03	2.08E-03	3.79E-05	MND	MND	0.00E+00	1.30E-05	0.00E+00	1.62E-03	0.00E+00
Eutrophication	kg $(PO_4)^{3-}e$	5.93E-05	3.40E-05	3.93E-04	4.86E-04	7.66E-06	MND	MND	0.00E+00	2.70E-06	0.00E+00	8.36E-04	0.00E+00
Photochemical ozone formation	kg C_2H_4e	7.66E-05	1.07E-05	9.41E-05	1.81E-04	2.40E-06	MND	MND	0.00E+00	8.39E-07	0.00E+00	1.70E-05	0.00E+00
Abiotic depletion of non-fossil resources	kg Sbe	1.87E-06	1.42E-06	2.03E-06	5.32E-06	3.18E-07	MND	MND	0.00E+00	1.59E-07	0.00E+00	1.30E-06	0.00E+00
Abiotic depletion of fossil resources	MJ	6.79E+00	1.28E+00	8.15E+00	1.62E+01	2.90E-01	MND	MND	0.00E+00	9.72E-02	0.00E+00	1.43E+00	0.00E+00

ANNEX-2: ENVIRONMENTAL IMPACTS - TRACI 2.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Global warming potential	kg CO_2e	2.48E-01	8.17E-02	4.31E-01	7.61E-01	1.85E-02	MND	MND	0.00E+00	6.30E-03	0.00E+00	2.71E+00	0.00E+00
Ozone depletion	kg CFC11e	5.06E-09	2.06E-08	6.16E-08	8.73E-08	4.64E-09	MND	MND	0.00E+00	1.55E-09	0.00E+00	1.50E-08	0.00E+00
Acidification	kg SO_2e	4.98E-04	3.02E-04	1.53E-03	2.33E-03	6.83E-05	MND	MND	0.00E+00	2.28E-05	0.00E+00	2.19E-03	0.00E+00
Eutrophication	kg Ne	2.51E-05	4.25E-05	1.56E-04	2.24E-04	9.59E-06	MND	MND	0.00E+00	3.22E-06	0.00E+00	4.03E-04	0.00E+00
Photochemical smog formation	kg O_3e	8.64E-03	6.63E-03	2.56E-02	4.09E-02	1.50E-03	MND	MND	0.00E+00	4.92E-04	0.00E+00	7.16E-02	0.00E+00
Depletion of non-renewable energy	MJ	9.35E-01	1.84E-01	1.07E+00	2.19E+00	4.15E-02	MND	MND	0.00E+00	1.39E-02	0.00E+00	2.15E-01	0.00E+00

ANNEX-3: SCALING FACTORS PER 1M^2 OF WARMOTECH WITH DIFFERENT THICKNESSES

Thickness	Scaling factor
10 mm	5.50
15 mm	8.25
20 mm	11.00

Thickness	Scaling factor
25 mm	13.75
30 mm	16.50
35 mm	19.25

Thickness	Scaling factor
40 mm	22.00
45 mm	24.75
50 mm	27.50

Thickness	Scaling factor
55 mm	30.25
60 mm	33.00

Thickness	Scaling factor
65 mm	35.75
70 mm	38.50

ABOUT THE MANUFACTURER

In Europe, there is a growing number of companies entering the circular economy using a sustainable production model, recycling construction waste that would normally simply remain in landfills. One such company is the Lithuanian company UAB ANDERUS, which recycles rigid polyurethane foam waste, and produces the construction board WARMOTECH, a material that meets high standards and has exceptional properties.

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	UAB "Anderus"
EPD author	Bionova Ltd, www.bionova.fi
EPD verifier	Silvia Vilčeková, Silcert, s.r.o.
EPD program	RTS EPD
Background data	Ecoinvent 3.6 (cut-off) & Plastics Europe 2012
LCA software	One Click LCA Pre-Verified Generator for Plastic Products