

# ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

## WARMOTECH THERMAL INSULATION BOARDS

UAB WARMOTECH



Programme operator: Rakennustieto Oy

EPD registration number: RTS\_415\_25

Publication date: 13.11. 2025

Valid until: 13.11. 2030

# GENERAL INFORMATION

## MANUFACTURER INFORMATION

|                 |                                                                                                           |
|-----------------|-----------------------------------------------------------------------------------------------------------|
| Manufacturer    | UAB WARMOTECH                                                                                             |
| Address         | Elektrėnų g. 16, Kaunas, Lithuania                                                                        |
| Contact details | <a href="mailto:info@warmotech.lt">info@warmotech.lt</a><br><a href="tel:+37066230007">+370 662 30007</a> |
| Website         | <a href="http://www.warmotech.com">www.warmotech.com</a>                                                  |

## PRODUCT IDENTIFICATION

|                        |                                    |
|------------------------|------------------------------------|
| Product name           | Warmotech board                    |
| Place(s) of production | Elektrėnų g. 16, Kaunas, Lithuania |
| CPC code               | UN CPC 369                         |

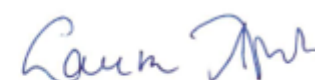
The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based 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.

## EPD INFORMATION

|                        |                                                                                                                                                                                    |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPD program operator   | Rakennustieto Oy                                                                                                                                                                   |
| EPD standards          | This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.                                                                                                                |
| Product category rules | The CEN standard EN 15804 serves as the core PCR. In addition, the RTS PCR (Version 121124) is used.                                                                               |
| EPD author             | Silvija Serapinaitė, UAB Vesta Consulting                                                                                                                                          |
| EPD verification       | Independent verification of this EPD and data, according to ISO 14025:<br><input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification |
| EPD verifier           | Mari Kirss                                                                                                                                                                         |
| EPD number             | RTS_415_25                                                                                                                                                                         |
| Publishing date        | 13.11.2025                                                                                                                                                                         |
| EPD valid until        | 13.11.2030                                                                                                                                                                         |



Jukka Seppänen  
RTS EPD Committee Secretary



Laura Apilo  
Managing Director

## PRODUCT INFORMATION

### PRODUCT DESCRIPTION

Warmotech® is a recycled PU foam board with a density of 550 kg/m<sup>3</sup>. The properties of water resistance, compressive strength and thermal conductivity create exceptional application possibilities. Warmotech® is biologically safe, resistant to any type of microorganisms, does not rot, and does not contain toxic substances (formaldehyde). It is composed of milled PU-residues (can include other materials e.g. craft paper or aluminium foil) and bonding agents. The residue left after cutting/ processing the board can be milled and reused once more.

The color of Warmotech boards (green or yellow) depends on the origins of the recycled polyurethane. However, it has no effect on the flammability mechanical strength, thermal conductivity, environmental impact results or other declared characteristics.

### PRODUCT APPLICATION

Warmotech® panels are designed for thermal insulation in buildings and construction applications, including floors, walls and roofs. Warmotech® panels are widely used in the construction sector for building components where the problem of thermal bridging may occur, or as a substitute for other insulation materials that are not strong enough to withstand heavy loads. Products made of Warmotech panels are often used for the installation of windows and doors in the insulation layer.

The panels can be painted, laminated, combined with other materials to create new multi-layer products (Warmotech® board is ideal as a core substrate to different other materials).

### PRODUCT QUALITY CONTROL

Warmotech® panels has CE marking and represents that products comply with the EU's New Approach Directives. Notified body – Statybos produkcijos sertifikavimo centras (SPSC) issued European Technical Assessment ETA 22/0454 on the basis of EAD no. 040419-00-1201. SPSC performed third party tasks under system 3. FPC (factory production control) in accordance with EAD no. 040419-00-1201 (European Assessment Document).

### TECHNICAL SPECIFICATIONS

| Essential characteristics                                                 |            | Performance and characteristics | Unit              | Test method  |
|---------------------------------------------------------------------------|------------|---------------------------------|-------------------|--------------|
| Reaction to fire                                                          |            | D-s3, d0                        |                   | EN 13501     |
| Bending strength                                                          |            | ≥ 4.7                           | MPa               | EN 12089     |
| Thermal conductivity, $\lambda_{10}$                                      |            | ≤ 0.088                         | W/ (m·K)          | EN 12667     |
| Compressive strength (at 10 % compression)                                | 10 – 60 mm | ≥ 7.1                           | MPa               | EN 826       |
|                                                                           | 61 – 70 mm | ≥ 6.8                           |                   |              |
| Compressive strength (at 2 % compression) <sup>1)</sup>                   |            | ≥ 2.2                           | MPa               | EN ISO 29469 |
| Water absorption (by short term, partial immersion)                       |            | ≤ 0.4                           | kg/m <sup>2</sup> | EN ISO 29767 |
| Dimensional stability under specified temperature and humidity (DS 70,90) |            | 1.0                             | %                 | EN 1604      |
| Dimensional stability under specified temperature and humidity (DS -20,-) |            | 1.0                             | %                 | EN 1604      |
| Density                                                                   |            | 550 ± 50                        | kg/m <sup>3</sup> | EN 1602      |
| Thickness tolerance                                                       | not sanded | 0.5                             | mm                | EN 823       |
|                                                                           | sanded     | 0.2                             |                   |              |
| Length tolerance                                                          |            | 5.0                             | mm                | EN 822       |
| Width tolerance                                                           |            | 5.0                             | mm                | EN 822       |
| Squareness tolerance                                                      |            | 1.0                             | mm/m              | EN 824       |
| Flatness tolerance                                                        |            | 4.0                             | mm                | EN 825       |
| Hygroscopic sorption properties <sup>1)</sup>                             |            | ≤ 3.0                           | %                 | EN ISO 12571 |

|                                                             |                                |                        |                                         |              |
|-------------------------------------------------------------|--------------------------------|------------------------|-----------------------------------------|--------------|
| Water vapour diffusion resistance coefficient <sup>1)</sup> | 10 – 40 mm range<br>41 – 70 mm | 60 – 100<br>25-60      | μ                                       | EN 12086     |
| Swelling in thickness, 24h <sup>1)</sup>                    |                                | ≤ 1.0                  | %                                       | EN 317       |
| Moisture content <sup>1)</sup>                              |                                | 2 – 4                  | %                                       | EN 322       |
| Water absorption after 24 h in water <sup>1)</sup>          |                                | ≤ 5.0                  | %                                       | internal     |
| Temperature resistance <sup>1)</sup>                        |                                | -50 °C to + 100 °C     |                                         |              |
| Dimensional change after 28 days in water <sup>1)</sup>     |                                | ≤ 2.0                  | %                                       | internal     |
| Linear expansion coefficient <sup>1)</sup>                  |                                | 3.4 · 10 <sup>-5</sup> | 1/K                                     | EN 1604      |
| Shear strength <sup>1)</sup>                                |                                | 1.0 – 1.4              | MPa                                     | EN 12090     |
| Airborne sound insulation <sup>1)</sup>                     | 10 mm                          | 28 (-2; -4)            | R <sub>w</sub> (C; C <sub>tr</sub> ) dB | EN ISO 717-1 |
|                                                             | 15 mm                          | 30 (-2; -3)            |                                         |              |
|                                                             | 20 mm                          | 32 (-2; -3)            |                                         |              |
|                                                             | 25 mm                          | 33 (-2; -2)            |                                         |              |
|                                                             | 40 mm                          | 34 (-2; -1)            |                                         |              |
|                                                             | 50 mm                          | 35 (-2; -1)            |                                         |              |
|                                                             | 60 mm                          | 35 (-2; -1)            |                                         |              |
|                                                             | 70 mm                          | 36 (-2; -1)            |                                         |              |

## ADDITIONAL TECHNICAL INFORMATION

Further information can be found at the website [www.warmotech.com](http://www.warmotech.com)

## PRODUCT RAW MATERIAL COMPOSITION

| Product Material | Weight, kg | Post-consumer material, weight-% | Biogenic material, weight-% | Biogenic material, kg C/DU |
|------------------|------------|----------------------------------|-----------------------------|----------------------------|
| PU waste         | 0.9        | 100                              | 0                           | 0                          |
| Binding agent    | 0.1        | 0                                | 0                           | 0                          |
| <b>Total</b>     | <b>1.0</b> | <b>90</b>                        | <b>0</b>                    | <b>0</b>                   |

## PRODUCT PACKAGING

| Packaging Material | Weight, kg   | Post-consumer material, weight-% | Biogenic material, weight-% | Biogenic material, kg C/DU** |
|--------------------|--------------|----------------------------------|-----------------------------|------------------------------|
| Plastic film       | 0.0007       | 0                                | 0                           | 0                            |
| Wooden pallets*    | 0.0112       | 0                                | 100                         | 0.0051                       |
| PP fastening strap | 0.0001       | 0                                | 0                           | 0                            |
| <b>Total</b>       | <b>0.012</b> | <b>0</b>                         | <b>100</b>                  | <b>0.0051</b>                |

\* Global Warming Potential biogenic: -1.436 kg CO<sub>2</sub>e/kg

\*\* Conversion factor for converting kg CO<sub>2</sub>e to kg C equal to 44/14 = 3.67

## PRODUCT RAW MATERIAL MAIN COMPOSITION

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

## SUBSTANCES, REACH - VERY HIGH CONCERNER

The product does not contain any REACH SVHC substances in amounts greater than 0.1 % (1000 ppm).

## PRODUCT LIFE-CYCLE

### MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

### MANUFACTURING PROCESS

The Warmotech Panel production process begins with collecting and assessing the quality of polyurethane (PU) waste, with most of this waste coming directly from manufacturers of PU insulation panels. Therefore, the PU waste is modelled with zero input burdens in this EPD. This waste is then shredded to the required particle size and transported to silos for storage. The shredded PU is mixed with a binder and other required additives, formed into a mat, and hot-pressed under high temperature and pressure into panels. These panels are stacked and dried before being cut to their final dimensions. Waste material from the cutting process is recycled back into the system. Finally, the panels undergo quality control testing and are packaged for distribution.



## TRANSPORT AND INSTALLATION (A4-A5)

A4: This EPD does not cover the transport module. The GWP (global warming potential) of A4 stage is less than 20% of the GWP of modules A1–A3 and less than 1000 km, so it is not mandatory to declare.

A5: This EPD does not cover the Installation phase. However, module A5 is declared for “balancing-out reporting” since packaging of products contains more than 5% biogenic carbon. The uptake of this biogenic carbon, as biogenic CO<sub>2</sub>, in module A1 shall be balanced out by an equal amount of emission of biogenic CO<sub>2</sub> in module A5.

## PRODUCT USE AND MAINTENANCE (B1-B7)

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

## PRODUCT END OF LIFE (C1-C4, D)

C1: Demolition is assumed to be done by mobile machinery (10 kWh/t)<sup>1</sup> and that that 100% of the waste is collected and treated.

C2: It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed to have the same weight as the declared product. All the end-of-life products are assumed to be sent to the closest facilities such as recycling and landfill. 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 option.

C3: According to the manufacturer’s information, 100% of the end-of-life product is assumed to be recycled due to the recycling potential of the end-of-life product and its value in the market. Stage C3 in this study is defined as covering all processes related to the sorting of waste materials for recycling and ends once the materials have been sorted and are ready to leave the factory gate.

C4: None of the material is assumed to go to landfill, as the entire end-of-life product is directed to recycling.

D: In the context of end-of-life scenario D, the polyurethane waste is fully recycled, and has been modelled to avoid the use of primary materials. Only the share of primary (virgin) material in the product provides the benefit, in order to avoid double counting.

---

<sup>1</sup> O. Bozdag and M. Secer. (2007). *Energy Consumption of RC Buildings during Their Life Cycle*. Sustainable Construction, Materials and Practices: Challenge of the Industry for the New Millennium, Minho.

## LIFE-CYCLE ASSESSMENT

### LIFE-CYCLE ASSESSMENT INFORMATION

|                 |      |
|-----------------|------|
| Period for data | 2024 |
|-----------------|------|

### DECLARED AND FUNCTIONAL UNIT

|                        |      |
|------------------------|------|
| Declared unit          | 1 kg |
| Mass per declared unit | 1 kg |

### SYSTEM BOUNDARY

This EPD covers the cradle to gate with options scope with following modules: A1 (Raw material supply), A2 (Transport), and A3 (Manufacturing), modules C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.

| 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             | ND             | ND*      | ND        | ND          | ND     | ND          | ND            | ND                     | ND                    | x                 | x         | x                | x        | x                            | x        | x         |
| Geography, by two-letter ISO country code or regions. The International EPD System only. |           |               |                |          |           |             |        |             |               |                        |                       |                   |           |                  |          |                              |          |           |
| EU                                                                                       | EU        | EU            | EU             | EU       | -         | -           | -      | -           | -             | -                      | -                     | EU                | EU        | EU               | EU       | EU                           |          |           |
| 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 |

Not declared = ND.

\*module A5 is declared for "balancing-out reporting" since packaging of products contains more than 5% biogenic carbon.

### DATA QUALITY

The quality requirements for the life cycle assessment were set according to the EN ISO 14044 standard (4.2.3.6) and EN 15804 standard (6.3.7). This LCA study follows the standard EN 15804:2012+A2:2019 and RTS PCR and no decisions are made based on the values. The study does not consider long-term emissions (i.e. over 100 years). The calculations were conducted using One Click LCA -tool which is a cloud-based LCA software in compliancy with EN 15804 -standard. No poor or very poor data was found during the assessment of relevant data using PEF method (EN 15804:2012+A2:2019, Annex E, only E.2). The data quality assessment is done in accordance with EN 15941:2024. Overall, the data quality can be described as good. The EN 15804 reference package used is based on EF 3.1.

### PROCEDURES FOR COLLECTION PROCESS SPECIFIC DATA

Production specific data was collected directly from the manufacturer's production plant. The data represents the production of the studied product at the plant from the materials transported to the facility and represents 1 year average. The data represents the year 2024, which was the latest year with full year data. All gathered data was used without excluding categories in advance following the system boundaries set in earlier chapters.

### CRITERIA FOR CHOOSING THE GENERIC DATA

Generic data that was used for upstream and downstream processes represents complementary data from Ecoinvent 3.10.1 database. The datasets were chosen to represent the studied system as closely as

possible. As supplier-specific information was not available the information sources were chosen based on their technical and geographical representativeness. Only when country specific or European data has not been available global level data has been used (concerns mainly data from Ecoinvent 3.10.1.). As up-to-date data as possible was chosen and no more than five years old for producer specific data and ten years for generic data was used.

## CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

## ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.

3. Allocation should be based on economic values.

The allocations in the Ecoinvent 3.10.1 datasets used in this study follow the Ecoinvent system model 'Allocation, cut-off, EN15804'.

The environmental impacts of capital goods (e.g., production equipment, recycling machinery) and infrastructure (e.g., recycling facilities, transportation systems) have not been included in this assessment.

The scenarios included are currently in use and are representative for one of the most probable alternatives

The environmental impacts of capital goods (e.g., production equipment, recycling machinery) and infrastructure (e.g., recycling facilities, transportation systems) have not been included in this assessment.

## BIOGENIC CARBON CONTENT

### Product's biogenic carbon content at the factory gate

|                                            |        |
|--------------------------------------------|--------|
| Biogenic carbon content in product, kg C   | 0      |
| Biogenic carbon content in packaging, kg C | 0.0051 |

## ENVIRONMENTAL IMPACT DATA

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. Note: additional environmental impact data may be presented in annexes.

### CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

| Impact category                     | Unit                   | A1-A3     | A4 | A5       | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1       | C2       | C3       | C4       | D         |
|-------------------------------------|------------------------|-----------|----|----------|----|----|----|----|----|----|----|----------|----------|----------|----------|-----------|
| GWP – total <sup>1)</sup>           | kg CO <sub>2</sub> e   | 6.59E-01  | ND | 1.94E-02 | ND | ND | ND | ND | ND | ND | ND | 3.61E-03 | 5.39E-03 | 1.67E-01 | 0.00E+00 | -2.46E-01 |
| GWP – fossil                        | kg CO <sub>2</sub> e   | 6.76E-01  | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 3.60E-03 | 5.38E-03 | 1.67E-01 | 0.00E+00 | -2.45E-01 |
| GWP – biogenic                      | kg CO <sub>2</sub> e   | -1.76E-02 | ND | 1.94E-02 | ND | ND | ND | ND | ND | ND | ND | 3.68E-07 | 1.22E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| GWP – LULUC                         | kg CO <sub>2</sub> e   | 5.01E-04  | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 3.69E-07 | 2.41E-06 | 9.10E-05 | 0.00E+00 | -2.57E-04 |
| Ozone depletion pot.                | kg CFC <sub>11</sub> e | 5.16E-09  | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 5.52E-11 | 7.95E-11 | 4.45E-10 | 0.00E+00 | -3.71E-07 |
| Acidification potential             | mol H <sup>+</sup> e   | 1.49E-03  | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 3.25E-05 | 1.84E-05 | 2.62E-04 | 0.00E+00 | -7.91E-04 |
| EP-freshwater <sup>2)</sup>         | kg Pe                  | 3.93E-05  | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 1.04E-07 | 4.19E-07 | 1.69E-05 | 0.00E+00 | -1.39E-05 |
| EP-marine                           | kg Ne                  | 4.56E-04  | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 1.51E-05 | 6.03E-06 | 1.66E-04 | 0.00E+00 | -1.92E-04 |
| EP-terrestrial                      | mol Ne                 | 4.59E-03  | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 1.65E-04 | 6.56E-05 | 8.21E-04 | 0.00E+00 | -1.75E-03 |
| POCP ("smog") <sup>3)</sup>         | kg NMVOCe              | 1.72E-03  | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 4.93E-05 | 2.70E-05 | 2.47E-04 | 0.00E+00 | -7.76E-04 |
| ADP-minerals & metals <sup>4)</sup> | kg Sbe                 | 1.93E-06  | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 1.29E-09 | 1.50E-08 | 5.97E-07 | 0.00E+00 | -5.22E-07 |
| ADP-fossil resources                | MJ                     | 1.24E+01  | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 4.72E-02 | 7.81E-02 | 5.05E-01 | 0.00E+00 | -5.70E+00 |
| Water use <sup>5)</sup>             | m <sup>3</sup> e depr. | -4.51E-01 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 1.18E-04 | 3.86E-04 | 2.38E-02 | 0.00E+00 | -5.47E-01 |

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO<sub>4</sub>e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

## ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

| Impact category                  | Unit      | A1-A3    | A4 | A5       | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1       | C2       | C3       | C4       | D         |
|----------------------------------|-----------|----------|----|----------|----|----|----|----|----|----|----|----------|----------|----------|----------|-----------|
| Particulate matter               | Incidence | 2.17E-08 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 9.25E-10 | 5.39E-10 | 4.24E-09 | 0.00E+00 | -3.05E-08 |
| Ionizing radiation <sup>6)</sup> | kBq U235e | 2.34E-02 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 2.09E-05 | 6.80E-05 | 4.34E-03 | 0.00E+00 | -3.53E-02 |
| Ecotoxicity (freshwater)         | CTUe      | 2.55E+00 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 2.60E-03 | 1.10E-02 | 5.54E-01 | 0.00E+00 | -2.50E+01 |
| Human toxicity, cancer           | CTUh      | 1.34E-10 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 3.71E-13 | 8.88E-13 | 7.73E-11 | 0.00E+00 | -1.16E-09 |
| Human tox, non-cancer            | CTUh      | 6.87E-09 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 5.87E-12 | 5.06E-11 | 1.34E-09 | 0.00E+00 | -6.80E-09 |
| SQP <sup>7)</sup>                | -         | 3.95E+00 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 3.30E-03 | 7.87E-02 | 9.55E-01 | 0.00E+00 | -2.00E+00 |

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

## USE OF NATURAL RESOURCES

| Impact category                    | Unit           | A1-A3    | A4 | A5        | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1       | C2       | C3        | C4       | D         |
|------------------------------------|----------------|----------|----|-----------|----|----|----|----|----|----|----|----------|----------|-----------|----------|-----------|
| Renew. PER as energy <sup>8)</sup> | MJ             | 8.73E-01 | ND | 0.00E+00  | ND | ND | ND | ND | ND | ND | ND | 2.99E-04 | 1.07E-03 | 6.70E-02  | 0.00E+00 | -5.23E-01 |
| Renew. PER as material             | MJ             | 1.70E-01 | ND | -1.70E-01 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Total use of renew. PER            | MJ             | 1.04E+00 | ND | -1.70E-01 | ND | ND | ND | ND | ND | ND | ND | 2.99E-04 | 1.07E-03 | 6.70E-02  | 0.00E+00 | -5.23E-01 |
| Non-re. PER as energy              | MJ             | 8.22E+00 | ND | 0.00E+00  | ND | ND | ND | ND | ND | ND | ND | 4.72E-02 | 7.81E-02 | -4.20E+01 | 0.00E+00 | -3.84E+00 |
| Non-re. PER as material            | MJ             | 9.16E+00 | ND | -1.12E-02 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00 | -0.915+01 |
| Total use of non-re. PER           | MJ             | 8.23E+00 | ND | -1.12E-02 | ND | ND | ND | ND | ND | ND | ND | 4.72E-02 | 7.81E-02 | -4.20E+01 | 0.00E+00 | -3.84E+00 |
| Secondary materials                | kg             | 1.00E+00 | ND | 0.00E+00  | ND | ND | ND | ND | ND | ND | ND | 1.96E-05 | 3.32E-05 | 3.33E-03  | 0.00E+00 | 9.01E-02  |
| Renew. secondary fuels             | MJ             | 5.77E-03 | ND | 0.00E+00  | ND | ND | ND | ND | ND | ND | ND | 5.12E-08 | 4.22E-07 | 2.70E-05  | 0.00E+00 | -2.69E-03 |
| Non-ren. secondary fuels           | MJ             | 0.00E+00 | ND | 0.00E+00  | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00 | -7.95E-05 |
| Use of net fresh water             | m <sup>3</sup> | 8.84E-02 | ND | 0.00E+00  | ND | ND | ND | ND | ND | ND | ND | 3.12E-06 | 1.15E-05 | 3.62E-04  | 0.00E+00 | -9.97E-03 |

8) PER = Primary energy resources

## END OF LIFE – WASTE

| Impact category     | Unit | A1-A3    | A4 | A5       | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1       | C2       | C3       | C4       | D         |
|---------------------|------|----------|----|----------|----|----|----|----|----|----|----|----------|----------|----------|----------|-----------|
| Hazardous waste     | kg   | 1.29E-02 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 5.25E-05 | 1.32E-04 | 1.06E-02 | 0.00E+00 | -1.53E-03 |
| Non-hazardous waste | kg   | 3.71E-01 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 7.15E-04 | 2.45E-03 | 3.26E-01 | 0.00E+00 | -5.03E-02 |
| Radioactive waste   | kg   | 5.74E-06 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 5.12E-09 | 1.67E-08 | 1.11E-06 | 0.00E+00 | -1.13E-04 |

## END OF LIFE – OUTPUT FLOWS

| Impact category          | Unit | A1-A3    | A4 | A5       | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1       | C2       | C3       | C4       | D         |
|--------------------------|------|----------|----|----------|----|----|----|----|----|----|----|----------|----------|----------|----------|-----------|
| Components for re-use    | kg   | 0.00E+00 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -2.24E-04 |
| Materials for recycling  | kg   | 1.00E-04 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 1.00E+00 | 0.00E+00 | -8.04E-04 |
| Materials for energy rec | kg   | 0.00E+00 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -5.22E-05 |
| Exported energy          | MJ   | 0.00E+00 | ND | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -1.20E-02 |

## SCENARIO DOCUMENTATION

### Manufacturing energy scenario documentation

| Scenario parameter                                                                             | Value                             | Source                                            |
|------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------|
| Electricity, low voltage, residual mix                                                         | 0.65 kg CO <sub>2</sub> e / kWh   | Data source: ecoinvent 3.10<br>Country: Lithuania |
| Electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted | 0.0981 kg CO <sub>2</sub> e / kWh | Data source: ecoinvent 3.10<br>Country: Lithuania |
| District heating                                                                               | 0.0498 kg CO <sub>2</sub> e / kWh | Data source: ecoinvent 3.10<br>Country: Lithuania |
| Diesel, burned in building machine                                                             | 0.1 kg CO <sub>2</sub> e / MJ     | Data sources: ecoinvent 3.10<br>Country: World    |

### End of life scenario documentation

| Scenario parameter                                 | Value                                   |
|----------------------------------------------------|-----------------------------------------|
| Collection process – kg collected separately       | 1.0                                     |
| Collection process – kg collected with mixed waste |                                         |
| Recovery process – kg for re-use                   |                                         |
| Recovery process – kg for recycling                | 1.0                                     |
| Recovery process – kg for energy recovery          |                                         |
| Disposal (total) – kg for final deposition         |                                         |
| Scenario assumptions e.g. transportation           | Transported 50 km with an average lorry |

## BIBLIOGRAPHY

RTS PCR EN 15804:2019 RTS PCR in line with EN 15804+A2. Published by the Rakennustietosäätiö RTS sr. version 11/12/2024.

Guideline and instructions of the RTS EPD Environmental Product Declaration Programme in Finland (18.2.2021).

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations. Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

EN 15804:2012+A2:2019 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

EN 15941:2024 Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data

Warmotech panel LCA background report

Ecoinvent database v3.10.1 (2025) and One Click LCA database.



## ABOUT THE MANUFACTURER

Lithuanian company UAB WARMOTECH has been recycling rigid polyurethane foam since 2018. In 2020 it became a part of Finnfoam group and has been steadily growing ever since. Our company is a great example of sustainable manufacturing by creating widely used products made of non-degradable waste. We take the waste from production process and construction to produce a new innovative material under the Warmotech brand name.

|                             |                                                                                                   |
|-----------------------------|---------------------------------------------------------------------------------------------------|
| <b>Manufacturer</b>         | UAB WARMOTECH                                                                                     |
| <b>EPD author</b>           | Silvija Serapinaite                                                                               |
| <b>EPD verifier</b>         | Mari Kirss                                                                                        |
| <b>EPD program operator</b> | The Building Information Foundation RTS sr                                                        |
| <b>Background data</b>      | This EPD is based on Ecoinvent 3.10.1 (Allocation, cut-off, EN15804) and One Click LCA databases. |
| <b>LCA software</b>         | The LCA and EPD have been created using One Click LCA tool                                        |