

**Environmental  
Product  
Declaration**

*according to ISO 14025 and EN 15804*



This declaration is for:  
**Heraklith, Heratekta**

Provided by:  
**Knauf Insulation SPRL**



program operator

**Stichting MRPI®**

publisher

**Stichting MRPI®**

**www.mrpi.nl**

MRPI® registration

**1.1.00100.2020**

date of first issue

**21-02-2020**

date of this issue

**21-02-2020**

expiry date

**21-02-2025**



Nationale  
**Milieu** DATABASE

## PROGRAM OPERATOR

Stichting MRPI®  
Kingsfordweg 151  
1043GR  
Amsterdam

## COMPANY INFORMATION

# Heraklith®

*Knauf Insulation SPRL*  
*Rue de Maestricht 95*  
*B-4600*  
*Visé*

*Jean-Pierre Pigeolet*  
<https://www.knaufinsulation.com/>

## SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by **Pieter Stadhouders, Ecoreview**.

The LCA study has been done by **Dries Van Hout; Quentin Lancrenon, Greenfish**.

The certificate is based on an LCA-dossier according to ISO14025 and NEN-EN15804+A1. It is verified according to the 'EPD-MRPI® verification protocol May 2017.v3.1'. EPDs of construction products may not be comparable if they do not comply with NEN-EN15804+A1. Declaration of SVHC that are listed on the 'Candidate List of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

## VISUAL PRODUCT



## PRODUCT

Heraklith, Heratekta

## MRPI® REGISTRATION

1.1.00100.2020

## DATE OF ISSUE

21-02-2020

## EXPIRY DATE

21-02-2025

## DECLARED UNIT/FUNCTIONAL UNIT

1 m<sup>2</sup> Heratekta white insulation board with a thickness of 100 mm, a density of 70 kg/m<sup>3</sup> and an R-value of 3,02 m<sup>2</sup>K/W

## DESCRIPTION OF PRODUCT

Heratekta is a wood wool insulation board with EPS core. The board is painted in white on one side.

## MORE INFORMATION

<https://www.knaufinsulation.com/>

### DEMONSTRATION OF VERIFICATION

CEN standard EN15804 serves as the core PCR[a]

Independent verification of the declaration and data,  
according to EN ISO 14025:2010:

internal:            external: X

(where appropriate[b]) Third party verifier:

Pieter Stadhouders, Ecoreview

[a] Product Category Rules [b] Optional for B-to-B communication, mandatory for B-to-C communication (see EN ISO 14025:2010, 9.4).

## DETAILED PRODUCT DESCRIPTION

The production process of wood wool insulation boards consists of three main processes:

1. Moulding: Preparation and blending of the raw materials followed by deposition of the mixture in a mould of the corresponding size, the EPS is introduced in the mold;
2. Demoulding: Demoulding and drying of the products;
3. Finishing: Various sizing, forming, cutting and painting operations applied to the boards.

Product is delivered on pallets packaged with plastic film and cardboard protection. The estimated reference service life for the wood wool insulation boards is about 50 years, as long as the building equipment in which it is used. No maintenance is conducted during the lifetime.

| COMPONENT (> 1%) | [kg / %] |
|------------------|----------|
| Cement           | 44-46%   |
| Spruce wood      | 15-22%   |
| EPS core         | 13-16%   |
| Water            | 9%       |
| Paint            | 2%       |
| Edge protector   | 0.5-2%   |

(\*) > 1% of total mass

## SCOPE AND TYPE

The production is carried out at two different plants: Simbach (Germany) & Zalaegerszeg (Hungary). The wood wool boards are sold on the EU market. The product's end of life scenario has been modelled with a European view and can comply with the Netherlands. Background references are sourced from Ecoinvent 3.4 database, with two NMD V3.0 additions, the EPD of the supplier is used for modelling cement. The LCA is conducted with Ecochain software. It is a specific EPD.

| PRODUCT STAGE       |           |               | CONSTRUCTION PROCESS STAGE |          |     |             |        | USE STAGE   |               |                        |                       |                            |           |                  | END OF LIFE STAGE |                                    |   |  | BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES |
|---------------------|-----------|---------------|----------------------------|----------|-----|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|-------------------|------------------------------------|---|--|---|
| Raw material supply | Transport | Manufacturing | Transport gate to site     | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal          | Reuse-Recovery-Recycling-potential | D |  |   |
| A1                  | A2        | A3            | A4                         | A5       | B1  | B2          | B3     | B4          | B5            | B6                     | B7                    | C1                         | C2        | C3               | C4                |                                    | D |  |   |
| X                   | X         | X             | X                          | X        | X   | X           | X      | X           | X             | X                      | X                     | X                          | X         | X                | X                 | X                                  | X |  |   |

X = Module assessed

MNA = Module not assessed

## REPRESENTATIVENESS

The production of Heratekta in the Knauf Insulation plants in Simbach & Zalaegerszeg is representative for the EU market.

## ENVIRONMENTAL IMPACT per functional unit or declared unit

|   | UNIT           | A1           | A2           | A3            | A1-A3        | A4           | A5            | B1   | B2   | B3   | B4   | B5   | B6   | B7   | C1   | C2           | C3           | C4           | D             |
|---|----------------|--------------|--------------|---------------|--------------|--------------|---------------|------|------|------|------|------|------|------|------|--------------|--------------|--------------|---------------|
| ADPE  | kg Sb-eq.      | 1.11<br>E -3 | 8.83<br>E -7 | -5.01<br>E -6 | 1.11<br>E -3 | 3.02<br>E -6 | -2.51<br>E -5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.74<br>E -7 | 3.93<br>E -4 | 7.61<br>E -8 | -4.79<br>E -8 |
| ADPF  | MJ             | 1.04<br>E -1 | 2.11<br>E -3 | 9.02<br>E -3  | 1.15<br>E -1 | 7.22<br>E -3 | 2.31<br>E -3  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.54<br>E -4 | 3.79<br>E -4 | 1.10<br>E -3 | -6.77<br>E -3 |
| GWP   | kg CO2-eq.     | 1.14<br>E +1 | 2.90<br>E -1 | 1.51<br>E +0  | 1.32<br>E +1 | 9.94<br>E -1 | 3.17<br>E -1  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.01<br>E -2 | 1.67<br>E +0 | 7.09<br>E -2 | -7.40<br>E -1 |
| ODP   | kg CFC11-eq.   | 3.11<br>E -7 | 5.38<br>E -8 | 8.32<br>E -8  | 4.48<br>E -7 | 1.84<br>E -7 | 4.29<br>E -9  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.67<br>E -8 | 8.20<br>E -9 | 2.80<br>E -8 | -8.50<br>E -8 |
| POCP  | kg ethene-eq.  | 6.12<br>E -3 | 1.45<br>E -4 | 3.44<br>E -4  | 6.61<br>E -3 | 4.98<br>E -4 | 1.10<br>E -4  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.51<br>E -5 | 1.41<br>E -5 | 7.69<br>E -5 | -1.04<br>E -4 |
| AP  | kg SO2-eq.     | 4.70<br>E -2 | 9.24<br>E -4 | 3.80<br>E -3  | 5.17<br>E -2 | 3.16<br>E -3 | 6.76<br>E -4  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.87<br>E -4 | 4.94<br>E -4 | 5.21<br>E -4 | -4.83<br>E -4 |
| EP  | kg (PO4)3--eq. | 4.32<br>E -3 | 1.74<br>E -4 | 1.05<br>E -3  | 5.54<br>E -3 | 5.94<br>E -4 | -4.42<br>E -5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.39<br>E -5 | 1.59<br>E -4 | 1.10<br>E -4 | -7.08<br>E -5 |
| Toxicity indicators (Dutch market)          |                |              |              |               |              |              |               |      |      |      |      |      |      |      |      |              |              |              |               |
| HTP   | kg DCB-eq.     | 2.14<br>E +0 | 1.09<br>E -1 | 1.76<br>E -1  | 2.42<br>E +0 | 3.72<br>E -1 | 3.14<br>E -2  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.37<br>E -2 | 2.16<br>E -1 | 3.14<br>E -2 | -3.77<br>E -2 |
| FAETP                                       | kg DCB-eq.     | 1.47<br>E -1 | 3.01<br>E -3 | 2.23<br>E -2  | 1.72<br>E -1 | 1.03<br>E -2 | 3.31<br>E -3  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.34<br>E -4 | 6.18<br>E -2 | 7.62<br>E -4 | -4.35<br>E -4 |
| MAETP                                       | kg DCB-eq.     | 3.29<br>E +2 | 1.16<br>E +1 | 1.24<br>E +2  | 4.65<br>E +2 | 3.96<br>E +1 | 1.38<br>E +1  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.59<br>E +0 | 5.88<br>E +2 | 2.55<br>E +0 | -1.98<br>E +0 |
| TETP  | kg DCB-eq.     | 2.00<br>E -2 | 3.86<br>E -4 | 2.15<br>E -3  | 2.26<br>E -2 | 1.32<br>E -3 | -6.76<br>E -4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.20<br>E -4 | 1.42<br>E -3 | 7.23<br>E -5 | -1.20<br>E -4 |
| Environmental Cost Indicator (Dutch market) |                |              |              |               |              |              |               |      |      |      |      |      |      |      |      |              |              |              |               |
| ECI   | Euro           | 1.06<br>E +0 | 3.14<br>E -2 | 1.31<br>E -1  | 1.22<br>E +0 | 1.08<br>E -1 | 2.30<br>E -2  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.76<br>E -3 | 1.67<br>E -1 | 1.01<br>E -2 | -4.45<br>E -2 |

INA = Indicator Not Assessed

ADPE = Abiotic Depletion Potential for non-fossil resources

ADPF = Abiotic Depletion Potential for fossil resources

GWP = Global Warming Potential

ODP = Depletion potential of the stratospheric ozone layer

POCP = Formation potential of tropospheric ozone photochemical oxidants

AP = Acidification Potential of land and water

EP = Eutrophication Potential

HTP = Human Toxicity Potential

FAETP = Fresh water aquatic ecotoxicity potential

MAETP = Marine aquatic ecotoxicity potential

TETP = Terrestrial ecotoxicity potential

ECI = Environmental Cost Indicator

### RESOURCE USE per functional unit or declared unit

|       | UNIT | A1           | A2           | A3            | A1-A3        | A4           | A5            | B1   | B2   | B3   | B4   | B5   | B6   | B7   | C1   | C2           | C3           | C4           | D             |
|-------|------|--------------|--------------|---------------|--------------|--------------|---------------|------|------|------|------|------|------|------|------|--------------|--------------|--------------|---------------|
| PERE  | MJ   | 0.00         | 0.00         | 0.00          | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |
| PERM  | MJ   | 0.00         | 0.00         | 0.00          | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |
| PERT  | MJ   | 8.82<br>E +1 | 6.48<br>E -2 | -8.42<br>E -2 | 8.82<br>E +1 | 2.22<br>E -1 | -9.98<br>E +0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.01<br>E -2 | 2.44<br>E -2 | 3.03<br>E -2 | -2.17<br>E -2 |
| PENRE | MJ   | 0.00         | 0.00         | 0.00          | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |
| PENRM | MJ   | 0.00         | 0.00         | 0.00          | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |
| PENRT | MJ   | 2.30<br>E +2 | 4.75<br>E +0 | 1.94<br>E +1  | 2.54<br>E +2 | 1.63<br>E +1 | 4.98<br>E +0  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.47<br>E +0 | 8.15<br>E -1 | 2.47<br>E +0 | -1.46<br>E +1 |
| SM    | kg   | 0.00         | 0.00         | 0.00          | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |
| RSF   | MJ   | 0.00         | 0.00         | 0.00          | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |
| NRSF  | MJ   | 0.00         | 0.00         | 0.00          | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |
| FW    | m3   | 4.77<br>E -2 | 7.60<br>E -4 | 7.59<br>E -3  | 5.60<br>E -2 | 2.60<br>E -3 | 3.10<br>E -3  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.36<br>E -4 | 3.19<br>E -3 | 2.53<br>E -3 | -1.34<br>E -3 |

INA = Indicator Not Assessed

PERE = Use of renewable energy excluding renewable primary energy resources

PERM = Use of renewable energy resources used as raw materials

PENRE = Use of non-renewable primary energy resources excluding non-renewable energy resources used as raw materials

PENRM = Use of non-renewable primary energy resources used as raw materials

SM = Use of secondary materials

NRSF = Use of non renewable secondary fuels

PERT = Total use of renewable primary energy resources

PENRT = Total use of non-renewable primary energy resources

RSF = Use of renewable secondary fuels

FW = Use of net fresh water

### OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit

|      | UNIT | A1           | A2           | A3           | A1-A3        | A4           | A5            | B1   | B2   | B3   | B4   | B5   | B6   | B7   | C1   | C2           | C3           | C4           | D             |
|------|------|--------------|--------------|--------------|--------------|--------------|---------------|------|------|------|------|------|------|------|------|--------------|--------------|--------------|---------------|
| HWD  | kg   | 2.57<br>E -4 | 3.33<br>E -5 | 1.23<br>E -4 | 4.13<br>E -4 | 1.14<br>E -4 | -1.12<br>E -5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.03<br>E -5 | 4.80<br>E -6 | 1.66<br>E -5 | -2.19<br>E -5 |
| NHWD | kg   | 6.39<br>E -1 | 2.12<br>E -1 | 2.70<br>E -1 | 1.12<br>E +0 | 7.26<br>E -1 | 4.16<br>E -1  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.58<br>E -2 | 5.92<br>E -1 | 1.62<br>E +1 | -4.02<br>E -3 |
| RWD  | kg   | 1.07<br>E -4 | 3.07<br>E -5 | 7.85<br>E -5 | 2.16<br>E -4 | 1.05<br>E -4 | 6.98<br>E -6  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.52<br>E -6 | 2.57<br>E -6 | 1.58<br>E -5 | -6.11<br>E -6 |
| CRU  | kg   | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |
| MFR  | kg   | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |
| MER  | kg   | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |
| EEE  | MJ   | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |
| ETE  | MJ   | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00         | 0.00         | 0.00         | 0.00          |

INA = Indicator Not Assessed

HWD = Hazardous Waste Disposed

RWD = Radioactive Waste Disposed

MFR = Materials for recycling

EEE = Exported Electrical Energy

NHWD = Non Hazardous Waste Disposed

CRU = Components for reuse

MER = Materials for energy recovery

ETE = Exported Thermal Energy



### CALCULATION RULES

All relevant inputs and outputs - like emissions, energy and materials - have been taken into account in this LCA. And in accordance with EN 15804, the total neglected input flows per module do not exceed 5% of energy usage and mass. In a LCA, the environmental burden is often divided over several product systems. In this LCA, the waste processes are allocated in the relevant module. In the case of the use of secondary materials or energy recovered from secondary fuels, the system boundary between the system under study and the previous system (providing the secondary materials) is set where outputs of the previous system, e.g. materials, products, building elements or energy, reach the end-of-waste state.

The end-of-waste state is determined by the economic cut-off method. This means that the environmental impacts of processes that cause costs for the initial product, like waste processing, are allocated to the initial product's life cycle. When processes raise the value of materials, which is for example the case in certain recycling processes, the environmental impact of the recycling process is allocated to the life cycle of the recovered materials. In this LCA, the data relating to the manufacturing of the wood wool insulation boards and the background processes for environmental impacts are relatively recent (2-5 years) and deviate less than 5% from reality. The processes used in the production of the wood wool insulation boards are relatively representative for the geographic region, meaning that the production location of the wood wool insulation boards lies within a similar region for which the relevant Ecoinvent environmental records have been selected. Allocation by mass, so eventual environmental profile 96.6% Simbach, 3.4% Zalaegerszeg. Total considered Heraklith products amount to 1.397% (Simbach) and 0.181% (Zalaegerszeg) of total mass of products produced in both plants. These percentages are used for allocation of the the total usage and emissions of both plants. The collected data is from the year 2018.

### SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

- Raw material supply, transport and manufacturing (A1-A3) Treatment, transport and credits for incineration production waste included in A3;
- Transport to the customer and installation (A4-A5) During installation 2% product losses are considered;
- Transport after demolition, waste processing and disposal (C2-C4) An EOL scenario with 22% incineration, 78% landfill is considered;
- Reuse, recovery or recycling potential (from materials and/or useful energy carriers leaving the system boundaries) (D).

| Reporting GWP separately (kg CO2-eq) | A1       | A2      | A3      | A4      | A5       | C2      | C3      | C4      | D        |
|--------------------------------------|----------|---------|---------|---------|----------|---------|---------|---------|----------|
| GWP - Total                          | 1.14E+1  | 2.90E-1 | 1.51E+0 | 9.94E-1 | 3.17E-1  | 9.01E-2 | 1.67E+0 | 7.09E-2 | -7.40E-1 |
| GWP - Biogenic                       | -2.45E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | -4.90E-2 | 0.00E+0 | 5.38E-1 | 0.00E+0 | 0.00E+0  |
| GWP - Fossil                         | 1.39E+1  | 2.90E-1 | 1.51E+0 | 9.94E-1 | 3.66E-1  | 9.01E-2 | 1.13E+0 | 7.09E-2 | -7.40E-1 |





## DECLARATION OF SVHC

The product does not contain substances on the "Candidate List of Very High Concern for Authorisation" under the REACH regulation (if above 0,1% of the mass).



## REFERENCES

- ISO 14040: Environmental management - Life cycle assessment – Principles and Framework', International Organization for Standardization, ISO14040:2006.
- ISO 14044: Environmental management - Life cycle assessment - Requirements and guidelines', International Organization for Standardization, ISO14044:2006.
- ISO 14025: Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures', International Organization for Standardization, ISO14025:2006.
- NEN-EN 15804: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products', NEN-EN 15804:2012+A1:2013.
- EcoChain, 2017, web: <http://app.ecochain.com>.
- NEN-EN 16783:2017: Thermal insulation products. Product category rules (PCR) for factory made and in-situ formed products for preparing environmental product declarations', NEN-EN 16783:2017.
- Bepalingsmethode - milieuprestatie gebouwen en GWW-werken', Version 3.0, Stichting Bouwkwiteit, January 2019.
- J. Malinauskaite; H. Jouhara; D. Czajczyska; P. Stanchev; E. Katsou; P. Rostkowski; R.J. Thorne; J. Colón; S. Ponsá; F. Al-Mansour; L. Anguilano; R. Krzyyska; I.C. López; A.Vlasopoulos; N. Spencer, Municipal solid waste management and waste-to-energy in the context of a circular economy and energy recycling in Europe, Energy, ISSN: 0360-5442, Vol: 141, Page: 2013-2044.



## REMARKS

The Heraklith wood wool plants of Simbach and Zalaegerszeg are both ISO 9001, ISO 14001, ISO 50001 and ISO 45001 certified under the scope "Design, Development and Production of Insulation Materials and Systems".