

Result summary

# SupafilCavity033 - Rd=3,5

Knauf Insulation B.V. (2023)

|                     |                |
|---------------------|----------------|
| Calculation number: | ReTHiNK-109646 |
| Generation on:      | 08-07-2025     |
| Issue date:         | 02-07-2025     |
| Valid until:        | 02-07-2030     |
| Status:             | verified       |

ReTHiNK



## 1 General information

### 1.1 PRODUCT

SupafilCavity033 - Rd=3,5

### 1.2 VALIDITY

**Issue date:** 02-07-2025

**Valid until:** 02-07-2030

### 1.3 OWNER OF THE DECLARATION



**Manufacturer:** Knauf Insulation B.V. (2023)

**Address:** Dakota 7, 5126 RL Gilze

**E-mail:** customerservice.nl@knaufinsulation.com

**Website:** <https://www.knaufinsulation.nl/>

**Production location:** Knauf Insulation (Visé)

**Address production location:** Rue de Maestricht 95, B-4600 Visé

### 1.4 VERIFICATION OF THE DECLARATION

The independent verification is in accordance with the ISO 14025:2011. The LCA is in compliance with ISO 14040:2006 and ISO 14044:2006. The EN 15804+A2:2019 serves as the core PCR.

Internal  External



Agnes Schuurmans, SGS Search / Intron

### 1.5 PRODUCT CATEGORY RULES

NMD Determination method Environmental performance Construction works v1.1 March 2022 and PCR EN 16783

### 1.6 FUNCTIONAL UNIT

m<sup>2</sup>

1 m<sup>2</sup> of glass mineral blowing wool (GMW).

The final product is manufactured at the production facility Visé (BE) and has a minimum reference service life of 75 years (SBR guide for service lifes).

Reference unit: square meter (m<sup>2</sup>)

### 1.7 CONVERSION FACTORS

| Description               | Value    | Unit           |
|---------------------------|----------|----------------|
| Reference unit            | 1        | m <sup>2</sup> |
| Weight per reference unit | 3.465    | kg             |
| Conversion factor to 1 kg | 0.288600 | m <sup>2</sup> |

### 1.8 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with options, modules C1-C4 and module D EPD. The life cycle stages included are as shown below:

(X = module included, ND = module not declared)

| 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  | ND | ND | ND | ND | X  | X  | X  | X  | X |

The modules of the EN 15804 contain the following:

## 1 General information

|  |   |
|--|---|
| Module A1 = Raw material supply                    | Module B5 = Refurbishment   |
| Module A2 = Transport                              | Module B6 = Operational energy use                                    |
| Module A3 = Manufacturing                          | Module B7 = Operational water use                                     |
| Module A4 = Transport                              | Module C1 = De-construction / Demolition                              |
| Module A5 = Construction -<br>Installation process | Module C2 = Transport   |
| Module B1 = Use                                    | Module C3 = Waste Processing  |
| Module B2 = Maintenance                            | Module C4 = Disposal  |
| Module B3 = Repair                                 | Module D = Benefits and loads beyond the<br>product system boundaries |

Module B4 = Replacement

### 1.9 COMPARABILITY

In principle, a comparison or assessment of the environmental impacts of different products is only possible if they have been prepared in accordance with EN 15804+A2:2019. For the evaluation of the comparability, the following aspects have to be considered in particular: PCR used, functional or declared unit, geographical reference, the definition of the system boundary, declared modules, data selection (primary or secondary data, background database, data quality), scenarios used for use and disposal phases, and the life cycle inventory (data collection, calculation methods, allocations, validity period). PCRs and general program instructions of different EPD program operators may differ. Comparability needs to be evaluated. For further guidance, see EN 15804+A2:2019 and ISO 14025.

## 2 Product

### 2.1 PRODUCT DESCRIPTION

Knauf Insulation GMW White Wool is a lightweight thermal insulation material without a binder. The product partially consists of recycled materials (external and internal).

The dimensions, density and mass of the product may vary accordingly to the technical specifications of the final product.

### 2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

Knauf Insulation GMW Blowing wool products are used for any insulation purpose in the construction industry. Because of the technical specifications, these products are used in high quality level constructions where energy efficiency performance has an essential role, as well as fire and/or sound insulation.

For example, Knauf Insulation GMW can be used in external wall applications such as cavity walls, ventilated façades, metal frame and timber frame constructions.

The specifications (e.g. format, density, thickness) of Knauf Insulation GMW products depend on the actual environmental conditions and desired technical requirements.

Knauf Insulation GMW products can be used for (but not limited to):

- Pitched roof constructions (warm or cold variant)
- External walls with insulation from inside (available as system)
- Partition walls (importance of the acoustical performance)
- Timber or metal framed constructions (sandwich panels)

### 2.3 DESCRIPTION PRODUCTION PROCESS

The production process consists of the following stages.

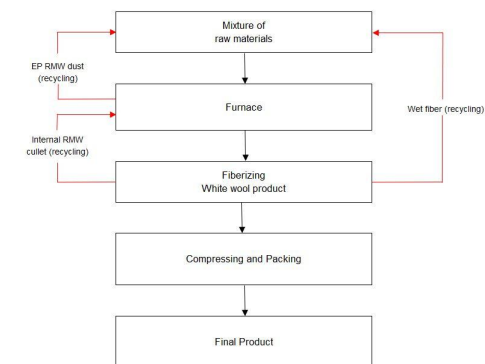
- Mixture of raw materials
- Production of glass
- Fiberizing GMW

At Knauf Insulation, the main raw material for manufacturing GMW Blowing wool is recycled glass, also called external cullet. For the plant Visé, this is an average of 80% of the total batch. Furthermore recycled wet fibres are recycled within the own production process (no waste).

Other raw materials used are sand, limestone, dolomite, feldspathoid nepheline and manganese dioxide, borax and sodium carbonate.

All materials are first weighed and mixed. The mixture is sent to an furnace at a very high temperature. The molten glass is fiberised and the binder ECOSE® is applied to the fibers (except for white woolen products).

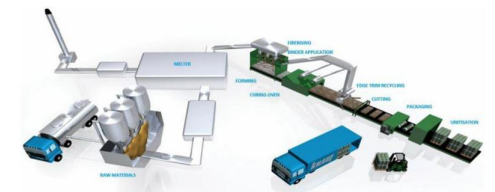
The Blowing wool product is packed with a compression ratio from 1:15 to 1:30.



#### Information about Glass Mineral Wool production

The Glass Mineral Wool products for (GMW) are available in the form of loose glass wool fibers.

In general the density for Blowing wool ranges from 12 to 35 kg/m<sup>3</sup> and Blowing wool consists of at least 99% inert material. The inert part is made of recycled glass (external cullet up to 80% of the composition) and mainly sand and dolomite.



### 2.4 CONSTRUCTION DESCRIPTION

The installation process of a Knauf Insulation GMW Blowing wool product depends on the actual application. In general, all products are applied between or within a framework or cavity wall and then attached to or fixated between the construction. This requires minimal (if any) additional energy or auxiliary materials and therefore the impact is assumed to be negligible (and not declared).

### 3 Results

#### 3.1 ENVIRONMENTAL IMPACT INDICATORS PER SQUARE METER

##### CORE ENVIRONMENTAL IMPACT INDICATORS EN 15804+A2

| Abbr.     | Unit                     | A1      | A2      | A3       | A1-<br>A3 | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3       | C4      | D        | Total   |
|-----------|--------------------------|---------|---------|----------|-----------|---------|---------|---------|---------|---------|---------|---------|----------|---------|----------|---------|
| GWP-total | kg CO <sub>2</sub> eq.   | 2.76E-1 | 8.97E-2 | 2.45E+0  | 2.81E+0   | 1.38E-1 | 4.81E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.57E-2 | 3.13E-3  | 1.55E-2 | -4.16E-2 | 3.46E+0 |
| GWP-f     | kg CO <sub>2</sub> eq.   | 2.49E-1 | 8.97E-2 | 2.47E+0  | 2.80E+0   | 1.38E-1 | 3.57E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.56E-2 | 3.13E-3  | 1.55E-2 | -4.22E-2 | 3.32E+0 |
| GWP-b     | kg CO <sub>2</sub> eq.   | 2.67E-2 | 3.30E-5 | -1.96E-2 | 7.10E-3   | 6.85E-5 | 1.23E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.84E-5 | 0.00E+0  | 0.00E+0 | 6.37E-4  | 1.31E-1 |
| GWP-luluc | kg CO <sub>2</sub> eq.   | 1.39E-4 | 4.04E-5 | 2.24E-3  | 2.42E-3   | 5.97E-5 | 8.77E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.67E-5 | 1.13E-6  | 4.33E-6 | -4.43E-5 | 2.55E-3 |
| ODP       | kg CFC 11 eq.            | 3.39E-8 | 1.93E-8 | 2.99E-7  | 3.53E-7   | 3.05E-8 | 5.23E-8 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.01E-8 | 7.67E-10 | 6.39E-9 | -1.26E-8 | 4.40E-7 |
| AP        | mol H+ eq.               | 1.60E-3 | 1.13E-3 | 1.12E-2  | 1.39E-2   | 3.96E-4 | 1.59E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.65E-4 | 2.08E-5  | 1.47E-4 | -2.10E-5 | 1.63E-2 |
| EP-fw     | kg P eq.                 | 1.82E-5 | 7.66E-7 | 8.66E-5  | 1.06E-4   | 1.26E-6 | 3.72E-6 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.60E-7 | 5.16E-8  | 1.74E-7 | -2.58E-7 | 1.11E-4 |
| EP-m      | kg N eq.                 | 3.44E-4 | 3.20E-4 | 1.94E-3  | 2.60E-3   | 7.50E-5 | 5.71E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 9.33E-5 | 6.75E-6  | 5.07E-5 | -5.20E-5 | 3.35E-3 |
| EP-T      | mol N eq.                | 4.25E-3 | 3.55E-3 | 2.73E-2  | 3.51E-2   | 8.42E-4 | 6.42E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.03E-3 | 7.45E-5  | 5.59E-4 | -3.65E-4 | 4.36E-2 |
| POCP      | kg NMVOC eq.             | 1.03E-3 | 9.59E-4 | 6.35E-3  | 8.34E-3   | 3.22E-4 | 1.63E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.93E-4 | 2.30E-5  | 1.62E-4 | -1.71E-4 | 1.06E-2 |
| ADP-mm    | kg Sb-eq.                | 3.61E-6 | 1.86E-6 | 1.77E-5  | 2.31E-5   | 4.97E-6 | 1.19E-6 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.16E-6 | 5.82E-8  | 1.42E-7 | 1.23E-5  | 4.29E-5 |
| ADP-f     | MJ                       | 4.49E+0 | 1.30E+0 | 4.07E+1  | 4.65E+1   | 2.06E+0 | 3.78E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.88E-1 | 6.02E-2  | 4.34E-1 | -1.56E+0 | 5.19E+1 |
| WDP       | m <sup>3</sup> world eq. | 2.96E-1 | 4.03E-3 | 1.17E+0  | 1.47E+0   | 6.33E-3 | 4.44E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.46E-3 | -9.80E-4 | 1.95E-2 | -4.98E-3 | 1.53E+0 |

**GWP-total**=Global Warming Potential total (GWP-total) | **GWP-f**=Global Warming Potential fossil fuels (GWP-fossil) | **GWP-b**=Global Warming Potential biogenic (GWP-biogenic) | **GWP-luluc**=Global Warming Potential land use and land use change (GWP-luluc) | **ODP**=Depletion potential of the stratospheric ozone layer (ODP) | **AP**=Acidification potential, Accumulated Exceedance (AP) | **EP-fw**=Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater) | **EP-m**=Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine) | **EP-T**=Eutrophication potential, Accumulated Exceedance (EP-terrestrial) | **POCP**=Formation potential of tropospheric ozone (POCP) | **ADP-mm**=Abiotic depletion potential for non fossil resources (ADP mm) | **ADP-f**=Abiotic depletion for fossil resources potential (ADP fossil) | **WDP**=Water (user) depreciation potential, deprivation-weighted water consumption (WDP)

### 3 Results

#### ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN 15804+A2

| Abbr.  | Unit              | A1       | A2       | A3      | A1-A3   | A4       | A5       | B1      | B2      | B3      | C1      | C2       | C3       | C4       | D         | Total   |
|--------|-------------------|----------|----------|---------|---------|----------|----------|---------|---------|---------|---------|----------|----------|----------|-----------|---------|
| PM     | disease incidence | 3.74E-8  | 6.68E-9  | 7.05E-8 | 1.15E-7 | 7.56E-9  | 6.58E-9  | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.09E-9  | 6.10E-10 | 2.86E-9  | -2.55E-9  | 1.34E-7 |
| IR     | kBq U235 eq.      | 6.13E-3  | 5.47E-3  | 1.17E-1 | 1.29E-1 | 9.00E-3  | 1.49E-2  | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.88E-3  | 2.21E-4  | 1.78E-3  | -5.81E-4  | 1.57E-1 |
| ETP-fw | CTUe              | 2.77E+1  | 1.09E+0  | 3.92E+1 | 6.80E+1 | 1.74E+0  | 4.50E+0  | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.14E-1  | 7.51E-2  | 2.82E-1  | -8.91E-1  | 7.43E+1 |
| HTP-c  | CTUh              | 2.12E-10 | 4.21E-11 | 1.52E-9 | 1.77E-9 | 5.33E-11 | 3.97E-10 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.99E-11 | 4.33E-12 | 6.51E-12 | -1.57E-11 | 2.24E-9 |
| HTP-nc | CTUh              | 6.48E-9  | 1.13E-9  | 9.86E-8 | 1.06E-7 | 1.76E-9  | 5.42E-9  | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.73E-10 | 7.28E-11 | 2.00E-10 | -3.98E-10 | 1.14E-7 |
| SQP    | Pt                | 1.35E+0  | 9.11E-1  | 9.06E+1 | 9.28E+1 | 1.23E+0  | 2.35E+0  | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.97E-1  | 8.90E-2  | 9.10E-1  | -4.37E+0  | 9.36E+1 |

**PM**=Potential incidence of disease due to PM emissions (PM) | **IR**=Potential Human exposure efficiency relative to U235 (IRP) | **ETP-fw**=Potential Comparative Toxic Unit for ecosystems (ETP-fw) | **HTP-c**=Potential Comparative Toxic Unit for humans (HTP-c) | **HTP-nc**=Potential Comparative Toxic Unit for humans (HTP-nc) | **SQP**=Potential soil quality index (SQP)

#### CLASSIFICATION OF DISCLAIMERS TO THE DECLARATION OF CORE AND ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

| ILCD classification | Indicator   | Disclaimer |
|---------------------|---|------------|
| ILCD type / level 1 | Global warming potential (GWP)  | None       |
|                     | Depletion potential of the stratospheric ozone layer (ODP)  | None       |
|                     | Potential incidence of disease due to PM emissions (PM)   | None       |
| ILCD type / level 2 | Acidification potential, Accumulated Exceedance (AP)  | None       |
|                     | Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater) | None       |
|                     | Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)         | None       |
|                     | Eutrophication potential, Accumulated Exceedance (EP-terrestrial)                                   | None       |
|                     | Formation potential of tropospheric ozone (POCP)  | None       |
| ILCD type / level 3 | Potential Human exposure efficiency relative to U235 (IRP)  | 1          |
|                     | Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)                          | 2          |
|                     | Abiotic depletion potential for fossil resources (ADP-fossil)                                       | 2          |
|                     | Water (user) deprivation potential, deprivation-weighted water consumption (WDP)                    | 2          |
|                     | Potential Comparative Toxic Unit for ecosystems (ETP-fw)  | 2          |

### 3 Results

| ILCD classification | Indicator  | Disclaimer |
|---------------------|--|------------|
|                     | Potential Comparative Toxic Unit for humans (HTP-c)  | 2          |
|                     | Potential Comparative Toxic Unit for humans (HTP-nc) | 2          |
|                     | Potential Soil quality index (SQP)                   | 2          |

**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.

**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.

#### CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A1

| Abbr. | Unit                     | A1      | A2      | A3      | A1-A3   | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3       | C4      | D        | Total   |
|-------|--------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|----------|---------|
| ADPE  | kg Sb eq.                | 3.61E-6 | 1.86E-6 | 1.77E-5 | 2.31E-5 | 4.97E-6 | 1.19E-6 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.16E-6 | 5.82E-8  | 1.42E-7 | 1.23E-5  | 4.29E-5 |
| GWP   | kg CO <sub>2</sub> eq.   | 2.51E-1 | 8.90E-2 | 2.45E+0 | 2.79E+0 | 1.37E-1 | 3.56E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.52E-2 | 3.07E-3  | 1.52E-2 | -4.11E-2 | 3.30E+0 |
| ODP   | kg CFC 11 eq.            | 3.99E-8 | 1.54E-8 | 2.88E-7 | 3.43E-7 | 2.44E-8 | 4.37E-8 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.01E-9 | 6.15E-10 | 5.07E-9 | -1.23E-8 | 4.13E-7 |
| POCP  | kg ethene eq.            | 1.55E-4 | 7.04E-5 | 9.05E-4 | 1.13E-3 | 6.59E-5 | 8.95E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.73E-5 | 3.16E-6  | 1.62E-5 | -2.75E-5 | 1.30E-3 |
| AP    | kg SO <sub>2</sub> eq.   | 1.24E-3 | 8.89E-4 | 8.79E-3 | 1.09E-2 | 3.26E-4 | 1.18E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.99E-4 | 1.59E-5  | 1.11E-4 | -1.14E-5 | 1.27E-2 |
| EP    | Kg PO4 <sup>3-</sup> eq. | 2.14E-4 | 1.23E-4 | 1.24E-3 | 1.58E-3 | 4.93E-5 | 2.37E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.92E-5 | 2.93E-6  | 2.15E-5 | -2.26E-5 | 1.90E-3 |

**ADPE**=Depletion of abiotic resources-elements | **GWP**=Global warming | **ODP**=Ozone layer depletion | **POCP**=Photochemical oxidants creation | **AP**=Acidification of soil and water | **EP**=Eutrophication

#### NATIONAL ANNEX NMD

| Abbr. | Unit          | A1      | A2      | A3      | A1-A3   | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D        | Total   |
|-------|---------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| ADPF  | kg Sb eq.     | 2.14E-3 | 6.26E-4 | 1.99E-2 | 2.26E-2 | 9.77E-4 | 1.81E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.33E-4 | 2.97E-5 | 2.08E-4 | -7.91E-4 | 2.52E-2 |
| HTP   | kg 1,4 DB eq. | 2.25E-1 | 4.07E-2 | 5.92E-1 | 8.57E-1 | 5.06E-2 | 8.60E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.91E-2 | 1.97E-3 | 6.89E-3 | -1.13E-2 | 1.01E+0 |
| FAETP | kg 1,4 DB eq. | 2.45E-3 | 1.02E-3 | 1.19E-2 | 1.54E-2 | 1.39E-3 | 1.93E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.56E-4 | 3.23E-5 | 1.63E-4 | -5.66E-5 | 1.94E-2 |

**ADPF**=Depletion of abiotic resources-fossil fuels | **HTP**=Human toxicity | **FAETP**=Ecotoxicity, fresh water | **MAETP**=Ecotoxicity, marine water | **TETP**=Ecotoxicity, terrestrial

### 3 Results

| Abbr. | Unit          | A1      | A2      | A3      | A1-<br>A3 | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D        | Total   |
|-------|---------------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| MAETP | kg 1,4 DB eq. | 6.50E+0 | 3.91E+0 | 4.49E+1 | 5.53E+1   | 5.23E+0 | 6.23E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.00E+0 | 1.14E-1 | 5.84E-1 | 1.89E-1  | 6.96E+1 |
| TETP  | kg 1,4 DB eq. | 4.37E-4 | 1.36E-4 | 2.83E-2 | 2.88E-2   | 1.98E-4 | 1.15E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.73E-5 | 6.49E-6 | 1.73E-5 | -3.82E-5 | 3.02E-2 |

**ADPF**=Depletion of abiotic resources-fossil fuels | **HTP**=Human toxicity | **FAETP**=Ecotoxicity, fresh water | **MAETP**=Ecotoxicity, marine water | **TETP**=Ecotoxicity, terrestrial

### 3.2 INDICATORS DESCRIBING RESOURCE USE AND ENVIRONMENTAL INFORMATION BASED ON LIFE CYCLE INVENTORY (LCI)

#### PARAMETERS DESCRIBING RESOURCE USE

| Abbr. | Unit | A1      | A2      | A3      | A1-<br>A3 | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3       | C4      | D        | Total   |
|-------|------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|----------|---------|----------|---------|
| PERE  | MJ   | 3.29E-1 | 1.46E-2 | 2.43E+1 | 2.46E+1   | 3.51E-2 | 5.33E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.62E-3 | 9.66E-4  | 3.51E-3 | -9.65E-1 | 2.42E+1 |
| PERM  | MJ   | 0.00E+0 | 0.00E+0 | 1.01E+0 | 1.01E+0   | 0.00E+0 | 2.01E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0  | 0.00E+0 | 0.00E+0  | 1.03E+0 |
| PERT  | MJ   | 3.29E-1 | 1.46E-2 | 2.53E+1 | 2.56E+1   | 3.51E-2 | 5.53E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.62E-3 | 9.66E-4  | 3.51E-3 | -9.65E-1 | 2.52E+1 |
| PENRE | MJ   | 4.37E+0 | 1.38E+0 | 4.22E+1 | 4.79E+1   | 2.19E+0 | 3.99E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.31E-1 | 6.40E-2  | 4.61E-1 | -1.61E+0 | 5.38E+1 |
| PENRM | MJ   | 4.34E-1 | 0.00E+0 | 2.00E+0 | 2.43E+0   | 0.00E+0 | 4.86E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0  | 0.00E+0 | -1.13E-1 | 2.37E+0 |
| PENRT | MJ   | 4.80E+0 | 1.38E+0 | 4.42E+1 | 5.04E+1   | 2.19E+0 | 4.04E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.31E-1 | 6.40E-2  | 4.61E-1 | -1.72E+0 | 5.61E+1 |
| SM    | Kg   | 2.64E+0 | 0.00E+0 | 6.45E-2 | 2.70E+0   | 6.44E-1 | 6.70E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0  | 0.00E+0 | -2.70E-1 | 3.15E+0 |
| RSF   | MJ   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0  | 0.00E+0 | 0.00E+0  | 0.00E+0 |
| NRSF  | MJ   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0  | 0.00E+0 | 0.00E+0  | 0.00E+0 |
| FW    | m³   | 7.89E-3 | 1.38E-4 | 3.59E-2 | 4.39E-2   | 2.45E-4 | 1.38E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.39E-5 | -2.06E-5 | 4.63E-4 | -9.32E-5 | 4.60E-2 |

**PERE**=Use of renewable primary energy excluding renewable primary energy resources used as raw materials | **PERM**=Use of renewable primary energy resources used as raw materials | **PERT**=Total use of renewable primary energy resources | **PENRE**=Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials | **PENRM**=Use of non-renewable primary energy resources used as raw materials | **PENRT**=Total use of non-renewable primary energy resources | **SM**=Use of secondary material | **RSF**=Use of renewable secondary fuels | **NRSF**=Use of non-renewable secondary fuels | **FW**=Net use of fresh water

### 3 Results

#### OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

| Abbr. | Unit | A1      | A2      | A3      | A1-<br>A3 | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D        | Total   |
|-------|------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD   | Kg   | 2.41E-6 | 2.82E-6 | 6.23E-5 | 6.75E-5   | 5.54E-6 | 8.73E-6 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.74E-6 | 1.21E-7 | 6.48E-7 | -1.52E-6 | 8.28E-5 |
| NHWD  | Kg   | 1.06E-1 | 6.44E-2 | 2.78E-1 | 4.49E-1   | 8.13E-2 | 1.97E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.37E-2 | 2.36E-3 | 2.95E+0 | -4.48E-3 | 3.72E+0 |
| RWD   | Kg   | 6.81E-6 | 8.66E-6 | 1.06E-4 | 1.21E-4   | 1.39E-5 | 2.15E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.53E-6 | 3.42E-7 | 2.85E-6 | -8.30E-7 | 1.64E-4 |

HWD=Hazardous waste disposed | NHWD=Non-hazardous waste disposed | RWD=Radioactive waste disposed

#### ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

| Abbr. | Unit | A1      | A2      | A3      | A1-<br>A3 | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D       | Total   |
|-------|------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| CRU   | Kg   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 |
| MFR   | Kg   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0   | 0.00E+0 | 1.30E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.47E-1 | 0.00E+0 | 0.00E+0 | 3.60E-1 |
| MER   | Kg   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 |
| EE    | MJ   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.57E+0 | 2.57E+0 |
| EET   | MJ   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.14E-1 | 8.14E-1 |
| EEE   | MJ   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.73E-1 | 4.73E-1 |

CRU=Components for re-use | MFR=Materials for recycling | MER=Materials for energy recovery | EE=Exported energy | EET=Exported Energy, Thermic | EEE=Exported Energy, Electric

## 3 Results

### 3.3 INFORMATION ON BIOGENIC CARBON CONTENT PER SQUARE METER

#### BIOGENIC CARBON CONTENT

The following Information describes the biogenic carbon content in (the main parts of) the product at the factory gate per square meter:

| Biogenic carbon content                           | Amount  | Unit |
|---|---------|------|
| Biogenic carbon content in the product            | 0       | kg C |
| Biogenic carbon content in accompanying packaging | 0.03273 | kg C |

#### UPTAKE OF BIOGENIC CARBON DIOXIDE

The following amount of carbon dioxide uptake is taken into account. Related uptake and release of carbon dioxide in downstream processes are not taken into account in this number although they do appear in the presented results. One kilogram of biogenic Carbon content is equivalent to 44/12 kg of biogenic carbon dioxide uptake.

| Uptake Biogenic Carbon dioxide | Amount | Unit              |
|--------------------------------|--------|-------------------|
| Packaging                      | 0.12   | kg CO2 (biogenic) |

## 3 Results

### 3.4 ENVIRONMENTAL COST INDICATOR NL PER SQUARE METER

Using the environmental cost indicator (ECI) method, which is presented in the NMD Determination Method (2020), the results are aggregated to the single-point score. The ECI is a relevant valuation method, especially in the Dutch construction sector. In the Netherlands, it is a prerequisite for public tenders. The aim of the indicator is to show the shadow price for environmental impacts of a product or project. The application of single-point scores is an additional assessment tool for eco-balance results. However, it must be pointed out that weightings are always based on a value maintenance and not on a scientific basis (EN 14040). The ECI results are shown in the following table.

| Module EN15804  | ECI NL 2010   | Share in total (%) |
|---|---------------|--------------------|
| A1 Raw Materials Supply                                 | € 0.04        | 12,1 %             |
| A2 Transport  | € 0.01        | 4,0 %              |
| A3 Manufacturing  | € 0.23        | 68,6 %             |
| A4 Transport from the gate to the site                  | € 0.01        | 4,1 %              |
| A5 Construction - Installation process                  | € 0.03        | 9,9 %              |
| B1 Use  | € 0.00        | 0,0 %              |
| B2 Maintenance  | € 0.00        | 0,0 %              |
| B3 Repair   | € 0.00        | 0,0 %              |
| C1 De-construction / demolition                         | € 0.00        | 0,0 %              |
| C2 Transport  | € 0.01        | 1,6 %              |
| C3 Waste processing                                     | € 0.00        | 0,1 %              |
| C4 Disposal   | € 0.00        | 0,6 %              |
| D Benefits and loads beyond the product system boundary | € 0.00        | -1,0 %             |
| <b>ECI NL 2010 per functional unit</b>                  | <b>€ 0.34</b> |                    |

## 4 Contact information

Publisher

Operator

Owner of declaration

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