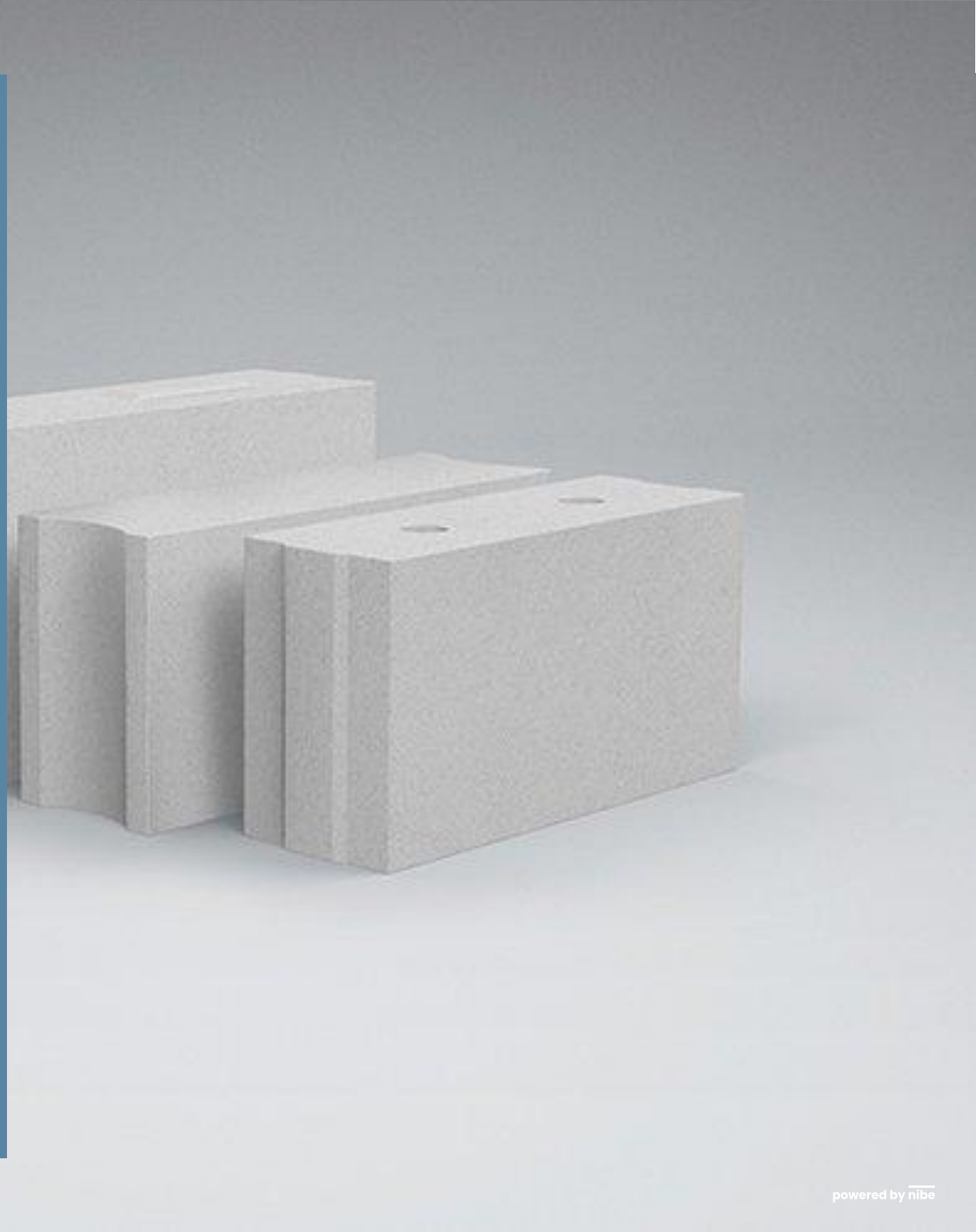
Result summary

# 1 m2 Silka kalkzandsteen elementen CS28 (150 mm)

Xella Nederland B.V.

| | |
|---|---|
| Calculation number: | ReTHiNK-58692 |
| Generation on: | 13-12-2024 |
| Issue date: | 13-12-2024 |
| Valid until: | 13-12-2029 |
| Status: | verified |

R<THiNK



# 1 General information

## 1.1 PRODUCT

1 m2 Silka kalkzandsteen elementen CS28 (150 mm)

## 1.2 VALIDITY

**Issue date:** 13-12-2024
**Valid until:** 13-12-2029

## 1.3 OWNER OF THE DECLARATION

**Manufacturer:** Xella Nederland B.V.
**Address:** Mildijk 141, 4214 DR Vuren
**E-mail:** infonl@xella.com
**Website:** www.xella.nl
**Production location:** Xella Kalkzandsteen BV, vestiging De Hazelaar
**Address production location:** Saeffelderstraat 10, 6104 RA Koningsbosch

## 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 15804:2012+A2:2019 serves as the core PCR.

☐ Internal ☒ External

Bob Roijen, SGS Search / Intron

## 1.5 PRODUCT CATEGORY RULES

NMD Determination method Environmental performance Construction works v1.1 March 2022

## 1.6 FUNCTIONAL UNIT

**1m2 Silka kalkzandsteen element met sterkteklasse CS28 en 150 mm dikte voor dragende binnen- en buitenwanden (exclusief lijmmortel)**

1m2 Silka kalkzandsteen element met sterkteklasse CS28 en 150 mm dikte voor dragende binnen- en buitenwanden. De voor constructie benodigde lijmmortel is niet meegenomen in de berekening.

Reference unit: square meter (m2)

## 1.7 CONVERSION FACTORS

| Description | Value | Unit |
|---|---|---|
| Reference unit | 1 | m2 |
| Weight per reference unit | 266.615 | kg |
| Conversion factor to 1 kg | 0.003751 | m2 |

## 1.8 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with options 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

# 1 General information

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | X | X | X | X | X | X | X | ND | ND | ND | ND | X | X | X | X | X |

The modules of the EN15804 contain the following:

| | |
|---|---|
| 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 - 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 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. 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 (5.3 Comparability of EPD for construction products) and ISO 14025 (6.7.2 Requirements for comparability).

# 2 Product

## 2.1 PRODUCT DESCRIPTION

Silka kalksteen elementen bestaan uit kalk, zand, water en toeslagmateriaal.

Eigenschappen:
Soortelijk gewicht: 1750kg/m³
Druksterkte CS28: 28N/mm²
Productnorm: NEN-EN 771-2

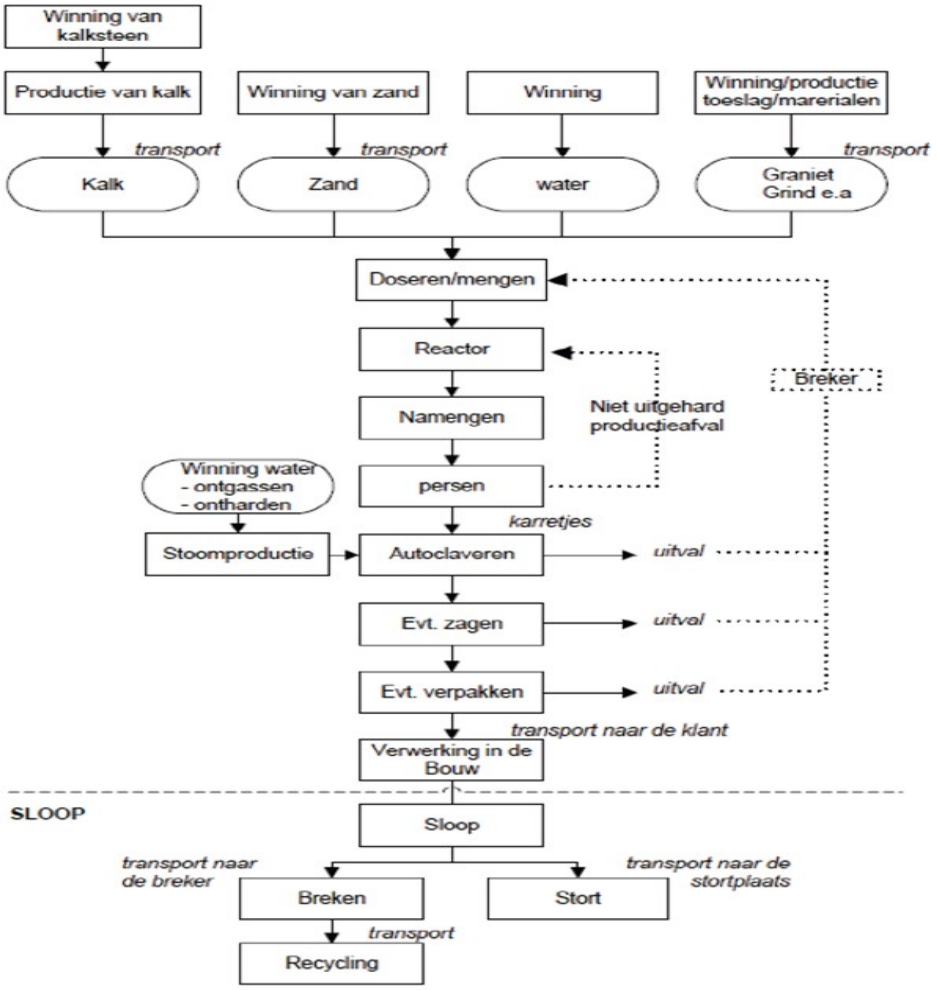
Andere eigenschappen en prestaties kunnen geraadpleegd worden in de KOMO certificaten:
KOMO® PRODUCT CERTIFICATE IKB1102/23
KOMO® ATTEST SKGIKOB.008886.04.NL

## 2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

Silka kalkzandsteen elementen worden gebruikt in dragende en niet-dragende binnenwanden en binnenspouwbladen welke naderhand worden afgewerkt.

## 2.3 DESCRIPTION PRODUCTION PROCESS

Kalkzandsteen wordt geproduceerd uit zand, ongebluste kalk, water en toeslagmaterialen. Het zand en kalk wordt in de juiste verhouding gemengd met water en naar een reactor geleid waar de kalk wordt geblust. Vanuit deze reactor gaat het mengsel naar de pers waar het wordt samengeperst in de gewenste vorm. Vervolgens worden de producten op karren de autoclaaf ingereden. De autoclaaf wordt met behulp van stoom onder hoge druk en temperatuur gebracht. Dit initieert een chemische reactie waardoor kalkzandsteen verhardt. Na verharding worden de producten op pallets opgeslagen. Een deel van de productie wordt specifiek voor een project verzaagd. Vervolgens wordt een bouwpakket samengesteld en getransporteerd naar de afnemer. De elementen worden getransporteerd op een pallet. Het productieafval wordt zo nodig gebroken en opnieuw gebruikt in de productie van kalkzandsteen elementen.




## 2.4 CONSTRUCTION DESCRIPTION

Silka kalkzandsteen elementen worden met een kraan op de bouwlaag in de constructie gehesen. Het plaatsen van een elementenwand wordt uitgevoerd door twee personen, waarbij één persoon de lijmkraan bedient. Voor het lijmen van de elementen wordt een kimstrook in cementbed met een troffel op waterpas geëgaliseerd. Vervolgens worden de

## 2 Product

elementen op de kimstrook gelijmd met behulp van een lijmbak en eventueel een lijmschep. Voor het lijmen wordt Silkafix lijmmortel gebruikt.

Het gemiddelde energieverbruik van de hijskranen is berekend op basis van de verstrekte informatie.

Uit de rittenregistratie van Xella Nederland BV blijkt dat in 2021 de gemiddelde transportafstand van productielocatie Hazelaar naar de aangeleverde bouwlocaties 113 km is. Deze gemiddelde transportafstand is meegenomen in de LCA-berekeningen van de kalkzandsteen elementen.

Uit de rittenregistratie is ook gebleken dat in 2021 0,87% van de elementen terugkomt van de bouwlocaties. Dit percentage bouwafval is meegenomen in de LCA-berekeningen van de kalkzandsteen elementen.

# 3 Results

## 3.1 ENVIRONMENTAL IMPACT INDICATORS PER SQUARE METER

### CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

| Abbr. | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AP | mol H+ eqv. | 3.05E-2 | 4.10E-3 | 1.37E-2 | 4.82E-2 | 2.36E-2 | 5.03E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.86E-3 | 1.05E-2 | 2.69E-3 | 1.33E-4 | -8.09E-3 | 9.00E-2 |
| GWP-total | kg CO2 eqv. | 2.41E+1 | 7.08E-1 | 6.37E+0 | 3.12E+1 | 4.07E+0 | 1.76E+0 | -1.13E+1 | 0.00E+0 | 0.00E+0 | 1.85E+0 | 1.82E+0 | 4.32E-1 | 1.41E-2 | -1.13E+0 | 2.87E+1 |
| GWP-b | kg CO2 eqv. | 2.99E-2 | 3.27E-4 | 2.01E-2 | 5.04E-2 | 1.88E-3 | 5.42E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.87E-3 | 8.39E-4 | 2.49E-3 | 2.77E-5 | -5.15E-3 | 5.78E-2 |
| GWP-f | kg CO2 eqv. | 2.41E+1 | 7.08E-1 | 6.35E+0 | 3.12E+1 | 4.07E+0 | 1.76E+0 | -1.13E+1 | 0.00E+0 | 0.00E+0 | 1.85E+0 | 1.82E+0 | 4.29E-1 | 1.40E-2 | -1.13E+0 | 2.87E+1 |
| GWP-luluc | kg CO2 eqv. | 1.06E-3 | 2.59E-4 | 7.30E-4 | 2.05E-3 | 1.49E-3 | 4.05E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.76E-4 | 6.66E-4 | 8.18E-5 | 3.92E-6 | -1.20E-3 | 3.77E-3 |
| EP-m | kg N eqv. | 6.66E-3 | 1.45E-3 | 4.53E-3 | 1.26E-2 | 8.31E-3 | 1.25E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.65E-3 | 3.71E-3 | 1.07E-3 | 4.59E-5 | -2.31E-3 | 2.74E-2 |
| EP-fw | kg P eq | 5.75E-5 | 7.14E-6 | 1.08E-4 | 1.73E-4 | 4.10E-5 | 4.65E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.19E-5 | 1.83E-5 | 1.34E-5 | 1.57E-7 | -4.13E-5 | 2.63E-4 |
| EP-T | mol N eqv. | 7.70E-2 | 1.59E-2 | 5.08E-2 | 1.44E-1 | 9.16E-2 | 1.42E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.91E-2 | 4.09E-2 | 1.19E-2 | 5.07E-4 | -2.68E-2 | 3.05E-1 |
| ODP | kg CFC 11 eqv. | 1.53E-6 | 1.56E-7 | 7.75E-7 | 2.46E-6 | 8.97E-7 | 1.93E-7 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.05E-7 | 4.01E-7 | 5.57E-8 | 5.79E-9 | -1.13E-7 | 4.31E-6 |
| POCP | kg NMVOC eqv. | 2.68E-2 | 4.55E-3 | 1.44E-2 | 4.57E-2 | 2.62E-2 | 3.99E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.90E-3 | 1.17E-2 | 3.25E-3 | 1.47E-4 | -7.42E-3 | 9.14E-2 |
| ADP-f | MJ | 1.05E+2 | 1.07E+1 | 9.58E+1 | 2.11E+2 | 6.13E+1 | 2.40E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.66E+1 | 2.74E+1 | 5.77E+0 | 3.93E-1 | -1.41E+1 | 3.42E+2 |
| ADP-mm | kg Sb-eqv. | 5.81E-5 | 1.79E-5 | 9.38E-6 | 8.54E-5 | 1.03E-4 | 1.39E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.81E-6 | 4.60E-5 | 1.21E-6 | 1.29E-7 | -5.57E-5 | 1.98E-4 |
| WDP | | 1.80E+0 | 3.82E-2 | 7.25E-1 | 2.57E+0 | 2.19E-1 | 2.14E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.18E-2 | 9.80E-2 | 2.61E-2 | 1.76E-2 | -1.60E+1 | -1.28E+1 |

**AP**=Acidification (AP) | **GWP-total**=Global warming potential (GWP-total) | **GWP-b**=Global warming potential - Biogenic (GWP-b) | **GWP-f**=Global warming potential - Fossil (GWP-f) | **GWP-luluc**=Global warming potential - Land use and land use change (GWP-luluc) | **EP-m**=Eutrophication marine (EP-m) | **EP-fw**=Eutrophication, freshwater (EP-fw) | **EP-T**=Eutrophication, terrestrial (EP-T) | **ODP**=Ozone depletion (ODP) | **POCP**=Photochemical ozone formation - human health (POCP) | **ADP-f**=Resource use, fossils (ADP-f) | **ADP-mm**=Resource use, minerals and metals (ADP-mm) | **WDP**=Water use (WDP)

# 3 Results

| Abbr. | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m3 world eqv. | | | | | | | | | | | | | | | |

**AP**=Acidification (AP) | **GWP-total**=Global warming potential (GWP-total) | **GWP-b**=Global warming potential - Biogenic (GWP-b) | **GWP-f**=Global warming potential - Fossil (GWP-f) | **GWP-luluc**=Global warming potential - Land use and land use change (GWP-luluc) | **EP-m**=Eutrophication marine (EP-m) | **EP-fw**=Eutrophication, freshwater (EP-fw) | **EP-T**=Eutrophication, terrestrial (EP-T) | **ODP**=Ozone depletion (ODP) | **POCP**=Photochemical ozone formation - human health (POCP) | **ADP-f**=Resource use, fossils (ADP-f) | **ADP-mm**=Resource use, minerals and metals (ADP-mm) | **WDP**=Water use (WDP)

## ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

| Abbr. | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ETP-fw | CTUe | 1.40E+2 | 9.52E+0 | 3.23E+1 | 1.81E+2 | 5.47E+1 | 2.29E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.67E+1 | 2.44E+1 | 4.68E+0 | 2.55E-1 | -2.25E+1 | 2.83E+2 |
| PM | disease incidence | 1.82E-7 | 6.37E-8 | 1.89E-7 | 4.35E-7 | 3.66E-7 | 3.00E-8 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.94E-8 | 1.63E-7 | 5.94E-8 | 2.59E-9 | -1.39E-7 | 9.47E-7 |
| HTP-c | CTUh | 1.18E-9 | 3.09E-10 | 9.06E-10 | 2.40E-9 | 1.77E-9 | 1.68E-9 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.22E-9 | 7.93E-10 | 1.11E-10 | 5.89E-12 | -8.32E-10 | 9.15E-9 |
| HTP-nc | CTUh | 1.38E-7 | 1.04E-8 | 2.09E-8 | 1.69E-7 | 5.98E-8 | 3.48E-8 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.72E-8 | 2.67E-8 | 3.14E-9 | 1.81E-10 | -2.35E-8 | 2.97E-7 |
| IR | kBq U235 eqv. | 5.45E-1 | 4.47E-2 | 1.11E-1 | 7.01E-1 | 2.57E-1 | 6.19E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.16E-1 | 1.15E-1 | 1.83E-2 | 1.61E-3 | -5.63E-2 | 1.21E+0 |
| SQP | Pt | 2.98E+1 | 9.26E+0 | 6.82E+0 | 4.59E+1 | 5.32E+1 | 3.73E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.63E+0 | 2.38E+1 | 9.62E-1 | 8.23E-1 | -1.80E+1 | 1.14E+2 |

**ETP-fw**=Ecotoxicity, freshwater (ETP-fw) | **PM**=Particulate Matter (PM) | **HTP-c**=Human toxicity, cancer (HTP-c) | **HTP-nc**=Human toxicity, non-cancer (HTP-nc) | **IR**=Ionising radiation, human health (IR) | **SQP**=Land use (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 |

# 3 Results

| ILCD classification | Indicator | Disclaimer |
|---|---|---|
| ILCD type / level 2 | Potential incidence of disease due to PM emissions (PM) | None |
| | 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 |
| | Potential Human exposure efficiency relative to U235 (IRP) | 1 |
| ILCD type / level 3 | 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 |
| | 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 | 5.81E-5 | 1.79E-5 | 9.38E-6 | 8.54E-5 | 1.03E-4 | 1.39E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.81E-6 | 4.60E-5 | 1.21E-6 | 1.29E-7 | -5.57E-5 | 1.98E-4 |
| GWP | | 2.39E+1 | 7.02E-1 | 6.27E+0 | 3.09E+1 | 4.03E+0 | 1.74E+0 | -1.13E+1 | 0.00E+0 | 0.00E+0 | 1.84E+0 | 1.80E+0 | 4.24E-1 | 1.38E-2 | -1.10E+0 | 2.83E+1 |

**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

# 3 Results

| Abbr. | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Kg CO2 Equiv. | | | | | | | | | | | | | | | |
| ODP | Kg CFC-11 Equiv. | 1.24E-6 | 1.24E-7 | 6.83E-7 | 2.05E-6 | 7.15E-7 | 1.68E-7 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.23E-7 | 3.20E-7 | 4.65E-8 | 4.59E-9 | -9.64E-8 | 3.53E-6 |
| POCP | Kg Ethene Equiv. | 5.40E-3 | 4.23E-4 | 1.45E-3 | 7.27E-3 | 2.43E-3 | 4.41E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.66E-4 | 1.09E-3 | 2.42E-4 | 1.47E-5 | -8.09E-4 | 1.12E-2 |
| AP | Kg SO2 Equiv. | 2.45E-2 | 3.09E-3 | 1.03E-2 | 3.79E-2 | 1.77E-2 | 3.98E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.97E-3 | 7.92E-3 | 1.96E-3 | 1.01E-4 | -6.21E-3 | 6.93E-2 |
| EP | Kg PO43- Equiv. | 3.42E-3 | 6.06E-4 | 2.02E-3 | 6.05E-3 | 3.48E-3 | 6.59E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.17E-3 | 1.56E-3 | 4.38E-4 | 1.94E-5 | -1.01E-3 | 1.24E-2 |

**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 | 4.74E-2 | 5.16E-3 | 5.18E-2 | 1.04E-1 | 2.96E-2 | 1.24E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.25E-2 | 1.32E-2 | 3.01E-3 | 1.88E-4 | -7.48E-3 | 1.68E-1 |
| HTP | kg 1.4 DB | 1.13E+0 | 2.95E-1 | 6.43E-1 | 2.07E+0 | 1.70E+0 | 5.10E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.60E-1 | 7.59E-1 | 1.01E-1 | 6.23E-3 | -5.06E-1 | 5.20E+0 |
| FAETP | kg 1.4 DB | 3.45E-2 | 8.62E-3 | 1.06E-2 | 5.38E-2 | 4.96E-2 | 9.38E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.08E-2 | 2.21E-2 | 1.74E-3 | 1.48E-4 | -7.84E-3 | 1.40E-1 |
| MAETP | kg 1.4 DB | 1.15E+2 | 3.10E+1 | 4.26E+1 | 1.89E+2 | 1.78E+2 | 3.27E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.58E+1 | 7.97E+1 | 6.55E+0 | 5.28E-1 | -3.26E+1 | 4.90E+2 |

**ADPF**=Depletion of abiotic resources-fossil fuels | **HTP**=Human toxicity | **FAETP**=Ecotoxicity. fresh water | **MAETP**=Ecotoxicity. marine water (MAETP) | **TETP**=Ecotoxicity. terrestric

# 3 Results

| Abbr. | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TETP | kg 1.4 DB | 4.78E-3 | 1.04E-3 | 9.94E-3 | 1.58E-2 | 6.00E-3 | 1.43E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.46E-3 | 2.68E-3 | 1.24E-3 | 1.57E-5 | -2.63E-3 | 4.28E-2 |

**ADPF**=Depletion of abiotic resources-fossil fuels | **HTP**=Human toxicity | **FAETP**=Ecotoxicity. fresh water | **MAETP**=Ecotoxicity. marine water (MAETP) | **TETP**=Ecotoxicity. terrestric

## 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-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 9.42E+0 | 1.34E-1 | 2.76E+0 | 1.23E+1 | 7.68E-1 | 8.79E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.04E-1 | 3.43E-1 | 3.28E-1 | 3.17E-3 | -9.66E-1 | 1.40E+1 |
| PERM | 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 |
| PERT | MJ | 9.42E+0 | 1.34E-1 | 2.76E+0 | 1.23E+1 | 7.68E-1 | 8.79E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.04E-1 | 3.43E-1 | 3.28E-1 | 3.17E-3 | -9.66E-1 | 1.40E+1 |
| PENRE | MJ | 1.11E+2 | 1.13E+1 | 1.05E+2 | 2.27E+2 | 6.51E+1 | 2.58E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.83E+1 | 2.91E+1 | 6.15E+0 | 4.17E-1 | -1.50E+1 | 3.67E+2 |
| PENRM | MJ | 0.00E+0 | 0.00E+0 | 3.04E-1 | 3.04E-1 | 0.00E+0 | 2.64E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | -1.01E-2 | 2.97E-1 |
| PENRT | MJ | 1.11E+2 | 1.13E+1 | 1.05E+2 | 2.27E+2 | 6.51E+1 | 2.58E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.83E+1 | 2.91E+1 | 6.15E+0 | 4.17E-1 | -1.50E+1 | 3.67E+2 |
| SM | 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 |
| 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 | 3.98E-1 | 1.30E-3 | 2.78E-2 | 4.27E-1 | 7.47E-3 | 1.16E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.07E-3 | 3.34E-3 | 1.93E-3 | 4.19E-4 | -3.76E-1 | 7.80E-2 |

**PERE**=renewable primary energy ex. raw materials | **PERM**=renewable primary energy used as raw materials | **PERT**=renewable primary energy total | **PENRE**=non-renewable primary energy ex. raw materials | **PENRM**=non-renewable primary energy used as raw materials | **PENRT**=non-renewable primary energy total | **SM**=use of secondary material | **RSF**=use of renewable secondary fuels | **NRSF**=use of non-renewable secondary fuels | **FW**=use of net fresh water

# 3 Results

### OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

| Abbr. | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C1 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HWD | Kg | 5.81E-5 | 2.70E-5 | 1.21E-4 | 2.06E-4 | 1.55E-4 | 4.64E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.00E-5 | 6.94E-5 | 1.01E-5 | 5.87E-7 | -2.84E-5 | 5.30E-4 |
| NHWD | Kg | 2.24E-1 | 6.77E-1 | 1.02E-1 | 1.00E+0 | 3.89E+0 | 1.72E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.54E-2 | 1.74E+0 | 8.04E-1 | 2.67E+0 | -1.51E-1 | 1.02E+1 |
| RWD | Kg | 7.50E-4 | 7.01E-5 | 1.45E-4 | 9.65E-4 | 4.03E-4 | 7.58E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.81E-4 | 1.80E-4 | 2.59E-5 | 2.58E-6 | -6.11E-5 | 1.77E-3 |

**HWD**=hazardous waste disposed | **NHWD**=non hazardous waste disposed | **RWD**=radioactive waste disposed

### ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

| Abbr. | Unit | A1 | A2 | A3 | A1-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 | 2.30E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.64E+2 | 0.00E+0 | 0.00E+0 | 2.66E+2 |
| MER | Kg | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.12E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.12E-5 |
| EE | MJ | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.60E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | -1.26E-1 | -1.18E-1 |
| EET | MJ | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.81E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | -7.96E-2 | -7.48E-2 |
| EEE | MJ | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.79E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | -4.62E-2 | -4.34E-2 |

**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 | kg C |

# 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 | Share in total (%) |
|---|---|---|
| A1 Raw Materials Supply | € 1.46 | 61,3 % |
| A2 Transport | € 0.08 | 3,6 % |
| A3 Manufacturing | € 0.45 | 18,8 % |
| A4 Transport from the gate to the site | € 0.49 | 20,4 % |
| A5 Construction - Installation process | € 0.16 | 6,8 % |
| B1 Use | € -0.57 | -23,8 % |
| B2 Maintenance | € 0.00 | 0,0 % |
| B3 Repair | € 0.00 | 0,0 % |
| C1 De-construction / demolition | € 0.18 | 7,7 % |
| C2 Transport | € 0.22 | 9,1 % |
| C3 Waste processing | € 0.04 | 1,8 % |
| C4 Disposal | € 0.00 | 0,1 % |
| D Benefits and loads beyond the product system boundary | € -0.14 | -5,9 % |
| **ECI NL per functional unit** | **€ 2.38** | |

# 4 Contact information

| Publisher | Operator | Owner of declaration |
|---|---|---|
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