

Result summary

# FALK 1170 WZ CradleCore® - 60mm sandwichpanel

FALK Bouwsystemen BV

Calculation number: EPD-NIBE-20201012-7759

Generation on: 15-10-2021

Issue date: 13-10-2021

Valid until: 13-10-2026

Status: verified



## 1 FALK 1170 WZ CradleCore® - 60mm sandwichpanel

### 1.1 COMPANY INFORMATION / DECLARATION OWNER

**Manufacturer:** FALK Bouwsystemen BV

**Production Location:** Falk Bouwsystemen BV

**Address:** Neonstraat 23, 6718 WXEde

**E-mail:** info@falkbouwsystemen.nl

**Website:** www.falkbouwsystemen.nl

### 1.2 EPD INFORMATION

**Calculation number:** EPD-NIBE-20210930-21818

**Date of issue:** 13-10-2021

**End of validity:** 13-10-2026

**Version NIBE's EPD Application:** v2.0

**Version database:** v3.06 (20210927)

**PCR:** NMD Determination method Environmental performance Construction works v1.0  
July 2020 incl. amendment oct '20 + feb '21 + okt '21 & EN15804+A2

### 1.3 VERIFICATION OF THE DECLARATION

CEN standard EN 15804:2012 serves as the core PCR.

Independent verification of the declaration. according to EN ISO 14025:2010.

Internal  External

De LCA voldoet aan het gestelde in de Bepalingsmethode Milieuprestatie bouwwerken, versie 1.0 (juli 2020). Daardoor wordt ook voldaan aan de EN-15804+A1 en A2, en de

onderliggende ISO 14440/44 en ISO 21930. De LCA is zowel uitgevoerd als conform de EN 15804 set A1 data als de set A2 data.



Third party verifier: Kamiel Jansen, Review by Primum

### 1.4 DECLARED UNIT

***m2 sandwichpanel***

One square meter of roof or wall cladding with a Rc-value of at least 2,82 m2K/W (NTA 8800) and a fire-resistance class B-s2, d0. The EPD includes 1 layer of framework, fasteners, finishing and maintenance. The framework must meet the strength requirements for the relevant facade or roof cladding. The thickness excluding battening is specified as dimension 1.

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### 1.5 SCOPE OF DECLARATION

| 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  | MND | MND | MND | MND | X  | X  | X  | X  | X |

(X = included, MND = module not declared)

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## 1.6 PRODUCT DESCRIPTION

FALK 1170 WZ sandwich panel for internal wall, ceiling and façade with circular CradleCore® insulation core.

This sandwich panel, made by Dutch manufacturer FALK Bouwsystemen, can be used as an dividing wall or ceiling in almost any environment. The FALK 1170 WZ internal wall panel has two profiled steel sheets. The CradleCore® insulation core is placed between these sheets, which allows for a Rc-value up to 2,82 m<sup>2</sup>K/W (NTA 8800) to be reached. A micro rib, maxi rib or box profile can be selected for the exterior. Quick to assemble and widely applicable in the industrial and agricultural sector. In an efficient manner you create a beautiful internal wall, ceiling or facade.

What makes FALK CradleCore® sandwich panels unique, is the fact that they come with a circularity statement, by means of, a return guarantee or repurchase guarantee. By selecting CradleCore®, valuable commodities remain available for future generations. Additionally, the building owner also benefits from a very attractive LCA-score, since waste streams are the foundation for a new product.

Working width: 1170 mm

Core material: CradleCore® - Circular IsoFR (PIR) insulation core

Interior coating: FALK Matt White (other coatings available upon request)

Exterior coating: FALK Matt White (other coatings available upon request)

Colors and warranties: FALK Matt White, Colorcoat HPS 200 ULTRA & Colorcoat Prisma

Minimal length: 2.000 mm (shorter upon request)

Maximum length: 20.000 mm

Rc-value: 2,82 m<sup>2</sup>K/W (NTA 8800) (at 60 mm core thickness)

Company certifications: BES 6001, ISO 9001 and ISO 14001.

Product certifications: Allgemeine bauaufsichtliche Zulassung & FM & Airtightness.

## 1.7 DESCRIPTION OF THE MANUFACTURING PROCESS

Manufacturing of sandwich panels takes place at continuously working production plants. The production speed depends, among other things, on the type of production, and sandwich panel thickness. The process starts by decoiling the steel coils. During this step, the Corona-treatment is also applied. After that, the steel is molded into the desired profile. After molding, the surface is preheated, and primer is applied. Subsequently, the liquid PIR-foam is placed onto the sheet. During the next step, the panel goes into the double belt where the foam hardens and attaches to both sheets. After the panel comes out of the double belt, a sealing tape is applied. After that, the panel is cut to size, cooled in the cooling zone, stacked, and packed. Ultimately, the products are shipped to the customer.

Total energy usage of the line: Electricity 2.942.369 kW/h Gas: 103.451 m<sup>3</sup>

Production waste: Loss (scrap, approximately 2% which is used for circular processing)

Emission during production: pentane loss during foaming

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## 1.8 RESULTS (SOLID PART)

| Environmental effects | Unit                | A1       | A2       | A3      | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3       | C4       | D        | Total   |
|-----------------------|---------------------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|---------|
| ADPE                  | Kg Sb               | 5.77E-6  | 6.88E-6  | 1.18E-5 | 3.31E-6 | 2.79E-6 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.14E-6 | 2.79E-6  | 1.94E-9  | 2.94E-6  | 3.74E-5 |
| ADPF                  | Kg Sb               | 1.04E-1  | 5.12E-3  | 1.00E-2 | 9.52E-4 | 1.08E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.29E-4 | 1.07E-3  | 2.32E-5  | -6.07E-2 | 7.18E-2 |
| GWP                   | Kg CO2<br>Equiv.    | 1.80E+1  | 8.30E-1  | 1.22E+0 | 1.29E-1 | 1.86E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.48E-2 | 2.23E-1  | 1.70E-3  | -1.10E+1 | 1.13E+1 |
| ODP                   | Kg CFC-11<br>Equiv. | 5.59E-7  | 1.34E-7  | 7.51E-8 | 2.30E-8 | 2.12E-7 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.95E-9 | 1.96E-8  | 5.64E-10 | -1.55E-7 | 8.76E-7 |
| POCP                  | Kg Ethene<br>Equiv. | 8.49E-3  | 1.08E-3  | 8.36E-4 | 7.81E-5 | 1.42E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.70E-5 | 1.27E-4  | 1.81E-6  | -5.55E-3 | 6.51E-3 |
| AP                    | Kg SO2<br>Equiv.    | 4.16E-2  | 2.09E-2  | 3.39E-3 | 5.69E-4 | 1.02E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.97E-4 | 1.40E-3  | 1.26E-5  | -2.23E-2 | 5.60E-2 |
| EP                    | Kg PO43-<br>Equiv.  | 6.57E-3  | 2.31E-3  | 5.36E-4 | 1.12E-4 | 2.14E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.87E-5 | 3.00E-4  | 2.37E-6  | -2.68E-3 | 9.33E-3 |
| HTP                   | kg 1.4 DB           | 3.51E+0  | 4.62E-1  | 2.63E-1 | 5.45E-2 | 5.46E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.89E-2 | 1.56E-1  | 6.94E-4  | -1.53E+0 | 3.48E+0 |
| FAETP                 | kg 1.4 DB           | 5.52E-2  | 7.72E-3  | 5.18E-3 | 1.59E-3 | 8.15E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.51E-4 | 2.36E-3  | 1.73E-5  | -1.29E-2 | 6.78E-2 |
| MAETP                 | kg 1.4 DB           | 1.71E+2  | 3.60E+1  | 1.80E+1 | 5.73E+0 | 2.81E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.98E+0 | 1.37E+1  | 5.94E-2  | -3.92E+1 | 2.36E+2 |
| TETP                  | kg 1.4 DB           | 1.82E-2  | 1.36E-3  | 4.38E-3 | 1.93E-4 | 1.35E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.67E-5 | 5.22E-4  | 2.06E-6  | 1.32E-1  | 1.58E-1 |
| AP                    | mol H+<br>eqv.      | 5.82E-2  | 2.62E-2  | 4.28E-3 | 7.57E-4 | 1.41E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.62E-4 | 1.73E-3  | 1.65E-5  | -3.08E-2 | 7.48E-2 |
| GWP-total             | kg CO2<br>eqv.      | 1.85E+1  | 8.36E-1  | 1.25E+0 | 1.31E-1 | 1.88E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.52E-2 | 1.54E-1  | 1.72E-3  | -1.13E+1 | 1.15E+1 |
| GWP-b                 | kg CO2<br>eqv.      | -1.67E-2 | -2.25E-4 | 8.35E-3 | 6.03E-5 | 1.49E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.09E-5 | -8.27E-3 | -2.26E-5 | 1.31E-1  | 1.16E-1 |
| GWP-f                 | kg CO2<br>eqv.      | 1.85E+1  | 8.35E-1  | 1.24E+0 | 1.31E-1 | 1.88E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.52E-2 | 1.63E-1  | 1.74E-3  | -1.14E+1 | 1.14E+1 |
| GWP-luluc             | kg CO2<br>eqv.      | 1.17E-2  | 5.65E-4  | 6.85E-4 | 4.79E-5 | 4.86E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.66E-5 | 1.85E-4  | 7.65E-7  | 4.17E-3  | 1.78E-2 |
| ETP-fw                | CTUe                | 2.56E+2  | 7.07E+0  | 1.39E+1 | 1.76E+0 | 1.88E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.08E-1 | 5.20E+0  | 2.71E-2  | -1.83E+2 | 1.20E+2 |

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|        |                   |         |          |          |          |         |         |         |         |         |          |          |          |          |         |
|--------|-------------------|---------|----------|----------|----------|---------|---------|---------|---------|---------|----------|----------|----------|----------|---------|
| PM     | disease incidence | 4.02E-7 | 2.79E-8  | 2.88E-8  | 1.17E-8  | 3.16E-7 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.06E-9  | 2.27E-8  | 3.12E-10 | -1.99E-7 | 6.14E-7 |
| EP-m   | kg N eqv.         | 1.03E-2 | 6.45E-3  | 8.73E-4  | 2.67E-4  | 5.57E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 9.23E-5  | 3.88E-4  | 5.44E-6  | -5.93E-3 | 1.80E-2 |
| EP-fw  | kg P eqv.         | 7.52E-4 | 3.65E-6  | 5.59E-5  | 1.32E-6  | 3.02E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.56E-7  | 4.74E-5  | 3.11E-8  | -2.40E-4 | 6.51E-4 |
| EP-T   | mol N eqv.        | 1.29E-1 | 7.18E-2  | 1.05E-2  | 2.94E-3  | 6.16E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.02E-3  | 4.55E-3  | 6.01E-5  | -5.50E-2 | 2.26E-1 |
| HTP-c  | CTUh              | 4.04E-8 | 4.68E-10 | 6.52E-10 | 5.70E-11 | 1.61E-9 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.97E-11 | 1.61E-10 | 6.85E-13 | -2.28E-8 | 2.06E-8 |
| HTP-nc | CTUh              | 1.20E-7 | 5.80E-9  | 2.10E-8  | 1.92E-9  | 1.25E-8 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.65E-10 | 7.01E-9  | 2.16E-11 | 5.92E-7  | 7.61E-7 |
| IR     | kBq U235 eqv.     | 3.26E-1 | 4.61E-2  | 3.73E-2  | 8.25E-3  | 7.72E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.86E-3  | 9.95E-3  | 1.99E-4  | -4.83E-2 | 4.60E-1 |
| SQP    | Pt                | 3.33E+1 | 1.86E+0  | 3.65E+0  | 1.71E+0  | 3.35E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.91E-1  | 4.11E+0  | 1.03E-1  | -1.03E+1 | 3.84E+1 |
| ODP    | kg CFC 11 eqv.    | 3.77E-7 | 1.68E-7  | 7.87E-8  | 2.88E-8  | 2.57E-7 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 9.97E-9  | 2.20E-8  | 7.10E-10 | -5.45E-8 | 8.88E-7 |
| POCP   | kg NMVOC eqv.     | 3.72E-2 | 1.86E-2  | 3.70E-3  | 8.40E-4  | 1.70E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.91E-4  | 1.22E-3  | 1.75E-5  | -2.25E-2 | 5.64E-2 |
| ADP-f  | MJ                | 1.50E+2 | 1.08E+1  | 1.91E+1  | 1.97E+0  | 2.06E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.81E-1  | 2.20E+0  | 4.86E-2  | -7.20E+1 | 1.34E+2 |
| ADP-mm | kg Sb-eqv.        | 5.71E-6 | 6.88E-6  | 1.18E-5  | 3.31E-6  | 2.79E-6 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.14E-6  | 2.78E-6  | 1.94E-9  | 2.98E-6  | 3.74E-5 |
| WDP    | m3 world eqv.     | 2.76E+0 | 1.69E-2  | 3.05E-1  | 7.05E-3  | 1.18E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.44E-3  | 2.56E-2  | 2.25E-3  | -1.41E+0 | 1.83E+0 |

ADPE=Depletion of abiotic resources-elements | ADPF=Depletion of abiotic resources-fossil fuels | GWP=Global warming | ODP=Ozone layer depletion | POCP=Photochemical oxidants creation | AP=Acidification of soil and water | EP=Eutrophication | HTP=Human toxicity | FAETP=Ecotoxicity, fresh water | MAETP=Ecotoxicity, marine water (MAETP) | TETP=Ecotoxicity, terrestrial | 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) | ETP-fw=Ecotoxicity, freshwater (ETP-fw) | PM=Particulate Matter (PM) | EP-m=Eutrophication marine (EP-m) | EP-fw=Eutrophication, freshwater (EP-fw) | EP-T=Eutrophication, terrestrial (EP-T) | 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) | 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)

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| Parameter | Unit | A1      | A2      | A3      | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D        | Total   |
|-----------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| PERE      | MJ   | 7.83E+0 | 7.58E-2 | 1.16E+0 | 2.47E-2 | 3.71E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.53E-3 | 3.22E-1 | 1.24E-3 | -2.94E-2 | 9.77E+0 |
| PERM      | MJ   | 0.00E+0 | 0.00E+0 | 1.93E-2 | 0.00E+0 | 5.80E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | -9.96E-4 | 1.89E-2 |
| PERT      | MJ   | 7.83E+0 | 7.58E-2 | 1.18E+0 | 2.47E-2 | 3.72E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.53E-3 | 3.22E-1 | 1.24E-3 | -3.04E-2 | 9.79E+0 |
| PENRE     | MJ   | 1.80E+2 | 1.14E+1 | 1.99E+1 | 2.09E+0 | 2.25E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.24E-1 | 2.35E+0 | 5.18E-2 | -2.46E+0 | 2.37E+2 |
| PENRM     | MJ   | 0.00E+0 | 0.00E+0 | 2.45E+0 | 0.00E+0 | 7.34E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | -6.38E-1 | 1.88E+0 |
| PENRT     | MJ   | 1.80E+2 | 1.14E+1 | 2.23E+1 | 2.09E+0 | 2.25E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.24E-1 | 2.35E+0 | 5.18E-2 | -3.09E+0 | 2.39E+2 |
| SM        | Kg   | 4.13E-1 | 0.00E+0 | 8.25E-3 | 0.00E+0 | 1.26E-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  | 4.34E-1 |
| 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 |
| 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 |
| FW        | M3   | 1.25E-1 | 6.00E-4 | 1.28E-2 | 2.40E-4 | 5.09E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.30E-5 | 7.01E-4 | 5.22E-5 | -1.28E-3 | 1.43E-1 |
| HWD       | Kg   | 7.16E-4 | 1.07E-5 | 2.68E-5 | 4.99E-6 | 6.37E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.73E-6 | 2.67E-6 | 3.43E-8 | -1.61E-6 | 8.25E-4 |
| NHWD      | Kg   | 1.55E+0 | 5.93E-2 | 1.22E-1 | 1.25E-1 | 9.49E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.32E-2 | 6.41E-2 | 3.19E-1 | -1.44E-3 | 2.38E+0 |
| RWD       | Kg   | 3.46E-4 | 7.47E-5 | 4.29E-5 | 1.29E-5 | 1.19E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.47E-6 | 1.27E-5 | 3.17E-7 | -6.48E-7 | 6.12E-4 |
| 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 |
| MFR       | Kg   | 0.00E+0 | 0.00E+0 | 1.21E-1 | 0.00E+0 | 2.04E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.03E+0 | 0.00E+0 | 0.00E+0  | 6.36E+0 |
| 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 |
| 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 | 8.92E-1  | 8.92E-1 |
| 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 | 5.64E-1  | 5.64E-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 | 3.28E-1  | 3.28E-1 |
| SP        | s€   | s€ 1,50 | s€ 0,19 | s€ 0,11 | s€ 0,02 | s€ 0,21 | s€ 0,00 | s€ 0,00 | s€ 0,00 | s€ 0,00 | s€ 0,01 | s€ 0,04 | s€ 0,00 | s€ -0,82 | s€ 1,24 |

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

# 1 FALK 1170 WZ CradleCore® - 60mm sandwichpanel

## 1.9 RESULTS (SCALABLE PART)

| Environmental effects | Unit                | A1      | A2      | A3       | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3       | C4      | D        | Total    |
|-----------------------|---------------------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|----------|---------|----------|----------|
| ADPE                  | Kg Sb               | 2.22E-4 | 5.12E-6 | 3.36E-6  | 1.32E-6 | 1.62E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.36E-7 | 2.61E-4  | 0.00E+0 | -3.80E-4 | 1.29E-4  |
| ADPF                  | Kg Sb               | 1.31E-1 | 1.47E-3 | 1.82E-3  | 3.81E-4 | 7.31E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.25E-4 | 9.56E-2  | 0.00E+0 | -2.12E-1 | 2.53E-2  |
| GWP                   | Kg CO2<br>Equiv.    | 1.34E+1 | 2.00E-1 | 1.59E-1  | 5.18E-2 | 8.66E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.71E-2 | 1.08E+1  | 0.00E+0 | -2.20E+1 | 3.43E+0  |
| ODP                   | Kg CFC-11<br>Equiv. | 2.29E-6 | 3.55E-8 | 1.01E-8  | 9.20E-9 | 1.18E-7 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.03E-9 | 1.33E-6  | 0.00E+0 | -3.42E-6 | 3.68E-7  |
| POCP                  | Kg Ethene<br>Equiv. | 1.19E-2 | 1.21E-4 | 7.07E-2  | 3.13E-5 | 2.70E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.03E-5 | 5.63E-3  | 0.00E+0 | -4.20E-2 | 4.90E-2  |
| AP                    | Kg SO2<br>Equiv.    | 7.20E-2 | 8.81E-4 | 8.77E-4  | 2.28E-4 | 4.35E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.50E-5 | 6.34E-2  | 0.00E+0 | -1.14E-1 | 2.78E-2  |
| EP                    | Kg PO43-<br>Equiv.  | 1.26E-2 | 1.73E-4 | -3.12E-5 | 4.48E-5 | 6.75E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.47E-5 | 8.30E-3  | 0.00E+0 | -2.54E-2 | -3.65E-3 |
| HTP                   | kg 1.4 DB           | 6.98E+0 | 8.43E-2 | 7.78E-2  | 2.18E-2 | 4.44E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.18E-3 | 5.94E+0  | 0.00E+0 | -1.06E+1 | 2.98E+0  |
| FAETP                 | kg 1.4 DB           | 9.03E-2 | 2.46E-3 | 9.10E-4  | 6.37E-4 | 1.01E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.10E-4 | 2.08E-1  | 0.00E+0 | -2.92E-1 | 2.11E-2  |
| MAETP                 | kg 1.4 DB           | 3.27E+2 | 8.85E+0 | 1.13E+1  | 2.29E+0 | 3.36E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.54E-1 | 6.81E+2  | 0.00E+0 | -5.62E+2 | 5.04E+2  |
| TETP                  | kg 1.4 DB           | 2.54E-2 | 2.98E-4 | 2.64E-4  | 7.72E-5 | 2.23E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.54E-5 | 3.67E-2  | 0.00E+0 | -5.66E-2 | 8.35E-3  |
| AP                    | mol H+<br>eqv.      | 8.85E-2 | 1.17E-3 | 1.29E-3  | 3.03E-4 | 5.67E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 9.98E-5 | 8.83E-2  | 0.00E+0 | -1.40E-1 | 4.54E-2  |
| GWP-total             | kg CO2<br>eqv.      | 1.43E+1 | 2.02E-1 | 1.54E-1  | 5.23E-2 | 9.00E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.72E-2 | 1.10E+1  | 0.00E+0 | -2.34E+1 | 3.14E+0  |
| GWP-b                 | kg CO2<br>eqv.      | 1.25E-1 | 9.32E-5 | -5.77E-3 | 2.41E-5 | 5.91E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.94E-6 | -3.60E-2 | 0.00E+0 | -2.62E-1 | -1.73E-1 |
| GWP-f                 | kg CO2<br>eqv.      | 1.41E+1 | 2.02E-1 | 1.60E-1  | 5.23E-2 | 8.94E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.72E-2 | 1.10E+1  | 0.00E+0 | -2.31E+1 | 3.31E+0  |
| GWP-luluc             | kg CO2<br>eqv.      | 8.23E-3 | 7.40E-5 | 8.03E-5  | 1.92E-5 | 4.47E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.30E-6 | 4.79E-3  | 0.00E+0 | -1.33E-2 | 3.22E-4  |
| ETP-fw                | CTUe                | 1.22E+3 | 2.72E+0 | -3.61E+0 | 7.03E-1 | 4.55E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.31E-1 | 1.98E+2  | 0.00E+0 | -1.71E+3 | -2.48E+2 |



# 1 FALK 1170 WZ CradleCore® - 60mm sandwichpanel

|        |                   |         |          |          |          |         |         |         |         |         |          |         |         |          |          |
|--------|-------------------|---------|----------|----------|----------|---------|---------|---------|---------|---------|----------|---------|---------|----------|----------|
| PM     | disease incidence | 8.79E-7 | 1.82E-8  | 1.67E-8  | 4.70E-9  | 6.82E-8 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.55E-9  | 1.26E-6 | 0.00E+0 | -1.54E-6 | 7.10E-7  |
| EP-m   | kg N eqv.         | 1.37E-2 | 4.13E-4  | -1.56E-4 | 1.07E-4  | 7.55E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.52E-5  | 8.88E-3 | 0.00E+0 | -3.59E-2 | -1.21E-2 |
| EP-fw  | kg P eqv.         | 8.00E-4 | 2.04E-6  | -3.68E-6 | 5.27E-7  | 3.46E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.74E-7  | 2.42E-4 | 0.00E+0 | -1.44E-3 | -3.66E-4 |
| EP-T   | mol N eqv.        | 1.66E-1 | 4.55E-3  | 4.02E-3  | 1.18E-3  | 1.31E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.88E-4  | 2.40E-1 | 0.00E+0 | -2.62E-1 | 1.67E-1  |
| HTP-c  | CTUh              | 4.67E-8 | 8.81E-11 | -2.84E-9 | 2.28E-11 | 3.57E-9 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.51E-12 | 6.63E-8 | 0.00E+0 | -2.65E-7 | -1.51E-7 |
| HTP-nc | CTUh              | 1.80E-6 | 2.97E-9  | -9.59E-9 | 7.69E-10 | 6.20E-8 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.53E-10 | 1.69E-7 | 0.00E+0 | -2.57E-6 | -5.43E-7 |
| IR     | kBq U235 eqv.     | 5.80E-1 | 1.28E-2  | 4.42E-3  | 3.30E-3  | 3.28E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.09E-3  | 3.69E-1 | 0.00E+0 | -9.43E-1 | 5.93E-2  |
| SQP    | Pt                | 3.48E+1 | 2.64E+0  | 7.92E-1  | 6.84E-1  | 2.54E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.25E-1  | 3.51E+1 | 0.00E+0 | -5.73E+1 | 1.95E+1  |
| ODP    | kg CFC 11 eqv.    | 2.27E-6 | 4.46E-8  | 1.56E-8  | 1.15E-8  | 1.27E-7 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.80E-9  | 1.60E-6 | 0.00E+0 | -3.41E-6 | 6.61E-7  |
| POCP   | kg NMVOC eqv.     | 5.17E-2 | 1.30E-3  | 1.20E-1  | 3.36E-4  | 6.24E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.11E-4  | 2.80E-2 | 0.00E+0 | -1.22E-1 | 8.50E-2  |
| ADP-f  | MJ                | 2.68E+2 | 3.05E+0  | 3.37E+0  | 7.89E-1  | 1.46E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.60E-1  | 1.82E+2 | 0.00E+0 | -4.40E+2 | 3.29E+1  |
| ADP-mm | kg Sb-eqv.        | 2.22E-4 | 5.12E-6  | 3.36E-6  | 1.32E-6  | 1.62E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.36E-7  | 2.61E-4 | 0.00E+0 | -3.80E-4 | 1.29E-4  |
| WDP    | m3 world eqv.     | 1.18E+1 | 1.09E-2  | 3.61E-1  | 2.82E-3  | 1.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 9.28E-4  | 2.05E+1 | 0.00E+0 | -1.87E+1 | 1.50E+1  |

ADPE=Depletion of abiotic resources-elements | ADPF=Depletion of abiotic resources-fossil fuels | GWP=Global warming | ODP=Ozone layer depletion | POCP=Photochemical oxidants creation | AP=Acidification of soil and water | EP=Eutrophication | HTP=Human toxicity | FAETP=Ecotoxicity, fresh water | MAETP=Ecotoxicity, marine water (MAETP) | TETP=Ecotoxicity, terrestrial | 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) | ETP-fw=Ecotoxicity, freshwater (ETP-fw) | PM=Particulate Matter (PM) | EP-m=Eutrophication marine (EP-m) | EP-fw=Eutrophication, freshwater (EP-fw) | EP-T=Eutrophication, terrestrial (EP-T) | 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) | 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)

# 1 FALK 1170 WZ CradleCore® - 60mm sandwichpanel

| Parameter | Unit | A1      | A2      | A3      | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D        | Total    |
|-----------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|
| PERE      | MJ   | 1.44E+1 | 3.81E-2 | 4.94E-1 | 9.87E-3 | 1.39E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.25E-3 | 2.86E+1 | 0.00E+0 | -2.53E+1 | 1.96E+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  |
| PERT      | MJ   | 1.44E+1 | 3.81E-2 | 4.94E-1 | 9.87E-3 | 1.39E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.25E-3 | 2.86E+1 | 0.00E+0 | -2.53E+1 | 1.96E+1  |
| PENRE     | MJ   | 2.45E+2 | 3.23E+0 | 1.59E+0 | 8.37E-1 | 1.44E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.76E-1 | 1.98E+2 | 0.00E+0 | -4.70E+2 | -6.50E+0 |
| PENRM     | MJ   | 4.16E+1 | 0.00E+0 | 2.07E+0 | 0.00E+0 | 1.31E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | -4.28E-2 | 4.49E+1  |
| PENRT     | MJ   | 2.87E+2 | 3.23E+0 | 3.67E+0 | 8.37E-1 | 1.57E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.76E-1 | 1.98E+2 | 0.00E+0 | -4.70E+2 | 3.84E+1  |
| 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  |
| 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  |
| 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  |
| FW        | M3   | 3.06E-1 | 3.71E-4 | 8.32E-3 | 9.61E-5 | 2.49E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.16E-5 | 4.90E-1 | 0.00E+0 | -4.87E-1 | 3.43E-1  |
| HWD       | Kg   | 1.60E-4 | 7.72E-6 | 2.91E-6 | 2.00E-6 | 1.28E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.58E-7 | 2.05E-4 | 0.00E+0 | -2.64E-4 | 1.27E-4  |
| NHWD      | Kg   | 1.03E+0 | 1.93E-1 | 1.82E-2 | 5.00E-2 | 8.30E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.65E-2 | 9.96E-1 | 0.00E+0 | -1.79E+0 | 5.96E-1  |
| RWD       | Kg   | 5.59E-4 | 2.00E-5 | 6.54E-6 | 5.18E-6 | 3.55E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.70E-6 | 4.73E-4 | 0.00E+0 | -9.00E-4 | 2.00E-4  |
| 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  |
| MFR       | Kg   | 0.00E+0 | 0.00E+0 | 5.10E-2 | 0.00E+0 | 7.97E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.55E+0 | 0.00E+0 | 0.00E+0  | 2.68E+0  |
| 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  |
| 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 | 5.32E-1  | 5.32E-1  |
| 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 | 3.36E-1  | 3.36E-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 | 1.95E-1  | 1.95E-1  |
| SP        | s€   | s€ 1,78 | s€ 0,02 | s€ 0,16 | s€ 0,01 | s€ 0,12 | s€ 0,00 | s€ 0,00 | s€ 0,00 | s€ 0,00 | s€ 0,00 | s€ 1,50 | s€ 0,00 | s€ -2,93 | s€ 0,67  |

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

## 1.10 ADDITIONAL INFORMATION

### Allocation

Environmental profile

Explanation of used allocation method

## 1 FALK 1170 WZ CradleCore® - 60mm sandwichpanel

Steel coil | cold rolled, galvanised and coated (without zinc and organic coating)[Steel federation NL]

Allocation between steel products and GGBS

Steel coil | cold rolled, galvanised and coated (without zinc and organic coating)[Steel federation NL]

Allocation between steel products and GGBS

### Scaling

| Parameter             | Value     |
|-----------------------|-----------|
| Scaling type          | Linear    |
| Description dimension | thickness |
| Dimension             | 60.000    |
| Scalable dimension    | 60.000    |
| Unit dimension        | mm        |