

**Environmental  
Product  
Declaration**

According to ISO14025+EN15804 A2 (+indicators A1)

This declaration is for:

**Firesafe FSD**

Provided by:

**Firesafe AS**



MRPI® registration:

**1.1.00894.2025**

Program operator:

**Stichting MRPI®**

Publisher:

**Stichting MRPI®**

**www.mrpi.nl**

Date of first issue:

**9-7-2025**

Date of this issue:

**9-7-2025**

Expiry date:

**9-7-2030**

## COMPANY INFORMATION

Firesafe AS  
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## MRPI® REGISTRATION

1.1.00894.2025

## DATE OF THIS ISSUE

9-7-2025

## EXPIRY DATE

9-7-2030

## SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Anne Kees Jeeninga, Advieslab VOF. The LCA study has been done by Martijn Blaak, EcoReview. The certificate is based on an LCA-dossier according to ISO14025+EN15804 A2 (+indicators A1). It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2. 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.

## PROGRAM OPERATOR

Stichting MRPI®  
 Kingsfordweg 151  
 1043 GR  
 Amsterdam

## PRODUCT

Firesafe FSD

## DECLARED UNIT / FUNCTIONAL UNIT

1 Piece

## DESCRIPTION OF PRODUCT

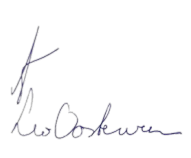
a self-adhesive firestop disc for sealing

## VISUAL PRODUCT



## MORE INFORMATION

firesafe.no

| Ing. L. L. Oosterveen MSc. MBA<br>Managing Director MRPI                            | DEMONSTRATION OF VERIFICATION                                                                                                                    |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
|  | CEN standard EN15804 serves as the core PCR [1]                                                                                                  |
|                                                                                     | Independent verification of the declaration an data according to ISO14025+EN15804 A2 (+indicators A1)<br>Internal: External: X                   |
|                                                                                     | Third party verifier: Anne Kees Jeeninga, Advieslab VOF<br> |
|                                                                                     | [1] PCR = Product Category Rules                                                                                                                 |

## DETAILED PRODUCT DESCRIPTION (PART 1)

The Firesafe FSD is a self-adhesive fire-resistant disc, which can be plastically formed around small penetrations. The Firesafe FSD expands when exposed to heat and provides a fire-resistant and smoke-tight seal to adjacent spaces. Firesafe FSD has a 30-year functional retention. The Firesafe FSD is cut out at Firesafe with a cutting machine. Then it is packed per 32 pieces. One piece weighs 0,0361 kg.

| Component (> 1%) | (%)    |
|------------------|--------|
| Disc             | 99,00% |
| PP Layer         | 1,00%  |

## SCOPE AND TYPE

This Environmental Product Declaration (EPD) has been prepared for Firesafe FSD manufactured and sold by FireSafe AS. The scope of the EPD is from cradle to gate, following the requirements of EN 15804+A2 and ISO 14025. The following specifications apply:

The manufacturing of the Firesafe FSD takes place at Multimolecules in Kaatsheuvel, Netherlands.

The product is primarily applied within Norway. 1250 km is used as a distance for transport to the Firesafe warehouse in in Lørenskog, + 300 km fixed distance for distribution in accordance with Norwegian standards.

The end-of-life treatment of the product is assumed to take place in Norway based on current market practice.

All background data is sourced from Ecoinvent version 3.6.

The study was conducted using SimaPro version 9.5.1.

This EPD is a product-specific EPD, representing the environmental performance of a specific product from Firesafe, based on primary data collected in 2024 and verified secondary sources.

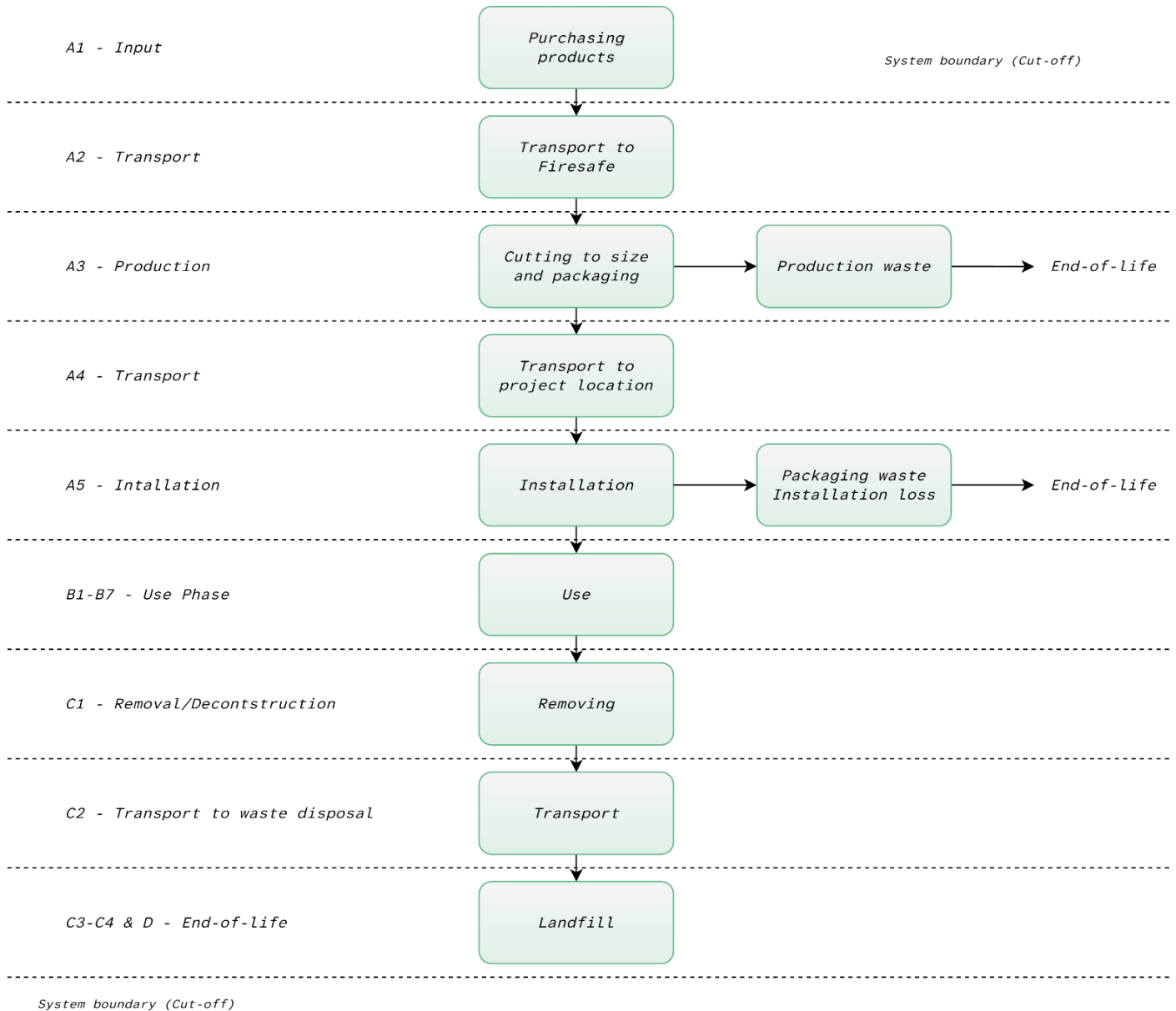
This declaration is specific to Firesafe FSD.

This product is in compliance with Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR).

| 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          |
| 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 = Modules Assessed

ND = Not Declared



## ENVIRONMENTAL IMPACT per functional unit or declared unit (indicators A1)

|      | Unit           | A1       | A2       | A3       | A1-A3    | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| ADPE | kg Sb eq.      | 5,02E-06 | 9,87E-08 | 2,30E-06 | 7,42E-06 | 1,68E-08 | 2,24E-07 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 6,78E-09 | 0,00E+00 | 5,05E-09 | -1,20E-09 |
| ADPF | MJ             | 1,45E+00 | 8,91E-02 | 6,33E-01 | 2,17E+00 | 1,52E-02 | 6,37E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,06E-03 | 0,00E+00 | 9,59E-03 | -8,51E-02 |
| GWP  | kg CO2 eq.     | 3,40E-02 | 5,75E-03 | 1,96E-02 | 5,94E-02 | 9,79E-04 | 2,08E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,66E-04 | 0,00E+00 | 1,26E-02 | -4,47E-03 |
| ODP  | kg CFC11 eq.   | 1,42E-08 | 1,09E-09 | 6,39E-09 | 2,17E-08 | 1,85E-10 | 6,49E-10 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,71E-11 | 0,00E+00 | 1,19E-10 | -5,19E-10 |
| POCP | kg ethene eq.  | 4,41E-05 | 3,51E-06 | 2,06E-05 | 6,82E-05 | 5,96E-07 | 2,10E-06 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,60E-07 | 0,00E+00 | 1,21E-06 | -6,31E-07 |
| AP   | kg SO2 eq.     | 2,09E-04 | 1,57E-05 | 9,86E-05 | 3,24E-04 | 2,55E-06 | 9,96E-06 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,17E-06 | 0,00E+00 | 6,00E-06 | -2,88E-06 |
| EP   | kg (PO4) 3 eq. | 2,76E-05 | 2,66E-06 | 1,38E-05 | 4,41E-05 | 4,20E-07 | 1,40E-06 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,29E-07 | 0,00E+00 | 2,24E-06 | -4,17E-07 |

### Toxicity indicators and ECI (Dutch market)

|       |            |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |           |
|-------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| HTP   | kg DCB eq. | 2,28E-02 | 1,24E-03 | 1,06E-02 | 3,46E-02 | 2,11E-04 | 1,06E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,12E-04 | 0,00E+00 | 3,68E-04 | -2,31E-04 |
| FAETP | kg DCB eq. | 5,77E-04 | 5,20E-05 | 2,92E-04 | 9,21E-04 | 8,85E-06 | 2,97E-05 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,26E-06 | 0,00E+00 | 5,60E-05 | -2,33E-06 |
| MAETP | kg DCB eq. | 2,09E+00 | 1,41E-01 | 9,97E-01 | 3,23E+00 | 2,40E-02 | 1,00E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,17E-02 | 0,00E+00 | 7,41E-02 | -1,04E-02 |
| TETP  | kg DCB eq. | 7,19E-05 | 6,98E-06 | 3,34E-05 | 1,12E-04 | 1,19E-06 | 3,44E-06 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,95E-07 | 0,00E+00 | 8,47E-07 | -7,24E-07 |
| ECI   | euro       | 5,27E-03 | 5,15E-04 | 2,65E-03 | 8,44E-03 | 8,70E-05 | 2,72E-04 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,20E-05 | 0,00E+00 | 7,18E-04 | -2,69E-04 |
| ADPF  | kg Sb eq.  | 6,97E-04 | 4,29E-05 | 3,05E-04 | 1,04E-03 | 7,30E-06 | 3,06E-05 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,95E-06 | 0,00E+00 | 4,61E-06 | -4,09E-05 |

- 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
- ADPF = Abiotic Depletion Potential for fossil resources

## ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

| Unit                                  | A1        | A2       | A3        | A1-A3     | A4       | A5        | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|---------------------------------------|-----------|----------|-----------|-----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| GWP-total<br>kg CO2 eq.               | 3,46E-02  | 5,80E-03 | 2,02E-02  | 6,07E-02  | 9,87E-04 | 2,14E-03  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,68E-04 | 0,00E+00 | 1,33E-02 | -4,53E-03 |
| GWP-fossil<br>kg CO2 eq.              | 3,46E-02  | 5,79E-03 | 2,02E-02  | 6,07E-02  | 9,87E-04 | 2,13E-03  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,68E-04 | 0,00E+00 | 1,33E-02 | -4,53E-03 |
| GWP-biogenic<br>kg CO2 eq.            | -3,72E-05 | 2,80E-06 | -1,52E-05 | -4,96E-05 | 4,76E-07 | -1,36E-06 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,24E-07 | 0,00E+00 | 4,69E-06 | -1,18E-06 |
| GWP-luluc<br>kg CO2 eq.               | 3,22E-05  | 1,44E-06 | 1,49E-05  | 4,85E-05  | 2,46E-07 | 1,47E-06  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 9,81E-08 | 0,00E+00 | 2,57E-07 | -1,29E-07 |
| ODP<br>kg CFC11 eq.                   | 1,77E-08  | 1,37E-09 | 7,96E-09  | 2,70E-08  | 2,33E-10 | 8,09E-10  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,91E-11 | 0,00E+00 | 1,41E-10 | -5,89E-10 |
| AP<br>mol H+ eq.                      | 2,49E-04  | 1,97E-05 | 1,17E-04  | 3,86E-04  | 3,17E-06 | 1,19E-05  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,55E-06 | 0,00E+00 | 7,47E-06 | -3,70E-06 |
| EP-fresh water<br>kg PO4 eq.          | 1,42E-06  | 4,03E-08 | 6,54E-07  | 2,12E-06  | 6,87E-09 | 6,41E-08  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,70E-09 | 0,00E+00 | 1,04E-08 | -4,88E-09 |
| EP-marine<br>kg N eq.                 | 3,65E-05  | 4,87E-06 | 1,91E-05  | 6,05E-05  | 7,28E-07 | 1,98E-06  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,47E-07 | 0,00E+00 | 4,90E-06 | -1,11E-06 |
| EP-terrestrial<br>mol N eq.           | 4,15E-04  | 5,46E-05 | 2,01E-04  | 6,70E-04  | 8,20E-06 | 2,09E-05  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 6,03E-06 | 0,00E+00 | 1,94E-05 | -1,22E-05 |
| POCP<br>kg NMVOC eq.                  | 1,81E-04  | 1,96E-05 | 8,60E-05  | 2,86E-04  | 3,07E-06 | 8,85E-06  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,72E-06 | 0,00E+00 | 6,56E-06 | -4,04E-06 |
| ADP-minerals & metals<br>kg Sb eq.    | 5,02E-06  | 9,87E-08 | 2,30E-06  | 7,42E-06  | 1,68E-08 | 2,24E-07  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 6,78E-09 | 0,00E+00 | 5,05E-09 | -1,20E-09 |
| ADP-fossil<br>MJ, net calorific value | 1,45E+00  | 9,00E-02 | 6,36E-01  | 2,17E+00  | 1,53E-02 | 6,40E-02  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,04E-03 | 0,00E+00 | 9,47E-03 | -7,57E-02 |
| WDP<br>m3 world eq. Deprived          | 1,14E-02  | 3,70E-04 | 5,24E-03  | 1,70E-02  | 6,51E-05 | 5,15E-04  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,44E-05 | 0,00E+00 | 4,08E-04 | -3,29E-04 |

GWP-total = Global Warming Potential total

GWP-fossil = Global Warming Potential fossil fuels

GWP-biogenic = Global Warming Potential biogenic total

GWP-luluc = Global Warming Potential land use and land use change

ODP = Depletion potential of the stratospheric ozone layer

AP = Acidification Potential, Accumulated Exceedence

EP-freshwater = Eutrophication Potential, fraction of nutrients reaching freshwater end compartment

EP-marine = Eutrophication Potential, fraction of nutrients reaching marine end compartment

EP-terrestrial = Eutrophication Potential, Accumulated Exceedence

POCP = Formation potential of tropospheric ozone photochemical oxidants

ADP-minerals &amp; metals = Abiotic Depletion Potential for non-fossil resources [1]

ADP-fossil = Abiotic Depletion for fossil resources potential [1]

WDP = Water (user) deprivation potential, deprivation-weighted water consumption [1]

Disclaimer [1]:

- 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 experience with the indicator.

## ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

| Unit   |                   | A1       | A2       | A3       | A1-A3    | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|--------|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| PM     | Disease incidence | 1,69E-09 | 4,05E-10 | 8,33E-10 | 2,93E-09 | 6,85E-11 | 9,35E-11 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,40E-11 | 0,00E+00 | 7,40E-11 | -1,05E-11 |
| IRP    | kBq U235 eq.      | 5,65E-03 | 3,87E-04 | 2,61E-03 | 8,64E-03 | 6,58E-05 | 2,63E-04 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,69E-05 | 0,00E+00 | 3,80E-05 | -2,43E-05 |
| ETP-fw | CTUe              | 1,24E+00 | 6,57E-02 | 5,75E-01 | 1,88E+00 | 1,12E-02 | 5,73E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,60E-03 | 0,00E+00 | 1,39E-02 | -4,39E-03 |
| HTP-c  | CTUh              | 2,06E-11 | 1,66E-12 | 1,01E-11 | 3,24E-11 | 2,83E-13 | 1,02E-12 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,17E-13 | 0,00E+00 | 1,40E-12 | -2,85E-13 |
| HTP-nc | CTUh              | 5,84E-10 | 5,33E-11 | 2,74E-10 | 9,11E-10 | 9,02E-12 | 2,81E-11 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,94E-12 | 0,00E+00 | 1,12E-11 | -4,04E-12 |
| SQP    | -                 | 2,52E-01 | 1,03E-01 | 1,31E-01 | 4,86E-01 | 1,75E-02 | 1,61E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,50E-03 | 0,00E+00 | 2,01E-02 | -1,09E-03 |

- PM = Potential incidence of disease due to PM emissions
- IRP = Potential Human exposure efficiency relative to U235 [1]
- ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
- HTP-c = Potential Comparative Toxic Unit for humans, cancer [2]
- HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
- SQP = Potential soil quality index [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.

### 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 experience with the indicator.

# OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 en A2)

|      | Unit | A1       | A2       | A3       | A1-A3    | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| HWD  | kg   | 6,90E-07 | 2,23E-07 | 2,94E-07 | 1,21E-06 | 3,79E-08 | 3,58E-08 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,02E-08 | 0,00E+00 | 1,49E-08 | -9,58E-08 |
| NHWD | kg   | 3,77E-03 | 7,83E-03 | 1,72E-02 | 2,88E-02 | 1,33E-03 | 1,91E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,56E-04 | 0,00E+00 | 3,28E-02 | -3,04E-05 |
| RWD  | kg   | 8,29E-06 | 6,12E-07 | 3,83E-06 | 1,27E-05 | 1,04E-07 | 3,88E-07 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,65E-08 | 0,00E+00 | 5,44E-08 | -3,62E-08 |
| CRU  | kg   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| MFR  | kg   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| MER  | kg   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EEE  | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| ETE  | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |

HWD = Hazardous Waste Disposed  
NHWD = Non Hazardous Waste Disposed  
RWD = Radioactive Waste Disposed  
CRU = Components for reuse  
MFR = Materials for recycling  
MER = Materials for energy recovery  
EEE = Exported Electrical Energy  
ETE = Exported Thermal Energy

## RESOURCE USE per functional unit or declared unit (A1 and A2)

|       | Unit | A1       | A2       | A3       | A1-A3    | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|-------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| PERE  | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PERM  | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PERT  | MJ   | 3,70E-02 | 9,21E-04 | 1,70E-02 | 5,49E-02 | 1,57E-04 | 1,66E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,06E-05 | 0,00E+00 | 2,68E-04 | -1,61E-04 |
| PENRE | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PENRM | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PENRT | MJ   | 1,54E+00 | 9,56E-02 | 6,74E-01 | 2,31E+00 | 1,63E-02 | 6,78E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,29E-03 | 0,00E+00 | 1,01E-02 | -8,39E-02 |
| SM    | kg   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| RSF   | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| NSRF  | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| FW    | m3   | 3,71E-04 | 1,12E-05 | 1,73E-04 | 5,55E-04 | 1,96E-06 | 1,70E-05 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,92E-07 | 0,00E+00 | 1,19E-05 | -4,36E-06 |

|       |   |                                                                                                              |
|-------|---|--------------------------------------------------------------------------------------------------------------|
| PERE  | = | Use of renewable primary energy excluding renewable primary energy 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 resources excluding non-renewable 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 materials                                                                                   |
| RSF   | = | Use of renewable secondary fuels                                                                             |
| NSRF  | = | Use of non-renewable secondary fuels                                                                         |
| FW    | = | Use of net fresh water                                                                                       |

## BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 and A2)

|       | Unit | A1       | A2       | A3       | A1-A3    | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D        |
|-------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| BBCpr | kg C | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| BCCpa | kg C | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |

|       |   |                                      |
|-------|---|--------------------------------------|
| BCCpr | = | Biogenic carbon content in product   |
| BCCpa | = | Biogenic carbon content in packaging |



## CALCULATION RULES (PART 1)

This study follows the modular structure of EN 15804+A2 and ISO 14044. The declared unit is 1 piece of Firesafe FSD. All lifecycle stages from raw material extraction through end-of-life are included. The functional unit is based on 1 piece of product ready for use. No significant input or output flows have been deliberately excluded.

Primary data was collected from Firesafe AS, covering production inputs, electricity use, welding operations, transport, and end-of-life scenarios. Background data was sourced from the Ecoinvent 3.6 database. Data quality is considered “good” to “very good” for all records in terms of time, geography, and technology representativeness, as assessed per EN 15804+A2 Annex E.

All primary data used in this study refers to the calendar year 2024. Background data (Ecoinvent v3.6) reflects datasets published and updated as of July 2024. No economic or mass allocations were necessary within the main product system. Recycling allocation for Module D follows the substitution approach, consistent with EN 15804+A2 guidance.

## SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION (PART 1)

Description of processes within A1–A3 (Production Stage)

A1 – Raw material supply:

Includes the extraction and processing of input materials.

A2 – Transport:

Transport of input materials to the manufacturing plant by truck. Distances are based on distance between supplier and manufacturing plant in Kaatsheuvel.

A3 – Manufacturing:

Includes electricity, gas usage and water usage. Material losses and waste treatment are included.

Description of scenarios for modules beyond A1–A3:

A4 – Transport to construction site:

A fixed distance of 300 km from Lørenskog to end-user is assumed, modeled using EURO 6 diesel truck transport.

A5 - Installation

Installation is done by hand and therefore the impact is neglectable. A 3% installation loss is applied.

C1 – Deconstruction:

Firesafe FSD adheres to other materials. The impact generated during the demolition phase is negligible and falls within the cutoff criteria.

C2 – Transport to EoL processing:

90% of the product is transported for recycling over a distance of 50 km and 10% over 100 km. Both modeled with truck transport.

C3 – Waste processing:

As a finishing material that bonds to other substrates, Firesafe FSD generates negligible impact during the waste processing phase, falling within the cutoff criteria.

C4 – Disposal:

In stage C4, 90% of Firesafe FSD is disposed of to incineration plant and 10% is disposed of to landfill.

D – Module D (recovery):

Although 90% is sent to a incineration plant, the environmental impact remains negligible and falls within the cutoff criteria.

## DECLARATION OF SVHC

The product does not contain SVHC



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