# ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

| | |
|---|---|
| Owner of the Declaration | Grundfos Holding A/S |
| Publisher | Institut Bauen und Umwelt e.V. (IBU) |
| Programme holder | Institut Bauen und Umwelt e.V. (IBU) |
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| Issue date | 03/06/2025 |
| Valid to | 02/06/2030 |

## Sololift2 C-3/WC-1/WC-3/CWC-3

## Grundfos Holding A/S

Institut Bauen und Umwelt e.V.

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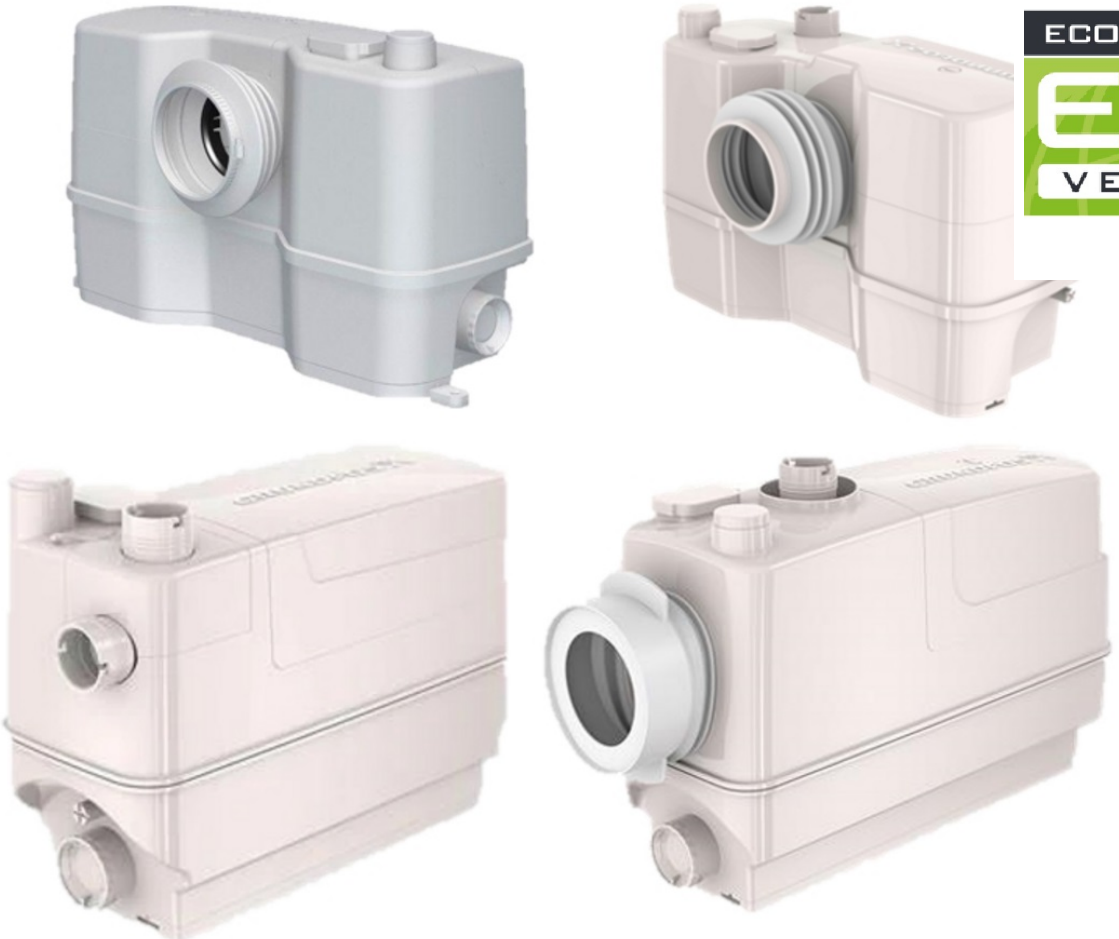
ECO PLATFORM EPD VERIFIED



## General Information

### Grundfos Holding A/S

**Programme holder**

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

**Declaration number**

EPD-GRU-20250287-CBA1-EN

**This declaration is based on the product category rules:**

Pumps for liquids and liquids with solids, 01/08/2021
(PCR checked and approved by the SVR)

**Issue date**

03/06/2025

**Valid to**

02/06/2030

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

### Sololift2 C-3/WC-1/WC-3/CWC-3

**Owner of the declaration**

Grundfos Holding A/S
Poul Due Jensens Vej 7
8850 Bjerringbro
Denmark

**Declared product / declared unit**

1 piece of sales average of SOLOLIFT2 C-3/WC-1/WC-3/CWC-3 lifting pump

**Scope:**

The declaration applies to 1 piece of sales average of SOLOLIFT2 C-3/WC-1/WC-3/CWC-1/CWC-3 pump.
The product is produced in Inđjija, Serbia, and the life cycle assessment is based on data collected at the production site. Production has been modeled using annual production data from year 2023. The declaration covers the SOLOLIFT2 C-3/WC-1/WC-3/CWC-3 product for EU and UK market, weighted based on sales average.
EPD of construction products may not be comparable if they do not comply with EN 15804+A2 standard.
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

**Verification**

| The standard EN 15804 serves as the core PCR | | | |
|---|---|---|---|
| Independent verification of the declaration and data according to ISO 14025:2011 | | | |
| ☐ | internally | ☒ | externally |

Mrs Kim Allbury,
(Independent verifier)

## Product

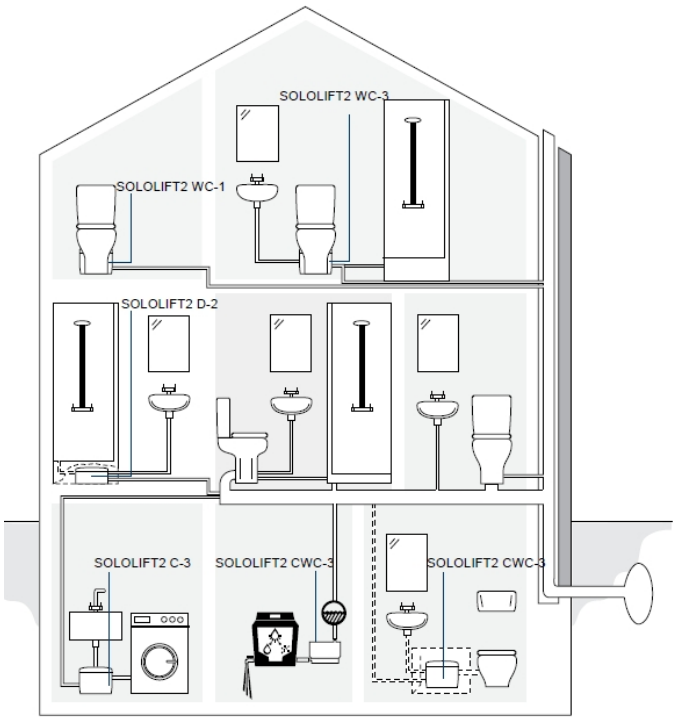
**Product description/Product definition**

For installations below sewer level, it is not possible to lead wastewater directly to the sewer. Grundfos SOLOLIFT2 C-3 products are designed to satisfy many domestic (household) application conditions, such as lifting grey wastewater from below sewer level; WC-1/WC-3/CWC-3 products are designed to lift faecal wastewater. Any greywater/faecal wastewater sanitary unit positioned below sewer level (backflow level) or far away from the main soil pipe can easily be drained by a SOLOLIFT2 C-3/WC-1/WC-3/CWC-3.

The declaration represents a sales-weighted average of SOLOLIFT2 C-3/WC-1/WC-3/CWC-3 pumps from the EU and UK versions. The UK and EU version of a pump type differs only in the plug design of their electricity power cord, therefore their hardware is identical. However, material composition and technical parameters could slightly differ amongst C-3/WC-1/WC-3/CWC-3 types, but as their function and basic construction are the same, and have very similar size and weight, they can be considered as subject of an average EPD.

Materials as well as supply chain and manufacturing processes are identical, i.e., all cradle-to-gate processes (A1-A3). The packaging is the high runner type for the included products. The products are also identical in terms of distribution, reference service life and end-of-life treatment.

The product consists of a centrifugal pump powered by an electrical motor, (having) a small tank and a floating level switch, operating with an in-built 620W/640W electrical motor that can be connected to 230V household electrical grid. The pump is designed to have a plastic tank with 5.7 liter (types with WC-connection: 9.0 liter) capacity. A mechanical floating level switch (located in the tank) controls the operation of the electric motor (Product models with WC inlet function have an in-built PCBA electronic controller).
C-3 product can be connected to three inlet drainage wastewater source piping (like shower basin, washing machine, and tap basin).
WC-1 could be connected to one WC inlet.
WC-3 and CWC-3 could be connected to one WC-inlet, and besides 2 more inlet drainage wastewater source piping.The pH of the greywater media can vary between 4...10, temperature between 0...50 ºC. The product has IP 44 class protection.




For the placing on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the following legal provisions apply:

***Machinery Directive (2006/42/EC)***
Standard used:
*EN 809:1998 + A1:2009*

***Ecodesign Directive (2009/125/EC)***

***Low Voltage directive (2014/35/EU)***
***Electrical Equipment (Safety) Regulations 2016 (UK)***
Standards used:
*EN IEC 60335-1:2023*
*EN IEC 60335-2-41:2021+A11:2021*

***EMS directive (2014/30/EU)***
Standards used:
*EN 61000-3-2:2014*
*EN 61000-3-3:2013*
*EN IEC 55014-2:2021*
*EN IEC 55014-1:2021*

***RoHS Directive 2011/65/EU and 2015/863/EU***
Standard used:
*EN IEC 63000:2018*

***Marketing of construction products (Regulation (EU) No. 305/2011)***
Standard used: *EN 12050-2:2015* (only C-3)
(Wastewater lifting plants for buildings and sites – Part 2: Lifting plants for faecal-free wastewater)
Standard used: EN 12050-3:2015 (WC-1/WC-3/CWC-3)
(Wastewater lifting plants for buildings and sites – Part 2: Lifting plants for wastewater containing faecal matter for limited applications)

The CE marking takes into account the proof of conformity with the respective harmonized norms based on the legal provisions

above.

### Application

Wastewater from the units connected is led to the SOLOLIFT2 lifting station. The pump starts automatically when the liquid level reaches the start level and stops when the level has fallen to the stop level. The start and stop levels depend on the type of SOLOLIFT2. See technical data of the individual types.
The tank of all Grundfos SOLOLIFT2 lifting stations is made of composite with an easy-to-clean surface and inside chamfers to minimise sedimentation. Installed correctly, SOLOLIFT2 works automatically.The design offers unique features and is focused on quick installation as well as easy and clean service. The lifting stations require very little maintenance.

### Technical Data

The performance data of the product according to the harmonized norms, based on the harmonization provisions above apply.
The relevant technical specifications according to the *PCR Part B* are given in the table below.
Characteristics that are the same for all product groups are only given once. Others are given individually for all products.

### Constructional data

*(where no specific type indicated, valid for all SOLOLIFT2 types in scope)*

| Name | Value | Unit |
|---|---|---|
| Frequency | 50 / 60 | Hz |
| Voltage | 230 | V |
| Flow range (CWC-3) | 8.22 | $m^3/h$ |
| Flow range (WC-1/WC-3) | 8,94 | $m^3/h$ |
| Flow range (C-3) | 12.24 | $m^3/h$ |
| Power input (C-3) | 0.64 | kW |
| Power input (WC-1/WC-3/CWC-3) | 0.62 | kW |
| Pumped liquid (C-3) | grey wastewater | - |
| Pumped liquid (WC-1/WC-3/CWC-3) | faecal wastewater | - |
| Head max. (WC-1/WC-3/CWC-3) | 8.5 | m |
| Head max. (C-3) | 8.8 | m |
| Duty type | S3-50% 1min | - |
| IP class | IP 44 | - |

Performance data of the product according to the harmonised standards, based on provisions for harmonisation.

### Base materials/Ancillary materials

| Name | Value | Unit |
|---|---|---|
| Carbon steel | 5.91 | % |
| Copper | 9.70 | % |
| Corrugated board | 10.89 | % |
| Electronics | 3.91 | % |
| Lubricant (oil) | 0.45 | % |
| Paper | 2.87 | % |
| Rubbers | 5.65 | % |
| Soft plastics and foams | 2.37 | % |
| Solid thermoplastics | 30.00 | % |
| Stainless steel | 23.73 | % |
| Wood | 4.52 | % |
| TOTAL | 100 | % |

*all ingredients are given rounded to 2 decimals accuracy*

### REACH

This product/article contains substances listed in the *ECHA candidate list* (date: 10.06.2022) exceeding 0.1 percentage by mass: **NO**

The Inđjija production has been assessed and certified as meeting the requirements in *ISO 14001, ISO 45001, ISO 50001 and ISO 9001.*

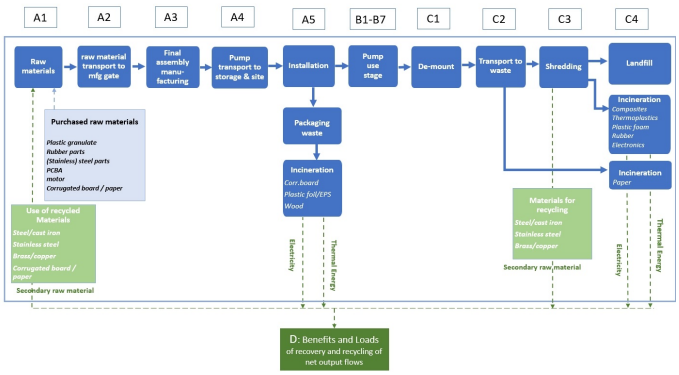
### Reference service life

The use stage sub-module B6 is declared per RSL, in order to facilitate building calculations, an estimated RSL of 10 years can be used. This is an EU consensus-based estimation, referenced on page 55 in the document EuP Lot11 Water Pumps Issue 6. The text is also reproduced here: *Estimating 'average' lifetime is difficult, with the Europump figures based on the collective views of suppliers. For pumps operating under normal conditions, it is thought that these numbers are indeed reasonable, but there are sometimes exceptional circumstances which shorten this 'natural' lifetime. Taking account of all of these factors, the following table is presented as the average lifetimes and operating hours of the pumps considered in this study.* The table refers to 11 years of pump life. Product lifetime is calculated based on the assessed weakest part to be 10 years on average. The calculation is based on the performance test, knowledge of load profile and equations provided by the component supplier. Assessment is based on expert opinion.

## LCA: Calculation rules

### Declared Unit

The declared unit is 1 piece (pcs.) of a theoretical sales weighted average of SOLOLIFT2 C-3/WC-1/WC-3/CWC-3 lifting pump.




### Declared unit

Mass includes packaging.

| Name | Value | Unit |
|---|---|---|
| Declared unit | 1 | pce. |
| Mass reference | 9.95 | kg/pce |
| Conversion factor [Mass/Declared Unit] | 9.95 | - |

The weighted average product has been calculated based on the sales volumes of the included product models (EU /UK).

**System boundary**

This EPD is Cradle-To-Grave and Module D. The system boundaries of the EPD follow the modular approach in *EN 15804*.

**Production and installation (A1-A5)**

Modules A1-A3 refer to the product stage and include raw materials extraction and processing, transportation, and the manufacturing process. The product stage is included in this study, and according to *EN 15804* the system boundary with nature is set to include those processes that provide the material and energy inputs into the system and the following manufacturing, transport up to the factory gate as well as the processing of waste arising from those processes. The assembly of the product, as well as the packaging, are also included in A1-A3. Wastes and losses are included in the modules where they occur according to the polluter pays principle and the modular approach of *EN 15804:2019+A2*

Module A4 regards the transportation from the production site to the regional distribution centre, and finally to the construction and product application site. Module A5 refers to the installation process of the pump including the transportation of packaging waste to the treatment site and the waste treatment of packaging. The use of energy during installation is negligible for the selected functional unit.

**Use stage (B1-B7):**

In this study, all use stage modules are assessed, though B1, B2 and B7 are assessed to be zero. By decision no. 20170712-n of the *SVR*, the modules B3, B4 and B5 are by default declared as "MNR" (module not relevant).
Contributions to operational energy use during the use stage (B6) come from the electricity consumption of the product. The annual electricity consumption is calculated by multiplying the average power input, which is based on a defined load profile, with the annual running hours. For use stage (B6) European Average electricity grid mix has been used. These values are declared in the scenarios section of *Operational energy use (B6)* table.

**The End-of-Life stage (C1-C4)**

The End-of-Life stage (C1-C4) Modules C1-C4 refer to the End-of-life stage. A product reaches the end-of-life of its service life when it no longer provides any functionality. This life cycle stage includes all activities from the end-of-life of the control valve until all materials and components are processed, reused, recycled, or disposed of.C1 regards the dismantling of the pump, and this module is a manual activity. C2 regards the transport to waste processing, C3 refers to the processing (shredding) of waste for recycling, and C4 refers to waste disposal: landfilling and incineration. The End-of-Life assumption is that 95% is collected as electronic waste, while 5% goes to landfill. The specific amounts are shown in the scenarios section.

**Loads and benefits beyond system boundary (D)**:

Module D refers to the burdens and benefits beyond the system boundaries. According to *EN 15804*, module D includes the reuse, recovery and/or recycling potentials, expressed in net impacts and benefits. Contributions to module D come from waste incineration processes in A5 and C4 as well as material (metal) recycling in C3. The specific fractions and net flows are shown in the scenarios section.

**Geographic Representativeness**

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Europe

**Comparability**

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account. The primary database used for background data is *Sphera (version 2024.2)*, while *Ecoinvent (version 3.10)* serves as a secondary database.

## LCA: Scenarios and additional technical information

**Characteristic product properties of biogenic carbon**

The biogenic carbon content quantifies the amount of biogenic carbon in a construction product leaving the factory gate, and it will be separately declared for the product and for any accompanying packaging, as required from the *PCR Part A*.
The carbon content of cardboard and paper is assumed to 0.43 kg C, meaning 43% of the paper and cardboard packaging is biogenic carbon. The carbon content of wood is assumed to 0.435 kg C, meaning 43.5% of the wooden packaging is biogenic carbon. Overall, there is a certain amount of biogenic Carbon in the product leaving the factory gate and has to be considered.

**Information on describing the biogenic Carbon Content at factory gate**

| Name | Value | Unit |
|---|---|---|
| Biogenic carbon content in product | 0.123 | kg C |
| Biogenic carbon content in accompanying packaging | 0.662 | kg C |

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of $CO_2$.

Considering an average composition for the average EPD, all stages **except for B6** are considered to be under the same condition.
Differences in motor amongst the averaged types result in different energy consumption, therefore different scenarios have been applied for the B6 stage based on exact model types.

**Transport from the gate to the site (A4)**

| Name | Value | Unit |
|---|---|---|
| Litres of fuel | 1,7 | l/100 tkm |
| Transport distance | 1300 | km |
| Capacity utilisation (including empty runs) | 61.75 | % |
| Gross density of products transported | 207.27 | kg/m$^3$ |
| Wastage during distribution | - | % |

**Installation into the building (A5)**

| Name | Value | Unit |
|---|---|---|
| Packaging waste for incineration (LDPE film) | 0.075 | kg |
| Packaging waste for incineration (EPS foam) | 0.099 | kg |
| Packaging waste for incineration (Paper/Cardboard) | 1.084 | kg |
| Packaging waste for incineration (PP stripe) | 0.010 | kg |
| Packaging waste for incineration (Wood) | 0.450 | kg |

An estimated RSL of 10 years can be used to facilitate building calculations. This is an EU consensus-based estimation, referenced in Appendix 6: Lot 11 – *Water pumps (in commercial buildings, drinking water pumping, food industry, agriculture), issue 6* prepared by *AEA Energy & Environment* for the European Commission in the context of the *Eco Design Directive*

**Reference service life**

| Name | Value | Unit |
|---|---|---|
| Life Span according to the manufacturer | 10 | a |

**Operational energy use (B6)**

*(where no specific type is indicated, valid for all SOLOLIFT2 types in scope)*

| Name | Value | Unit |
|---|---|---|
| Running time (in operation) | 101.39 | h/a |
| Standby time | 8658.61 | h/a |
| Average power input - operation (WC1/WC-3/CWC-3) | 0.62 | kW |
| Average power input - standby | 0.003 | kW |
| Average power input - operation (C-3) | 0.64 | kW |
| Electricity consumption - operation (WC1/WC-3/CWC-3) | 62.862 | kWh/a |
| Electricity consumption - operation (C-3) | 64.89 | kWh/a |
| Electricity consumption - standby | 25.976 | kWh/a |
| Total energy consumption - in RSL (WC1/WC-3/CWC-3) | 888.38 | kWh |
| Total energy consumption - in RSL (C-3) | 908.66 | kWh |

*Based on the calculations, the reference energy consumption of C-3 has a 1.0228 factor relative to WC1/WC-3/CWC-3 types.*

**End of life (C1-C4)**

| Name | Value | Unit |
|---|---|---|
| Collected separately waste type WEEE | 8.234 | kg |
| Transportation distance (C2) | 100 | km |
| Stainless steel for recycling | 2.252 | kg |
| Carbon steel for recycling | 0.582 | kg |
| Copper for recycling | 0.917 | kg |
| Plastics for incineration (incl. rubber) | 3.46 | kg |
| Electronics for incineration w/energy | 0.359 | kg |
| Paper for incineration | 0.285 | kg |
| Landfilling | 0.567 | kg |

**Reuse, recovery and/or recycling potentials (D), relevant scenario information**

| Name | Value | Unit |
|---|---|---|
| A1-3, incineration w/energy recov. thermal energy | 0.9263 | MJ |
| A5, incineration w/energy recov. electric energy | 4.511 | MJ |
| A5, incineration w/energy recov. thermal energy | 8.131 | MJ |
| C3, carbon steel for recycling (net amounts) | 0.4856 | kg |
| C3, stainless steel for recycling (net amounts) | 1.95 | kg |
| C3, copper for recycling (net amounts) | 0.9167 | kg |
| C4, incineration w/energy recov. thermal energy | 39.74 | MJ |
| C4, incineration w/energy recov. electric energy | 22.34 | MJ |

## LCA: Results

Characterization model: *EN 15804:2012+A2:2019*, PEF. By Decision no. 20170712-n of the IBU SVR, the modules B3, B4, B5 are marked as MNR (module not relevant) as default. The LCA results in module B6 are given on a period of 10 years in line with RSL period, according to *PCR Part B*.
The indicator results for module B6 are declared for SOLOLIFT2 WC-1/WC-3/CWC-3 average domestic usage pattern scenario.
B6 indicator results for C-3 type can be derived by multiplying the B6 indicator results with a factor of 1.0228
Specific GWP index of electricity mix within A1-3: 0.902 kg $CO_2$eq/kWh.

**DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)**

| Product stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Benefits and loads beyond the system boundaries |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Raw material supply | Transport | Manufacturing | Transport from the gate to the 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 | MNR | MNR | MNR | X | X | X | X | X | X | X |

**RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1PCS of Sololift2 C-3/WC-1/WC-3/CWC-3 average**

| Parameter | Unit | A1-A3 | A4 | A5 | B1 | B2 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg $CO_2$ eq | 6.12E+01 | 1.19E+00 | 2.88E+00 | 0 | 0 | 2.67E+02 | 0 | 0 | 7.58E-02 | 1.54E-01 | 1.13E+01 | -2.03E+01 |
| GWP-fossil | kg $CO_2$ eq | 6.41E+01 | 1.16E+00 | 6.63E-01 | 0 | 0 | 2.65E+02 | 0 | 0 | 7.44E-02 | 1.53E-01 | 1.07E+01 | -2.03E+01 |
| GWP-biogenic | kg $CO_2$ eq | -3E+00 | 2.8E-03 | 2.22E+00 | 0 | 0 | 2.38E+00 | 0 | 0 | 1.79E-04 | 1.37E-03 | 5.37E-01 | 5.05E-02 |
| GWP-luluc | kg $CO_2$ eq | 1.05E-01 | 1.97E-02 | 2.89E-04 | 0 | 0 | 4.02E-02 | 0 | 0 | 1.26E-03 | 2.32E-05 | 1.54E-04 | -4.43E-02 |
| ODP | kg CFC11 eq | 2.9E-08 | 1.73E-13 | 3.23E-13 | 0 | 0 | 6.01E-09 | 0 | 0 | 1.11E-14 | 3.46E-12 | 8.73E-13 | -6.2E-11 |
| AP | mol $H^+$ eq | 6.33E-01 | 7.46E-03 | 7.02E-04 | 0 | 0 | 5.12E-01 | 0 | 0 | 4.77E-04 | 2.95E-04 | 2.24E-03 | -1.29E-01 |
| EP-freshwater | kg P eq | 6.34E-04 | 5.02E-06 | 1.52E-07 | 0 | 0 | 1.1E-03 | 0 | 0 | 3.21E-07 | 6.34E-07 | 7.18E-06 | -3.16E-05 |
| EP-marine | kg N eq | 5.99E-02 | 3.65E-03 | 2.53E-04 | 0 | 0 | 1.28E-01 | 0 | 0 | 2.33E-04 | 7.37E-05 | 8.4E-04 | -1.47E-02 |
| EP-terrestrial | mol N eq | 6.3E-01 | 4.04E-02 | 3.26E-03 | 0 | 0 | 1.34E+00 | 0 | 0 | 2.58E-03 | 7.72E-04 | 1.13E-02 | -1.58E-01 |
| POCP | kg NMVOC eq | 2.01E-01 | 7.22E-03 | 6.45E-04 | 0 | 0 | 3.38E-01 | 0 | 0 | 4.62E-04 | 1.95E-04 | 2.25E-03 | -4.62E-02 |
| ADPE | kg Sb eq | 6.54E-03 | 1.02E-07 | 4.73E-09 | 0 | 0 | 4.96E-05 | 0 | 0 | 6.54E-09 | 2.86E-08 | 9.14E-09 | -2.83E-03 |
| ADPF | MJ | 9.71E+02 | 1.55E+01 | 9.2E-01 | 0 | 0 | 5.56E+03 | 0 | 0 | 9.89E-01 | 3.21E+00 | 2.16E+00 | -2.72E+02 |
| WDP | $m^3$ world eq deprived | 2.74E+01 | 1.82E-02 | 3.23E-01 | 0 | 0 | 7.33E+01 | 0 | 0 | 1.16E-03 | 4.22E-02 | 1.06E+00 | -6.99E+00 |

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

**RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1PCS of Sololift2 C-3/WC-1/WC-3/CWC-3 average**

| Parameter | Unit | A1-A3 | A4 | A5 | B1 | B2 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 2.25E+02 | 1.33E+00 | 1.75E+00 | 0 | 0 | 4.02E+03 | 0 | 0 | 8.52E-02 | 2.32E+00 | 4.82E+00 | -6.81E+01 |
| PERM | MJ | 5.81E+00 | 0 | -1.53E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -4.28E+00 | 0 |
| PERT | MJ | 2.31E+02 | 1.33E+00 | 2.16E-01 | 0 | 0 | 4.02E+03 | 0 | 0 | 8.52E-02 | 2.32E+00 | 5.41E-01 | 5.41E-01 |
| PENRE | MJ | 8.44E+02 | 1.55E+01 | 3.67E+00 | 0 | 0 | 5.56E+03 | 0 | 0 | 9.89E-01 | 3.21E+00 | 1.2E+02 | -2.72E+02 |
| PENRM | MJ | 1.27E+02 | 0 | -2.75E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1.18E+02 | 0 |
| PENRT | MJ | 9.71E+02 | 1.55E+01 | 9.2E-01 | 0 | 0 | 5.56E+03 | 0 | 0 | 9.89E-01 | 3.21E+00 | 2.16E+00 | -2.72E+02 |
| SM | kg | 4.52E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | $m^3$ | 8.02E-01 | 1.48E-03 | 7.6E-03 | 0 | 0 | 3.08E+00 | 0 | 0 | 9.49E-05 | 1.77E-03 | 2.49E-02 | -2.42E-01 |

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 = Use of net fresh water

## RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1PCS of Sololift2 C-3/WC-1/WC-3/CWC-3 average

| Parameter | Unit | A1-A3 | A4 | A5 | B1 | B2 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 5.42E-02 | 5.93E-10 | 4.22E-10 | 0 | 0 | 8.04E-06 | 0 | 0 | 3.79E-11 | 4.63E-09 | 1.12E-09 | -1.23E-03 |
| NHWD | kg | 4.03E+00 | 2.53E-03 | 6.49E-02 | 0 | 0 | 4.59E+00 | 0 | 0 | 1.61E-04 | 2.64E-03 | 7.34E-01 | 2E+00 |
| RWD | kg | 2.27E-02 | 2.82E-05 | 3.76E-05 | 0 | 0 | 8.89E-01 | 0 | 0 | 1.8E-06 | 5.13E-04 | 9.55E-05 | -8.26E-03 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.75E+00 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 4.51E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.23E+01 | 0 |
| EET | MJ | 9.26E-01 | 0 | 8.13E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.97E+01 | 0 |

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; EEE = Exported electrical energy; EET = Exported thermal energy

## RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1PCS of Sololift2 C-3/WC-1/WC-3/CWC-3 average

| Parameter | Unit | A1-A3 | A4 | A5 | B1 | B2 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidence | 7.16E-06 | 3.27E-08 | 3.91E-09 | 0 | 0 | 4.28E-06 | 0 | 0 | 2.09E-09 | 2.47E-09 | 1.25E-08 | -1.97E-06 |
| IR | kBq U235 eq | 2.61E+00 | 4.09E-03 | 5.94E-03 | 0 | 0 | 1.46E+02 | 0 | 0 | 2.61E-04 | 8.44E-02 | 1.49E-02 | -1.32E+00 |
| ETP-fw | CTUe | 4.28E+02 | 1.15E+01 | 4.61E-01 | 0 | 0 | 1.61E+03 | 0 | 0 | 7.34E-01 | 1.05E+00 | 1.29E+00 | -1.11E+02 |
| HTP-c | CTUh | 1.93E-06 | 2.32E-10 | 2.66E-11 | 0 | 0 | 9.05E-08 | 0 | 0 | 1.48E-11 | 1.33E-10 | 9.54E-11 | -1.68E-07 |
| HTP-nc | CTUh | 1.06E-06 | 1.04E-08 | 8.11E-10 | 0 | 0 | 1.39E-06 | 0 | 0 | 6.65E-10 | 8.46E-09 | 2.1E-09 | -1.37E-07 |
| SQP | SQP | 4.58E+02 | 7.61E+00 | 3.22E-01 | 0 | 0 | 2.34E+03 | 0 | 0 | 4.86E-01 | 1.35E+00 | 5.99E-01 | -7.57E+01 |

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator 'Potential Human exposure efficiency relative to U235'.
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 or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation-weighted water consumption', 'potential comparative toxic unit for ecosystems', 'potential comparative toxic unit for humans – cancerogenic', 'Potential comparative toxic unit for humans - not cancerogenic', 'potential soil quality index'. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

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