

# Environmental Product Declaration

 **EPD**  
INTERNATIONAL EPD SYSTEM



In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

## SWOON Stone

from

**Götaströmsgruppen AB**



Programme:	The International EPD System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
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**EPD of multiple products, based on a representative product.**  
*An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see [www.environdec.com](http://www.environdec.com).*



## General information

### Programme information

<b>Programme:</b>	The International EPD System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
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### PCR and verification

<b>Product Category Rules (PCR)</b>
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): <i>PCR 2019:14 Construction products v.2.0.1</i>
PCR review was conducted by: <i>PCR review was conducted by the Technical Committee of the International EPD® System. See <a href="https://environdec.com/about-us/the-international-epd-system-about-the-system">https://environdec.com/about-us/the-international-epd-system-about-the-system</a> for a list of members. Review chair: Rob Rouwette. The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a>.</i>
<b>Verification</b>
External and independent ('third-party') verification of the declaration and data, according to ISO 14025:2006, via EPD verification through:
<input checked="" type="checkbox"/> Individual EPD verification without a pre-verified LCA/EPD tool
Third-party verifier: <i>Stephen Forson, ViridisPride Ltd.</i>
Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier:
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.

For further information about comparability, see EN 15804 and ISO 14025

## Information about EPD owner

Owner of the EPD:

Götaströmsgruppen AB

Address:

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Contact

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Address and contact information of the LCA practitioner commissioned by the EPD owner:

Fanni Végvári, CarbonZero AB, [fanni.vegvari@carbonzero.se](mailto:fanni.vegvari@carbonzero.se)

Description of the organisation:

Götaströmsgruppen AB and Wog Trä AB wish to understand the environmental impacts of their SWOON bathroom furniture and make this information publicly available as an EPD (Environmental Product Declaration). Götaströmsgruppen AB is the group parent company to Wog Trä AB, where Wog Trä AB stands for the manufacturing of the products but the EPDs will be published under Götaströmsgruppen AB as the trademark is under the mother company. Wog Trä AB are located in Vaggeryd and manufacture everything from office furniture and bathroom furniture to kitchens and interior design. Since the start in 2001, we have developed our production a lot to be able to meet your requirements as a customer. We regularly buy new machines and try to invest in our staff.

Product-related or management system-related certifications:

Wog Trä are certified according to FSC and ISO 9001.

## Product information

Product name:

SWOON Stone

Product description:

SWOON Stone is a bathroom furniture with a composite countertop and an overhead washbasin that creates a nice furniture feeling. The width comes in 680 or 1000 mm. There's one big drawer and smart storing inside with two smaller metal boxes. Metal legs are optional. Washbasin and tap are not included. Manufactured like all our furniture of moist resistant chipboard or MDF. Our standard products are painted in grey white or anthracite. Wooden looks are made of moist resistant HPL.

Visual representation of the products:



UN CPC code:

3814 - Other furniture n.e.c

Description of production process:

The production of the SWOON Stone bathroom furniture starts with the production of the components that make up the final products. The components are made of particleboard, stone with metal and plastic details. The manufacturing of components and assembly takes place in Vaggeryd. The final products are then shipped to customers in Sweden in packaging material made from cardboard.

Name and location of production site(s):

Wog Trä, Vaggeryd

Technical or actual lifespan:

15 years.

List of products:

Stone 680 and Stone 1000.

Technical Information:

The table below shows some technical specifications for the products included in this EPD. For more information, please visit <https://swoon.se/en/kategori/bathroom-furniture/>.

Product	Article number	Name	Description
<b>SWOON STONE</b>	SW 061	Stone 680 grey white	Stone with a composite countertop and an overhead washbasin. Creates a nice furniture feeling. Width 680 or 1000 mm. One big drawer and smart storing inside with two smaller metal boxes. Metal legs optional. Washbasin and tap is not included. Manufactured like all our furniture of moist resistant chipboard or MDF. Our standard products are painted in grey white or anthracite. Wooden looks are made of moist resistant HPL.
	SW 062	Stone 680 light oak	
	SW 063	Stone 1000 anthracite	
	SW 064	Stone 1000 Dark oak	

## Content declaration of representative product

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product <sup>1</sup>	Biogenic material kg C/declared unit
Particleboard	1,29E-01	25	5,9	0,536
MDF	4,59E-01	0	22,7	0,227
Paper	2,00E-05	0	8,60E-04	8,60E-06
PE	8,60E-03	0	0	0
Steel	4,77E-02	0	0	0
Stone	3,51E-01	0	0	0
Textile	3,60E-03	0	0	0
Wood	1,10E-03	0	0,055	5,50E-04
<b>TOTAL</b>	<b>1</b>	<b>3</b>	<b>28,12</b>	<b>0,2812</b>
Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material <sup>1</sup> kg C/declared unit	
Cardboard	1,07E-01	10,7	0,05	
<b>TOTAL</b>	<b>1,07E-01</b>	<b>10,7</b>	<b>0,05</b>	

Hazardous substances from the candidate list of SVHC	EC No.	CAS No.	Mass-% per declared unit
Not relevant	-	-	-

In this study, no hazardous or toxic materials or substances are included in the product that are in the candidate list of Substances of Very High Concern (SVHCs) which exceeds the limits for registration with the European Chemicals Agency (i.e., if the substance constitutes more than 0.1% of the weight of the product or any component of the product, if applicable).

<sup>1</sup> 1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO<sub>2</sub>.

## LCA information

Declared unit:

1 kg of SWOON Stone bathroom furniture.

Reference service life:

Not applicable, however the products have an estimated lifetime of 15 years.

Time representativeness:

Data collection for specific data represents the production year of 2023 (January 2023 to December 2023) and the generic data used from datasets and specific EPDs represent the last 5 years as the oldest data is from 2021.

Geographical scope:

The geographical scope for modules A1-A2 is Europe as the materials are sources around Europe. The rest of the modules have a geographical scope of Sweden.

Database(s) and LCA software used:

LCA for Experts was used to model. The characterization factors used in this study refer to PCR 2019:14 and EN 15804+A2 (based on EF 3.1).

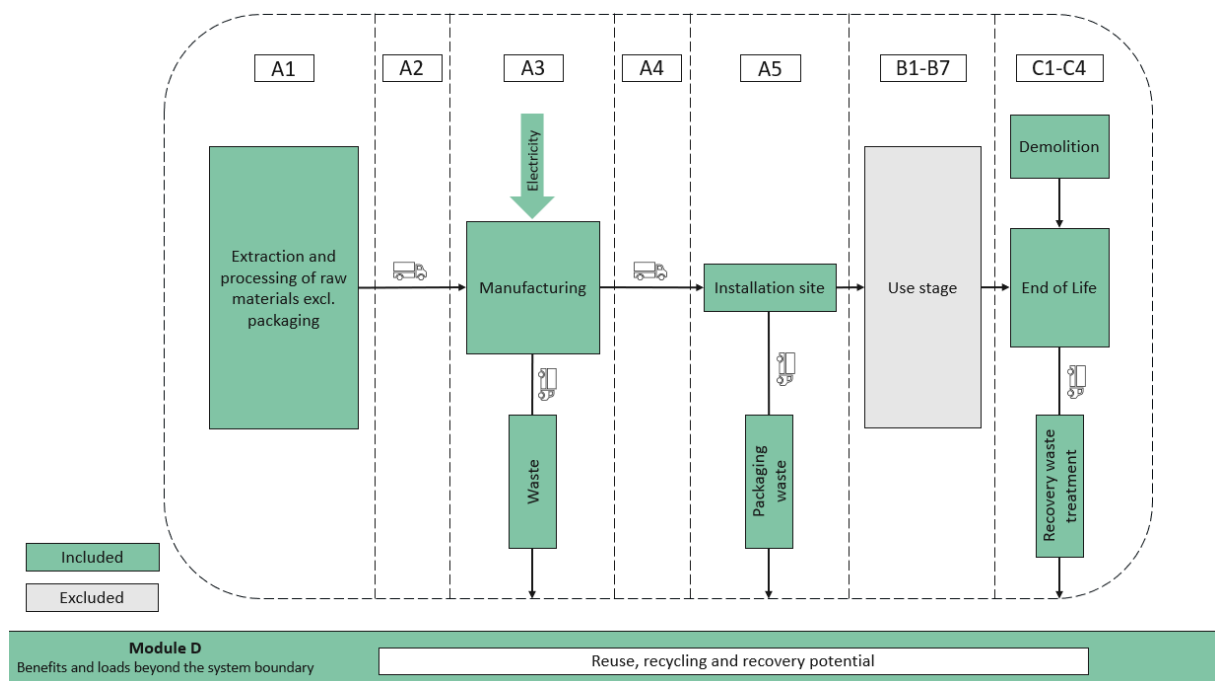
Description of system boundaries:

Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules A4-A5).

Life cycle stages not considered:

Use stage B1-B7 is not included, however the impact is negligible.

Process flow diagram:



Allocation procedures:

Allocation criteria are based on mass. The energy consumption has been collected and dispersed between the entire production year based on the amount of furniture (mass) produced for the same production year. Waste has been similarly allocated by mass based on the material wastage recorded from the manufacturing processes. No co-product allocations have been made. The post-consumer recycled content has impacts from transporting and waste management for the respective materials.

Cut-off criteria:

The following procedures were followed for the exclusion of inputs and output.

- All input and output flows in a unit process were considered i.e., considering the value of all flows in the unit process and the corresponding LCI where data was available
- Data gaps were filled by conservative assumptions with average or generic data, any assumptions in such cases were documented
- The use of cut-off criterion on mass inputs and primary energy at the unit process level (1 %) and at the information module level (5 %)
- All hazardous and toxic materials and substances (if present) are included in the inventory, and the cut-off rules do not apply

Electricity used in manufacturing:

The GWP-GHG values for the manufacturing stage impacts are presented according to the electricity mix that Wog Trä consumed for the production year of 2023. The consumption is based on their GOO which contains more renewable sources than the average Swedish electricity grid mix.

National electricity grid	Period	GWP-GHG [kg CO <sub>2</sub> -eq/kWh]
Swedish grid mix	Jan 2023 – Dec 2023	0,035

More information:

*A1: Raw Material Supply*

This module considers the extraction and processing of all raw materials, energy, and transportation which occur upstream to the studied manufacturing process. The products mainly consist of particleboard, MDF, stone and other metal and plastic components. Generic data has been used to model the production of the raw materials and components that make up the products.

*A2: Transport to the Manufacturer*

The different raw materials and components are transported to the manufacturing site where the assembly takes place. Specific data from the manufacturers' suppliers have been considered, where the suppliers are located in Sweden, Denmark, Finland, Germany and Turkey.

*A3: Manufacturing*

This module includes the assembly of SWOON Stone bathroom furniture manufactured in Sweden. During the manufacturing and assembly process electricity is used. It is assumed that the inputs and outputs from this module are distributed equally across the products per declared unit as the processes are similar across all products. There's some waste materials from cutting the particleboard which is accounted for here. This module also includes the manufacturing of the packaging which is used to transport the finished products out to the distribution center. The packaging material consists of cardboard, cellular plastic and pallet.

#### A4: Transport

This stage includes transportation from Wog Trä out to the installation sites. The transportation distance to the installation sites is based on an average representative transportation of 250 km.

#### Transport to the building site (A4)

Scenario information	Unit (expressed per functional unit or per declared unit)
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long-distance truck, boat, etc.	Diesel, 0,019 l/tkm for a truck-trailer 34-40 gross weight
Distance	250 km
Capacity utilisation (including empty returns)	61 %
Volume capacity utilisation factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaged products)	Not applicable

#### A5: Construction installation

As the products are installation products which are fastened to the bathroom walls, it has been assumed that the installation is done by hand and therefore has negligible impact. This stage also includes the waste management of the packaging that arises on the installation site. The waste rates of the different packaging materials are based on Swedish Statistics (SCB, 2020) as the waste management occurs in Sweden.

Material	Recycling rate	Incineration rate	Landfill rate
MDF/Particleboard/ Paper/Wood	0%	100%	0%
Plastic	26%	74%	0%
Metal	95%	0%	5%
Inert	93%	0%	7%
Textile	0%	0%	100%

#### B1 – B7: Use Stage

These stages are excluded from the study.

#### C1: Deconstruction/Demolition

This stage includes the deconstruction of the product when it no longer is in use. It has been assumed that the dismantling of the products is done by hand and therefore the impact from this module is negligible.

#### C2: Transport

This module includes the transportation distance to waste processing. This is assumed to be 50 km.

#### Transport to the building site (C2)

Scenario information	Unit (expressed per functional unit or per declared unit)
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long-distance truck, boat, etc.	Diesel, 0,019 l/tkm for a truck-trailer 34-40 gross weight
Distance	50 km
Capacity utilisation (including empty returns)	61 %
Volume capacity utilisation factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaged products)	Not applicable

### *C3: Waste Processing*

This module includes impacts from the required waste treatment processes. Generic data has been applied to represent the national waste management of the materials and is based on Swedish Statistics (SCB, 2022).

### *C4: Final Disposal*

This includes impacts from the process of landfilling any material waste coming from the product's end-of-life. All incineration process with an efficiency of less than 60 % is also considered as disposal and assigned to this module. Generic data has been applied to represent the national waste management of the materials and is based on Swedish Statistics (SCB, 2020).

### **End-of-Life (C1, C3, C4)**

<b>Process</b>	<b>Unit (expressed per functional unit or per declared unit of components products or materials and by type of material)</b>
C1: Collection process specified by type	1 kg collected separately
	0 kg collected with mixed construction waste
C3: Recovery system specified by type	0 kg for re-use
	0,112 kg for recycling
	0,874 kg for energy recovery
C4: Disposal specified by type	0,014 kg product or material for final deposition

### *D: Benefits and loads beyond the system boundary*

Emission benefits and loads are obtained from energy recovery and recycling of waste materials due to their avoided production. In energy recovery, it is assumed that heat and electricity from waste incineration substitute thermal energy from natural gas and the average Swedish electricity grid mix, respectively.

### *Omissions of life cycle stages*

The following flows were excluded from the system boundary:

- A1-A3: The plants, production of machines, and transportation systems are excluded since the related flows are supposed to be negligible compared to the potential environmental impacts through the life cycle of the product
- B1-B7: The entire use phase is excluded from this study

In addition, the flows related to human activities, such as employee transport, were also excluded.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU	EU	SE	SE	SE	-	-	-	-	-	-	-	SE	SE	SE	SE	SE
Specific data used	13,2%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	4%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Declaration of data sources, reference years, and share of primary data:

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Assembly of product	Collected data	EPD owner	2023	Primary data	12,5%
Transport of components to assembly site	Collected data	EPD owner	2023	Primary data	0,7%
Production of components	Collected data	EPD owner	2023	Representative generic data	0%
Production of packaging	Collected data	EPD owner	2023	Representative generic data	0%
Other processes	Database	Ecoinvent v3.11, Gabi v2024.2	2021-2024	Representative generic data, proxy data	0%
<b>Total share of primary data, of GWP-GHG results for A1-A3</b>	<b>13,2%</b>				

Summary of data quality:

The data quality is deemed to be fair as the majority of the impact derives from the raw materials which is not representative by primary data. Only the transportations and factory data has been collected primary data, which in total accounts for 13,2% of the total share of primary data of GWP-GHG results for A1-A3.

Default values applied for End of Life (C1-C4) for 100% scenarios

Module	Processes	Energy carrier	Quantity [kWh/tonne]	Weight considered [kg]
C1	Demolition/deconstruction of concrete/reinforced concrete	Diesel	10	0
	Demolition/deconstruction of masonry, tiles and paver blocks	Diesel	5	0
	Demolition/deconstruction of steel, wood and other materials	Diesel	1.1	1
Module	Processes	Distance [km]	Weight considered [kg]	
C2	Transports (for materials not to be incinerated)	80	0,126	
	Transports (for materials to be incinerated)	130	0,874	
Module	Processes	Energy carrier	Quantity [kWh/tonne]	Weight considered [kg]
C3	Loading and unloading at sorting facility	Diesel	1.8	1
	Mechanical sorting	Electricity	2.2	1
	Crushing of concrete	Diesel	2.0	0
	Crushing of masonry, tiles and paver blocks	Diesel	1.5	0
	Fragging of steel	Diesel	7.4	0,107
	Chipping of wood	Diesel	6.0	0,854
	Treatment of other materials	Diesel	0.8	0,025
C4	Compacting of inert construction waste for landfills (including backfilling)	Diesel	1.6	0,014

Impact indicators, version number, reference package  
 GWP100, EN 15804. Version: EF 3.1.

## Environmental performance

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The results of the end-of-life stage (module C) should be considered when using the results of the production stage (modules A1-A3).

### Main environmental performance results

#### Mandatory impact category indicators according to EN 15804

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	-1,92E-01	2,06E-02	7,99E-02	3,63E-04	4,71E-03	1,86E-03	1,08E+00	-2,65E-01
GWP-fossil	kg CO <sub>2</sub> eq.	9,73E-01	2,03E-02	5,05E-03	3,63E-04	4,65E-03	1,81E-03	4,27E-02	-2,66E-01
GWP-biogenic	kg CO <sub>2</sub> eq.	-1,18E+00	4,65E-05	1,94E-01	4,02E-08	7,83E-06	4,83E-05	1,03E+00	4,22E-03
GWP-luluc	kg CO <sub>2</sub> eq.	1,58E-02	2,08E-04	5,43E-06	3,70E-08	4,74E-05	5,85E-06	4,58E-05	-3,14E-03
ODP	kg CFC 11 eq.	1,16E-08	3,37E-15	3,87E-11	5,38E-12	8,84E-16	1,60E-11	9,97E-13	5,68E-11
AP	mol H <sup>+</sup> eq.	4,48E-03	4,39E-05	3,13E-05	3,25E-06	1,10E-05	9,72E-06	2,03E-04	-3,25E-04
EP-freshwater	kg P eq.	2,26E-04	5,47E-08	7,28E-07	1,17E-08	1,24E-08	1,19E-07	7,71E-08	1,61E-06
EP-marine	kg N eq.	1,79E-03	1,94E-05	1,31E-05	1,51E-06	4,74E-06	4,27E-06	6,04E-05	-8,21E-05
EP-terrestrial	mol N eq.	1,39E-02	2,08E-04	1,26E-04	1,65E-05	5,09E-05	4,32E-05	8,00E-04	-8,63E-04
POCP	kg NMVOC eq.	3,40E-03	3,98E-05	3,37E-05	4,93E-06	9,76E-06	1,30E-05	1,64E-04	-2,50E-04

ADP-minerals&metals <sup>2</sup>	kg Sb eq.	2,94E-06	1,35E-09	1,89E-08	1,29E-10	3,07E-10	2,81E-09	1,66E-09	-4,41E-07
ADP-fossil <sup>2</sup>	MJ	2,38E+01	2,60E-01	6,37E-02	4,67E-03	5,94E-02	2,92E-02	3,18E-01	-5,21E+00
WDP <sup>2</sup>	m <sup>3</sup>	1,21E+00	9,27E-05	8,70E-03	1,43E-05	2,24E-05	2,95E-04	1,08E-01	-2,90E-02
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; 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 Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

<sup>2</sup> 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.

**Additional mandatory and voluntary impact category indicators**

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG <sup>3</sup>	kg CO <sub>2</sub> eq.	1,01E+00	2,07E-02	5,33E-03	3,63E-04	4,71E-03	1,86E-03	4,60E-02	-2,73E-01
PM	Disease incidence	9,89E-07	3,49E-10	7,19E-10	9,15E-11	9,13E-11	2,78E-10	1,60E-09	-3,39E-09
IRP <sup>4</sup>	kBq U235 eq.	4,50E-01	7,03E-05	2,57E-04	2,01E-06	1,88E-05	4,03E-04	2,14E-03	-5,71E-02
ETP-fw <sup>2</sup>	CTUe	7,08E+00	3,37E-01	3,25E-02	2,50E-04	7,69E-02	5,80E-03	1,60E-01	-1,27E-01
HTTP-c <sup>2</sup>	CTUh	1,01E-09	4,55E-12	6,88E-12	3,91E-14	1,04E-12	1,15E-12	1,10E-11	-2,85E-11
HTTP-nc <sup>2</sup>	CTUh	9,75E-09	2,55E-10	5,92E-11	5,94E-13	5,80E-11	1,25E-11	5,50E-10	-3,23E-10
SQP <sup>2</sup>	Dimensionless	2,35E+01	1,15E-01	4,22E-02	3,09E-04	2,60E-02	1,15E-02	9,08E-02	-1,07E+00
Acronyms	GWP-GHG = Global Warming Potential Greenhouse Gases; PM = Particulate Matter; IRP = Ionizing Radiation Potential – Human Health; ETP-fw = Ecotoxicity - freshwater; HTTP-c = Human Toxicity - carcinogenic; HTTP-nc = Human Toxicity – non carcinogenic; SQP = Soil Quality								

<sup>3</sup> This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

**Resource use indicators**

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1,65E+01	1,96E-02	7,41E-03	2,97E-05	4,51E-03	1,09E-02	7,85E-02	-1,94E+00
PERM	MJ	1,13E+01	0,00E+00	-8,13E-01	0,00E+00	0,00E+00	0,00E+00	-1,05E+01	0,00E+00
PERT	MJ	2,77E+01	1,96E-02	-8,05E-01	2,97E-05	4,51E-03	1,09E-02	-1,04E+01	-1,94E+00
PENRE	MJ	2,38E+01	2,60E-01	6,37E-02	4,67E-03	5,94E-02	2,92E-02	3,18E-01	-5,21E+00
PENRM	MJ	4,09E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-4,09E-01	0,00E+00
PENRT	MJ	2,42E+01	2,60E-01	6,37E-02	4,67E-03	5,94E-02	2,92E-02	-9,14E-02	-5,21E+00
SM	kg	3,23E-02	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
NRSF	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
FW	m <sup>3</sup>	3,74E-02	9,67E-06	2,05E-04	3,33E-07	2,26E-06	1,23E-05	2,54E-03	-1,06E-02
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

**Waste indicators**

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1,17E-02	1,04E-11	2,50E-04	4,18E-06	2,52E-12	4,06E-05	6,75E-07	4,83E-05
Non-hazardous waste disposed	kg	1,67E-01	3,63E-05	8,26E-03	3,09E-05	8,33E-06	8,80E-04	3,57E-01	2,90E-01
Radioactive waste disposed	kg	3,41E-03	4,90E-07	1,01E-06	0,00E+00	1,28E-07	2,52E-06	1,38E-05	-5,10E-04

**Output flow indicators**

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	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
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,76E-02	0,00E+00	0,00E+00
Materials for energy recovery	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
Exported energy, electricity	MJ	0,00E+00	0,00E+00	9,69E-02	0,00E+00	0,00E+00	0,00E+00	1,38E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	1,75E-01	0,00E+00	0,00E+00	0,00E+00	2,48E+00	0,00E+00

***Information describing the biogenic carbon content at the factory gate***

<b>Biogenic carbon content</b>	<b>Unit (expressed per declared unit)</b>
Biogenic carbon content in product	2,81E-01 kg C
Biogenic carbon content in accompanying packaging	4,82E-02 kg C
Note:	1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO <sub>2</sub> .

## Additional LCA results

In addition to the most probable scenario, results from the corresponding 100% scenarios are added in this section.

### Mandatory impact category indicators according to EN 15804

Results per declared unit														
Indicator	Unit	C1 100%	C2 100% RC	C2 100% INC	C2 100% LF	C3 100% RC	C3 100% INC	C3 100% LF	C4 100% RC	C4 100% INC	C4 100% LF	D 100% RC	D 100% INC	D 100% LF
GWP-total	kg CO <sub>2</sub> eq.	3,62E-04	3,94E-02	3,94E-02	3,94E-02	1,43E-02	2,23E-01	0,00E+00	0,00E+00	1,03E+00	4,02E+00	1,45E+00	-8,16E-01	0,00E+00
GWP-fossil	kg CO <sub>2</sub> eq.	3,62E-04	3,89E-02	3,89E-02	3,89E-02	1,36E-02	2,23E-01	0,00E+00	0,00E+00	0,00E+00	1,96E-01	1,45E+00	-7,88E-01	0,00E+00
GWP-biogenic	kg CO <sub>2</sub> eq.	4,02E-08	9,31E-05	9,31E-05	9,31E-05	7,00E-04	3,00E-04	0,00E+00	0,00E+00	1,03E+00	3,82E+00	1,66E-03	-1,56E-02	0,00E+00
GWP-luluc	kg CO <sub>2</sub> eq.	3,71E-08	3,99E-04	3,99E-04	3,99E-04	1,47E-05	1,10E-04	0,00E+00	0,00E+00	0,00E+00	2,60E-04	-2,03E-03	-1,26E-02	0,00E+00
ODP	kg CFC 11 eq.	5,38E-12	6,44E-15	6,44E-15	6,44E-15	1,41E-10	7,88E-10	0,00E+00	0,00E+00	0,00E+00	7,64E-12	-3,94E-10	-2,42E-12	0,00E+00
AP	mol H <sup>+</sup> eq.	3,24E-06	2,56E-04	2,56E-04	2,56E-04	6,71E-05	8,23E-04	0,00E+00	0,00E+00	0,00E+00	1,18E-03	1,45E-02	-6,20E-04	0,00E+00
EP-freshwater	kg P eq.	1,17E-08	1,05E-07	1,05E-07	1,05E-07	1,74E-06	1,51E-07	0,00E+00	0,00E+00	0,00E+00	8,97E-06	-2,95E-05	-6,95E-07	0,00E+00
EP-marine	kg N eq.	1,51E-06	1,27E-04	1,27E-04	1,27E-04	3,10E-05	2,60E-04	0,00E+00	0,00E+00	0,00E+00	4,98E-04	2,75E-03	-2,30E-04	0,00E+00
EP-terrestrial	mol N eq.	1,65E-05	1,39E-03	1,39E-03	1,39E-03	2,78E-04	3,56E-03	0,00E+00	0,00E+00	0,00E+00	4,55E-03	3,79E-02	-2,61E-03	0,00E+00
POCP	kg NMVOC eq.	4,94E-06	2,44E-04	2,44E-04	2,44E-04	8,90E-05	7,13E-04	0,00E+00	0,00E+00	0,00E+00	2,83E-03	6,70E-03	-5,89E-04	0,00E+00
ADP-minerals&metals <sup>2</sup>	kg Sb eq.	1,29E-10	2,58E-09	2,58E-09	2,58E-09	4,35E-08	-1,25E-07	0,00E+00	0,00E+00	0,00E+00	8,49E-09	-5,95E-07	-5,17E-08	0,00E+00

ADP-fossil <sup>2</sup>	MJ	4,67E-03	4,97E-01	4,97E-01	4,97E-01	1,88E-01	1,41E+00	0,00E+00	0,00E+00	0,00E+00	2,78E+00	1,82E+01	-	0,00E+00
WDP <sup>2</sup>	m <sup>3</sup>	1,43E-05	1,77E-04	1,77E-04	1,77E-04	2,40E-03	5,23E-01	0,00E+00	0,00E+00	0,00E+00	2,20E-02	-7,75E-01	-5,48E-02	0,00E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; 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 Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption													

100% RC: 100% recycling, 100% INC: 100% incineration with energy recovery, 100% LF: 100% landfill

### Additional mandatory and voluntary impact category indicators

Results per declared unit														
Indicator	Unit	C1 100%	C2 100% RC	C2 100% INC	C2 100% LF	C3 100% RC	C3 100% INC	C3 100% LF	C4 100% RC	C4 100% INC	C4 100% LF	D 100% RC	D 100% INC	D 100% LF
GWP-GHG <sup>3</sup>	kg CO <sub>2</sub> eq.	3,62E-04	3,94E-02	3,94E-02	3,94E-02	1,43E-02	2,23E-01	0,00E+00	0,00E+00	0,00E+00	3,66E+00	1,45E+00	-8,14E-01	0,00E+00
PM	Disease incidence	9,14E-11	1,08E-09	1,08E-09	1,08E-09	2,35E-09	6,21E-09	0,00E+00	0,00E+00	0,00E+00	1,15E-08	8,42E-08	-7,57E-09	0,00E+00
IRP <sup>4</sup>	kBq U235 eq.	2,01E-06	1,35E-04	1,35E-04	1,35E-04	1,36E-03	1,13E-02	0,00E+00	0,00E+00	0,00E+00	5,07E-03	5,68E-02	-2,37E-01	0,00E+00
ETP-fw <sup>2</sup>	CTUe	2,50E-04	6,46E-01	6,46E-01	6,46E-01	6,40E-02	5,07E-01	0,00E+00	0,00E+00	0,00E+00	1,50E+00	3,04E+01	-4,04E-01	0,00E+00
HTTP-c <sup>2</sup>	CTUh	3,91E-14	8,73E-12	8,73E-12	8,73E-12	1,53E-11	4,58E-11	0,00E+00	0,00E+00	0,00E+00	4,67E-11	5,13E-11	-2,45E-10	0,00E+00
HTTP-nc <sup>2</sup>	CTUh	5,95E-13	4,88E-10	4,88E-10	4,88E-10	1,35E-10	2,49E-09	0,00E+00	0,00E+00	0,00E+00	6,84E-09	3,68E-09	-2,03E-09	0,00E+00
SQP <sup>2</sup>	Dimensionless	3,10E-04	2,20E-01	2,20E-01	2,20E-01	1,01E-01	3,50E-01	0,00E+00	0,00E+00	0,00E+00	2,62E-01	-3,14E-01	-	0,00E+00
Acronyms	GWP-GHG = Global Warming Potential Greenhouse Gases; PM = Particulate Matter; IRP = Ionizing Radiation Potential – Human Health; ETP-fw = Ecotoxicity - freshwater; HTTP-c = Human Toxicity - carcinogenic; HTTP-nc = Human Toxicity – non carcinogenic; SQP = Soil Quality													

**Resource use indicators**

Results per declared unit														
Indicator	Unit	C1 100%	C2 100% RC	C2 100% INC	C2 100% LF	C3 100% RC	C3 100% INC	C3 100% LF	C4 100% RC	C4 100% INC	C4 100% LF	D 100% RC	D 100% INC	D 100% LF
PERE	MJ	2,97E-05	3,75E-02	3,75E-02	3,75E-02	3,47E-02	3,26E-01	0,00E+00	0,00E+00	0,00E+00	3,11E-01	1,49E+00	-7,93E+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
PERT	MJ	2,97E-05	3,75E-02	3,75E-02	3,75E-02	3,47E-02	3,26E-01	0,00E+00	0,00E+00	0,00E+00	3,11E-01	1,49E+00	-7,93E+00	0,00E+00
PENRE	MJ	4,67E-03	4,97E-01	4,97E-01	4,97E-01	1,88E-01	1,41E+00	0,00E+00	0,00E+00	0,00E+00	2,78E+00	1,82E+01	-1,83E+01	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
PENRT	MJ	4,67E-03	4,97E-01	4,97E-01	4,97E-01	1,88E-01	1,41E+00	0,00E+00	0,00E+00	0,00E+00	2,78E+00	1,82E+01	-1,83E+01	0,00E+00
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
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
NRSF	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
FW	m <sup>3</sup>	3,33E-07	1,85E-05	1,85E-05	1,85E-05	6,63E-05	1,23E-02	0,00E+00	0,00E+00	0,00E+00	6,00E-04	-2,55E-02	-1,02E-02	0,00E+00
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water													

**Waste indicators**

Results per declared unit														
Indicator	Unit	C1 100%	C2 100% RC	C2 100% INC	C2 100% LF	C3 100% RC	C3 100% INC	C3 100% LF	C4 100% RC	C4 100% INC	C 100% LF	D 100% RC	D 100% INC	D 100% LF
Hazardous waste disposed	kg	4,18E-06	1,99E-11	1,99E-11	1,99E-11	5,97E-04	2,56E-05	0,00E+00	0,00E+00	0,00E+00	5,63E-06	-8,05E-09	-1,21E-08	0,00E+00
Non-hazardous waste disposed	kg	3,10E-05	6,94E-05	6,94E-05	6,94E-05	1,43E-02	8,75E-02	0,00E+00	0,00E+00	0,00E+00	2,01E+00	2,14E-01	-1,11E-02	0,00E+00
Radioactive waste disposed	kg	0,00E+00	9,38E-07	9,38E-07	9,38E-07	6,78E-06	8,12E-05	0,00E+00	0,00E+00	0,00E+00	3,46E-05	3,55E-04	-2,05E-03	0,00E+00

**Output flow indicators**

Results per declared unit														
Indicator	Unit	C1 100%	C2 100% RC	C2 100% INC	C2 100% LF	C3 100% RC	C3 100% INC	C3 100% LF	C4 100% RC	C4 100% INC	C 100% LF	D 100% RC	D 100% INC	D 100% LF
Components for re-use	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
Material for recycling	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
Materials for energy recovery	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
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,08E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,08E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

## Disclaimers

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

## Abbreviations

Abbreviation	Definition
<b>General Abbreviations</b>	
EN	European Norm (Standard)
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
CEN	European Committee for Standardization
CPC	Central product classification
SVHC	Substances of Very High Concern
ND	Not Declared
PCR	Product Category Rules

## References

Association of Issuing Bodies (2023)	AIB. European Residual Mixes 2022. Version 1.0. <a href="https://www.aib-net.org/facts/european-residual-mix/2022">https://www.aib-net.org/facts/european-residual-mix/2022</a> (Retrieved 2025-01-02)
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GPI 5.0	General Programme Instructions of the International EPD® System. Version 5.
ISO 14020:2022	International Standard ISO 14020 – Environmental statements and programmes for products – Principles and general requirements
ISO 14025:2006	International Standard ISO 14025 – Environmental labels and declarations — Type III environmental declarations — Principles and procedures
ISO 14040:2006	International Standard ISO 14040: Environmental Management – Life cycle assessment – Principles and framework. Second edition 2006-07-01.
ISO 14044:2006	International Standard ISO 14044: Environmental Management – Life cycle assessment – Requirements and Guidelines.
SCB 2020	Treated waste by treatment category and waste category. Every second year 2010-2022. <a href="https://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START_MI_MI0305/MI0305T003/">https://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START_MI_MI0305/MI0305T003/</a> (Retrieved 2025-05-21)
Sphera	Sphera (2025) LCA for Experts. MLC database CUP 2024.02.

## Version history

**Original Version of the EPD, 2025-11-26**



INTERNATIONAL EPD SYSTEM

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