Environmental Product Declaration

for Multiple Products – Worst-Case Representative Product

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

Wavin Calefa II V

Heat Interface Unit

from

An Orbia business.

Programme: The International EPD® System – www.environdec.com

Programme Operator: EPD International AB

EPD Registration Number: EPD-IES-0027835:002

Version date:	2026-01-22
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An EPD should provide current information and may be updated if conditions change. 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

General information

Programme information	
Programme:	The International EPD® System
Address:	EPD International AB Box 210 60, SE-100 31 Stockholm, Sweden
Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

CEN standard EN 15804 serves as the Core Product Category Rules (PCR) 2019:14 Construction products, version 2.0.1

PCR review was conducted by: The Technical Committee of the International EPD® System.
A full list of members available on www.environdec.com. Chair of the PCR review: Rob Rouwette (chair), Noa Meron (co-chair). The review panel may be contacted via info@environdec.com.

Life Cycle Assessment (LCA)

LCA accountability: *Andrei Roșu, Jurie Potgieter and Dimitria Nunes (Ecochain Technologies) &* Lokesh Anaparthi (Wavin)

Third-party Verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

☒ EPD verification by individual verifier

Third-party verifier: Martijn van Hövell (SGS)

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

☐ Yes ☒ No

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

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Information of the EPD Owner

Owner of the EPD: Orbia Building & Infrastructure (Wavin)

Address: World Trade Center Tower G5, Schiphol Boulevard 425, 1118 BK, Schiphol, the Netherlands

Main Contact: Lokesh Anaparthi (*Lokesh.anaparthi@orbia.com*)

Product-related or management system-related certifications:

Quality management systems and environmental measures are implemented at all Wavin Calefa production sites, meeting national as well as international standards such as ISO 9001 (Quality Management System) and ISO 14001 standards (Environmental Management System).

Nordic Wavin A/S, Wavinvej 1, 8450 Hammel, Denmark quality management system:

DNV Management System Certificate ISO 45001:2018
DNV Management System Certificate ISO 14001:2015
DNV Management System Certificate ISO 9001:2015
DNV ISRS8 Level 6 Statement of Performance
DNV Management System Certification – Guidelines 2021

About Wavin

Orbia's Building & Infrastructure business – **Wavin** is an innovative solutions provider for the global building and infrastructure industry. Backed by more than 60 years of product development experience, Orbia Wavin is advancing life around the world by building healthy, sustainable environments for global citizens. Whether it's to improve the distribution of clean drinking water, to make sanitation accessible for everyone, to create climate resilient cities or to design comfortable living spaces, Orbia Wavin collaborates with municipal leaders, engineers, contractors and installers to help future-proof communities, buildings and homes. Orbia Wavin has close to 11,000 employees across approximately 50 production sites worldwide, serving over 90 countries through a global sales and distribution network.

Wavin (an Orbia business) delivers integrated solutions across four key segments:

- ***Building systems*** for safe drinking water supply and wastewater drainage, including low-noise solutions.
- ***Infrastructure systems*** supporting community water supply, sewage, wastewater and stormwater networks.
- ***Urban Climate Resilience (UCR)*** solutions for rainwater infiltration, attenuation and blue-green roofs; and
- ***Indoor Climate Solutions (ICS)*** for advanced indoor temperature and ventilation control.

Together, these offerings help create healthier buildings and more resilient, sustainable communities worldwide. The company is headquartered in **Schiphol, The Netherlands**.

The products covered in this EPD form part of Wavin's ***Indoor Climate Solutions (ICS)*** portfolio.

Wavin Indoor Climate Solutions (ICS)

Wavin Indoor Climate Solutions is part of Orbia's Building & Infrastructure group, delivering advanced systems that combine **comfort, energy efficiency, and sustainability** for residential and commercial buildings. Our integrated portfolio ensures optimal indoor environments while aiming to optimise energy efficiency.

Our four core Indoor Climate Solutions include:

- **Heat Interface Units – Calefa**
  Calefa sets new benchmarks for domestic hot water and space heating in district heating networks. Calefa integrates advanced features such as adaptive learning, which predicts usage patterns after two weeks to minimize energy waste; built-in weather compensation, automatically adjusting supply temperature based on outdoor conditions; and smart connectivity, enabling remote control and monitoring. Additional benefits include domestic hot water prioritization during peak times, a wireless outdoor sensor for multi-unit buildings, and fast commissioning for simplified installation. These innovations ensure exceptional efficiency, comfort, and sustainability in modern heat networks.

- **Surface Heating & Cooling – Comfia**
  Comfia provides a complete range of components for underfloor and ceiling heating and cooling systems, delivering efficient thermal comfort for modern buildings. The solution includes high-quality pipes, precision-engineered manifolds, and insulated panels designed for quick installation and optimal performance. These elements work together to ensure uniform heat distribution, low-temperature operation, and compatibility with renewable energy sources. Comfia's modular approach supports flexible design for residential and commercial applications, while integration with smart controls enables precise regulation and energy optimization throughout the year.

- **Heat Recovery Ventilation – Ventiza**
  Ventiza delivers a complete solution for mechanical ventilation with heat recovery (MVHR), ensuring healthy indoor air quality and energy efficiency. The system includes compact ventilation units, high-performance heat exchangers, and ducting components designed for easy installation and optimal airflow. Ventiza units recover up to 90% of heat from exhaust air, reducing heating demand and supporting compliance with energy-efficiency standards. Its modular design allows integration with other Wavin Indoor Climate Solutions, while smart control options enable precise regulation for comfort and sustainability.
- **Controls – Sentio**
  Sentio is Wavin's intelligent control platform, engineered to manage several systems seamlessly. The solution comprises wired and wireless thermostats, zone controllers, and central control units that integrate with Comfia, Ventiza, and Calefa for a fully connected indoor climate system. Sentio offers advanced features such as predictive algorithms, remote access via app, and energy optimization tools, ensuring precise temperature control and improved efficiency. Its intuitive interface simplifies commissioning and enhances user experience across residential and commercial applications.

Name and location of production site(s): Nordic Wavin A/S, Wavinvej 1, 8450 Hammel, Denmark

Product information

Product name: Wavin Calefa II V - Heat Interface Unit (HIU)

Product identification: The product can be identified with a type of plate stating individual serial number, Model and model number. CE marking and contact information.

Product description: Calefa II V is a direct/indirect user center for district heating with a heat exchanger for hot tap water and temperature control for space heating of homes.

Wavin offers a unique district heating unit with a modern design and demand-based regulation that ensures optimal operation and cooling throughout the season. The intelligent hot water management, which learns the customer's consumption pattern, ensures that the water is heated when the need arises, and eliminates energy loss outside the time of use. It is easy to set the hot water temperature on the digital display on the control unit. Calefa II V can be supplied with weather compensation for simple management of heating needs and comfort periods, and it is also easy to set this on the display.

UN CPC code: UN CPC: Division 43, Group 432, Class 4324 Subclass 43240 Taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like ETIM Classification: ECO12346

Multiple products coverage: The declared unit of this EPD 1 kilogram of product. The results per kg are based on the weighted average of all products in the Wavin Calefa II V Heat Interface Unit product line. The table below provides the products covered in this EPD along with the mass per piece. These masses should be used to calculate the LCA result per 1 piece, by multiplying the environmental results of all modules with the weight specified below.

Wavin Calefa II V products with conversion factor covered in this EPD

Product	Mass (kg/pc)
3092857 - Calefa II DH unit V 40-40 V	32.546
3092858 - Calefa II DH unit V 40-40 H	32.594
3092859 - Calefa II DH unit V 40-40 V ITC	32.902
3092860 - Calefa II DH unit V 40-40 H ITC	32.95
3093218 - Calefa II DH unit V 40-40 H ITC CITY 8	36.794
3093219 - Calefa II DH unit V 40-40 H ITC CITY 6	33.589
3093220 - Calefa II DH unit V 40-40 H ITC CITY 9	34.753
3093221 - Calefa II DH unit V 40-40 H ITC CITY 4	33.987
3093222 - Calefa II DH unit V 40-40 H ITC CITY 7	33.535
3093223 - Calefa II DH unit V 40-40 H ITC CITY 5	33.501
3093225 - Calefa II DH unit V 40-40 H CITY 9	34.397
3093229 - Calefa II DH unit V 40-40 H CITY 5	33.145
3093233 - Calefa II DH unit V 40-40 V CITY 2	32.546
3093237 - Calefa II DH unit V 40-40 V CITY 7	33.13
3093238 - Calefa II DH unit V 40-40 V ITC CITY 4	33.939
3093239 - Calefa II DH unit V 40-40 H CITY 4	33.631
3093240 - Calefa II DH unit V 40-40 V CITY 4	33.583
3093241 - Calefa II DH unit V 40-40 V CITY 5	33.096
3093243 - Calefa II DH unit V 40-40 H CITY 7	33.178
3093244 - Calefa II DH unit V 40-40 V ITC CITY 6	33.509
3093245 - Calefa II DH unit V 40-40 V ITC CITY 5	33.453
3093247 - Calefa II DH unit V 40-40 V CITY 9	34.349
3093250 - Calefa II DH unit V 40-40 H CITY 3	32.605
3093251 - Calefa II DH unit V 40-40 V CITY 8	36.357
3093253 - Calefa II DH unit V 40-40 V ITC CITY 7	33.487
3093254 - Calefa II DH unit V 40-40 H CITY 2	32.594
3093255 - Calefa II DH unit V 40-40 V CITY 3	32.556
3093257 - Calefa II DH unit V 40-40 H ITC CITY 2	32.95
3093261 - Calefa II DH unit V 40-40 V ITC CITY 9	34.705
3093265 - Calefa II DH unit V 40-40 H CITY 8	36.437
3093266 - Calefa II DH unit V 40-40 V ITC CITY 2	32.902
3093268 - Calefa II DH unit V 40-40 H ITC CITY 3	32.961
3093270 - Calefa II DH unit V 40-40 H CITY 6	33.232
3093271 - Calefa II DH unit V 40-40 V CITY 6	33.152
3093273 - Calefa II DH unit V 40-40 V ITC CITY 3	32.913
3093861 - Calefa II DH unit V 40-40 H ITC Proj.M.1	30.837
3093865 - Calefa II DH unit V 60-40 V ITC Proj.M.1	32.079
3093866 - Calefa II DH unit V 40-40 V ITC Proj.M.1	30.789
3093869 - Calefa II DH unit V 40-40 V Proj.model 1	30.432
3093871 - Calefa II DH unit V 40-40 H Proj.model 1	30.48

3094324 - CALEFA II V 26/26 V HIU UK	28.449
3094325 - CALEFA II V 40/26 V HIU UK	29.532
3094326 - CALEFA II V 60/40 V HIU UK	32.047
3094327 - CALEFA II V ITC 26/26 V HIU UK	28.488
3094328 - CALEFA II V ITC 40/26 V HIU UK	29.571
3094329 - CALEFA II V ITC 60/40 V HIU UK	32.086
3094409 - CALEFA II V 40-40 V ITC PROJ Rødovre	32.56
3094410 - CALEFA II DH unit V 40/40 V HIU NO	31.593
3094411 - CALEFA II DH unit V 40/40 H HIU NO	31.544
3094412 - CALEFA II DH unit V 40/40 ITC V HIU NO	31.95
3094413 - CALEFA II DH unit V 40/40 ITC H HIU NO	31.9
3094454 - CALEFA II V 40-40 H ITC PROJ Rødovre	32.609
3094676 - CALEFA II V 40/40 V PROJECTMODEL 3	29.585
3094677 - CALEFA II V 40/40 H PROJECTMODEL 3	29.718
3094678 - CALEFA II V 40/40 ITC V PROJECTMODEL 3	29.942
3094679 - CALEFA II V 40/40 ITC H PROJECTMODEL 3	30.075

Content information

Product components	Weight, kg	Weight-% (versus the product)	Biogenic material, weight-% and kg C/kg
Brass	4.47	15.70%	0
Steel	15.31	53.73%	0
Copper	2.35	8.26%	0
Plastics, Rubber, Additives & Electronics	4.18	14.68%	0
TOTAL	26.31	92.37%	0

Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Paper/cardboard	2.16	7.56%	0.56
Plastic	0.02	0.07%	0.00
TOTAL	2.17	7.63%	0.56

Dangerous substances: The product “1 kg Calefa II V “contains substances listed on the SVHC Candidate List for Authorization. Brass CW617N and CW614N with Pb content of 1,5-3,5% Pb

LCA information

Declared unit: The declared unit used in the study is ***1 kg Wavin Calefa II V Heat Interface Unit***.

Geographical scope: Modules A1-A3: Denmark, Modules A5-D: Europe

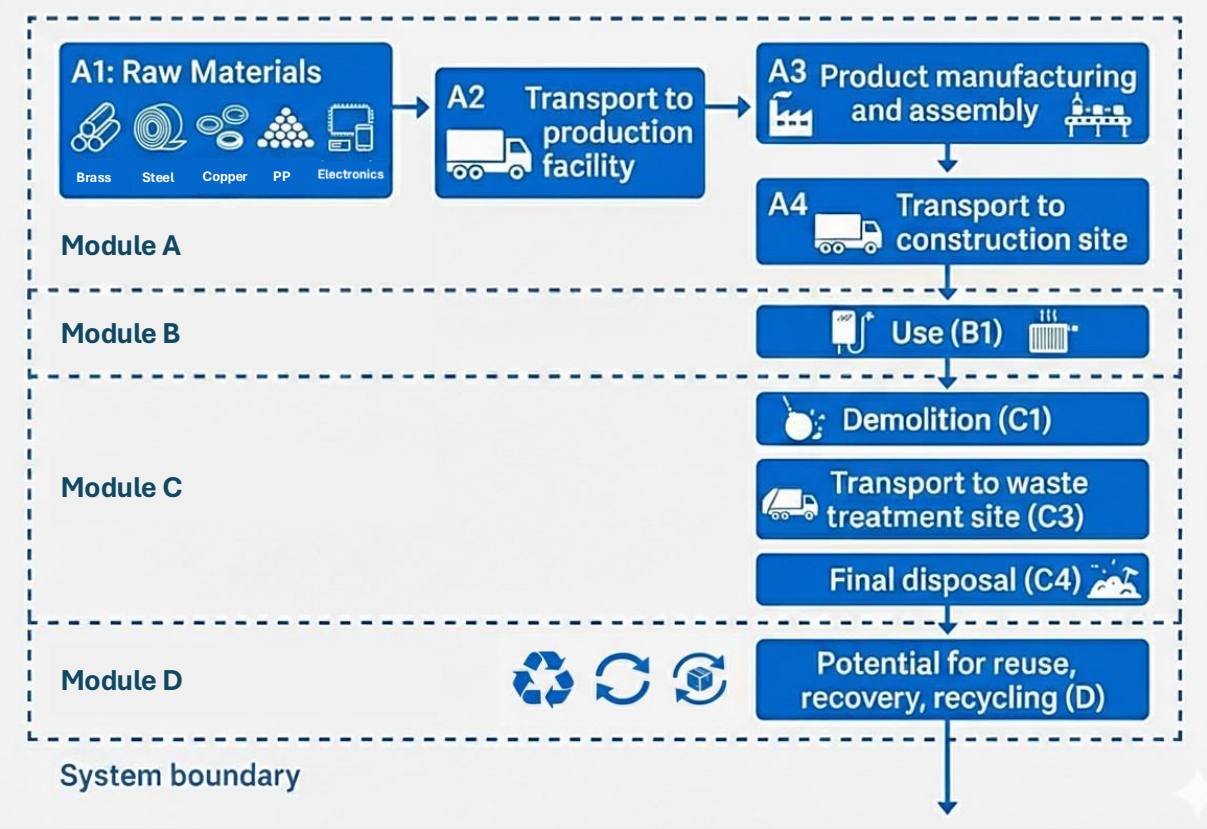
Technical lifespan: The technical lifespan for this product is 20 years.

Time representativeness: Primary data used for the LCA calculation cover the production year **2023**.

Database(s) and LCA software used: ***Ecoinvent database 3.9.1*** was used with EN 15804+A2 impact assessment method for the LCA modelling. The modelling was performed in ***Ecochain Helix v4.3.1***.

Description of system boundaries: This EPD covers a **cradle-to-gate with options system** boundary, including modules A1–A3, A5, B3, B6, C1–C4, and D. Modules B1, B2, B4, B5, and B7 are not declared, as they are not relevant for this product system.

System Diagram: An overview of the system is presented below in the system diagram.



Information on life cycle stages covered:

The modules considered in this study are Raw material supply (A1), the transport of these materials to manufacturing site (A2), the manufacturing of the Calefa II V heat interface units (A3), waste treatment of product packaging (A5), the deconstruction of the Calefa II V heat interface units (C1), the transport to the waste processor (C2), the waste processing itself (C3), the waste disposal (C4), and finally the benefits and loads beyond the system boundaries (D).

Cut-off Criteria – All relevant inputs and outputs—such as emissions, energy, and materials—have been considered in this LCA. In accordance with EN 15804+A2:2019, the total neglected input flows per module do not exceed 5% of energy use and mass. In this LCA, waste processes are allocated to the relevant module.

When secondary materials or energy recovered from secondary fuels are used, the system boundary between the system under study and the previous system (providing the secondary materials) is set at the point where outputs of the previous system—e.g. materials, products, building elements, or energy—reach the end-of-waste state. All processes were included.

Allocation – The system boundaries adopted are in accordance with the modular approach specified in EN 15804+A2:2019. Allocation has been performed using a bulk method, in which the resource use and emissions of a full production year are considered. Emissions are first divided across internal processes and subsequently across the full production portfolio to determine the average emissions per product.

Information on Electricity used

The production site of Wavin Hammel uses 100% wind-based electricity in their production process since 2021. Guarantee of Origin certificates for the years 2020 through 2024 and 2025 and Cancellation Statements for the years 2024 and 2025 have been provided for verification. The estimated GWP-GHG of electricity is **0.035 kg CO2-eq / kWh**. Additionally, Wavin Denmark has contracts in place that will continue to purchase wind energy for the validity period of the EPD as part of their Corporate Social Responsibility (CSR) statement. The contract for the continued purchase of Guarantee of Origin Certificates has been provided as well.

Use and End-of-Life scenarios

Installation of the product at the construction site (A5): This stage includes the product installation, which is done manually and therefore no energy is needed. The waste disposal of packaging materials is considered in this scenario.

Repair (B3): This stage covers the replacement of the heat exchangers and the pump during the service life. The impacts of producing, transporting, and disposing of these replacement components are included as part of the repair stage.

Operational energy use (B6): This stage accounts for the electricity consumed by the product during operation, including standby consumption, seasonal pump operation, and daily demand from the hot-water system. This reflects the total energy use over the 20-year reference service life.

Deconstruction/demolition (C1): This stage includes the demolition and removal of the product, which is done manually and therefore no energy is needed.

Transport to waste processing (C2): This stage includes transportation of demolished products to waste treatment facilities based on actual transportation distances. See the assumptions on distance and transport mode in the table below.

Waste processing for reuse, recovery and/or recycling (C3): This stage includes the required waste processing for the product's region. See the assumptions on waste processing scenarios in the table below.

Disposal (C4): This stage includes processes for components and waste that could not be recycled in module C3. See the assumptions on waste processing scenarios in the table below.

Reuse, recovery and/or recycling potential, expressed as net impacts and benefits (D): See the assumptions on waste processing scenarios in the table below.

Applied End-of-Life scenarios for packaging in A5 and product in C1, C2, C3, C4, D.

Material category	Landfill	Incineration	Recycling	Reuse	Recycling / reuse quality factor	Secondary content	Incineration LHV
Main, brass	5%	5%	90%	0%	1	20%	0
Main, polypropylene (PP)	0%	90%	10%	0%	0.67	0	32.78
Main, steel	5%	5%	90%	0%	1	43%	0
Main, rubber	0%	100%	0%	0%	0.67	0	27.19
Main, copper	5%	5%	90%	0%	1	0	0
Main, additives	0%	90%	10%	0%	0.67	0	10.14
Main, Calefa pump	10%	30%	60%	0%	1	43%	0
Main, acrylonitrile butadiene styrene (ABS)	0%	90%	10%	0%	0.67	0	30.79
Main, high-density polyethylene (HDPE)	0%	90%	10%	0%	0.67	0	42.47
Main, Calefa controller	15%	55%	30%	0%	0.67	0	42.47
Packaging, polyethylene (PE)	10%	85%	5%	0%	0.67	0	42.47
Packaging, paper/cardboard	0%	28%	72%	0%	1	0	15.92
Transport distance to waste processing facility by truck with empty return (km)	80	130	80				

*Additives have another lower heating value than PP but due to confidentiality, these are not shown here.

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	**X**	ND	ND	**X**	ND	**X**	**X**	**X**	**X**	**X**
Geography	**Denmark**			**-**	**Europe**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**Europe**				**Europe**
Specific data used	**2.60%**			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	**< 10%**			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Data collection & quality:

The EPD covers the worst-case product Wavin Calefa II V, representing a product group of 57 Calefa II V units manufactured at the Wavin production site in Hammel, Denmark. The worst-case product was established following Construction PCR 2019:14 v2.0.1, by declaring, for each environmental impact indicator and for modules A–C, the highest impact result among all products in the group after normalization to 1 kg of product.

Manufacturing data was collected directly from Wavin's production systems and hand-assembly processes in Hammel, with electricity supplied from wind energy (Contractual agreements) for the year 2023. Transport to the customer is modelled as average distribution within Denmark, and end-of-life scenarios are based on European default waste treatment routes. Background data was taken from Eco-invent v3.9.1.

The data quality assessment covers geographical, technological and temporal representativeness and is based on the data quality criteria of Annex E, Table E2 of EN 15804. The data quality assessment identified no poor, or very poor datasets among those contributing at least 80% of the environmental impact results, in line with EN 15804+A2 and in line with requirements in Section 4.6, based on EN 15941. There are no significant changes introduced in the technology, machinery, or processes since then, ensuring the data remain representative.

The overall data quality has been evaluated as good for geographical and technological representativeness and very good for temporal representativeness.

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Raw material supply	Database	Ecoinvent v3.9.1 Cut-off and Plastics Europe (POM)	2022, 2019	Secondary data	0,00%
Manufacturing of product, including generation of electricity used in manufacturing of product	Collected production data, Electricity data from Ecoinvent v3.9.1	EPD Owner Ecoinvent v3.9.1 Cut-off	2022	Primary data	1.11%
Transport of materials & packaging to manufacturing site	Ecoinvent v3.9.1	Ecoinvent v3.9.1 Cut-off	2022	Primary data	1.49%
Total share of primary data, of GWP-GHG results for A1-A3					**2.60%**

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-Total	kg CO_2 eq.	1.08E+01	4.64E-02	5.83E-03	ND	ND	2.59E-01	ND	ND	5.87E+00	ND	0.00E+00	1.29E-02	3.46E-01	3.71E-03	-1.10E+00
GWP-fossil	kg CO_2 eq.	1.08E+01	4.64E-02	8.76E-04	ND	ND	2.56E-01	ND	ND	5.80E+00	ND	0.00E+00	1.29E-02	3.46E-01	3.71E-03	-1.09E+00
GWP-biogenic	kg CO_2 eq.	3.03E-02	1.39E-05	4.95E-03	ND	ND	1.99E-03	ND	ND	5.52E-02	ND	0.00E+00	3.72E-06	5.41E-05	3.42E-07	-2.35E-03
GWP-luluc	kg CO_2 eq.	1.85E-02	2.27E-05	1.81E-07	ND	ND	4.69E-04	ND	ND	1.80E-02	ND	0.00E+00	6.27E-06	3.32E-05	1.73E-07	-1.54E-03
ODP	kg CFC 11 eq.	7.45E-06	1.02E-09	1.47E-11	ND	ND	1.94E-09	ND	ND	1.32E-07	ND	0.00E+00	2.81E-10	5.44E-10	1.31E-11	-1.89E-08
AP	mol H^+ eq.	1.74E-01	2.16E-04	2.41E-06	ND	ND	4.74E-03	ND	ND	2.92E-02	ND	0.00E+00	4.21E-05	2.40E-04	3.12E-06	-4.74E-02
EP-freshwater	kg P eq.	1.54E-03	3.81E-07	5.29E-09	ND	ND	1.60E-05	ND	ND	5.38E-04	ND	0.00E+00	1.03E-07	9.85E-07	3.90E-09	-2.21E-04
EP-marine	kg N eq.	1.48E-02	8.53E-05	9.73E-07	ND	ND	2.97E-04	ND	ND	4.80E-03	ND	0.00E+00	1.43E-05	6.54E-05	1.94E-06	-2.61E-03
EP-terrestrial	mol N eq.	1.79E-01	9.20E-04	1.04E-05	ND	ND	3.64E-03	ND	ND	6.62E-02	ND	0.00E+00	1.53E-04	7.37E-04	1.36E-05	-3.65E-02
POCP	kg NMVOC eq.	5.62E-02	3.21E-04	3.50E-06	ND	ND	1.14E-03	ND	ND	1.61E-02	ND	0.00E+00	6.29E-05	2.28E-04	5.83E-06	-1,13E-02
ADP-minerals&metals*	kg Sb eq.	3.12E-03	1.44E-07	1.58E-09	ND	ND	5.96E-05	ND	ND	1.30E-04	ND	0.00E+00	4.15E-08	9.86E-07	7.96E-10	-6.32E-04
ADP-fossil*	MJ	1.36E+02	6.69E-01	5.00E-03	ND	ND	3.54E+00	ND	ND	9.53E+01	ND	0.00E+00	1.83E-01	3.91E-01	1.07E-02	-1.37E+01

WDP*	m^3	4.13E+00	2.93E-03	4.21E-05	ND	ND	3.20E-01	ND	ND	1.09E+00	ND	0.00E+00	7.49E-04	4.64E-03	2.40E-04	-7.76E-01
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														

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	1.08E+01	4.64E-02	5.83E-03	ND	ND	2.59E-01	ND	ND	5.87E+00	ND	0.00E+00	1.29E-02	3.46E-01	3.71E-03	-1.10E+00
Particulate matter	disease inc.	7.70E-07	4.55E-09	4.26E-11	ND	ND	2.24E-08	ND	ND	1.84E-07	ND	0.00E+00	1.02E-09	3.51E-09	7.31E-11	-1.31E-07
Ionising radiation	kBq U-235 eq	4.16E-01	3.46E-04	5.16E-06	ND	ND	1.11E-02	ND	ND	8.90E-01	ND	0.00E+00	9.17E-05	7.56E-04	7.80E-06	-3.62E-02
Ecotoxicity, freshwater	CTUe	2.90E+02	3.30E-01	5.62E-03	ND	ND	4.00E+00	ND	ND	2.94E+01	ND	0.00E+00	9.03E-02	2.86E-01	6.78E-03	-6.72E+01
Human toxicity, cancer	CTUh	4.12E-08	2.50E-11	7.79E-13	ND	ND	1.02E-09	ND	ND	4.22E-09	ND	0.00E+00	5.86E-12	7.66E-11	2.23E-13	-9.09E-09
Human toxicity, non-cancer	CTUh	1.98E-06	5.19E-10	6.08E-12	ND	ND	5.99E-08	ND	ND	1.71E-07	ND	0.00E+00	1.29E-10	1.38E-09	7.87E-12	-6.15E-07
Land Use	Pt	7.90E+01	5.03E-01	2.46E-03	ND	ND	1.97E+00	ND	ND	1.30E+02	ND	0.00E+00	1.09E-01	4.85E-01	2.43E-02	-1.56E+01

[1] 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_2 is set to zero.

Resource use indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2.24E+01	1.06E-02	1.56E-04	ND	ND	1.11E+00	ND	ND	9.68E+01	ND	0.00E+00	2.84E-03	4.00E-02	3.16E-04	-2.20E+00
PERM	MJ	1.21E+00	0.00E+00	-3.71E-04	ND	ND	0.00E+00	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.35E+01	1.06E-02	-3.67E-04	ND	ND	1.11E+00	ND	ND	9.68E+01	ND	0.00E+00	2.84E-03	4.00E-02	3.16E-04	-2.20E+00
PENRE	MJ	1.42E+02	7.11E-01	5.32E-03	ND	ND	3.79E+00	ND	ND	1.01E+02	ND	0.00E+00	1.95E-01	4.16E-01	1.14E-02	-1.46E+01
PENRM	MJ	3.90E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	-9.90E-01	0.00E+00	0.00E+00
PENRT	MJ	1.45E+02	7.11E-01	1.78E-03	ND	ND	3.79E+00	ND	ND	1.01E+02	ND	0.00E+00	1.95E-01	-5.90E-01	1.14E-02	-1.46E+01
SM	kg	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	ND	ND	0.00E+00	ND	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	ND	ND	0.00E+00	ND	ND	0.00E+00	ND	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	ND	ND	0.00E+00	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	1.01E-01	9.39E-05	1.95E-06	ND	ND	7.38E-03	ND	ND	1.79E-01	ND	0.00E+00	2.43E-05	1.98E-04	1.23E-05	-1.74E-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 functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.37E-03	4.22E-06	3.06E-08	ND	ND	3.68E-05	ND	ND	2.32E-04	ND	0.00E+00	1.17E-06	1.83E-06	5.28E-08	-3.79E-04
Non-hazardous waste disposed	kg	3.75E+00	4.23E-02	2.37E-04	ND	ND	1.70E-01	ND	ND	7.69E-01	ND	0.00E+00	8.94E-03	1.68E-02	5.64E-02	-2.68E-01
Radioactive waste disposed	kg	2.68E-04	2.25E-07	3.73E-09	ND	ND	6.59E-06	ND	ND	4.94E-04	ND	0.00E+00	5.95E-08	5.69E-07	4.31E-09	-2.21E-05

Output flow indicators

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	ND	ND	0.00E+00	ND	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	ND	ND	3.80E-01	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	6.21E-01	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	1.30E-01	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.70E-01
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.37E-01

100% Landfill scenario

Mandatory impact category indicators according to EN 15804

Indicator	Unit	C1	C2	C3	C4	D
GWP-Total	kg CO_2 eq.	0.00E+00	1.20E-02	0.00E+00	2.59E-02	0.00E+00
GWP-fossil	kg CO_2 eq.	0.00E+00	1.20E-02	0.00E+00	2.59E-02	0.00E+00
GWP-biogenic	kg CO_2 eq.	0.00E+00	3.46E-06	0.00E+00	3.18E-06	0.00E+00
GWP-luluc	kg CO_2 eq.	0.00E+00	5.82E-06	0.00E+00	2.71E-06	0.00E+00
ODP	kg CFC 11 eq.	0.00E+00	2.61E-10	0.00E+00	1.59E-10	0.00E+00
AP	mol H^+ eq.	0.00E+00	3.91E-05	0.00E+00	3.96E-05	0.00E+00
EP-freshwater	kg P eq.	0.00E+00	9.59E-08	0.00E+00	5.04E-08	0.00E+00
EP-marine	kg N eq.	0.00E+00	1.33E-05	0.00E+00	1.95E-05	0.00E+00
EP-terrestrial	mol N eq.	0.00E+00	1.42E-04	0.00E+00	1.67E-04	0.00E+00
POCP	kg NMVOC eq.	0.00E+00	5.84E-05	0.00E+00	6.44E-05	0.00E+00
ADP-minerals&metals*	kg Sb eq.	0.00E+00	3.85E-08	0.00E+00	8.56E-09	0.00E+00
ADP-fossil*	MJ	0.00E+00	1.70E-01	0.00E+00	1.33E-01	0.00E+00
WDP*	m^3	0.00E+00	6.96E-04	0.00E+00	4.47E-03	0.00E+00

Additional mandatory and voluntary impact category indicators

Indicator	Unit	C1	C2	C3	C4	D
GWP-GHG	kg CO_2 eq.	0.00E+00	1.20E-02	0.00E+00	2.59E-02	0.00E+00
Particulate matter	disease inc.	0.00E+00	9.51E-10	0.00E+00	8.93E-10	0.00E+00
Ionising radiation	kBq U-235 eq	0.00E+00	8.52E-05	0.00E+00	6.66E-05	0.00E+00
Ecotoxicity, freshwater	CTUe	0.00E+00	8.39E-02	0.00E+00	7.25E-02	0.00E+00
Human toxicity, cancer	CTUh	0.00E+00	5.44E-12	0.00E+00	2.50E-12	0.00E+00
Human toxicity, non-cancer	CTUh	0.00E+00	1.20E-10	0.00E+00	6.41E-11	0.00E+00
Land Use	Pt	0.00E+00	1.01E-01	0.00E+00	2.82E-01	0.00E+00

Resource use indicators

Indicator	Unit	C1	C2	C3	C4	D
PERE	MJ	0.00E+00	2.64E-03	0.00E+00	2.57E-03	0.00E+00
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	0.00E+00	2.64E-03	0.00E+00	2.57E-03	0.00E+00
PENRE	MJ	0.00E+00	1.81E-01	0.00E+00	1.42E-01	0.00E+00
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	0.00E+00	1.81E-01	0.00E+00	1.42E-01	0.00E+00
SM	kg	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
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	0.00E+00	2.26E-05	0.00E+00	1.46E-04	0.00E+00

Waste indicators

Indicator	Unit	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0.00E+00	1.08E-06	0.00E+00	6.83E-07	0.00E+00
Non-hazardous waste disposed	kg	0.00E+00	8.30E-03	0.00E+00	7.96E-01	0.00E+00
Radioactive waste disposed	kg	0.00E+00	5.52E-08	0.00E+00	3.69E-08	0.00E+00

Output flow indicators

Indicator	Unit	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
Material for recycling	kg	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
Exported energy, electricity	MJ	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

100% Incineration scenario

Mandatory impact category indicators according to EN 15804

Indicator	Unit	C1	C2	C3	C4	D
GWP-Total	kg CO_2 eq.	0.00E+00	1.95E-02	5.66E-01	0.00E+00	-1.34E-01
GWP-fossil	kg CO_2 eq.	0.00E+00	1.95E-02	5.66E-01	0.00E+00	-1.34E-01
GWP-biogenic	kg CO_2 eq.	0.00E+00	5.61E-06	1.35E-05	0.00E+00	-1.37E-05
GWP-luluc	kg CO_2 eq.	0.00E+00	9.46E-06	5.39E-06	0.00E+00	-1.02E-05
ODP	kg CFC 11 eq.	0.00E+00	4.24E-10	3.89E-10	0.00E+00	-4.92E-09
AP	mol H^+ eq.	0.00E+00	6.35E-05	9.40E-05	0.00E+00	-9.51E-05
EP-freshwater	kg P eq.	0.00E+00	1.56E-07	1.87E-07	0.00E+00	-2.43E-07
EP-marine	kg N eq.	0.00E+00	2.16E-05	3.93E-05	0.00E+00	-3.17E-05
EP-terrestrial	mol N eq.	0.00E+00	2.31E-04	4.41E-04	0.00E+00	-3.48E-04
POCP	kg NMVOC eq.	0.00E+00	9.49E-05	1.33E-04	0.00E+00	-2.49E-04
ADP-minerals&metals*	kg Sb eq.	0.00E+00	6.26E-08	2.58E-08	0.00E+00	-3.26E-08
ADP-fossil*	MJ	0.00E+00	2.76E-01	1.44E-01	0.00E+00	-2.02E+00
WDP*	m^3	0.00E+00	1.13E-03	-3.19E-03	0.00E+00	-3.01E-03

Additional mandatory and voluntary impact category indicators

Indicator	Unit	C1	C2	C3	C4	D
GWP-GHG	kg CO_2 eq.	0.00E+00	1.95E-02	5.66E-01	0.00E+00	-1.34E-01
Particulate matter	disease inc.	0.00E+00	1.54E-09	2.14E-09	0.00E+00	-5.35E-10
Ionising radiation	kBq U-235 eq	0.00E+00	1.38E-04	9.21E-05	0.00E+00	-1.85E-04
Ecotoxicity, freshwater	CTUe	0.00E+00	1.36E-01	2.86E-01	0.00E+00	-6.06E-02
Human toxicity, cancer	CTUh	0.00E+00	8.85E-12	8.28E-11	0.00E+00	-1.55E-11
Human toxicity, non-cancer	CTUh	0.00E+00	1.95E-10	4.93E-10	0.00E+00	-1.63E-10
Land Use	Pt	0.00E+00	1.64E-01	1.66E-01	0.00E+00	-3.83E-01

Resource use indicators

Indicator	Unit	C1	C2	C3	C4	D
PERE	MJ	0.00E+00	4.29E-03	3.75E-03	0.00E+00	-8.23E-02
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	0.00E+00	4.29E-03	3.75E-03	0.00E+00	-8.23E-02
PENRE	MJ	0.00E+00	2.94E-01	1.54E-01	0.00E+00	-2.24E+00
PENRM	MJ	0.00E+00	0.00E+00	-1.12E+00	0.00E+00	0.00E+00
PENRT	MJ	0.00E+00	2.94E-01	-9.66E-01	0.00E+00	-2.24E+00
SM	kg	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
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	0.00E+00	3.67E-05	-5.75E-07	0.00E+00	-1.37E-04

Waste indicators

Indicator	Unit	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0.00E+00	1.76E-06	8.43E-07	0.00E+00	-9.08E-06
Non-hazardous waste disposed	kg	0.00E+00	1.35E-02	8.79E-03	0.00E+00	-2.30E-03
Radioactive waste disposed	kg	0.00E+00	8.97E-08	5.90E-08	0.00E+00	-1.32E-07

Output flow indicators

Indicator	Unit	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
Material for recycling	kg	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	7.96E-01	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.17E-01
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.18E-01

100% Recycling scenario

Mandatory impact category indicators according to EN 15804

Indicator	Unit	C1	C2	C3	C4	D
GWP-Total	kg CO_2 eq.	0.00E+00	1.20E-02	8.32E-02	0.00E+00	-2.66E+00
GWP-fossil	kg CO_2 eq.	0.00E+00	1.20E-02	8.30E-02	0.00E+00	-2.65E+00
GWP-biogenic	kg CO_2 eq.	0.00E+00	3.46E-06	9.33E-05	0.00E+00	-6.02E-03
GWP-luluc	kg CO_2 eq.	0.00E+00	5.82E-06	6.63E-05	0.00E+00	-3.86E-03
ODP	kg CFC 11 eq.	0.00E+00	2.61E-10	8.82E-10	0.00E+00	-4.79E-06
AP	mol H^+ eq.	0.00E+00	3.91E-05	3.47E-04	0.00E+00	-1.19E-01
EP-freshwater	kg P eq.	0.00E+00	9.59E-08	1.84E-06	0.00E+00	-5.51E-04
EP-marine	kg N eq.	0.00E+00	1.33E-05	9.11E-05	0.00E+00	-6.47E-03
EP-terrestrial	mol N eq.	0.00E+00	1.42E-04	1.01E-03	0.00E+00	-9.07E-02
POCP	kg NMVOC eq.	0.00E+00	5.84E-05	3.45E-04	0.00E+00	-2.76E-02
ADP-minerals&metals*	kg Sb eq.	0.00E+00	3.85E-08	1.23E-06	0.00E+00	-1.59E-03
ADP-fossil*	MJ	0.00E+00	1.70E-01	8.72E-01	0.00E+00	-3.29E+01
WDP*	m^3	0.00E+00	6.96E-04	1.08E-02	0.00E+00	-2.01E+00

Additional mandatory and voluntary impact category indicators

Indicator	Unit	C1	C2	C3	C4	D
GWP-GHG	kg CO_2 eq.	0.00E+00	1.20E-02	8.32E-02	0.00E+00	-2.66E+00
Particulate matter	disease inc.	0.00E+00	9.51E-10	6.10E-09	0.00E+00	-3.23E-07
Ionising radiation	kBq U-235 eq	0.00E+00	8.52E-05	1.38E-03	0.00E+00	-9.20E-02
Ecotoxicity, freshwater	CTUe	0.00E+00	8.39E-02	4.30E-01	0.00E+00	-1.69E+02
Human toxicity, cancer	CTUh	0.00E+00	5.44E-12	9.05E-11	0.00E+00	-2.23E-08
Human toxicity, non-cancer	CTUh	0.00E+00	1.20E-10	1.66E-09	0.00E+00	-1.54E-06
Land Use	Pt	0.00E+00	1.01E-01	8.53E-01	0.00E+00	-3.90E+01

Resource use indicators

Indicator	Unit	C1	C2	C3	C4	D
PERE	MJ	0.00E+00	2.64E-03	6.51E-02	0.00E+00	-5.54E+00
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	0.00E+00	2.64E-03	6.51E-02	0.00E+00	-5.54E+00
PENRE	MJ	0.00E+00	1.81E-01	9.29E-01	0.00E+00	-3.51E+01
PENRM	MJ	0.00E+00	0.00E+00	-2.28E+00	0.00E+00	0.00E+00
PENRT	MJ	0.00E+00	1.81E-01	-1.45E+00	0.00E+00	-3.51E+01
SM	kg	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
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	0.00E+00	2.26E-05	3.33E-04	0.00E+00	-4.46E-02

Waste indicators

Indicator	Unit	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0.00E+00	1.08E-06	3.51E-06	0.00E+00	-9.24E-04
Non-hazardous waste disposed	kg	0.00E+00	8.30E-03	3.96E-02	0.00E+00	-6.71E-01
Radioactive waste disposed	kg	0.00E+00	5.52E-08	1.03E-06	0.00E+00	-5.64E-05

Output flow indicators

Indicator	Unit	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
Material for recycling	kg	0.00E+00	0.00E+00	7.96E-01	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
Exported energy, electricity	MJ	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

Abbreviations

Abbreviation	Definition
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PCR	Product Category Rules
ETIM	European Technical Information Model
CEN	European Committee for Standardization
PP	Polypropylene
ABS	Acrylonitrile Butadiene Styrene
HDPE	High-Density Polyethylene
PE	Polyethylene
Pb	Lead *(as SVHC in brass)*
SVHC	Substances of Very High Concern (REACH)
PP	Polypropylene
ABS	Acrylonitrile Butadiene Styrene
HIU	Heat Interface Unit
ICS	Indoor Climate Solutions
UCR	Urban Climate Resilience

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LCA report Wavin production location Hammel – CALEFA II S/V

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