

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

CFU-A diffuser plate
Klimaoprema d.o.o.



Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Klimaoprema d.o.o.
Address	Gradna 78a, 10430 Samobor, Hrvatska
Contact details	info@klimaoprema.com
Website	https://www.klimaoprema.com/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Private EPD
Parent EPD number	
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Dario Vuk
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☒ Internal verification ☐ External verification

This EPD is intended for business-to-business communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	CFU-A diffuser plate
Additional labels	
Product reference	
Place(s) of raw material origin	Italy, Croatia
Place of production	Industrijski Park 19, 35400 Nova Gradiška, Croatia
Place(s) of installation and use	European Union
Period for data	01. January 2024-31. December 2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	2,71

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Klimaoprema is a manufacturing technology solution company in the field of cleanrooms and HVAC systems.

PRODUCT DESCRIPTION

Ceiling filtration unit diffuser plate (CFU-A) is designed to direct supplied air into the room, and all discharge elements can be individually adjustable. This diffuser plate is made for installation on ceiling filtration unit (CFU)

Product is made of cold rolled galvanized steel sheet, The product is standardly powder coated in RAL 9010, and the powder basic composition is polyester. All other RAL options are on demand. Some diffuser types have plastic discharge elements made of polypropylene or polystyrene and they are classified to reaction to fire Class B2, in accordance with DIN 4102.

Options:

8 diffuser types: CFU-A-DOS-QQ, CFU-A-DOS-QR, CFU-A-DEK, CFU-A-DEV, CFU-A-DIP, CFU-A-DFW, CFU-A-DVF and CFU-A-DOR

8 sizes: 3030 (314x314 mm), 3030 (314x619 mm), 4545 (466x466 mm), AC (466x466 mm), 6060 (619x619 mm), 9060 (924x619 mm), 1260 (1229X619 mm) and 2AC (1066X466mm)

Further information can be found at: <https://www.klimaoprema.com/>

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	83,90	EU
Minerals	-	
Fossil materials	16,10	EU
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,1123

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 CFU-A-DOS-QQ-4545
Mass per declared unit	1,66 kg
Functional unit	Diffuser plate
Reference service life	40 years

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 CFU-A-DOS-QQ-4545
Declared unit mass	1,66 kg
Mass of packaging	0,5 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	3,81
GWP-total, A1-A3 (kgCO ₂ e)	3,82
Secondary material, inputs (%)	70,2
Total energy use, A1-A3 (kWh)	15,1
Net freshwater use, A1-A3 (m ³)	0,07

Formula for calculating the GWP Total for each diffuser type and size

$$=0,3*a + 2,23*b + 0,7 *c + A2 + A3$$

*Values shown on this EPD and at Table 1 are for the declared unit of 1 CFU-A-DOS-QQ-4545

* Values for formula are in Table 2, factors values are from Table 3, and is ultimately summed with the A2 and A3 values from Table 1

GWP – total calculation example for product type CFU-A-DEK and size 3030

$$=0,3*0,592 + 2,23*0,587 + 0,7*0,286 + 0,098 + 0,498$$

$$= 2,283 \text{ kg CO}_2\text{e}$$

Formula for calculating the total mass for each diffuser type and size

$$=0,3*a + 2,23*b + 0,7 *c$$

*Values shown on this EPD at Table 2 are for the declared unit of 1 CFU-A-DOS-QQ-4545

*Values for formula are in Table 2 and factors values are from Table 3

Mass calculation example for product type CFU-A-DEK and size 3030

$$=1,39*0,592 + 0,07*0,587 + 0,2*0,286$$

$$= 0,921 \text{ kg}$$

Table 1

*Data from table ENVIRONMENTAL IMPACT DATA (page 12/16)

Impact category	Unit	A1	A2	A3	A1-A3
GWP – total	kg CO ₂ e	3,230	0,098	0,498	3,826

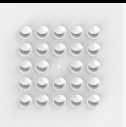
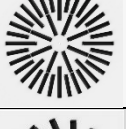
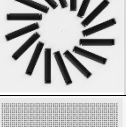
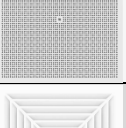
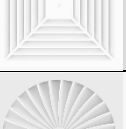
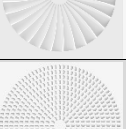
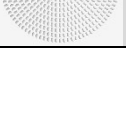
Table 2

*GWP – total A1 by material type

Material type	Factor symbol (for calculation)	GWP-total for A1 (kg CO ₂ eq)	Declared unit mass (kg)
Metal - Galvanized Steel in product	a	0,300	1,39
Plastic in product	b	2,230	0,07
Plastic in diffuser nozzle insert	c	0,700	0,20
Total		3,230	1,66

Table 3

*If is "x" on size factor in the table, the product is not available in this size.

PRODUCT TYPE		Factor symbol	PRODUCT SIZE AND FACTORS							
			4545	2AC	1260	3030	3060	AC	6060	9060
CFU-A-DOS-QQ		a	1,000	3,591	3,591	0,461	0,886	1,000	1,730	2,573
		b	1,000	3,604	3,604	0,455	0,883	1,000	1,734	2,584
		c	1,000	3,857	3,857	0,510	0,918	1,000	1,653	2,755
CFU-A-DOS-QR		a	0,935	X	X	0,611	X	0,935	1,331	X
		b	0,933	X	X	0,606	X	0,933	1,331	X
		c	1,184	X	X	0,735	X	1,754	1,754	X
CFU-A-DEK		a	1,022	X	X	0,592	X	1,570	X	X
		b	1,020	X	X	0,587	X	1,573	X	X
		c	0,939	X	X	0,286	X	0,939	X	X
CFU-A-DEV		a	1,058	X	X	0,612	X	1,626	2,319	X
		b	1,057	X	X	0,608	X	1,630	2,328	X
		c	0,857	X	X	0,286	X	0,857	1,714	X
CFU-A-DIP		a	1,036	3,721	3,721	0,477	0,918	1,036	1,792	2,667
		b	1,035	3,736	3,736	0,472	0,916	1,035	1,797	2,678
		c	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
CFU-A-DFW		a	1,309	X	X	0,494	X	1,309	1,865	X
		b	1,310	X	X	0,489	X	1,310	1,871	X
		c	0,000	X	X	0,000	X	0,000	0,000	X
CFU-A-DVF		a	1,324	X	X	0,500	X	1,324	1,885	X
		b	1,310	X	X	0,495	X	1,325	1,891	X
		c	0,000	X	X	0,000	X	0,000	0,000	X
CFU-A-DOR		a	1,331	X	X	X	X	1,331	2,922	X
		b	1,332	X	X	X	X	1,332	2,934	X
		c	0,000	X	X	X	X	0,000	0,000	X

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.

The reference product casing is made of galvanized steel, with air discharge elements made of polystyrene. The product is standardly powder coated in RAL 9010, and the powder for coating of the product has the basic composition is polyester. The materials are transported to the production facility of Klimaoprema d.o.o. The production facility is located in Nova Gradiška, address: Industrijski Park 19, 35400 Nova Gradiška, Croatia. In the production facility, the galvanized sheet undergoes stamping, rolling and profiling. Plastic parts are purchased, so there is no plastic waste. Electrical devices and tools are used in the production process.

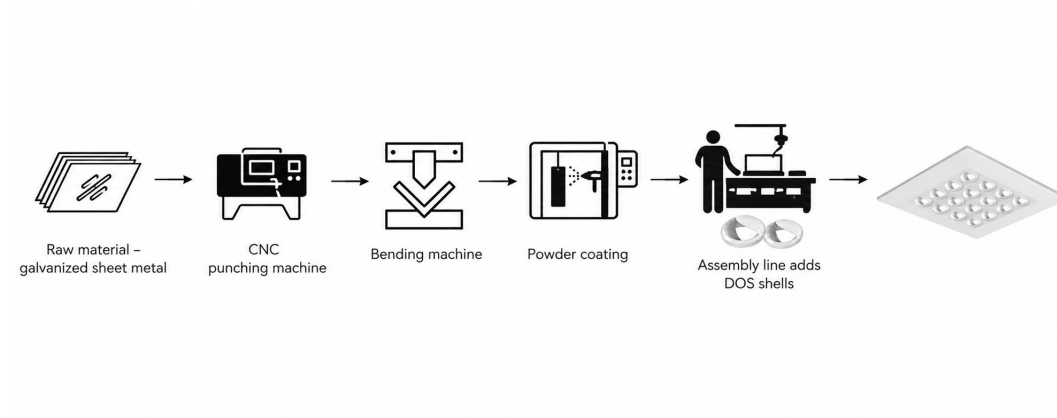
Production energy is taken based on the place/country of electricity production. Each part of the production process is considered separately, and disposal of process waste is calculated based on waste distribution at the factory level. The finished product is packed in cardboard boxes and tied to wooden pallets with plastic strips before shipping.

The use of renewable energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

PRODUCT END OF LIFE (C1-C4, D)

Consumption of energy and natural resources in the demolition process is assumed to be negligible. It is assumed that the waste is collected separately and transported to the waste treatment plant. Transportation distance to treatment is assumed as 50 km and the transportation method is assumed to be lorry (C2). According to EN 50693:2019, the sequence of treatment operations occurring to the product shall include de-pollution, fractions separation and preparation (dismantling, crushing, shredding, sorting), recycling, other material recovery, energy recovery and disposal. In this study, the default values from table G.4 of EN 50693 are used for treating materials in different waste treatment methods.

LIFE CYCLE FLOW DIAGRAM



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

All industrial processes from raw material acquisition and pre-processing, production, product distribution, installation, use/application of product and end-of-life management are included. For easier modelling and because of lack of accuracy in available modelling resources many constituents under 0,1% of product mass are excluded. These include some ancillary materials which are used in the production only in very small amounts and have no serious impact on the emissions of the product. Further, water used for cleaning and the maintenance of capital equipment, transportation and waste streams of the packaging materials used for delivering the raw materials to the factory are omitted since the quantified mass contribution is less than 0.1%.

The production of capital equipment, construction activities, and infrastructure, personnel-related activities, energy and water use related to company management and sales activities are excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Physical Properties
Ancillary materials	Physical Properties
Manufacturing energy and waste	Physical Properties

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	3,23E+00	9,83E-02	4,98E-01	3,82E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,87E-01	4,27E-02	8,54E-01
GWP – fossil	kg CO ₂ e	3,22E+00	9,82E-02	4,90E-01	3,81E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,87E-01	4,27E-02	8,88E-01
GWP – biogenic	kg CO ₂ e	0,00E+00	0,00E+00	1,24E-06	1,24E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,53E-02
GWP – LULUC	kg CO ₂ e	1,79E-03	4,27E-05	8,68E-03	1,05E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,31E-05	1,76E-05	8,73E-04
Ozone depletion pot.	kg CFC ₋₁₁ e	2,03E-08	1,45E-09	1,08E-08	3,25E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	4,35E-10	2,52E-10	7,07E-10
Acidification potential	mol H ⁺ e	2,11E-02	3,65E-04	2,79E-03	2,43E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,59E-04	1,43E-04	1,71E-03
EP-freshwater ²⁾	kg Pe	1,04E-03	7,44E-06	3,17E-04	1,36E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,70E-05	1,54E-05	3,54E-04
EP-marine	kg Ne	2,77E-03	1,25E-04	9,84E-04	3,88E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,00E-04	4,47E-05	7,23E-04
EP-terrestrial	mol Ne	6,73E-02	1,36E-03	6,58E-03	7,52E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,04E-03	4,84E-04	8,13E-03
POCP (“smog”) ³⁾	kg NMVOce	9,90E-03	5,35E-04	2,15E-03	1,26E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,94E-04	1,44E-04	2,98E-03
ADP-minerals & metals ⁴⁾	kg Sbe	4,13E-05	2,66E-07	4,51E-06	4,60E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,80E-06	1,76E-07	1,33E-05
ADP-fossil resources	MJ	4,87E+01	1,42E+00	8,35E+00	5,85E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,88E-01	2,90E-01	6,63E+00
Water use ⁵⁾	m ³ e depr.	1,37E+00	6,87E-03	2,42E-01	1,62E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,33E-02	2,72E-03	1,67E-01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO₄e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	2,90E-07	9,57E-09	3,73E-08	3,37E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	4,37E-09	1,64E-09	5,46E-08
Ionizing radiation ⁶⁾	kBq U235e	2,46E-01	1,21E-03	1,23E-01	3,71E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,95E-03	4,61E-04	-1,12E-01
Ecotoxicity (freshwater)	CTUe	1,90E+01	1,97E-01	2,51E+00	2,17E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	7,11E-01	2,64E+00	2,70E+00
Human toxicity, cancer	CTUh	4,75E-09	1,58E-11	5,35E-10	5,30E-09	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	4,48E-11	9,28E-10	1,10E-10
Human tox. non-cancer	CTUh	3,97E-08	8,99E-10	8,68E-09	4,92E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,31E-09	3,31E-08	6,90E-09
SQP ⁷⁾	-	8,16E+00	1,39E+00	4,30E+01	5,26E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	6,71E-01	3,43E-01	-9,15E+00

6) EN 15804+A2 disclaimer for ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	3,66E+00	1,90E-02	3,09E+00	6,76E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	6,50E-02	1,11E-02	-1,95E+00
Renew. PER as material	MJ	7,35E-02	0,00E+00	5,75E+00	5,82E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,09E-02
Total use of renew. PER	MJ	3,73E+00	1,90E-02	8,83E+00	1,26E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	6,50E-02	1,11E-02	-1,97E+00
Non-re. PER as energy	MJ	3,79E+01	1,42E+00	8,17E+00	4,75E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-3,62E+00	2,89E-01	6,78E+00
Non-re. PER as material	MJ	1,09E+01	0,00E+00	2,57E-01	1,11E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,83E-01	1,55E-03	-1,41E-01
Total use of non-re. PER	MJ	4,88E+01	1,42E+00	8,42E+00	5,86E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-3,43E+00	2,90E-01	6,64E+00
Secondary materials	kg	1,17E+00	5,91E-04	1,96E-01	1,36E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	4,58E-04	7,34E-05	-6,89E-01
Renew. secondary fuels	MJ	2,58E-04	7,48E-06	1,15E-01	1,16E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,06E-05	1,57E-06	1,12E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	5,93E-02	2,06E-04	6,33E-03	6,58E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	4,75E-04	1,63E-04	1,08E-04

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1,02E+00	2,35E-03	3,30E-02	1,06E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	6,71E-03	2,60E-01	4,46E-01
Non-hazardous waste	kg	5,30E+00	4,35E-02	1,35E+00	6,69E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,01E-01	2,39E-02	2,35E+00
Radioactive waste	kg	1,48E-04	2,96E-07	3,14E-05	1,80E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	7,56E-07	1,14E-07	-2,89E-05

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	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	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	4,24E-04	0,00E+00	0,00E+00	4,24E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,15E+00	0,00E+00	5,41E-05
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,10E-01	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,82E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,82E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	2,89E+00	9,77E-02	5,25E-01	3,51E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,87E-01	4,26E-02	8,83E-01
Ozone depletion Pot.	kg CFC ₁₁ e	1,78E-08	1,16E-09	1,09E-08	2,99E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,64E-10	2,03E-10	1,75E-09
Acidification	kg SO ₂ e	1,42E-02	2,76E-04	2,07E-03	1,66E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,83E-04	1,07E-04	1,19E-03
Eutrophication	kg PO ₄ ³ e	2,46E-03	6,68E-05	3,13E-03	5,66E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	5,00E-05	2,31E-05	5,08E-04
POCP (“smog”)	kg C ₂ H ₄ e	1,01E-03	2,44E-05	2,00E-04	1,24E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,70E-05	7,82E-06	5,23E-04
ADP-elements	kg Sbe	4,09E-05	2,60E-07	4,48E-06	4,56E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,79E-06	1,08E-07	1,33E-05

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-fossil	MJ	3,83E+01	1,40E+00	6,19E+00	4,59E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,37E-01	2,83E-01	8,66E+00

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	3,23E+00	9,83E-02	4,98E-01	3,82E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,87E-01	4,27E-02	8,89E-01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO₂ is set to zero

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Green electricity, origin certified, One Click LCA
2. Electricity PV panel (irradiation 1100 kWh per m2) in MJ, World, Ecoinvent, 0.0250 kgCO2e/MJ

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	
Collection process: Mixed waste (kg)	
Recovery: re-use (kg)	0
Recovery: recycling (kg)	1,15
Recovery: energy recovery (kg)	0,11
Disposal (kg)	0,39
Scenario assumptions e.g. transportation (mode, km) & other	