

Environmental Product Declaration



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

CAREA® ARMADA (installation without understructure)

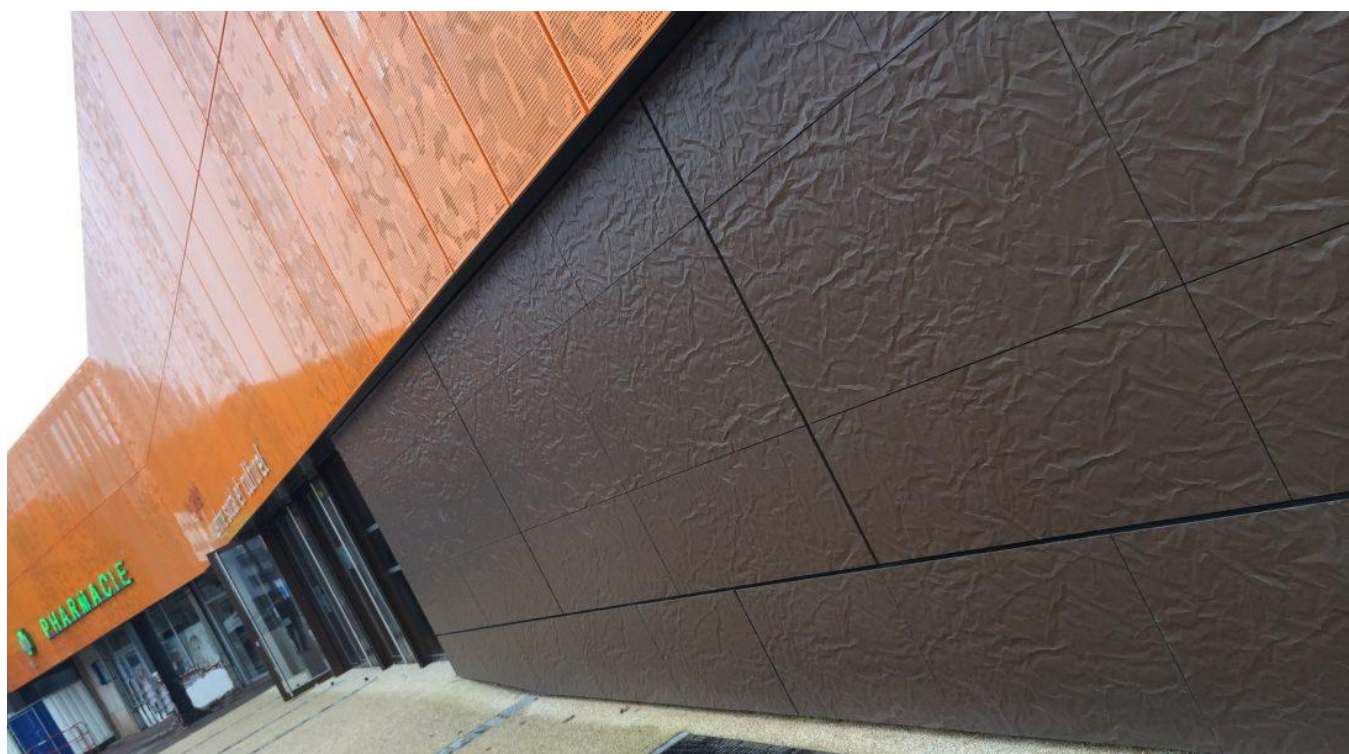
from

CAREA

CAREA®
MINERAL COMPOSITE

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-09373
Publication date:	2023-05-29
Valid until:	2028-05-29

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at 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
E-mail:	info@environdec.com

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)
Product Category Rules (PCR): PCR 2019:14 Construction products, version 1.2.2
PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact .
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: <i>Pär Lindman (Miljögiraff)</i>
Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier:
☒ Yes ☐ No
[Procedure for follow-up the validity of the EPD is at minimum required once a year with the aim of confirming whether the information in the EPD remains valid or if the EPD needs to be updated during its validity period (see Sections 7.3.2 and 7.4.9 in the GPI). The follow-up can be organized entirely by the EPD owner or together with the original verifier via an agreement between the two parties. In both approaches, the EPD owner is responsible for the procedure being carried out. If a change that requires an update (see Section 6.5 of the GPI) is identified, the EPD shall be re-verified by a verifier]

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.

Company information

Owner of the EPD: CAREA FACADE

Contact: To obtain more information about this product declaration and/or its configurations please reach CAREA FACADE through:

E-mail: contact.facade@careea.fr

Phone: +33 (0)2 41 61 53 23

Description of the organisation:

CAREA FACADE is part of CAREA GROUP which is specialized in composite mineral products.

For over 40 years, the CAREA GROUP has been designing, manufacturing and distributing solutions based on a unique material, CAREA Mineral Composite, to create, manufacture and distribute a full range of solutions concentrating on two main areas:

- The rainscreen cladding market for external thermal insulation.
- Sanitary fittings for kitchens and bathrooms.

Based in France, the French group CAREA is established and renowned in France and abroad.

Product-related or management system-related certifications: n.a.

Name and location of production site(s): CAREA FACADE : ZA Bel Air de Combrée 49520 COMBRÉE

Product information

Product name: CAREA® ARMADA

Product identification: Facade cladding slab in mineral composite related to the product standard EN 15286. More information on the product can be found on www.carea-facade.com.

Product description: The product is a mineral composite panel mainly composed of mineral filler with some polypropylene fibers bound by a resin. Exterior face is protected by a gel-coat. Panels are fixed on aluminium profiles, included in the EPD scope. The installation is also possible with under-structure but this possibility is not included in the EPD scope. This understructure can be sourced from different suppliers with potentially very different impacts (mass, recycled content). See technical notice 2/16-1774 (under review) et 2.2/14-1659_V3.

The product is intended to be installed on the exterior façade on every type of building, new or refurbished. See technical notice for more details.

UN CPC code: n.a.

Geographical scope: The products covered by this EPD are manufactured in France. They have been modelled to be representative of CAREA's export in Great Britain, Ireland, Switzerland and Germany.

LCA information

Declared unit: "1m² of façade with a composite mineral panel of 22mm thickness, based on a 50 years reference service life, including accessories required for installation (the potential under-structure is not included)"

Reference service life: 50 years

Time representativeness: All primary data of processes owned by CAREA Group was collected for the 2019 reference year.

Database(s) and LCA software used: Generic data from ecoinvent v3.8.

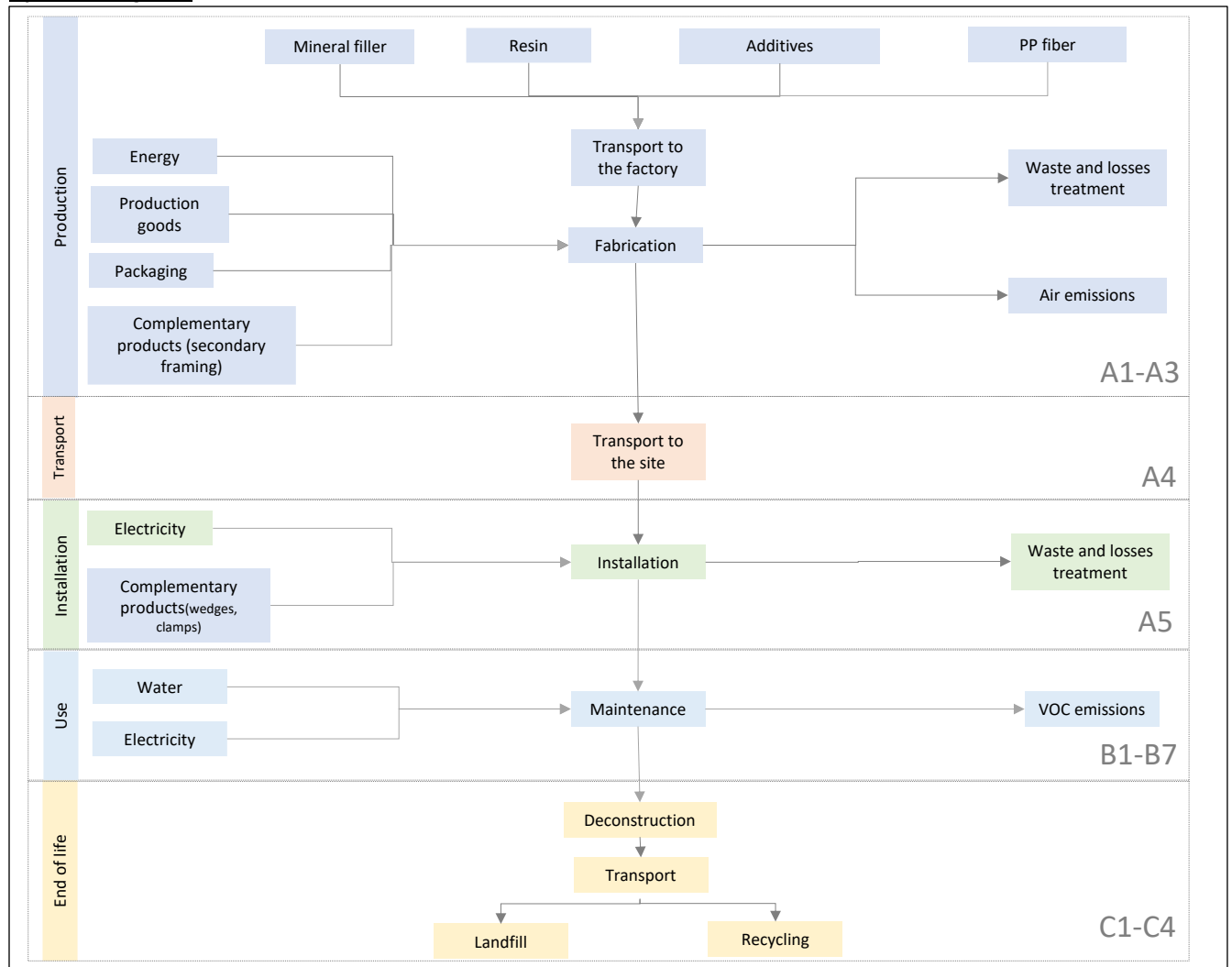
Used software:

- SimaPro, life cycle assessment software (V9).

Description of system boundaries:

b) Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules). The additional modules may be one or more selected from A4–A5 and/or B1–B7

System diagram:



More information:

This EPD is also registered on the INIES database for the french market and under the same name.

Below is a description of the main hypothesis used to model the life cycle of the products.

• **Production stage, A1-A3 (production year: 2019)**

The steps from A1 to A3 include all the processes from raw material extraction to factory transformation. The panels are made in a normal-pressure atmosphere according to the following steps:

- Preparation of the mould (heating – oil)
- Casting of gel-coat into the mould
- Infrared heating
- Casting of mineral fillet and resin mixture on the gel-coat
- Smoothing, drying
- Cutting and grooving

• **Construction process stage, A4-A5**

The product is delivered by a truck from the factory to the construction site. The transport distance is an average distance of the deliveries made by CAREA in Great Britain, Ireland, Switzerland and Germany over the data collection period. In average, the products travel 950km by truck.

The panel and the under-structure are set manually with an electric screwdriver. The energy consumption of a hoisting machine is also taken into account. Installation waste consists of packaging waste.

- **Use life stage (Exclusion of potential savings), B1-B7**

One product cleaning every 10 years is taken into account in accordance with the manufacturer's recommendations.

- **End of life, C1-C4**

At end of life, the product is disassembled by hand. Only electricity for an electric screwdriver is taken into account. Aluminium and steel from under-structure are recycled, at a rate of 90% and 83% respectively. Remainder is sent to landfill at 100%.

- **Benefits and loads beyond the product system boundary: module D**

Module D is applied to end-of-life aluminium for which there is a recycling market and well-established data. The percentage of recovered (or recycled) end-of-life aluminium is estimated at 90%. It is considered that recycled aluminium replaces primary aluminium of equal quality. The percentage of recycled aluminium entering the system is also considered in module D.

- **Variability**

The thickness of the ARMADA product can vary between 21 mm for a face without relief and 23 mm for a thickness with relief.

The reported impacts correspond to a thickness of 22 mm. An analysis of variability was performed to verify that the differences in impact between the different thicknesses were not too great.

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	x	x	x	x	x	x	x	x	x	x	x	x
Geography	FR	FR	FR	RER	GB, IE, CH, DE	GB, IE, CH, DE	GB, IE, CH, DE	GB, IE, CH, DE	GB, IE, CH, DE	GB, IE, CH, DE	GB, IE, CH, DE	GB, IE, CH, DE	GB, IE, CH, DE	GB, IE, CH, DE	GB, IE, CH, DE	GB, IE, CH, DE	GB, IE, CH, DE
Specific data used	> 90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	< 10%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%					-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	Weight, kg/m ² -%	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Material 1 / Mineral Filler	> 70%	0%	0%
Material 2 / Resin	11%	0%	0%
Material 3 / Polypropylene fibers	> 15%	0%	0%
Material 4 / Additiv	< 1%	0%	0%
TOTAL	47,5 kg/m²	0%	0%
Complementary material 1 / aluminium rails	1,17 kg/m ²	43%	0%
Complementary material 2 / Polypropylene wedge	0,001 kg/m ²	0%	0%
Packaging materials	Weight, kg/kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg of product
Material 1 / Wood	0,155 kg/kg	15,5%	0,073
Material 2 / PELD	0,002 kg/kg	0,2%	0
TOTAL	0,157 kg/kg		0,073

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
The product does not contain substances on the candidate list according to REACH regulation higher than 0.1% by mass			

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804

Results per m²																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	7,50E+01	4,65E+00	5,47E-01	3,84E-01	6,00E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,33E-03	2,55E-01	5,00E-01	7,32E-01	-3,53E+00
GWP-biogenic	kg CO ₂ eq.	-6,96E+00	1,85E-03	7,74E+00	0,00E+00	5,46E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,13E-05	1,02E-04	4,14E-04	6,64E-04	-1,82E-02
GWP-luluc	kg CO ₂ eq.	9,29E-02	1,67E-03	9,09E-04	0,00E+00	7,63E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,14E-06	1,00E-04	2,18E-04	1,60E-04	-8,24E-02
GWP-total	kg CO ₂ eq.	6,82E+01	4,66E+00	8,29E+00	3,84E-01	6,07E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,37E-03	2,55E-01	5,01E-01	7,32E-01	-3,63E+00
ODP	kg CFC 11 eq.	1,63E-05	1,11E-06	3,87E-08	0,00E+00	2,95E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,60E-10	5,90E-08	1,12E-07	6,08E-08	-3,61E-07
AP	mol H ⁺ eq.	3,94E-01	1,94E-02	3,37E-03	0,00E+00	2,00E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,06E-05	1,03E-03	2,09E-03	1,64E-03	-1,93E-02
EP-freshwater	kg P eq.	2,06E-03	3,18E-05	1,37E-05	0,00E+00	4,52E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,51E-07	1,79E-06	4,48E-06	2,67E-06	-1,83E-04
EP-marine	kg N eq.	6,31E-02	5,87E-03	9,33E-04	0,00E+00	3,43E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,84E-06	3,09E-04	6,01E-04	1,17E-03	-2,40E-03
EP-terrestrial	mol N eq.	6,86E-01	6,48E-02	9,62E-03	0,00E+00	4,11E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,21E-05	3,41E-03	6,77E-03	6,25E-03	-2,66E-02
POCP	kg NMVOC eq.	2,74E-01	2,08E-02	2,75E-03	2,13E-02	1,07E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,64E-06	1,04E-03	2,02E-03	1,93E-03	-1,01E-02
ADP-minerals&metals*	kg Sb eq.	5,24E-04	1,08E-05	2,06E-06	0,00E+00	6,66E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,82E-08	8,91E-07	1,95E-06	6,57E-07	8,79E-05
ADP-fossil*	MJ	1,70E+03	7,26E+01	5,78E+00	0,00E+00	1,49E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,40E-02	3,86E+00	9,29E+00	4,63E+00	-5,68E+01
WDP*	m³	3,88E+01	2,50E-01	7,10E-02	0,00E+00	4,53E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,46E-04	1,15E-02	2,93E-02	1,56E-01	-2,34E-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															

* 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.

Potential environmental impact – additional mandatory indicators

Results per m²																
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.	7,50E+01	4,66E+00	5,48E-01	3,84E-01	6,01E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,34E-03	2,55E-01	5,01E-01	7,31E-01	-3,10E+00

Use of resources

Results per m²																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1,17E+02	9,23E-01	5,07E-01	0,00E+00	3,66E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,11E-02	5,43E-02	2,78E-01	1,25E-01	-2,21E+01
PERM	MJ	8,54E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,03E+02	9,23E-01	5,07E-01	0,00E+00	3,66E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,11E-02	5,43E-02	2,78E-01	1,25E-01	-2,21E+01
PENRE	MJ	1,17E+03	7,25E+01	5,44E+00	0,00E+00	1,17E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,54E-02	3,86E+00	9,28E+00	4,63E+00	-5,67E+01
PENRM	MJ	5,23E+02	0,00E+00	2,57E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,70E+03	7,25E+01	5,70E+00	0,00E+00	1,17E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,54E-02	3,86E+00	9,28E+00	4,63E+00	-5,67E+01
SM	kg	5,03E-01	0,00E+00	5,26E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
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	0,00E+00	0,00E+00
FW	m³	9,47E-01	8,46E-03	3,97E-03	0,00E+00	1,12E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,33E-05	4,22E-04	1,50E-03	5,14E-03	-1,41E-01
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															

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 CO₂ is set to zero.

Waste production and output flows

Waste production

Results per m²																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	8,21E+00	5,02E-02	7,81E-02	0,00E+00	1,36E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,60E-05	2,79E-03	7,64E-03	1,19E-02	-7,83E-01
Non-hazardous waste disposed	kg	4,73E+01	7,16E+00	2,98E+00	0,00E+00	2,21E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,18E-03	2,20E-01	4,53E-01	1,92E+01	6,25E-01
Radioactive waste disposed	kg	4,60E-03	4,91E-04	2,08E-05	0,00E+00	8,39E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,73E-07	2,61E-05	7,51E-05	2,83E-05	-3,56E-04

Output flows

Results per m²																
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	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	5,43E+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	2,96E+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	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	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, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

References

General Programme Instructions of the International EPD® System. Version 4.0.

PCR 2019:14. Construction products. Version 1.2.2

NF EN 15804+A2

Project report realization of EPD of mineral façade cladding, EVEA, April 2023.

