

Environmental Product Declaration



THE INTERNATIONAL EPD® SYSTEM



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

Clay plasters

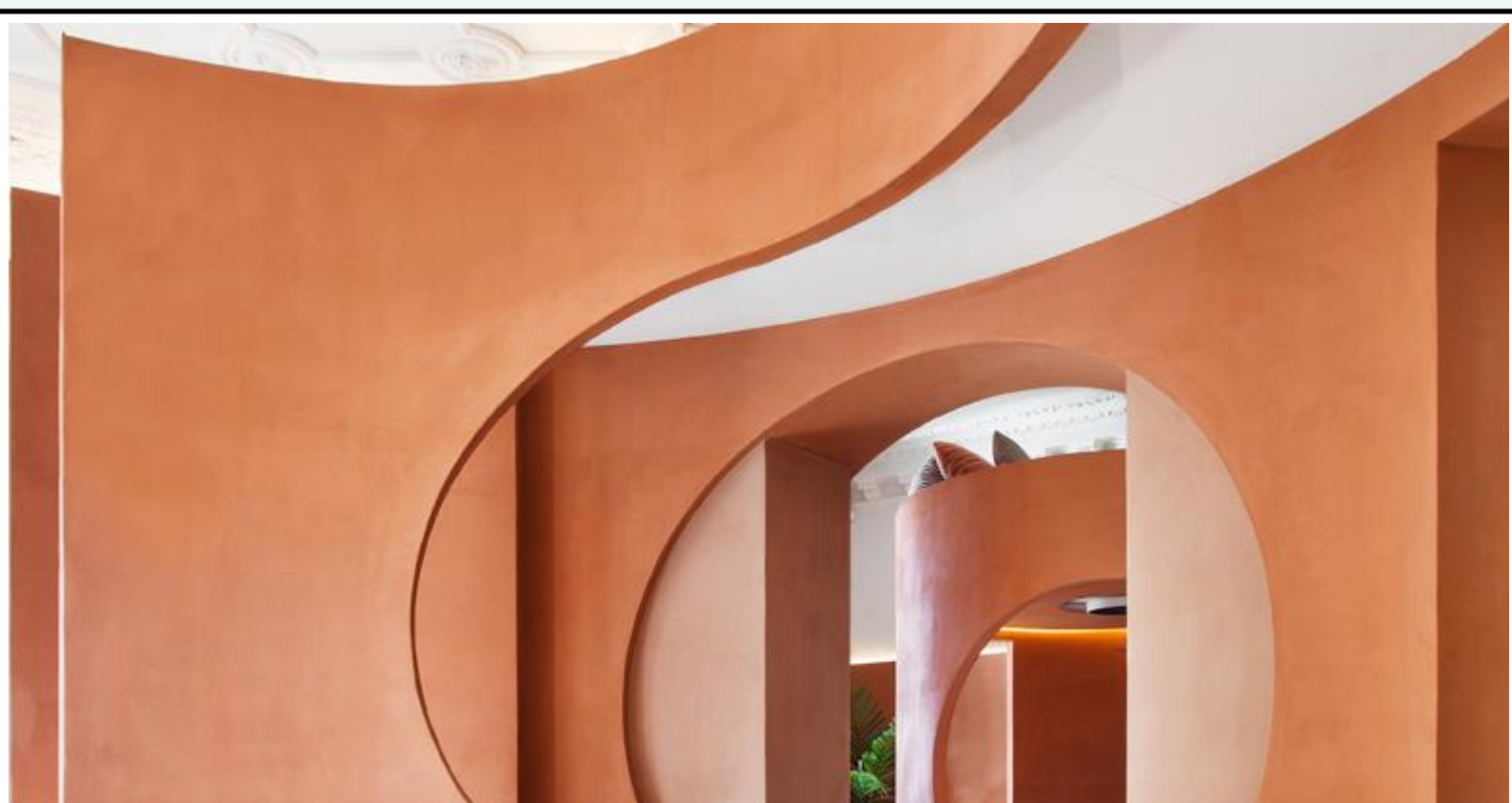
from **MINERCER S.L.U.**



EPD of multiple products, based on the average results of the product group:
ecoclay Base+Fibre, ecoclay Base and ecoclay Finishing

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0013373 (S-P-13373)
Publication date:	2024-12-09
Valid until:	2029-12-08

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



Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
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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)
<i>Product Category Rules (PCR): PCR 2019:14 VERSION 1.3.2 CONSTRUCTION PRODUCTS 2023-12-08. Based on CEN standard EN 15804. CEN standard EN 15804 serves as the core Product Category Rules (PCR).</i>
PCR review was conducted by: The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com . Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via info@environdec.com .
Life Cycle Assessment (LCA)
LCA accountability: <i>Diego Ruiz, Idnovam.</i>
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by individual verifier Third-party verifier: <i>Eva Martínez Herrero, CTME</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 registered in different EPD programmes 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 ISO 14025.

Company information

Owner of the EPD:

MINERCER S.L.U.

Penitencia, 47, Vila-real, Castellón 12540.

España.

Contact:

Luis Mata (Sustainability product)

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Description of the organisation:

ECOCLAY it's a Brand of MINERCER S.L.U dedicated to the production of wall and floor coverings, as well as natural, ecological, and non-toxic paints made from sand, clay, and natural additives. The characteristics of raw clays and limes allow for the creation of finishes and construction solutions that not only represent a valid alternative to conventional options, but also address or prevent many issues related to humidity, energy savings, durability, and aesthetics. The mortars are made from a carefully selected combination of exclusive clays from their quarry in Teruel and selected sands.

Name and location of production site:

Mine: Partida el Collado, s/nº 44557-Crivillén, Teruel. España.

Production site: Las Horcas, 36 – 2, 44600 Alcañiz, Teruel. España

Product information

Product name: Clay plasters

Product identification: EPD of multiple products, based on the average results of three clay mortars (ecoclay Base+Fibre, ecoclay Base and ecoclay Finishing) manufactured and sold by ECOCLAY. Products are used as for continuous cladding in interior spaces (walls and ceilings). This EPD also shows the maximum variation between products for the sum of modules A-C for all impacts.

UN CPC code: 37410. Plasters

Product description:

Continuous coating for interior spaces. 100% natural clay mortar with intermediate granulometry. Contains no chemical additives and, once dried, achieves high mechanical strength. The versatility of Ecoclay clay mortars allows for rough finishes, volume creation, fine finishes, troweled or smoothed surfaces, added thickness for radiant walls, or artistic finishes. The mortars are sold in brown paper, sewn, sacks which are recyclable or compostable. Ecoclay mortars do not require painting, varnishing or sealing during their lifespan. Once applied they simply require occasional wiping with a non-toxic cleaner. Any damage can simply be replastered. Throughout the entire production process, there is no waste, and no pollutants are released into the air.

The results of this EPD correspond to the arithmetic mean of the results for each product in the group.

Geographical scope: Europe

Indicator	Ecoclay Base+fibre	Ecoclay Base	Ecoclay Finishing	Standard
Kneading water	20%-25%	25%	25%	
Organic matter content	<2%	-	-	
Flexural strength	0.67 N/mm ²	0.65 N/mm ²	0.62 N/mm ²	UNE-EN 1015-11:2000.
Compressive strength	1.95 N/mm ²	1.92 N/mm ²	1.74 N/mm ²	UNE-EN 1015-11:2000.
"Adhesion strength"	0.11 N/mm ²	0.13 N/mm ²	0.17 N/mm ²	UNE-EN 1015-12: 2016
Coefficient of vapor permeability in humid-dry environment μ	4.8-11.2	-	-	UNE-EN 1015-19:1999
Shrinkage	1.80%	3.20%	6.20%	DIN 18947:2012-08
Thermal conductivity λ	0.24 W/mK	-	-	UNE-EN ISO 13787:2003
Thermal resistance $R_{e=15\text{ mm}}$	0.06 m ² K/W	-	-	UNE-EN ISO 6946:2021
Thermal transmittance $U_{e=15\text{ mm}}$	16 W/m ² K	-	-	UNE-EN ISO 6946:2021
Water vapor absorption	86 g agua /m ² x cm	-	-	UNE-EN 1015-19:1999
Acoustic absorption $\alpha_{e=20\text{ mm}}$	0.54	-	-	UNE-EN ISO 6946:2021
Acoustic insulation $R_{e=20\text{ mm}+3\text{mm BASE}} / 3\text{mm}$	29 dB	-	15 dB	UNE-EN ISO 6946:2021
Reaction to fire	A2-s1, d0	CLASE A1- non- combustible	CLASE A1- non- combustible	UNE-EN 13823:2012+A1 2016
Volatile Organic Compounds (VOCs)	0	0	0	UNE-EN 16516:2018+A1:2021

LCA information

Functional unit / declared unit:

The declared unit is 1 kg of mortar product.

Reference service life:

Mortars exposed to minor environmental load are expected to last for the lifetime of the building construction, that for common European buildings is estimated to be 60 years.

Description of system boundaries:

According to the standard EN 15804:2012+A2:2019 and PCR 2019:14 CONSTRUCTION PRODUCTS the system boundary is cradle to gate with modules C1–C4 and module D (A1–A3 + C + D). The life cycle stages A4-A5, B1-B7 were excluded from the LCA study.

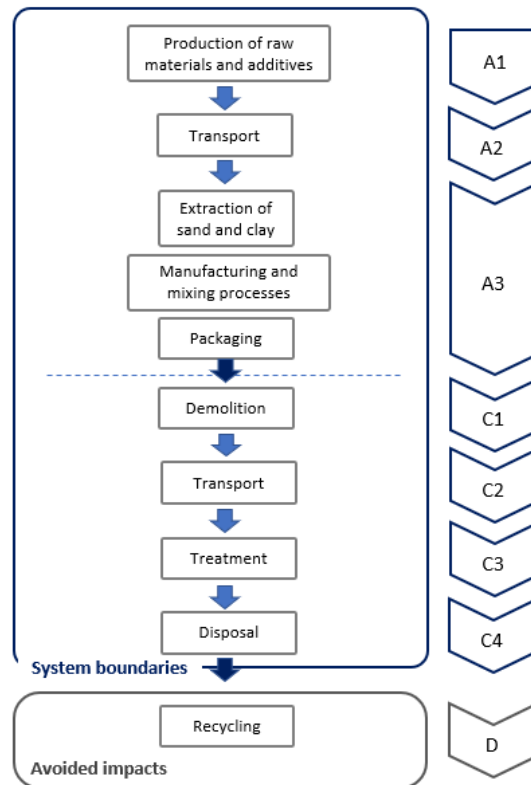
The aggregation of the modules A1, A2 and A3 is allowed by EN 15804. This rule is applied in this EPD and denoted by A1-3.

To manufacture mortars, it is necessary to extract raw materials from the mine, where sand and clay are obtained. For Base and Finishing mortars, the raw materials go through a grinding, micronizing, and sieving process. For the Base+Fibre mortar product, a stone removal process is required before mixing the raw materials with straw. After mixing the products, they can be packaged in paper bags or big bags.

Parameters	Unit
Collection process	0 kg collected separately
	1 kg collected with mixed construction waste
Recovery system	0 kg for reuse
	0 kg for recycling
	0 kg for energy recovery
Landfill	1 kg of product for final disposal
Assumptions for the development of scenarios	
Transport by road	Transport, freight, lorry 16-32 t
Diesel consumption	0.037 kg/tkm
Distance to CDW treatment, recycling, EoL	150 km

(1) Ecoinvent database

System diagram:



The construction processes and production of capital goods, maintenance and support activities, production of packaging raw materials, transportation of finished products to the installation site (A4), installation of the product (A5), and the use phase (B1-B7) have been excluded.

Time representativeness:

First-hand data provided directly by ECOCLAY on its production process was used in all cases where this information was available. The data provided by the company corresponds to production during 2023.

Database(s) and LCA software used:

The LCA modelling was carried out using an excel spreadsheet. All background LCI datasets were sourced from the Ecoinvent database v3.8. In certain cases, the original Ecoinvent datasets were adapted to the specific conditions of ECOCLAY processes. The environmental information of background processes was generated by LCA software SimaPro 9.3 and were entered into the spreadsheet. The impact assessment results were calculated using characterization factors of EN 15804+A2 standard (based on EF 3.1).

Data quality:

In order to achieve precision, consistency and representativeness and to ensure reliable results, first-hand data from ECOCLAY activities were used. The activity data provided by ECOCLAY are less than 2 years old. All information comes from operational data and from calculations, so the quality of these data can be described as very good.

By other hand, regionally specific datasets were used to model the energy consumption. For the processes of transport and production of raw materials, datasets were chosen according to their technological and geographical representation of the actual process.

In accordance with Annex E of the EN 15804 + A2, a data quality assessment was performed. For technical representativeness, processes with a quality level of "very good" account for 99% of the value for climate change indicator. For geographical and time representativeness, processes with a quality level of "very good" account for 95% and 100% respectively.

Cut-off rules:

All the environmental aspects provided by ECOCLAY's management have been included in the study, i.e., all raw materials and packaging as well as the energy for manufacturing. In the same way, all manufacturing waste and air emissions are accounted for.

Allocation

- LCA Model: An allocation has been carried out using a bottom-up approach, starting with the composition of the products and directly assigning the quantities of raw materials present in the product.
- Energy: Since allocation using the traditional top-down approach was not feasible, a bottom-up approach was employed based on equipment nominal power, operating times, and productivity.

Main assumptions:

- The biogenic carbon content of straw is the result of the CO₂ that has been absorbed from the atmosphere by the photosynthesis of the trees during their growth. The biogenic carbon in the product and packaging has been calculated according to EN 16485 and 16449. A carbon content of 50% of the dry mass of the straw was assumed.
- The biogenic carbon contained in the products used in the packaging has been compensated for in the total of the A1-3 modules.
- Infrastructure or capital goods have not been included in the analysis.

Greenhouse gas emission from the use of electricity in the manufacturing phase

The electricity mix used is based in the year 2023. Specific supplier electricity mix has been taken into consideration in the LCA model with a carbon footprint (GWP-GHG) of 3.78E-01 Kg CO₂-eq/kWh.

More information

Author of the Life Cycle Assessment:

Idnovam. Ferranz 56, Bajo, 28008 Madrid (Spain).

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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	ES	ES	ES	-	-	-	-	-	-	-	-	-	EU	EU	EU	EU	EU
Specific data used	53.43%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	-22% / +15%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

The following table presents information regarding the content of mortar product.

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Sand	0.6 – 0.7	0%	0%
Clay	0.30 – 0.38	0%	0%
Straw	0 – 0.01	0%	100% - 0.5 kg C/kg
Additives (kaolin and iron oxide)	0 – 0.02	0%	0%
TOTAL	1.00	0%	0% - 1.1% 0 – 0.006 kg C/kg
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Pallet	0.0027	0.27%	0.5 kg C/kg
Big-bag	0.000035	0%	0
Paper bag	0.0018	0.18%	0.5 kg C/kg
TOTAL	0.0045	0.45%	0.5 kg C/kg

Composition of final products has been deemed commercially sensitive information so no further details are provided here.

Products do not contain any of the substances listed on the “Candidate List of Substances of Very High Concern (SVHC) for authorization”.

Results of the environmental performance indicators

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 use of the results of modules A1 to A3 without considering the results of modules C1 to C4 is discouraged. The results table is derived from the arithmetic mean of the results obtained for each of the products described in this EPD.

Mandatory impact category indicators according to EN 15804 ⁽¹⁾

Results per 1 kg of mortar product								
Indicator	Unit	A1-A3	C1	C2	C3	C4	D	A-C Variation%
GWP-fossil	kg CO ₂ eq.	6.08E-02	0.00E+00	7.01E-03	6.27E-04	5.27E-03	0.00E+00	31%
GWP-biogenic	kg CO ₂ eq.	-6.28E-03	0.00E+00	4.87E-07	6.02E-06	6.86E-03	0.00E+00	4%
GWP-luluc	kg CO ₂ eq.	2.60E-04	0.00E+00	5.46E-08	9.09E-07	8.97E-08	0.00E+00	3%
GWP-total	kg CO ₂ eq.	5.47E-02	0.00E+00	7.01E-03	6.34E-04	1.21E-02	0.00E+00	31%
ODP	kg CFC 11 eq.	1.14E-08	0.00E+00	1.54E-09	1.31E-10	1.17E-09	0.00E+00	33%
AP	mol H ⁺ eq.	4.42E-04	0.00E+00	1.33E-05	4.80E-06	4.01E-05	0.00E+00	45%
EP-freshwater	kg P eq.	1.01E-06	0.00E+00	4.02E-09	3.72E-08	3.93E-09	0.00E+00	23%
EP-marine	kg N eq.	1.63E-04	0.00E+00	2.15E-06	1.52E-06	1.68E-05	0.00E+00	42%
EP-terrestrial	mol N eq.	1.90E-03	0.00E+00	2.55E-05	1.87E-05	1.91E-04	0.00E+00	50%
POCP	kg NMVOC eq.	5.00E-04	0.00E+00	9.01E-06	4.87E-06	5.10E-05	0.00E+00	53%
ADP-minerals&metals*	kg Sb eq.	1.52E-07	0.00E+00	3.82E-10	6.23E-10	1.20E-09	0.00E+00	227%
ADP-fossil*	MJ	1.26E+00	0.00E+00	9.95E-02	2.19E-02	7.59E-02	0.00E+00	22%
WDP*	m ³	2.50E-02	0.00E+00	-2.13E-05	1.34E-04	4.13E-06	0.00E+00	43%
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							

(1) 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.

* 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 1 kg of mortar product								
Indicator	Unit	A1-A3	C1	C2	C3	C4	D	A-C Variation%
GWP-GHG ¹	kg CO ₂ eq.	6.16E-02	0.00E+00	7.01E-03	6.34E-04	5.27E-03	0.00E+00	31%

Resource use indicators

Results per 1 kg of mortar product								
Indicator	Unit	A1-A3	C1	C2	C3	C4	D	A-C Variation%
PERE	MJ	2.92E-01	0.00E+00	1.37E-04	1.13E-02	1.58E-03	0.00E+00	10%
PERM	MJ	4.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	300%
PERT	MJ	3.42E-01	0.00E+00	1.37E-04	1.13E-02	1.58E-03	0.00E+00	51%
PENRE	MJ	1.33E+00	0.00E+00	1.06E-01	2.18E-02	7.83E-02	0.00E+00	21%
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
PENRT	MJ	1.33E+00	0.00E+00	1.06E-01	2.18E-02	7.83E-02	0.00E+00	21%
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
FW	m ³	2.50E-01	0.00E+00	5.80E-04	6.56E-02	7.36E-03	0.00E+00	8%
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 indicators (optional)

Results per 1 kg of mortar product								
Indicator	Unit	A1-A3	C1	C2	C3	C4	D	A-C Variation%
Hazardous waste disposed	kg	1.54E-06	0.00E+00	2.61E-07	1.25E-08	1.93E-07	0.00E+00	39%
Non-hazardous waste disposed	kg	2.09E-02	0.00E+00	4.05E-06	1.26E-05	1.01E+00	0.00E+00	0%
Radioactive waste disposed	kg	8.72E-06	0.00E+00	6.66E-07	2.21E-07	5.20E-07	0.00E+00	19%

Output flow indicators

Results per 1 kg of mortar product								
Indicator	Unit	A1-A3	C1	C2	C3	C4	D	A-C Variation%
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%

Differences versus previous versions

This is the first version of the EPD

References

- General Programme Instructions of the International EPD® System. Version 4.0. 2021-03-28,
- UNE-EN 15804:2012+A2:2020. Sostenibilidad en la construcción. Declaraciones ambientales de producto. Reglas de categoría de productos básicas para productos de construcción. Madrid; 2014.
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- ISO 14025:2011-10 Environmental labels and declarations. Type III environmental declarations. Principles and procedures
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