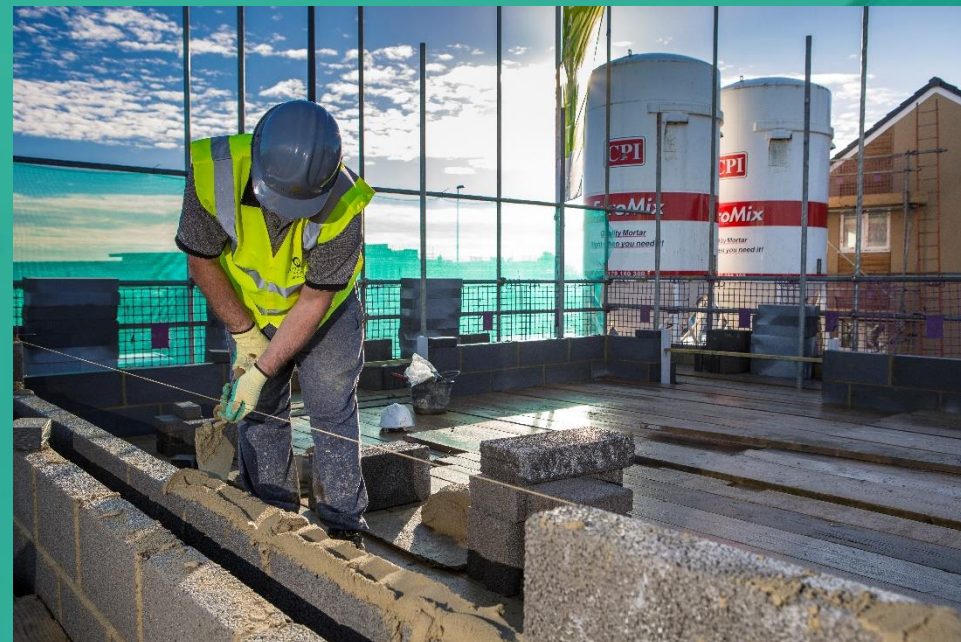


ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

MASONRY MORTARS CPI MORTARS LTD



Programme: The
International EPD[®]
System,
www.environdec.com

Programme operator:
EPD International
AB

EPD registration
number: S-P-
05419

Publication date:
2022-03-11

Valid until:
2027-03-10

Geographical
Scope: UK &
Ireland

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

MANUFACTURER INFORMATION

Manufacturer	CPI Mortars Ltd
Address	Willow House, Strathclyde Business Park, Bellshill, ML4 3PB
Contact details	stewart.mcgregor@cpieuromix.com
Website	www.cpieuromix.com

PRODUCT IDENTIFICATION

Product name	Masonry Mortars
Additional label(s)	-
Product number / reference	-
Place(s) of production	UK
CPC code	3751 - Non-refractory mortars and concretes

The International EPD System

EPDs within the same product category but from different programmes may not be comparable.

EPD INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction products EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD program operator	EPD International AB
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the Int'l EPD System PCR 2019:14 Construction products, version 1.11 (05.02.2021) is used.
EPD author	CPI Mortars Ltd
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
Verification date	10.03.2022
EPD verifier	Bárbara M Civit
EPD number	S-P-05419
ECO Platform nr.	-
Publishing date	2022-03-11
EPD valid until	2027-03-10

PRODUCT INFORMATION

PRODUCT DESCRIPTION

The product is a cement-based mortar containing aggregates and admixtures.

PRODUCT APPLICATION

Cement mortar is used in many different masonry applications like brick walls.

TECHNICAL SPECIFICATIONS

See website for further details on product specifications
<https://www.cpieuromix.com/resources/>

PRODUCT STANDARDS

BSEN 998-2

PHYSICAL PROPERTIES OF THE PRODUCT

<https://www.cpieuromix.com/resources/>

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at www.cpieuromix.com

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer %	Renewable %	Country Region of origin
Portland cement	90-250	-	-	UK
Sand	750-910	-	-	UK
Additives	<10	-	-	UK

SUBSTANCES, REACH - VERY HIGH CONCERN

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

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

The mortar is manufactured by adding the raw materials together and mixing them as a dry blend. The mortar is then transported to a construction site in a silo or in a tanker. The mortar can also be sold in 20Kg, 25Kg and Bulk bags. The bags are delivered by third party or collected from our locations.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation distance is defined according to the PCR. Average distance of transportation from production plant to building site is 49 kilometres with an assumed payload of 23 tonnes. The transportation method is to be lorry. In reality, it may vary but as role of transportation emissions in total results is small compared with the rest of the processes, the variety in load is assumed to be negligible. Transportation does not cause losses as the mortar is contained within the tank or silo. The dry mortar blend is mixed with water at the installation site. The installation is done by hand and thus the energy consumption is deemed negligible, but the silo requires electricity usage to mix the mortar and water is added to the dry mix for workability.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

At the end-of-life, in the demolition phase 100% of the waste is assumed to be collected as mixed construction waste. The demolition process consumes energy in the form of diesel fuel used by building machines. Energy consumption of the demolition process is assumed to be 0.01 kWh/kg (C1). The demolished mortar is delivered to the nearest construction waste treatment plant. It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed that it has the same weight as the declared product.

Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is lorry which is the most common. (C2). At the waste treatment plant, waste that can be reused, recycled or recovered for energy is separated and diverted for further use. It can be assumed that 100% of mortar is transported to a waste treatment plant. A realistic assumption is made about 80% of mortar being recycled. The process losses of the waste treatment plant are assumed to be negligible (C3). The remaining 20% of mortar is sent to landfill (C4). Due to the recycling potential of mortar, they can be used as secondary raw material (Lei, Huang and Huang, 2020), which avoids the use of virgin raw materials. The 80% of mortar going to waste processing is crushed and recycled for use as aggregates after recycling. The recycled material content in the mortar itself is assumed to be 0% (D).

LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2019
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DECLARED AND FUNCTIONAL UNIT

Declared unit	1 Tonne
Mass per declared unit	1000 kg
Functional unit	-
Reference service life	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	0.4956

SYSTEM BOUNDARY

This EPD covers the cradle to gate with options scope with following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), A5 (Assembly) as well as C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.

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	D	D	
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	MND	x	x	
Geography, by two-letter ISO country code or regions. The International EPD System only.																			
UK	UK	UK	UK	UK	-	-	-	-	-	-	-	UK	UK	UK	UK	UK			
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling	

Modules not declared = MND. Modules not relevant = MNR.

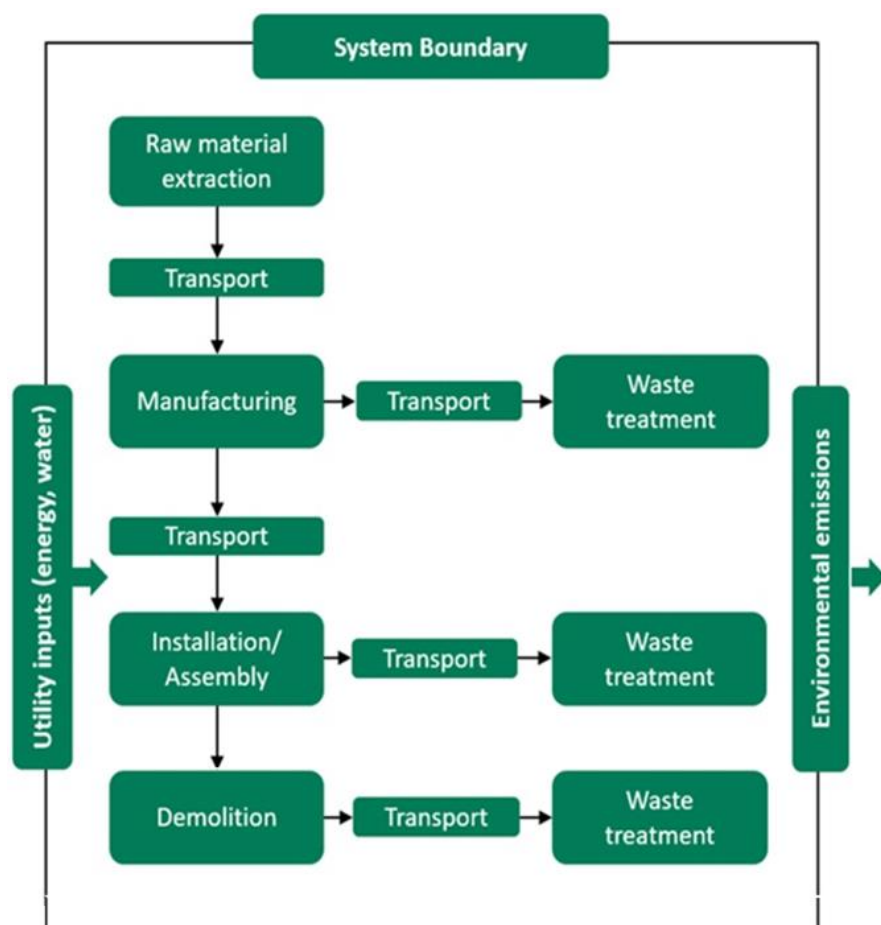


Fig. LCA Flow Diagram

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 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.

For easier modelling and because of lack of accuracy in available modelling resources some constituents under 1% of product mass are excluded. These include some mortar additives and admixtures which are all present in the product only in very small amounts and have no serious impact on the emissions of the product.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order;

1. Allocation should be avoided.

2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.

3. Allocation should be based on economic values.

In this study allocation could not be avoided for ancillary material, energy consumption and waste production as the information was only measured on factory or production process level. The inputs were allocated to studied product based on annual production volume (mass). There was no need to conduct allocation for raw material data as the amounts per declared unit were taken directly from the product recipe. As a deviation from this, production loss was added to the values by including the allocated product related waste into A3 Manufacturing.

The values for 1 Tonne of mortar are calculated by considering the total annual production. In the factory, several kinds of mortars are produced; since the production processes of these products are similar, the annual production percentages are taken into consideration for allocation. As the processes for all products produced at the factory are very similar regardless of the products formulation, ancillary materials, energy consumption and waste streams are assumed to be the same for all types of products. Subsequently, the amounts for the flows were calculated by dividing the total inputs by the total output of the facility.

Allocation used in Ecoinvent 3.6 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 - standard.

AVERAGES AND VARIABILITY

The data from the manufacturing facilities was averaged to produce a generic EPD covering all CPI mortar types.

The 2019 cement and aggregate usage was collated from 9 UK manufacturing facilities. The cement and aggregate contents were arithmetically averaged for this EPD. A weighted average was also calculated from total UK production and found to yield the same result as the arithmetically averaged figures. The total usage for Electricity, Gasoil and LPG for the 9 manufacturing facilities was collated and divided by the total volume produced by all facilities during 2019.

CPI have four mortar strength categories namely M2, M4, M6 and M12. As the mortar strength increases, the cement content increases and consequently, the Kg CO₂e increases. See Annex 2: A1-A3 Global Warming Kg CO₂e for CPI mortar product range.

The International EPD System additional data requirements

Data specificity and GWP-GHG variability for GWP-GHG for A1-A3.

Supply-chain specific data for GWP-GHG	>95 %
Variation in GWP-GHG between products	-31,+44 %
Variation in GWP-GHG between sites	-1,+16 %

ENVIRONMENTAL IMPACT DATA

Note: additional environmental impact data may be presented in annexes.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	1.21E2	5.69E0	2.83E1	1.55E2	4.42E0	2.01E0	MND	MND	MND	MND	MND	MND	MND	3.3E-2	4.55E0	9.92E0	2.13E0	-5.68E0
GWP – fossil	kg CO ₂ e	1.19E2	5.68E0	2.87E1	1.54E2	4.46E0	1.96E0	MND	MND	MND	MND	MND	MND	MND	3.3E-2	4.54E0	9.85E0	2.11E0	-5.3E0
GWP – biogenic	kg CO ₂ e	1.92E0	4.19E-3	-4.38E-1	1.49E0	3.24E-3	4.39E-2	MND	MND	MND	MND	MND	MND	MND	9.17E-6	3.3E-3	6.74E-2	1.7E-2	-3.71E-1
GWP – LULUC	kg CO ₂ e	2.26E-2	1.78E-3	3.75E-3	2.81E-2	1.34E-3	1.36E-3	MND	MND	MND	MND	MND	MND	MND	2.79E-6	1.37E-3	5.81E-3	1.01E-3	-7.01E-3
Ozone depletion pot.	kg CFC ₁₁ e	4.09E-6	1.33E-6	5.04E-6	1.05E-5	1.05E-6	1.05E-7	MND	MND	MND	MND	MND	MND	MND	7.12E-9	1.07E-6	2.25E-6	6.54E-7	-4.84E-7
Acidification potential	mol H ⁺ e	2.98E-1	2.42E-2	9.1E-2	4.13E-1	1.87E-2	3.94E-3	MND	MND	MND	MND	MND	MND	MND	3.45E-4	1.91E-2	8.21E-2	1.8E-2	-3.5E-2
EP-freshwater ²⁾	kg Pe	1.51E-3	4.8E-5	1.8E-4	1.73E-3	3.63E-5	3.41E-5	MND	MND	MND	MND	MND	MND	MND	1.33E-7	3.7E-5	2.38E-4	3.69E-5	-3.47E-4
EP-marine	kg Ne	7.74E-2	7.29E-3	2.45E-2	1.09E-1	5.65E-3	7.87E-4	MND	MND	MND	MND	MND	MND	MND	1.52E-4	5.75E-3	3E-2	6.09E-3	-7.43E-3
EP-terrestrial	mol Ne	9.12E-1	8.05E-2	2.68E-1	1.26E0	6.24E-2	9.21E-3	MND	MND	MND	MND	MND	MND	MND	1.67E-3	6.35E-2	3.31E-1	6.71E-2	-9.83E-2
POCP (“smog”)	kg NMVOCe	2.3E-1	2.59E-2	8.86E-2	3.45E-1	2.01E-2	2.35E-3	MND	MND	MND	MND	MND	MND	MND	4.59E-4	2.04E-2	9.27E-2	1.94E-2	-2.47E-2
ADP-minerals & metals	kg Sbe	6.44E-4	9.79E-5	5.21E-5	7.94E-4	7.62E-5	4.3E-6	MND	MND	MND	MND	MND	MND	MND	5.03E-8	7.75E-5	9.59E-5	2.26E-5	-5.84E-4
ADP-fossil resources	MJ	4.94E2	8.82E1	4.46E2	1.03E3	6.94E1	2.47E1	MND	MND	MND	MND	MND	MND	MND	4.54E-1	7.07E1	1.78E2	4.95E1	-7.6E1
Water use ¹⁾	m ³ e depr.	5.9E1	3.34E-1	6.29E0	6.57E1	2.58E-1	3.54E0	MND	MND	MND	MND	MND	MND	MND	8.46E-4	2.63E-1	3.86E0	2.22E0	-9.45E0

1) GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 2) 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 experienced with the indicator. 3) Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO₄e.

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	MJ	3.17E1	1.14E0	5.4E0	3.82E1	8.74E-1	4.01E0	MND	MND	MND	MND	MND	MND	MND	2.45E-3	8.9E-1	7.27E0	8.17E-1	-9.84E0
Renew. PER as material	MJ	0E0	0E0	4.17E0	4.17E0	0E0	-3.34E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of renew. PER	MJ	3.17E1	1.14E0	9.57E0	4.24E1	8.74E-1	6.71E-1	MND	MND	MND	MND	MND	MND	MND	2.45E-3	8.9E-1	7.27E0	8.17E-1	-9.84E0
Non-re. PER as energy	MJ	4.94E2	8.82E1	4.31E2	1.01E3	6.94E1	2.47E1	MND	MND	MND	MND	MND	MND	MND	4.54E-1	7.07E1	1.78E2	4.95E1	-7.6E1
Non-re. PER as material	MJ	0E0	0E0	1.48E1	1.48E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

Total use of non-re. PER	MJ	4.94E2	8.82E1	4.46E2	1.03E3	6.94E1	2.47E1	MND	MND	MND	MND	MND	MND	MND	MND	4.54E-1	7.07E1	1.78E2	4.95E1	-7.6E1
Secondary materials	kg	1.63E-1	0E0	5.25E-3	1.68E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m³	1.87E0	1.83E-2	8.76E-2	1.97E0	1.45E-2	2.05E-1	MND	MND	MND	MND	MND	MND	MND	MND	4.01E-5	1.47E-2	1.02E-1	5.6E-2	-7.55E-1

6) 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	2.06E0	8.9E-2	4.51E-1	2.6E0	6.75E-2	8.11E-2	MND	MND	MND	MND	MND	MND	MND	4.88E-4	6.87E-2	0E0	8.68E-2	-3.97E-1
Non-hazardous waste	kg	6.57E1	9.42E0	7.1E0	8.22E1	7.46E0	1.55E0	MND	MND	MND	MND	MND	MND	MND	5.22E-3	7.6E0	0E0	2E2	-1.64E1
Radioactive waste	kg	2.48E-3	6.04E-4	2.82E-3	5.9E-3	4.77E-4	1.89E-4	MND	MND	MND	MND	MND	MND	MND	3.18E-6	4.85E-4	0E0	2.98E-4	-3.5E-4

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	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	8E2	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	1.13E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	1.14E1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG	kg CO ₂ e	1.19E2	5.68E0	2.87E1	1.54E2	4.46E0	1.96E0	MND	MND	MND	MND	MND	MND	MND	3.3E-2	4.54E0	9.85E0	2.11E0	-5.3E0

8) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013) This indicator is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, United Kingdom, residual mix (KWh)
Electricity CO ₂ e / kWh	0.55
District heating data source and quality	-
District heating CO ₂ e / kWh	-

Boundaries on CO2 Emissions. Energies 2017, 10, 539.
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Eriksson, O.; Finnveden, G. Energy Recovery from Waste Incineration—The Importance of Technology Data and System



ABOUT THE MANUFACTURER

CPI Mortars Ltd has built an extensive network of dry mix manufacturing facilities in the UK. Our products meet the most demanding requirements for performance and aesthetics. We use the finest raw materials and the latest production technology, operating to the highest quality standards. We offer a complete package of dry mix products and related services, backed up by skilled technical support. We aim to meet the complex demands of specifiers and users, offering solutions for each construction phase. The geographical scope of operation is United Kingdom (UK)

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	CPI Mortars Ltd
EPD author	Stewart McGregor CPI Mortars Ltd
EPD verifier	Bárbara M Civit
EPD program operator	The International EPD System
Background data	This EPD is based on Ecoinvent 3.6 (cut-off) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Cementitious Products

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with EN 15804, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The background report (project report) for this EPD

Why does verification transparency matter? [Read more online.](#)

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Bárbara M Civit
EPD verification started on	2022-02-03
EPD verification completed on	2022-03-10
Supply-chain specific data %	>95
Approver of the EPD verifier	The International EPD System

Author & tool verification	Answer
EPD author	Stewart McGregor CPI Mortars Ltd
EPD author training completion	2021-05-15
EPD Generator module	Cementitious Products
Independent software verifier	Ugo Pretato, Studio Fieschi & soci Sri

Software verification date

2021-05-11

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of

- the data collected and used in the LCA calculations,
- the way the LCA-based calculations have been carried out,
- the presentation of environmental data in the EPD, and
- other additional environmental information, as present

with respect to the procedural and methodological requirements in ISO 14025:2010 and EN 15804:2012+A2:2019.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance. I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification. I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.



VERIFICATION AND REGISTRATION (ENVIRONDEC)

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)	
PCR	PCR 2019:14 Construction products, version 1.11
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 .
Independent third-party verification of the declaration and data, according to ISO 14025:2006:	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
Third party verifier	Bárbara M Civit
	Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up during EPD validity involves third party verifier	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no



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ANNEX 1 : ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

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	1.19E2	5.63E0	2.83E1	1.53E2	4.42E0	1.94E0	MND	MND	MND	MND	MND	MND	MND	3.27E-2	4.5E0	9.72E0	2.07E0	-5.19E0
Ozone depletion Pot.	kg CFC-11e	3.48E-6	1.06E-6	3.99E-6	8.52E-6	8.34E-7	1.2E-7	MND	MND	MND	MND	MND	MND	MND	5.63E-9	8.49E-7	1.83E-6	5.21E-7	-4.41E-7
Acidification	kg SO ₂ e	2.2E-1	1.21E-2	6.71E-2	2.99E-1	9.08E-3	3.26E-3	MND	MND	MND	MND	MND	MND	MND	4.87E-5	9.25E-3	2.29E-1	1.43E-1	-2.16E-2
Eutrophication	kg PO ₄ ³ e	6.72E-2	2.49E-3	1.37E-2	8.34E-2	1.83E-3	1.14E-3	MND	MND	MND	MND	MND	MND	MND	8.57E-6	1.87E-3	1.12E-2	2.92E-3	-1.16E-2
POCP ("smog")	kg C ₂ H ₄ e	8.56E-3	7.8E-4	6.65E-3	1.6E-2	5.76E-4	1.41E-4	MND	MND	MND	MND	MND	MND	MND	5.01E-6	5.86E-4	1.9E-3	5.39E-4	-1.75E-3
ADP-elements	kg Sbe	6.44E-4	9.79E-5	5.21E-5	7.94E-4	7.62E-5	4.3E-6	MND	MND	MND	MND	MND	MND	MND	5.03E-8	7.75E-5	9.59E-5	2.26E-5	-5.84E-4
ADP-fossil	MJ	4.94E2	8.82E1	4.46E2	1.03E3	6.94E1	2.47E1	MND	MND	MND	MND	MND	MND	MND	4.54E-1	7.07E1	1.78E2	4.95E1	-7.6E1

ANNEX 2 : A1-A3 GLOBAL WARMING KG CO₂e FOR CPI MORTAR PRODUCT RANGE

Mortar Class	M2	M4	M6	M12
Kg CO ₂ e	117	143	174	220