

# Environmental Product Declaration

Cemfree Masonry Mortar EPD HUB, HUB-0272

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

Publishing date 10 February 2023, last updated date 10 February, valid until 10 February 2026



# GENERAL INFORMATION

## MANUFACTURER

Manufacturer	Cemfree
Address	Darton, Barnsley, S75 5QQ
Contact details	sales@cemfree.com
Website	cemfree.com

## EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
EN16908	EPD Hub Core PCR version 1.0, 1 Feb 2022
Sector	Construction product
Category of EPD	Project EPD
Scope of the EPD	Cradle to Gate with Modules C1-C4, D
EPD author	Marta Diez Garcia
EPD verification	Independent verification of this EPD and data, according to ISO 14025: Internal certification <input checked="" type="checkbox"/> External verification
EPD verifier	H.H, as an authorized verifier acting for EPD Hub Limited

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	Cemfree Masonry Mortar
Additional labels	-
Product reference	-
Place of production	United Kingdom
Period for data	2022
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3w	Not Relevant

## ENVIRONMENTAL DATA SUMMARY

Declared unit	1 tonne
Declared unit mass	1000 kg
GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)	45.1
GWP-total, A1-A3 (kgCO <sub>2</sub> e)	40.2
Secondary material, inputs (%)	23.7
Secondary material, outputs (%)	0.271
Total energy use, A1-A3 (kWh)	175.0
Total water use, A1-A3 (m <sup>3</sup> e)	2.96

# PRODUCT

## PRODUCT DESCRIPTION

Cemfree Masonry Mortar is 100% Portland cement free, factory-made mortar consisting of patented alkali-activated binder, dried sands and additives. Classified as per BS EN 998-2 as a designed mortar.

## PRODUCT STANDARDS

Cemfree Masonry Mortar conforms to BS EN 998-2

## ADDITIONAL PRODUCT INFORMATION

Cemfree Masonry Mortar performs in a similar way to standard cement-based mortars with the added benefit of significant carbon savings, delivering comparable consistency and curing times and offering excellent workability. For further technical information please refer to our website [here](#).

## PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	-	-
Minerals	100	UK, EU
Fossil materials	-	-
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	2.777

## FUNCTIONAL UNIT AND SERVICE LIFE

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

## SUBSTANCES, REACH - VERY HIGH CONCERN

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

# PRODUCT AND MANUFACTURER

## 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	MND	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishmen	Operational energy use	Operational water use	Deconstr./demol	Transport	Waste process- ing	Disposal	Reuse	Recovery	Recycling

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

## 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.

Cemfree is a blend of GGBS and activator which are brought to the site by tanker as dry powders. The powders are stored in silos, weighed to the required proportions, and blended. 50% of the production will be held in silos as a bulk product, the other 50% is then transported to the packaging line, where craft paper bags of 25kg are filled and stacked on wooden pallets for storage. Eventually, the Cemfree mortar is moved to the site of use. Production waste and loss during are considered negligible.

## TRANSPORT AND INSTALLATION (A4-A5)

A4-A5 was excluded from the scope of the assessment.

## PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

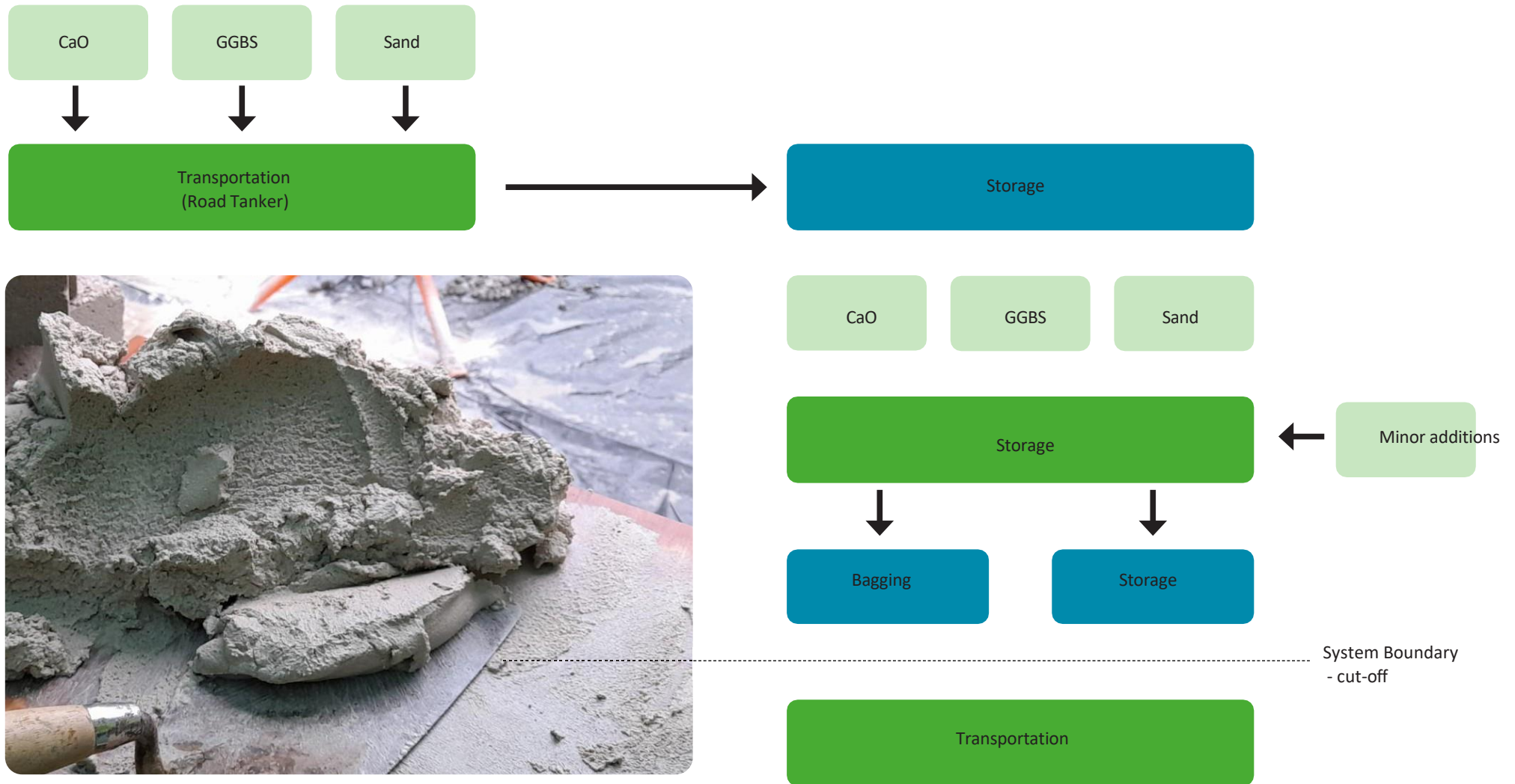
Air, soil, and water impacts during the use phase have not been studied.

## PRODUCT END OF LIFE (C1-C4, D)

The end-of-life phase (modules C1-C4, and D) for cementitious products is excluded as per EN 15804+A2 (chapter 6355). Exclusion criteria for products that become chemically bonded and inseparable with other products. Only the packaging of the materials has been considered in this step.



# MANUFACTURING PROCESS



# 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 materials 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.

## 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 materials	No allocation
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

## AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	Not Relevant

There is no average result considered in this study since this EPD refers to one specific product produced in one production plant.

## LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent and One Click LCA databases were used as sources of environmental data.

# ENVIRONMENTAL IMPACT DATA

## 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 <sup>1)</sup>	kg CO <sub>2</sub> e	3.23E1	9.05E0	-1.05E0	4.03E1	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	5.26E0	0E0	-7.91E0
GWP – fossil	kg CO <sub>2</sub> e	3.21E1	9.04E0	4.02E0	4.52E1	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1.21E-1	0E0	-1.57E0
GWP – biogenic	kg CO <sub>2</sub> e	-1.13E0	1.81E-3	-5.09E0	-6.23E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	5.14E0	0E0	-6.36E0
GWP – LULUC	kg CO <sub>2</sub> e	1.32E0	4.27E-3	2.21E-2	1.35E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	5.74E-5	0E0	1.59E-2
Ozone depletion pot.	kg CFC-11e	3.73E-6	1.93E-6	4.55E-7	6.11E-6	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1.62E-8	0E0	-9.47E-8
Acidification potential	mol H <sup>+</sup> e	1.42E-1	8.64E-2	2.14E-2	2.5E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	6.26E-4	0E0	-1.23E-2
EP-freshwater <sup>2)</sup>	kg Pe	5.41E-4	7.9E-5	4.97E-4	1.12E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	2.86E-6	0E0	-1.32E-4
EP-marine	kg Ne	5.05E-2	2.14E-2	5.01E-3	7.69E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	2.11E-4	0E0	-1.54E-3
EP-terrestrial	mol Ne	4.82E-1	2.38E-1	5.2E-2	7.72E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	2.23E-3	0E0	-1.86E-2
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	1.43E-1	6.66E-2	1.45E-2	2.24E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	7.54E-4	0E0	-4.98E-3
ADP-minerals & metals <sup>4)</sup>	kg Sbe	4.87E-4	2.03E-4	2.95E-5	7.2E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	3.46E-6	0E0	4.01E-5
ADP-fossil resources	MJ	3.34E2	1.29E2	8.54E1	5.49E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1.38E0	0E0	-2.74E1
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	4.21E1	4.64E-1	3.45E0	4.6E1	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1.18E-2	0E0	-8.47E-1

## 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 <sup>6)</sup>	MJ	2.18E1	1.37E0	5.91E1	8.22E1	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	8.03E-2	0E0	-2.1E1
Renew. PER as material	MJ	0E0	0E0	5.41E1	5.41E1	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-5.41E1	0E0	9.47E1
Total use of renew. PER	MJ	2.18E1	1.37E0	1.13E2	1.36E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-5.4E1	0E0	7.37E1
Non-re. PER as energy	MJ	3.34E2	1.29E2	8.54E1	5.49E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1.38E0	0E0	-2.74E1
Non-re. PER as material	MJ	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of non-re. PER	MJ	3.34E2	1.29E2	8.54E1	5.49E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1.38E0	0E0	-2.74E1
Secondary materials	kg	2.37E2	0E0	1.58E-2	2.37E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	1.33E0
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m <sup>3</sup>	2.86E0	2.06E-2	7.27E-2	2.96	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	3.44E-4	0E0	-8.15E-3

## 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	7.97E-1	1.7E-1	2.68E-1	1.23E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	2.39E-2
Non-hazardous waste	kg	2.82E1	8.08E0	6.89E0	4.31E1	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	-4.43E0
Radioactive waste	kg	1.71E-3	8.66E-4	5.95E-4	3.17E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	-1.9E-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	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1.8E0	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	9.12E-1	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

## 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 <sub>2</sub> e	3.31E1	8.96E0	3.97E0	4.6E1	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1.31E-1	0E0	-1.52E0
Ozone depletion Pot.	kg CFC <sub>11</sub> e	3.01E-6	1.53E-6	4.77E-7	5.01E-6	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1.35E-8	0E0	-1.09E-7
Acidification	kg SO <sub>2</sub> e	8.5E-2	6.77E-2	1.72E-2	1.7E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	4.76E-4	0E0	-1.07E-2
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	2.5E-2	9.68E-3	8.01E-3	4.27E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	2.76E-4	0E0	-4.12E-3
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	6.53E-3	2.22E-3	8.95E-4	9.64E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	2.96E-5	0E0	-3.86E-4
ADP-elements	kg Sbe	4.87E-4	2.03E-4	2.95E-5	7.2E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	3.46E-6	0E0	4.01E-5
ADP-fossil	MJ	3.34E2	1.29E2	8.54E1	5.49E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1.38E0	0E0	-2.74E1



# 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 reference standard, 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 digital background data for this EPD

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

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

Mortar Class	M4
kgCO <sub>2</sub> e	40.2

## 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 reference standard.

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.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited  
10.02.2023

