Ibstock
At the heart of building

ENVIRONMENTAL PRODUCT DECLARATION

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

Chesterton Product Group 1 & 3

Ibstock Brick Ltd a trading entity within the Ibstock Plc Group

EPD HUB, HUB-0832
Publishing date 10.11.2023, last updated 05.12.2024, valid until 10.11.2028.

EPD Hub
One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Ibstock Brick Ltd a trading entity within the Ibstock Plc Group
Address	Leicester Road, Ibstock, Leicestershire, LE67 6HS, UK
Contact details	epds@ibstock.co.uk
Website	https://www.ibstock.co.uk/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Jack Topliss
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Lucas Pedro Berman, 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	Chesterton Product Group 1 & 3
Additional labels	See www.ibstock.co.uk/EPD for all products covered by this EPD
Product reference	NA
Place of production	Stoke-On-Trent, United Kingdom
Period for data	2022
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	- %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	1.30E-01
GWP-total, A1-A3 (kgCO2e)	1.27E-01
Secondary material, inputs (%)	0.06
Secondary material, outputs (%)	92.6
Total energy use, A1-A3 (kWh)	0.55
Net fresh water use, A1-A3 (m3)	0

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Ibstock Plc is a leading UK manufacturer of a diverse range of building products and solutions. The Group concentrates on eight core product categories, each backed up by design and technical services capabilities:

Bricks and Masonry, Facade Systems, Roofing, Flooring and Lintels, Staircase and Lift Shafts, Fencing and Landscaping, Retaining Walls and Rail and Infrastructure.

Ibstock is headquartered in the village of Ibstock, Leicestershire, with 36 active manufacturing sites across the UK.

As a leading building products manufacturer, the Group is committed to the highest levels of corporate responsibility. The ESG 2030 Strategy sets out a clear path to address climate change, improve lives and manufacture materials for life, with an ambitious commitment to reduce carbon emissions by 40% by 2030 and become a net zero operation by 2040.

PRODUCT DESCRIPTION

The bricks within this range are a wirecut extruded brick. The dimensions of the products in this range are declared at either 215x102x65mm or 215x102x73mm. The bricks have multiple perforations. All products conform to the standard in BS EN 771-1. These products are made at Ibstock's Chesterton Factory in Staffordshire.

The Life Cycle Assessment for this product has been carried out to represent 1kg of this product. A scaling table will be included in order to convert the results to other formats.

Further information can be found at https://www.ibstock.co.uk/.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	0	-
Minerals	100	UK
Fossil materials	0	-
Bio-based materials	0	-

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	0.000671

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1kg
Mass per declared unit	1 kg
Functional unit	-
Reference service life	150 Years

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

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	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x		
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.

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.

This EPD covers a range of products that are manufactured at Ibstock's Chesterton factory in Staffordshire.

A1: The clay used in this factory is sourced at a nearby quarry.

A2: Once extracted from the quarry, the clay is stockpiled and then transported by road to the factory.

A3: Inside the factory, most processes are powered by electricity or natural gas. The raw clay is milled to a finer consistency before being mixed with water and additives to produce a wet clay mix. The clay mix is fed into an extruder, which creates a vacuum in order to remove any air from the mix. This forms the shape of the bricks that holds through the drying and firing process. The extruder pushes out a column of clay, passing over a die in order to produce perforations within the bricks. The column then has any surface sands or sprays added to it, to produce the required finish for the brick type. A wire then cuts the column into individual bricks. The wet bricks are stacked onto a kiln car and enter a dryer to remove any moisture and produce dry bricks. The dry bricks then enter a kiln to be fired. Following a cooling period, the bricks can be removed from the kiln car and are stacked and packaged using paper and plastic packaging. The bricks are ready to be distributed to customers. Any manufacturing waste material is assumed to travel 50km to be processed.

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.

A4: The bricks are transported from the factories to customers by lorries; assumed to be EURO 5 classification. A weighted average of the journey undertaken by these products to customers and construction sites was calculated to be 93km.

A5: The bricks are generally laid by hand. Any packaging is removed on the construction site. Sorting and treatment of packaging waste has been included in this section. It is assumed that 44.2% of plastic packaging waste will be recycled. It is assumed that 70.6% of paper packaging waste will be recycled. According to UK Government Data. https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste.

It is assumed that 55.8% of plastic packaging waste will be landfilled. It is

assumed that 29.4% of paper packaging waste will be landfilled. According to UK Government Data. https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste

Material wasted during construction was assumed to be 5% based on industry standard data. The relevant modules were uplifted to accommodate this.

PRODUCT USE AND MAINTENANCE (B1-B7)

B1-7: The Use phase has not been included as the modules are not relevant to this product.

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

PRODUCT END OF LIFE (C1-C4, D)

The end of life of this product accounts for the energy consumed to demolish a building and the treatment of the waste products afterwards.

C1: Energy consumption in the demolition process comes in the form of diesel used by machinery. This is taken as 0.01kWh per 1kg of material, according to (O. Bozdag and M. Secer, “Energy Consumption of RC Buildings during Their Life Cycle, Sustainable Construction, Materials and Practices: Challenge of the Industry for the New Millennium, Minho, 12-14 September 2007, pp. 480-487.)

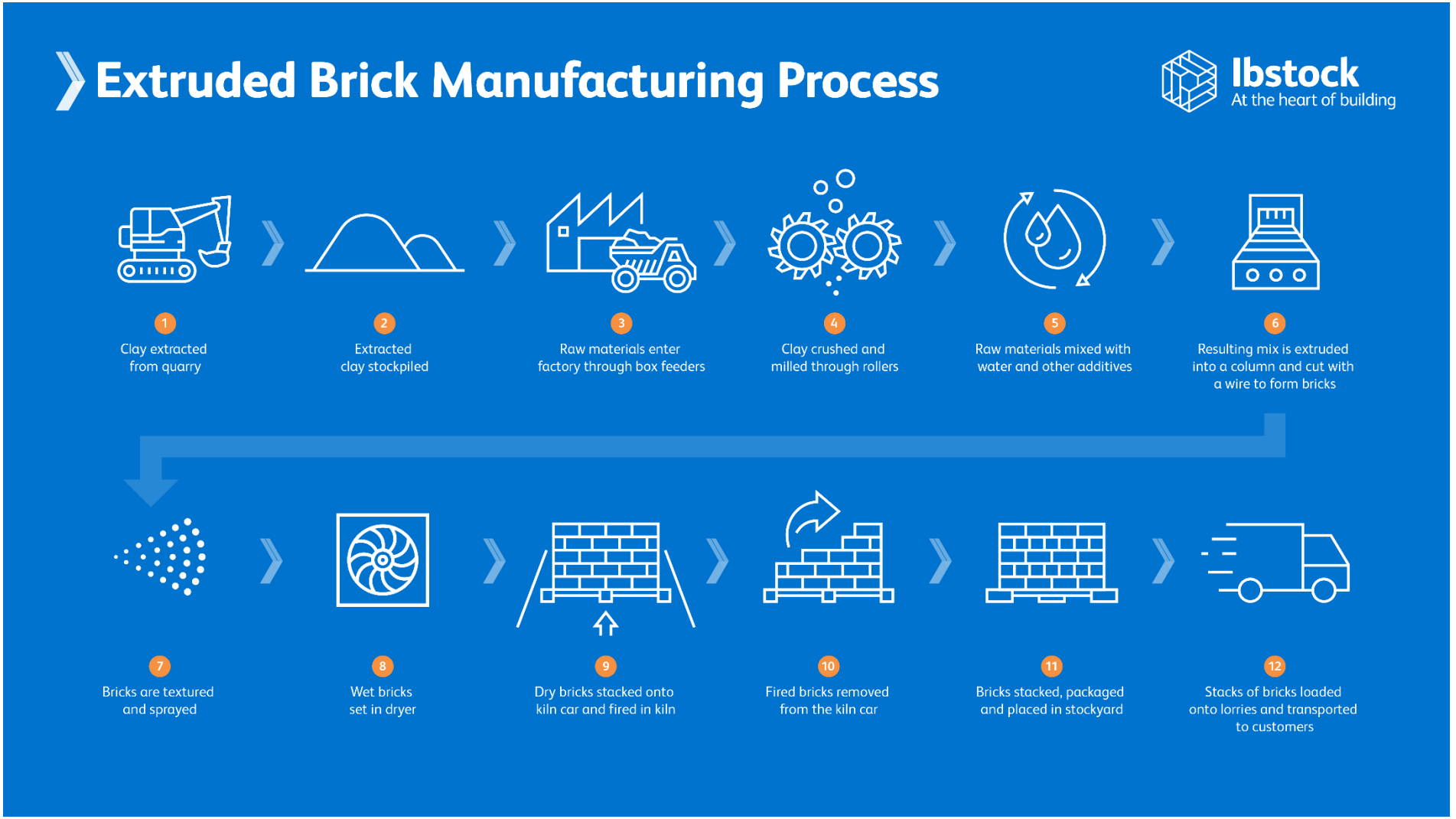
C2: It is assumed that any waste material travels 50km by road to be processed.

C3: It is assumed that 92.6% of brick waste will be recycled. According to UK Government Data. https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste

C4: It is assumed that 7.4% of brick waste will be landfilled. According to UK Government Data. https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste

D: The waste packaging recycled will be re-used to make new packaging products, avoiding the use of virgin raw materials for these products. The waste brick recycled will be re-used to make gravel aggregate on building sites, avoiding the use of virgin raw materials.

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 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.

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	Allocated by mass or volume
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	- %

This EPD is product and factory specific and does not contain average calculations.

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. The EPD Generator uses Ecoinvent v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases 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[1)]	kg CO_2e	1.01E-02	1.05E-03	1.16E-01	1.27E-01	8.75E-03	1.04E-02	MND	MND	MND	MND	MND	MND	MND	3.31E-03	4.69E-03	7.63E-03	3.90E-04	-3.57E-03
GWP – fossil	kg CO_2e	1.01E-02	1.04E-03	1.19E-01	1.30E-01	8.75E-03	7.95E-03	MND	MND	MND	MND	MND	MND	MND	3.31E-03	4.69E-03	7.63E-03	3.90E-04	-3.57E-03
GWP – biogenic	kg CO_2e	0.00E+00	0.00E+00	-2.46E-03	-2.46E-03	0.00E+00	2.46E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP – LULUC	kg CO_2e	1.28E-05	3.85E-07	1.14E-05	2.47E-05	3.23E-06	2.02E-06	MND	MND	MND	MND	MND	MND	MND	3.30E-07	1.73E-06	5.98E-06	3.68E-07	-3.61E-06
Ozone depletion pot.	kg CFC_{-11}e	1.20E-09	2.40E-10	1.87E-08	2.01E-08	2.01E-09	1.30E-09	MND	MND	MND	MND	MND	MND	MND	7.07E-10	1.08E-09	1.56E-09	1.58E-10	-3.51E-10
Acidification potential	mol H^+e	9.88E-05	4.42E-06	1.12E-04	2.16E-04	3.70E-05	1.91E-05	MND	MND	MND	MND	MND	MND	MND	3.44E-05	1.99E-05	6.45E-05	3.66E-06	-2.60E-05
EP-freshwater[2)]	kg Pe	3.40E-07	8.55E-09	3.38E-07	6.87E-07	7.16E-08	5.76E-08	MND	MND	MND	MND	MND	MND	MND	1.10E-08	3.84E-08	2.00E-07	4.08E-09	-9.94E-08
EP-marine	kg Ne	2.54E-05	1.31E-06	3.15E-05	5.83E-05	1.10E-05	6.81E-06	MND	MND	MND	MND	MND	MND	MND	1.52E-05	5.90E-06	2.40E-05	1.27E-06	-7.71E-06
EP-terrestrial	mol Ne	3.26E-04	1.45E-05	4.24E-04	7.64E-04	1.21E-04	6.94E-05	MND	MND	MND	MND	MND	MND	MND	1.67E-04	6.51E-05	2.64E-04	1.39E-05	-8.97E-05
POCP ("smog")[3)]	kg NMVOCe	8.30E-05	4.64E-06	1.15E-04	2.03E-04	3.88E-05	1.95E-05	MND	MND	MND	MND	MND	MND	MND	4.59E-05	2.08E-05	7.36E-05	4.06E-06	-2.49E-05
ADP-minerals & metals[4)]	kg Sbe	5.83E-07	2.45E-09	6.34E-08	6.48E-07	2.05E-08	3.68E-08	MND	MND	MND	MND	MND	MND	MND	1.68E-09	1.10E-08	2.53E-08	8.95E-10	-3.04E-08
ADP-fossil resources	MJ	1.17E-01	1.57E-02	8.98E-02	2.22E-01	1.31E-01	3.30E-02	MND	MND	MND	MND	MND	MND	MND	4.45E-02	7.05E-02	1.31E-01	1.07E-02	-4.16E-02
Water use[5)]	m^3e depr.	2.88E-03	7.02E-05	4.50E-03	7.44E-03	5.88E-04	5.31E-04	MND	MND	MND	MND	MND	MND	MND	1.20E-04	3.15E-04	1.25E-03	3.39E-05	-5.21E-04

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, PEF

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	1.74E-09	1.20E-10	5.93E-10	2.46E-09	1.01E-09	8.32E-10	MND	MND	MND	MND	MND	MND	MND	9.22E-10	5.41E-10	8.27E-09	7.38E-11	-4.91E-10
Ionizing radiation[6)]	kBq U235e	5.56E-04	7.47E-05	1.35E-03	1.98E-03	6.26E-04	2.56E-04	MND	MND	MND	MND	MND	MND	MND	2.05E-04	3.36E-04	1.29E-03	4.83E-05	-2.07E-04
Ecotoxicity (freshwater)	CTUe	3.77E-01	1.41E-02	1.88E-01	5.79E-01	1.18E-01	5.17E-02	MND	MND	MND	MND	MND	MND	MND	2.68E-02	6.34E-02	9.26E-02	6.97E-03	-7.23E-02
Human toxicity, cancer	CTUh	3.39E-11	3.47E-13	1.42E-11	4.84E-11	2.90E-12	3.10E-12	MND	MND	MND	MND	MND	MND	MND	1.03E-12	1.56E-12	4.07E-12	1.74E-13	-2.87E-12
Human tox. non-cancer	CTUh	4.63E-10	1.40E-11	1.67E-10	6.44E-10	1.17E-10	5.06E-11	MND	MND	MND	MND	MND	MND	MND	1.94E-11	6.27E-11	7.79E-11	4.56E-12	-6.55E-11
SQP[7)]	-	1.17E-01	1.81E-02	3.87E-01	5.22E-01	1.51E-01	5.03E-02	MND	MND	MND	MND	MND	MND	MND	5.79E-03	8.12E-02	1.35E-01	2.29E-02	-6.00E-02

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	7.96E-03	1.77E-04	2.14E-01	2.23E-01	1.48E-03	1.18E-02	MND	MND	MND	MND	MND	MND	MND	2.54E-04	7.94E-04	7.21E-03	9.28E-05	-2.12E-03
Renew. PER as material	MJ	0.00E+00	0.00E+00	2.30E-02	2.30E-02	0.00E+00	-2.30E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renew. PER	MJ	7.96E-03	1.77E-04	2.37E-01	2.46E-01	1.48E-03	-1.12E-02	MND	MND	MND	MND	MND	MND	MND	2.54E-04	7.94E-04	7.21E-03	9.28E-05	-2.12E-03
Non-re. PER as energy	MJ	1.17E-01	1.57E-02	1.62E+00	1.76E+00	1.31E-01	1.10E-01	MND	MND	MND	MND	MND	MND	MND	4.45E-02	7.05E-02	1.31E-01	1.07E-02	-4.16E-02
Non-re. PER as material	MJ	0.00E+00	0.00E+00	1.50E-02	1.50E-02	0.00E+00	-1.50E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-re. PER	MJ	1.17E-01	1.57E-02	1.64E+00	1.77E+00	1.31E-01	9.47E-02	MND	MND	MND	MND	MND	MND	MND	4.45E-02	7.05E-02	1.31E-01	1.07E-02	-4.16E-02
Secondary materials	kg	6.02E-04	4.36E-06	1.44E-04	7.50E-04	3.65E-05	4.57E-05	MND	MND	MND	MND	MND	MND	MND	1.74E-05	1.96E-05	4.74E-05	2.25E-06	-4.58E-05
Renew. secondary fuels	MJ	2.33E-06	4.40E-08	3.56E-06	5.94E-06	3.68E-07	3.91E-07	MND	MND	MND	MND	MND	MND	MND	5.70E-08	1.97E-07	6.88E-07	5.87E-08	-2.53E-07
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m^3	1.41E-04	2.03E-06	1.20E-04	2.63E-04	1.70E-05	2.06E-05	MND	MND	MND	MND	MND	MND	MND	2.70E-06	9.13E-06	7.31E-05	1.17E-05	-1.30E-03

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	1.58E-03	2.08E-05	7.81E-04	2.38E-03	1.74E-04	1.62E-04	MND	MND	MND	MND	MND	MND	MND	5.96E-05	9.34E-05	2.85E-04	0.00E+00	-2.74E-04
Non-hazardous waste	kg	1.47E-02	3.42E-04	7.67E-02	9.18E-02	2.86E-03	1.79E-02	MND	MND	MND	MND	MND	MND	MND	4.19E-04	1.54E-03	1.70E-01	7.40E-02	-4.19E-03
Radioactive waste	kg	5.40E-07	1.05E-07	1.16E-06	1.81E-06	8.79E-07	2.36E-07	MND	MND	MND	MND	MND	MND	MND	3.13E-07	4.71E-07	8.85E-07	0.00E+00	-1.66E-07

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	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	9.26E-01	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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_2e	9.89E-03	1.03E-03	1.19E-01	1.30E-01	8.66E-03	8.42E-03	MND	MND	MND	MND	MND	MND	MND	3.27E-03	4.64E-03	7.53E-03	3.82E-04	-3.47E-03
Ozone depletion Pot.	kg CFC_{-11}e	9.93E-10	1.90E-10	1.56E-08	1.68E-08	1.59E-09	1.07E-09	MND	MND	MND	MND	MND	MND	MND	5.60E-10	8.55E-10	1.24E-09	1.25E-10	-2.84E-10
Acidification	kg SO_2e	7.43E-05	3.44E-06	8.82E-05	1.66E-04	2.88E-05	1.46E-05	MND	MND	MND	MND	MND	MND	MND	2.45E-05	1.54E-05	4.79E-05	2.77E-06	-1.98E-05
Eutrophication	kg PO_4^3e	2.32E-05	7.83E-07	2.49E-05	4.89E-05	6.55E-06	1.02E-05	MND	MND	MND	MND	MND	MND	MND	5.69E-06	3.52E-06	1.59E-05	5.97E-07	-5.82E-06
POCP (“smog”)	kg C_2H_4e	3.49E-06	1.34E-07	7.05E-06	1.07E-05	1.12E-06	8.72E-07	MND	MND	MND	MND	MND	MND	MND	5.36E-07	6.03E-07	1.46E-06	1.16E-07	-1.27E-06
ADP-elements	kg Sbe	5.80E-07	2.37E-09	9.32E-08	6.76E-07	1.99E-08	3.81E-08	MND	MND	MND	MND	MND	MND	MND	1.65E-09	1.07E-08	2.49E-08	8.82E-10	-3.02E-08
ADP-fossil	MJ	1.17E-01	1.57E-02	1.65E+00	1.78E+00	1.31E-01	1.11E-01	MND	MND	MND	MND	MND	MND	MND	4.45E-02	7.05E-02	1.31E-01	1.07E-02	-4.16E-02

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.

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.

Lucas Pedro Berman, as an authorized verifier acting for EPD Hub Limited
05.12.2024

APPENDIX 1

CONVERSION TABLE (215X102X65MM BRICK)

The figures in the Environmental Impact Data are given per kg of brick produced. A conversion table has been provided below to scale any Environmental Impact Data figures into different metrics. Multiplication factors are based on a brick weight of 2.15kg; and 1m² of bricks in a half brick thickness wall using stretcher bonds containing 60 bricks.

Metric	Multiplication Factor
Per tonne	*1000
Per 1000 bricks	*2150
Per m²	*129

The A1-A3 Global Warming Potential – Fossil has been scaled accordingly in the table below.

Metric	GWP Fossil – A1-A3
kgCO2/tonne	130
kgCO2/1000 bricks	279.5
kgCO2/m²	16.8

The Total Global Warming Potential – Fossil has been scaled accordingly in the table below.

Metric	GWP Fossil - Total
kgCO2/tonne	163
kgCO2/1000 bricks	350.5
kgCO2/m²	21.0

CONVERSION TABLE (215X102X73MM BRICK)

The figures in the Environmental Impact Data are given per kg of brick produced. A conversion table has been provided below to scale any Environmental Impact Data figures into different metrics. Multiplication factors are based on a brick weight of 2.5kg; and 1m² of bricks in a half brick thickness wall using stretcher bonds containing 51 bricks.

Metric	Multiplication Factor
Per tonne	*1000
Per 1000 bricks	*2500
Per m²	*127.5

The A1-A3 Global Warming Potential – Fossil has been scaled accordingly in the table below.

Metric	GWP Fossil – A1-A3
kgCO2/tonne	130
kgCO2/1000 bricks	325.0
kgCO2/m²	16.6

The Total Global Warming Potential – Fossil has been scaled accordingly in the table below.

Metric	GWP Fossil - Total
kgCO2/tonne	163
kgCO2/1000 bricks	407.5
kgCO2/m²	20.8