

# ENVIRONMENTAL PRODUCT DECLARATION

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

## Eclipse Product Group 3

Ibstock Brick Ltd a trading entity within the Ibstock Plc Group

EPD HUB, HUB-1122

Publishing date 16 February 2024.

Last updated on 5 December 2024.

Valid until 16 February 2029

## 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    | Sister EPD to HUB - 1066   |
| Parent EPD number  | 1066   |
| 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:<br><input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification |
| EPD verifier       | Magaly González Vázquez, 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                      | Eclipse Product Group 3   |
| Additional labels                 | See <a href="http://www.ibstock.co.uk/EPD">www.ibstock.co.uk/EPD</a> for all products covered by this EPD |
| Product reference                 | NA  |
| Place of production               | Ibstock, Leicestershire, United Kingdom   |
| Period for data                   | 01.01.2022 - 31.12.2022   |
| 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 (kgCO <sub>2</sub> e)      | 2.17E-01 |
| GWP-total, A1-A3 (kgCO <sub>2</sub> e)       | 2.16E-01 |
| Secondary material, inputs (%)               | 0.06     |
| Secondary material, outputs (%)              | 92.6     |
| Total energy use, A1-A3 (kWh)                | 0.67     |
| Net fresh water use, A1-A3 (m <sup>3</sup> ) | 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 sandfaced red stock brick. The dimensions of the products in this range are declared at 215x102x65mm. The bricks have a single frog. All products conform to the standard in BS EN 771-1. These Products are made at Ibstock's Eclipse Factory in Ibstock, Leicestershire.

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 | 0.000299 |

### 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 Eclipse factory in Leicestershire.

A1: The clay used in this factory is sourced at an onsite quarry.

A2: Once extracted from the quarry, the clay is stockpiled, then fed into box feeders and transported across a road and car park via a conveyor belt and into 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 then thrown into moulds. The moulds are lined with a layer of sand to aid in demoulding. The moulds are shaped in order to produce an indentation on the top surface of a brick called a 'frog'.

After the wet bricks have been removed from the moulds, they are loaded into a dryer, in order to remove any water and produce dry bricks. The dry bricks are stacked onto a kiln car and 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 136km.

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>.

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 waste material travels 50km to be processed, as a standard UK industry assumption.

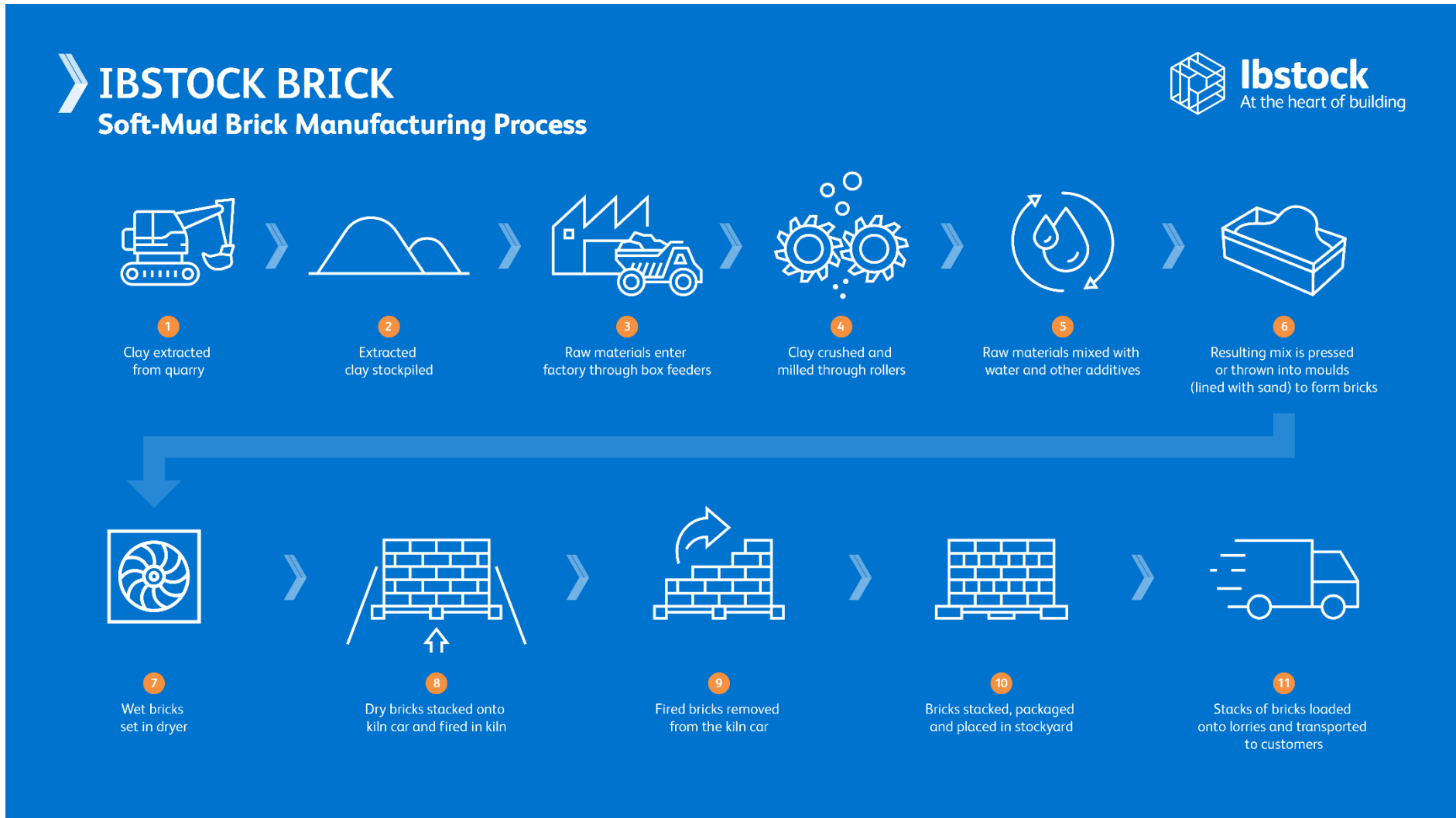
C3: It is assumed that 92.6% of brick waste will be recycled. According to UK Government Data. <https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste>

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>

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 <sup>1)</sup>           | kg CO <sub>2</sub> e   | 1.13E-02 | 1.67E-03 | 2.03E-01  | 2.16E-01  | 1.28E-02 | 1.39E-02 | MND | MND | MND | MND | MND | MND | MND | 3.31E-03 | 4.69E-03 | 7.63E-03 | 3.90E-04 | -3.76E-03 |
| GWP – fossil                        | kg CO <sub>2</sub> e   | 1.13E-02 | 1.67E-03 | 2.04E-01  | 2.17E-01  | 1.28E-02 | 1.28E-02 | MND | MND | MND | MND | MND | MND | MND | 3.31E-03 | 4.69E-03 | 7.63E-03 | 3.90E-04 | -3.75E-03 |
| GWP – biogenic                      | kg CO <sub>2</sub> e   | 0.00E+00 | 0.00E+00 | -1.10E-03 | -1.10E-03 | 0.00E+00 | 1.10E-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 <sub>2</sub> e   | 1.42E-05 | 6.15E-07 | 1.41E-05  | 2.90E-05  | 4.72E-06 | 2.47E-06 | MND | MND | MND | MND | MND | MND | MND | 3.30E-07 | 1.73E-06 | 5.98E-06 | 3.68E-07 | -3.64E-06 |
| Ozone depletion pot.                | kg CFC <sub>11</sub> e | 1.33E-09 | 3.84E-10 | 2.28E-08  | 2.46E-08  | 2.94E-09 | 1.62E-09 | MND | MND | MND | MND | MND | MND | MND | 7.07E-10 | 1.08E-09 | 1.56E-09 | 1.58E-10 | -4.14E-10 |
| Acidification potential             | mol H <sup>+</sup> e   | 1.09E-04 | 7.06E-06 | 1.56E-04  | 2.72E-04  | 5.41E-05 | 2.44E-05 | MND | MND | MND | MND | MND | MND | MND | 3.44E-05 | 1.99E-05 | 6.45E-05 | 3.66E-06 | -2.66E-05 |
| EP-freshwater <sup>2)</sup>         | kg Pe                  | 3.79E-07 | 1.37E-08 | 4.14E-07  | 8.07E-07  | 1.05E-07 | 6.95E-08 | MND | MND | MND | MND | MND | MND | MND | 1.10E-08 | 3.84E-08 | 2.00E-07 | 4.08E-09 | -1.06E-07 |
| EP-marine                           | kg Ne                  | 2.82E-05 | 2.10E-06 | 4.24E-05  | 7.27E-05  | 1.61E-05 | 7.77E-06 | MND | MND | MND | MND | MND | MND | MND | 1.52E-05 | 5.90E-06 | 2.40E-05 | 1.27E-06 | -7.91E-06 |
| EP-terrestrial                      | mol Ne                 | 3.59E-04 | 2.32E-05 | 5.61E-04  | 9.43E-04  | 1.77E-04 | 8.73E-05 | MND | MND | MND | MND | MND | MND | MND | 1.67E-04 | 6.51E-05 | 2.64E-04 | 1.39E-05 | -9.14E-05 |
| POCP (“smog”) <sup>3)</sup>         | kg NMVOCe              | 9.18E-05 | 7.41E-06 | 1.56E-04  | 2.55E-04  | 5.68E-05 | 2.47E-05 | MND | MND | MND | MND | MND | MND | MND | 4.59E-05 | 2.08E-05 | 7.36E-05 | 4.06E-06 | -2.56E-05 |
| ADP-minerals & metals <sup>4)</sup> | kg Sbe                 | 6.21E-07 | 3.91E-09 | 1.40E-07  | 7.65E-07  | 3.00E-08 | 4.38E-08 | MND | MND | MND | MND | MND | MND | MND | 1.68E-09 | 1.10E-08 | 2.53E-08 | 8.95E-10 | -3.03E-08 |
| ADP-fossil resources                | MJ                     | 1.31E-01 | 2.51E-02 | 2.09E-01  | 3.65E-01  | 1.92E-01 | 4.69E-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 <sup>5)</sup>             | m <sup>3</sup> e depr. | 7.64E+00 | 1.12E-04 | 6.84E-03  | 7.64E+00  | 8.59E-04 | 3.82E-01 | MND | MND | MND | MND | MND | MND | MND | 1.20E-04 | 3.15E-04 | 1.25E-03 | 3.39E-05 | -6.92E-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 PO<sub>4</sub>e; 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 | 1.92E-09 | 1.92E-10 | 1.10E-09 | 3.22E-09 | 1.47E-09 | 1.06E-09 | MND | MND | MND | MND | MND | MND | MND | 9.22E-10 | 5.41E-10 | 8.27E-09 | 7.38E-11 | -4.99E-10 |
| Ionizing radiation <sup>6)</sup> | kBq U235e | 6.37E-04 | 1.19E-04 | 1.92E-03 | 2.68E-03 | 9.14E-04 | 3.35E-04 | MND | MND | MND | MND | MND | MND | MND | 2.05E-04 | 3.36E-04 | 1.29E-03 | 4.83E-05 | -2.10E-04 |
| Ecotoxicity (freshwater)         | CTUe      | 4.10E-01 | 2.25E-02 | 3.07E-01 | 7.39E-01 | 1.73E-01 | 6.30E-02 | MND | MND | MND | MND | MND | MND | MND | 2.68E-02 | 6.34E-02 | 9.26E-02 | 6.97E-03 | -7.43E-02 |
| Human toxicity, cancer           | CTUh      | 3.62E-11 | 5.54E-13 | 1.81E-11 | 5.49E-11 | 4.24E-12 | 3.61E-12 | MND | MND | MND | MND | MND | MND | MND | 1.03E-12 | 1.56E-12 | 4.07E-12 | 1.74E-13 | -2.88E-12 |
| Human tox. non-cancer            | CTUh      | 5.00E-10 | 2.23E-11 | 2.69E-10 | 7.91E-10 | 1.71E-10 | 6.27E-11 | MND | MND | MND | MND | MND | MND | MND | 1.94E-11 | 6.27E-11 | 7.79E-11 | 4.56E-12 | -6.61E-11 |
| SQP <sup>7)</sup>                | -         | 1.33E-01 | 2.89E-02 | 4.90E-01 | 6.52E-01 | 2.21E-01 | 6.44E-02 | MND | MND | MND | MND | MND | MND | MND | 5.79E-03 | 8.12E-02 | 1.35E-01 | 2.29E-02 | -6.12E-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 <sup>8)</sup> | MJ             | 8.91E-03 | 2.82E-04 | 2.46E-01 | 2.56E-01 | 2.16E-03 | 1.37E-02  | MND | MND | MND | MND | MND | MND | MND | 2.54E-04 | 7.94E-04 | 7.21E-03 | 9.28E-05 | -2.46E-03 |
| Renew. PER as material             | MJ             | 0.00E+00 | 0.00E+00 | 1.03E-02 | 1.03E-02 | 0.00E+00 | -1.03E-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             | 8.91E-03 | 2.82E-04 | 2.57E-01 | 2.66E-01 | 2.16E-03 | 3.40E-03  | MND | MND | MND | MND | MND | MND | MND | 2.54E-04 | 7.94E-04 | 7.21E-03 | 9.28E-05 | -2.46E-03 |
| Non-re. PER as energy              | MJ             | 1.31E-01 | 2.51E-02 | 1.98E+00 | 2.14E+00 | 1.92E-01 | 1.36E-01  | MND | MND | MND | MND | MND | MND | MND | 4.45E-02 | 7.05E-02 | 1.31E-01 | 1.07E-02 | -4.42E-02 |
| Non-re. PER as material            | MJ             | 0.00E+00 | 0.00E+00 | 3.34E-02 | 3.34E-02 | 0.00E+00 | -3.34E-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             | 1.31E-01 | 2.51E-02 | 2.02E+00 | 2.17E+00 | 1.92E-01 | 1.02E-01  | MND | MND | MND | MND | MND | MND | MND | 4.45E-02 | 7.05E-02 | 1.31E-01 | 1.07E-02 | -4.42E-02 |
| Secondary materials                | kg             | 6.43E-04 | 6.96E-06 | 1.95E-04 | 8.45E-04 | 5.33E-05 | 5.29E-05  | MND | MND | MND | MND | MND | MND | MND | 1.74E-05 | 1.96E-05 | 4.74E-05 | 2.25E-06 | 7.18E-05  |
| Renew. secondary fuels             | MJ             | 2.51E-06 | 7.02E-08 | 2.85E-06 | 5.43E-06 | 5.38E-07 | 3.96E-07  | MND | MND | MND | MND | MND | MND | MND | 5.70E-08 | 1.97E-07 | 6.88E-07 | 5.87E-08 | -2.59E-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 <sup>3</sup> | 2.77E-04 | 3.25E-06 | 2.10E-04 | 4.90E-04 | 2.49E-05 | 3.39E-05  | MND | MND | MND | MND | MND | MND | MND | 2.70E-06 | 9.13E-06 | 7.31E-05 | 1.17E-05 | -4.36E-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   | 1.71E-03 | 3.32E-05 | 1.02E-03 | 2.77E-03 | 2.55E-04 | 1.92E-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   | 1.63E-02 | 5.46E-04 | 3.05E-01 | 3.22E-01 | 4.18E-03 | 3.31E-02 | MND | MND | MND | MND | MND | MND | MND | 4.19E-04 | 1.54E-03 | 1.70E-01 | 7.40E-02 | -4.16E-03 |
| Radioactive waste   | kg   | 6.02E-07 | 1.68E-07 | 1.62E-06 | 2.39E-06 | 1.28E-06 | 3.11E-07 | MND | MND | MND | MND | MND | MND | MND | 3.13E-07 | 4.71E-07 | 8.85E-07 | 0.00E+00 | -1.65E-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 | 9.57E-04 | 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 <sub>2</sub> e               | 1.10E-02 | 1.65E-03 | 2.04E-01 | 2.16E-01 | 1.27E-02 | 1.29E-02 | MND | MND | MND | MND | MND | MND | MND | 3.27E-03 | 4.64E-03 | 7.53E-03 | 3.82E-04 | -3.64E-03 |
| Ozone depletion Pot. | kg CFC <sub>-11</sub> e            | 1.10E-09 | 3.04E-10 | 1.91E-08 | 2.05E-08 | 2.33E-09 | 1.34E-09 | MND | MND | MND | MND | MND | MND | MND | 5.60E-10 | 8.55E-10 | 1.24E-09 | 1.25E-10 | -2.89E-10 |
| Acidification        | kg SO <sub>2</sub> e               | 8.19E-05 | 5.49E-06 | 1.23E-04 | 2.11E-04 | 4.21E-05 | 1.87E-05 | MND | MND | MND | MND | MND | MND | MND | 2.45E-05 | 1.54E-05 | 4.79E-05 | 2.77E-06 | -2.03E-05 |
| Eutrophication       | kg PO <sub>4</sub> <sup>3</sup> e  | 2.56E-05 | 1.25E-06 | 2.99E-05 | 5.67E-05 | 9.58E-06 | 1.03E-05 | MND | MND | MND | MND | MND | MND | MND | 5.69E-06 | 3.52E-06 | 1.59E-05 | 5.97E-07 | -5.96E-06 |
| POCP ("smog")        | kg C <sub>2</sub> H <sub>4</sub> e | 3.89E-06 | 2.14E-07 | 9.17E-06 | 1.33E-05 | 1.64E-06 | 1.01E-06 | MND | MND | MND | MND | MND | MND | MND | 5.36E-07 | 6.03E-07 | 1.46E-06 | 1.16E-07 | -1.31E-06 |
| ADP-elements         | kg Sbe                             | 6.19E-07 | 3.79E-09 | 1.75E-07 | 7.98E-07 | 2.90E-08 | 4.53E-08 | MND | MND | MND | MND | MND | MND | MND | 1.65E-09 | 1.07E-08 | 2.49E-08 | 8.82E-10 | -3.01E-08 |
| ADP-fossil           | MJ                                 | 1.31E-01 | 2.51E-02 | 2.04E+00 | 2.20E+00 | 1.92E-01 | 1.39E-01 | MND | MND | MND | MND | MND | MND | MND | 4.45E-02 | 7.05E-02 | 1.31E-01 | 1.07E-02 | -4.94E-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.

Magaly González Vázquez, 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 1.99kg; and 1m<sup>2</sup> of bricks in a half brick thickness wall using stretcher bonds containing 60 bricks.

| Metric             | Multiplication Factor |
|--------------------|-----------------------|
| Per tonne          | *1000                 |
| Per 1000 bricks    | *1990                 |
| Per m <sup>2</sup> | *119.4                |

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

| Metric                            | GWP Fossil – A1-A3 |
|-----------------------------------|--------------------|
| kgCO <sub>2</sub> /tonne          | 217                |
| kgCO <sub>2</sub> /1000 bricks    | 431.8              |
| kgCO <sub>2</sub> /m <sup>2</sup> | 25.9               |

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

| Metric                            | GWP Fossil - Total |
|-----------------------------------|--------------------|
| kgCO <sub>2</sub> /tonne          | 258                |
| kgCO <sub>2</sub> /1000 bricks    | 513.4              |
| kgCO <sub>2</sub> /m <sup>2</sup> | 30.8               |