Environmental Product Declaration ISO: 5211

Type:	III Environmental Declaration (EPD)
Product name:	Asbestos-free calcium silicate
Initial Issue Date:	December 22, 2022
Validity period:	December 22, 2022 - December 21, 2027
Certificate number:	EPD-BC-2022-301
Declared Unit:	Manufacturing 1 cubic meter of non-asbestos calcium silicate boards

Types of Environmental Impact Characterisation:

No.	Environmental Impact	Value	Unit
1	Global warming	5.90E+02	kg CO_2 eq.
2	Fossil resource scarcity	1.26E+02	kg oil eq.
3	Fine particulate matter formation	7.98E-01	kg PM2.5 eq.
4	Human toxicity	2.97E+03	kg 1,4-DBC eq.
5	Terrestrial acidification	2.73E+00	kg SO_2 eq.
6	Mineral resource scarcity	7.54E+00	kg Cu eq.

1. General Information

Through our group companies RCM and SPSEnvirowall, we offer one of the widest ranges of façade products and systems to the UK building sector. Our portfolio includes market-leading renders, sheathing boards and fixings to complete through- wall solutions.

As a leading UK façades supplier, Benx is continuously evolving its portfolio of products and systems in line with changing legislation, new material technologies and increasingly sophisticated building designs. Furthermore, because we have developed a complete range of products and support services, we can offer you a comprehensive range from sheathing boards, through support structures to façade finishes. A single-source “Golden Thread” for the life of the building. Our aim is to offer you more choices while reducing your risk in choosing and designing building façades. We believe our approach is the future of façades.

2. Product

2.1 Product Description

The declared product: Y-Wall
This autoclaved composite material is made from cellulose fibre cement, quartz, cellulose, lime, Mica & other fillers. They are 100% without asbestos or other harmful fibre.

The design and manufacturing of the product are controlled in accordance with JCT564.1 and the highest grade of standard as ISO-1182 and national GB 8624. The product’s Declaration of Performance taking into consideration EN 12467:2012 Fibre cement board flat sheets -product specification and test methods/ and the UKCA marking.

2.2 Application

For the application and use, the respective national provision apply.
RCM supplies calcium silicate board which is extensively used in residential, commercial, and industrial buildings, such as :

- Fire-rated sheathing board
- OEM applications for improved strength and density
- Recommended for buildings above 18m
- Ideal for Offsite Construction Regimes

2.3 Technical Data

The technical date given by the Declaration of Performance according to EN 12467 applies.

- Mechanical resistance — Class 3
- Reaction to fire Class: — A1 - BS EN 13501-1
- Water permeability: — Pass
- Durability against warm water: — Pass
- Durability against soak/dry: — Pass
- Durability against freeze/thaw: — Pass
- Durability against heat/rain: — Pass

Product specification

- Y-Wall thickness: 6mm, 9mm, 12mm, 15mm
- Thermal conductivity (W/mK): ≤0.30
- Density (g/cm^3): ≤1.20

2.4 Delivery status

RCM supplier's a range of thicknesses from 6mm to 15mm. The board can be up to 1200mm x 2800mm and 1220mm x 2440mm options.

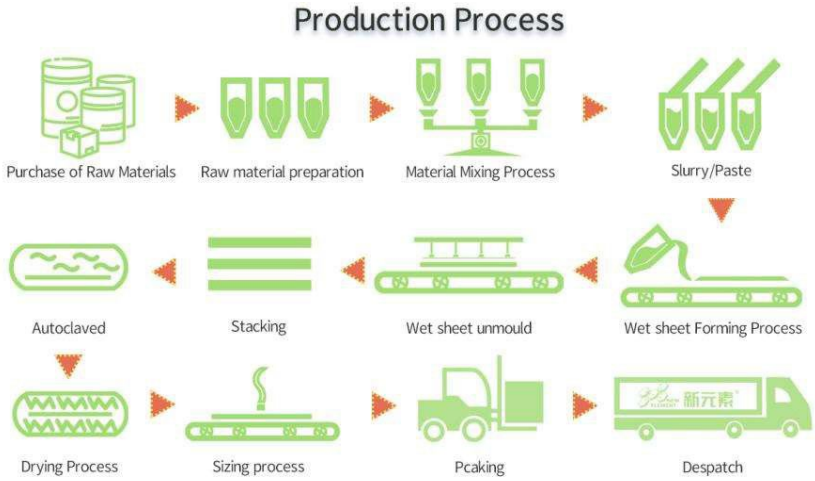
2.5 Base material

The raw material for RCM fibre cement board /calcium silicate board are:

- Portland Cement: 35%
- Lime: 20%
- Quartz: 35%
- Cellulose: 9%
- Mica and other fillers 1%

2.6 Manufacture

After the inspection of incoming raw material is qualified, the raw material will be made into the slurry at a certain proportion. Then, the slurry will be made into a wet sheet. At last, it will be made into a panel through the process of autoclaving, drying, sanding and so on. Below is the production flow chart:



Quality Management System in accordance with ISO 9001:2008 for the design and manufacture of fibre cement products.

2.7 Environment and health during manufacturing

The operation compliances with ISO9001:2015 (Quality Management), ISO14001:2015 (Environmental management systems) and ISO45001:2018 (Occupational health and safety management).

Water:
Water contamination was not reported during the production of Y-Wall Boards. All the water can be recycled.

Noise:
Follow the standard of GB12348-2008 (Emission standard for industrial enterprises noise at the boundary).

Waste:
Recycled slurry and the powder of the sanding process can be recycled during production. If classified as solid waste it will follow the standard of GB 18599-2020 (the standard pollution control on the non-hazardous industrial solid waste storage and landfill)

2.8 Product processing/ installation
Y-Wall boards are cut using a diamond saw blade. Dust generated from the processes is collected through the effective dust collecting system and filtered before release into the air in accordance with the Factories and Machinery Act (Mineral Dust).

2.9 Packaging
Y-Wall boards are packed on wooden pallets and packaged with polyethene stretch film, PET strap and cardboard edge protector. The wooden pallets are reused.

2.10 Condition of use
100% non-asbestos, no formaldehyde, non-radioactive. Safe for application. Y-Wall boards got the Reach report regarding Regulation (EC) No 19707/2006 concerning the Reach.

2.11 Environment and health during use
Environmental aspects: Hazards to water, soil and air cannot arise from fibre cement flat sheets based on current knowledge.

2.12 Reference service life
The reference service life is non-relevant to this EPD as it covers cradle to gate (up till the factory) (boundary condition).

2.13 Extraordinary effects
Non Combustible - Rection to the fire classification: A1 - BS EN 13501-1

2.14 Re-use phase
Products are not designed for re-use, recycling and recovery (energy or otherwise), as it may impact the quality and render them unfit for their intended use.

2.15 Disposal
According to the Standard for pollution on the storage and disposal site for general industrial solid wastes, the remains of Y-Wall calcium silicate board waste products from the construction site or from demolition can be disposed of as solid waste.

2.16 Further information
Further information on the products can be obtained from our website (www.benx.co.uk)

3. LCA information
3.1 Declared unit
The declared unit is Manufacturing 1 cubic meter of non-asbestos calcium silicate boards

3.2 System boundary
Type of EPD: Cradle to gate
The following process was included in the A1-A3 product stage of Y-Wall boards manufacture:

- Manufacture of preliminary products **(cement, sand, pulp, lime)**
- Transportation of raw materials and preliminary products to the plant
- Manufacturing process in the plan including energy, manufacture of auxiliaries, disposal of residual materials incurred, and consideration of any emissions incurred
- Manufacture of packaging materials

3.3 Estimates and assumptions
No other estimations or assumptions were made regarding the specifications outlined in this section (Chapter 3).

3.4 Background data
All background data records were provided.

3.5 Period under review
The LCA study was developed based on the operation activities from January to December of 2019.

3.6 Allocation
No allocation rules were applied in the life cycle assessment for the foreground data of the examined products.

4. LCA Scenarios and additional technical information

The documentation of the RSL is not required for the EPD of Y-Wall boards as the entire life cycle is not declared (Module A1-A3).

5. LCA description

The description of the system boundaries for the reference product LCA (X = included in the LCA, MND = module is not declared)

Product Stage			Comstruction Process Stage		Use Stage							End of Life Stage				Resource recovery stage
Raw material	Transport	Manufacturing	Transport	Construcion Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy	Operational water	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-Potential
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	MND	MND	MND	MND	MND

Based on: GB/T 24025-2009 (Environmental label and declarations-Type III environmental declarations - Principles and procedures).

6. Environmental Performance

Potential environmental impacts: Manufacturing 1 cubic meter of non-asbestos calcium silicate boards.

No.	Environmental Impact	Value	Unit
1	Global warming	5.90E+02	kg CO_2 eq.
2	Fossil resource scarcity	1.26E+02	kg oil eq.
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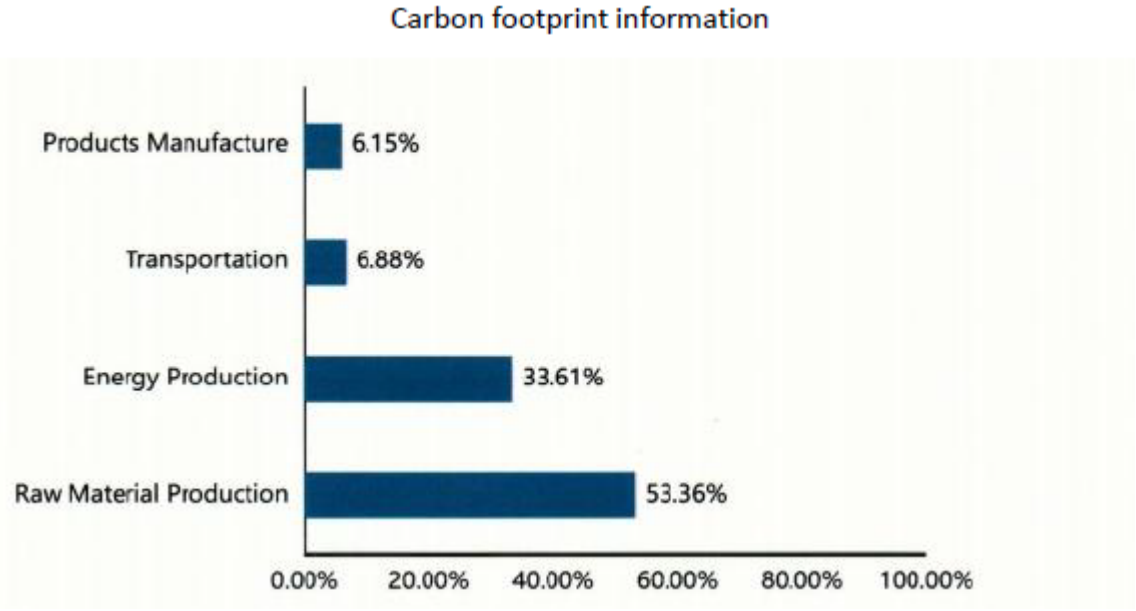
7. LCA interpretation

Potential environmental impacts: Manufacturing 1 cubic meter of non-asbestos calcium silicate boards.



Carbon footprint per Function Unit: 859 kgC02

Remark:

Based on ISO/D1514067 Requirements and Guidelines for Quantification and Communication (PAS 2050:2008 Specification for the Assessment of the Life Cycle Greenhouse Gass Emissions of Goods and Services).

8. References

- DIN EN ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures
- EN 15804:2012+A2:2019: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products
- GB/T 24025-2009《Environmental label and declarations-Type III environmental declarations-Principles and procedures》
- ISO/D1514067 Requirements and Guidelines for Quantification and Communication ((PAS 2050:2008 Specification for the Assessment of the Life Cycle Greenhouse Gass Emissions of Goods and Services»
- EN 12467:2012 Fibre cement board flat sheets. Product specification and test methods
- ISO9001:2015 Quality Management requirements
- ISO14001:2015 Environmental management systems requirements
- ISO45001:2018 Occupational health and safety management requirements
- Thermal insulation product for building equipment and industrial installations
- GB 6566-2010 Limits of radionuclides in building materials
- EN 12667:2001 Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Products of high and medium thermal resistance
- AS/NZS 2908.2-2000 Cellulose-cement products - Flat sheet requirement
- AS 1530.1-1994 Methods for fire tests on building materials, components and structures Combustibility test for materials
- BS476-4: Fire tests on building materials and structures- Part 4: Non-combustibility test for materials