Statement of Verification

BREG EN EPD No.: 000394 Issue 01

This is to verify that the

Environmental Product Declaration

provided by:

Jablite Ltd

BRE Global Verified EPD

is in accordance with the requirements of:

EN 15804:2012+A1:2013

and

BRE Global Scheme Document SD207

This declaration is for:

Flat Roof inverted 200 Premium +, 200 Premium Expanded Polystyrene Insulation Products

Company Address

Unit A Rudford Industrial Estate
Ford Road, Ford, Nr Arundel
West Sussex, BN18 0BD

Jablite INTELLIGENT INSULATION

Signed for BRE Global Ltd	Emma Baker Operator	23 November 2021 Date of this Issue
23 November 2021 Date of First Issue		22 November 2026 Expiry Date

BRE Global Verified EPD

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ECO PLATFORM EPD EN 15804 VERIFIED

Environmental Product Declaration

EPD Number: 000394

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE Environmental Profiles 2013 Product Category Rules for Type III environmental product declaration of construction products to EN 15804:2012+A1:2013
Commissioner of LCA study	**LCA consultant/Tool**
Jablite Limited Unit A Rudford Industrial Estate Ford Road, Ford, Nr Arundel West Sussex, BN18 0BD	Andrew Dutfield/ BRE LINA v2.0
Declared Unit	**Applicability/Coverage**
1 m^3 Jablite Flat Roof inverted 200 Premium +, 200 Premium Expanded Polystyrene Insulation, nominal density 30 kg/m^3	Product Average.
EPD Type	**Background database**
Cradle to Gate	Ecoinvent v3.2

Demonstration of Verification
CEN standard EN 15804 serves as the core PCR [a]
Independent verification of the declaration and data according to EN ISO 14025:2010 ☐Internal ☒ External
(Where appropriate [b])Third party verifier: Nigel Jones
a: Product category rules b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)

Comparability
Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A1:2013. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A1:2013 for further guidance

Information modules covered

Product			Construction		Use stage							End-of-life					Benefits and loads beyond the system boundary
					Related to the building fabric					Related to the building							
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal		Reuse, Recovery and/or Recycling potential
☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		☐

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

Jablite Limited
Unit A Rudford Industrial Estate
Ford Road, Ford, Nr Arundel
West Sussex, BN18 0BD

Construction Product

Product Description

Shape moulded expanded polystyrene (EPS) for inverted flat roof applications. The EPD refers to the Jablite Flat Roof inverted - 200 Premium + & 200 Premium products and is calculated from a production weighted average.

Technical Information

Property	Value, Unit
Nominal Density	30 Kg/m³
10% Compressive Strength	200 kPa
Declared Thermal Conductivity	0.031-0.033 W/mK

Main Product Contents

Material/Chemical Input	%
Expanded Polystyrene (EPS)	100

Manufacturing Process

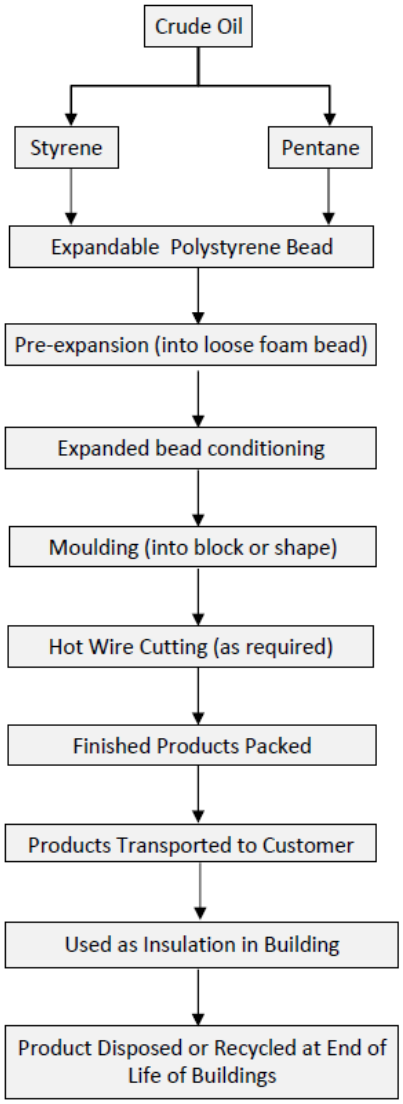
Expanded polystyrene material is made from solid granules of polystyrene. These granules are made by polymerising Styrene Monomer (derived from oil) and by adding the expansion agent, Pentane. A soap like substance (e.g. Zinc Stearate) is also added to coat the granules helping them to flow during processing. Finally, flame retardant grade material requires the addition of a flame retardant. The polymerised material is stable and inert. The chemical process required to create polystyrene granules takes place at a limited number of processing facilities around Europe.

Jablite receives the material in this unexpanded form. The process of expanding the solid polystyrene granules occurs when the pentane which is dissolved in the solid polystyrene base material is heated by steam. This causes the pentane to change from a solid to a gaseous state. The formation and expansion of pentane gas within the polystyrene base material causes the base polystyrene material to expand in a cellular form to create a foam which is approximately 40 times its original volume. EPS is 98% air, the remaining 2% being the polymerised Styrene. There are four manufacturing stages which are described as follows:

1. Loose Bead Pre-expansion
2. Loose Bead Conditioning
3. Moulding
4. Moulded Product Conditioning

The product is delivered to customers in packs, stretch wrapped to a reconditioned timber pallet.

Process flow diagram



Construction Installation

Jablite Inverted Roof Insulation is installed loose laid over the weatherproofing, ensuring all overlap joints are tightly butted together. Boards are laid in a staggered pattern starting from the point of access to the roof. The roof deck must be level and even and as dry as is practically possible. Ensuring a dry deck reduces the risk of high levels of condensation once the insulation and weatherproofing is installed.

Existing decks must be free of loose chippings and any defects made good prior to laying the weatherproofing in accordance with the manufacturer's instructions. The weatherproofing may be hot melt, bitumen felt, mastic asphalt, single ply (PVC, TPO, EPDM) or liquid applied polyurethane.

Use Information

As the product is confined within the roof cavity and has suitable durability, maintenance is not required.

End of Life

The following routes can be used for the disposal of EPS at end of life:

- Re-working or Griding - Non-contaminated expanded polystyrene can be recycled back into new polystyrene by manufacturers like Jablite. We collect site off-cut waste and re-work back into new products.
- Melting – EPS can be melted down to its un-expanded state and then extruded to make other items such as plant pots, coat hangers and a wood substitute. In this form EPS can be used as part of a mixed plastic waste to make items such as park benches and road signs, ensuring the plastic materials have a long and useful life.
- Energy Recovery – This involves the recovery of energy, usually from incineration.
- Landfill – EPS waste is inert and non-toxic, which gives stability to landfill sites. It also aerates the soil, encouraging plant growth on reclaimed sites.

Life Cycle Assessment Calculation Rules

Declared Unit

1 m^3 Jablite Flat Roof inverted 200 Premium +, 200 Premium Expanded Polystyrene Insulation, nominal density 30 kg/m^3

System boundary

This is a cradle-to-gate LCA, reporting all production life cycle stages of modules A1 to A3 in accordance with EN 15804:2012+A1:2013.

Data sources, quality and allocation

The data supplied relates to the Ford site and covers the period 1st June 2020 to 31st May 2021. The site manufactures other products in addition to Jablite Flat Roof inverted - 200 Premium + & 200 Premium. Raw materials have been allocated by actual usages. Allocation by mass has been used to calculate the input utilities (electricity, natural gas, water usage and discharge), according to the provisions of the BRE PCR PN514 and EN 15804.

The TDS for the grey EPS granulate raw material states that the pentane content is over 5% and the TDS for the white EPS granulate raw material states that the pentane content is over 5.7%. These quantities of pentane have been calculated on these figures and subtracted from the total EPS usage.

The Ford site runs 36 shape moulding machines producing a mix of product types. There are up to 4 shape moulding tools dedicated to the production of Flat Roof Inverted. Given the product mix, density range, product volumes, cycle times to produce, shift patterns and product volumes the production of Flat Roof Inverted uses 31% of the sites energy and 52.7% of the total raw material.

The total water usage is based on the tank top up from evaporation. This would not change and so the usage is evenly shared with a total of 36 machines. The allocation is therefore 4/36 or 11.1%. Mains water is used replenish any evaporation of water in the closed circuit system and for domestic use. Wastewater comes mainly from back flushing filters and boiler blow down and so is less than water usage.

General waste generated by the site is handled by one 40yd skip per week. This includes any waste generated by both the factory and office building that is not segregated for recycling by Jablite. The density of waste is assumed to be 0.1 t/m3 for 50 weeks per year.

Secondary data have been drawn from the BRE LINA database v2.0.83 and the background LCI datasets are based on ecoinvent v3.2 (2015).

Quality Level	Geographical representativeness	Technical representativeness	Time representativeness
Very Good	Data from area under study	Data from processes and products under study. Same state of technology applied as defined in goal and scope (i.e. identical technology)	n/a
Fair	n/a	n/a	Less than 10 years of difference between the reference year according to the documentation, and the time period for which data are representative

The quality level of geographical and technical representativeness is Very Good. The quality level of time representativeness is Fair as the background LCI datasets are based on ecoinvent v3.2 which was compiled in 2015 and so there is less than 10 years between the reference year according to the documentation, and the time period for which data are representative.

Cut-off criteria

All raw materials and energy input to the manufacturing process have been included, except for direct emissions to air, water and soil, which are not measured. The inventory process in this LCA includes all data related to raw material, packaging material and consumable items. Process energy, water use and discharge and general waste are included. No production waste was created and so it is not included.

LCA Results

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts

			GWP	ODP	AP	EP	POCP	ADPE	ADPF
			kg CO_2 equiv.	kg CFC 11 equiv.	kg SO_2 equiv.	kg $(PO_4)^{3-}$ equiv.	kg C_2H_4 equiv.	kg Sb equiv.	MJ, net calorific value.
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	1.30E+02	6.46E-06	4.47E-01	7.67E-02	1.09E-01	5.63E-05	3.11E+03

GWP = Global Warming Potential;
ODP = Ozone Depletion Potential;
AP = Acidification Potential for Soil and Water;
EP = Eutrophication Potential;
POCP = Formation potential of tropospheric Ozone;
ADPE = Abiotic Depletion Potential – Elements;
ADPF = Abiotic Depletion Potential – Fossil Fuels;

Parameters describing resource use, primary energy

			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	1.43E+02	1.86E-02	1.43E+02	3.14E+03	9.53E+02	4.09E+03

PERE = Use of renewable primary energy excluding renewable primary energy used as raw materials;
PERM = Use of renewable primary energy resources used as raw materials;
PERT = Total use of renewable primary energy resources;
PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;
PENRM = Use of non-renewable primary energy resources used as raw materials;
PENRT = Total use of non-renewable primary energy resource

Parameters describing resource use, secondary materials and fuels, use of water

			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m^3
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	2.07E+00

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;
NRSF = Use of non-renewable secondary fuels;
FW = Net use of fresh water

LCA Results (continued)

Other environmental information describing waste categories					
			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG
	Total (of product stage)	A1-3	1.54E+00	9.89E+00	2.68E-03

HWD = Hazardous waste disposed;
NHWD = Non-hazardous waste disposed;
RWD = Radioactive waste disposed

Other environmental information describing output flows – at end of life						
			CRU	MFR	MER	EE
			kg	kg	kg	MJ per energy carrier
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for reuse;
MFR = Materials for recycling
MER = Materials for energy recovery;
EE = Exported Energy

Interpretation

The EPS granulate raw material (including pentane) is the only input material and will therefore have the largest environmental impact. The other impacts come from energy usage, water usage and waste generation.

References

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A1:2013. London, BSI, 2013.

BSI. Environmental labels and declarations – Type III Environmental declarations – Principles and procedures. BS EN ISO 14025:2010 (exactly identical to ISO 14025:2006). London, BSI, 2010.

BSI. Environmental management – Life cycle assessment – Principles and framework. BS EN ISO 14040:2006. London, BSI, 2006.

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