

Statement of Verification

BREG EN EPD No.: 000372

Issue 02

This is to verify that the

Environmental Product Declaration

provided by:

Superglass Insulation Ltd

is in accordance with the requirements of:

EN 15804:2012+A1:2013

and

BRE Global Scheme Document SD207

This declaration is for:

1Kg of Blowing Wool



Company Address

Thistle Industrial Estate
Kerse Road
Stirling
FK7 7QQ



Intelligent Environments
Superglass

Emma Baker

Signed for BRE Global Ltd

Emma Baker

Operator

16 November 2021

Date of this Issue

25 October 2021

Date of First Issue

24 October 2026

Expiry Date



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Environmental Product Declaration

EPD Number: 000372

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
Superglass Insulation Limited, Thistle Industrial Estate, Kerse Road, Stirling, FK7 7QQ	Andrew Dutfield/ BRE LINA v2.0
Declared Unit	Applicability/Coverage
1 kg of Superglass Blowing Wool with an installed thermal conductivity (λ_D) of 0.034-0.045 W·m ⁻¹ ·K ⁻¹	Product Average.
EPD Type	Background database
Cradle to Gate with options	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 <input type="checkbox"/> Internal <input checked="" type="checkbox"/> External	
(Where appropriate ^b) Third party verifier: Pat Hermon	
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
A1	A2	A3	A4	A5	Related to the building fabric					Related to the building		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
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

Superglass Insulation Limited,
Thistle Industrial Estate, Kerse Road,
Stirling,
FK7 7QQ

Construction Product:

Product Description

Superglass blowing wool is a glass mineral wool manufactured from recycled glass with other raw materials, including the addition of anti-static and water repellents. Superglass blowing wool is used for thermal and acoustic insulation in all types of buildings.

The products covered are: Superwhite 34, Superwhite 40, Superwhite Loft, Superwhite 42 Loft Blown Wool, Swedish White Wool.

The products are similar but have different fibre diameters and fibre length which manifest in different characteristics at the point of installation (which include the installed density). The number suffix generally refers to the λ_D value i.e. '34' equates to $0.034 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$.

Technical Information

Property	Value, Unit
Thermal conductivity (λ_D)	0.034-0.045 $\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
Target density	12-25 kg/m^3
Fire classification: BS EN 13501-1:2018	A1
Indoor air quality (EN 16516, French VOC Regulation of March and April 2011 (DEVL1101903D and DEVL1104875A))	A+
Bag of finished product	16.6 kg



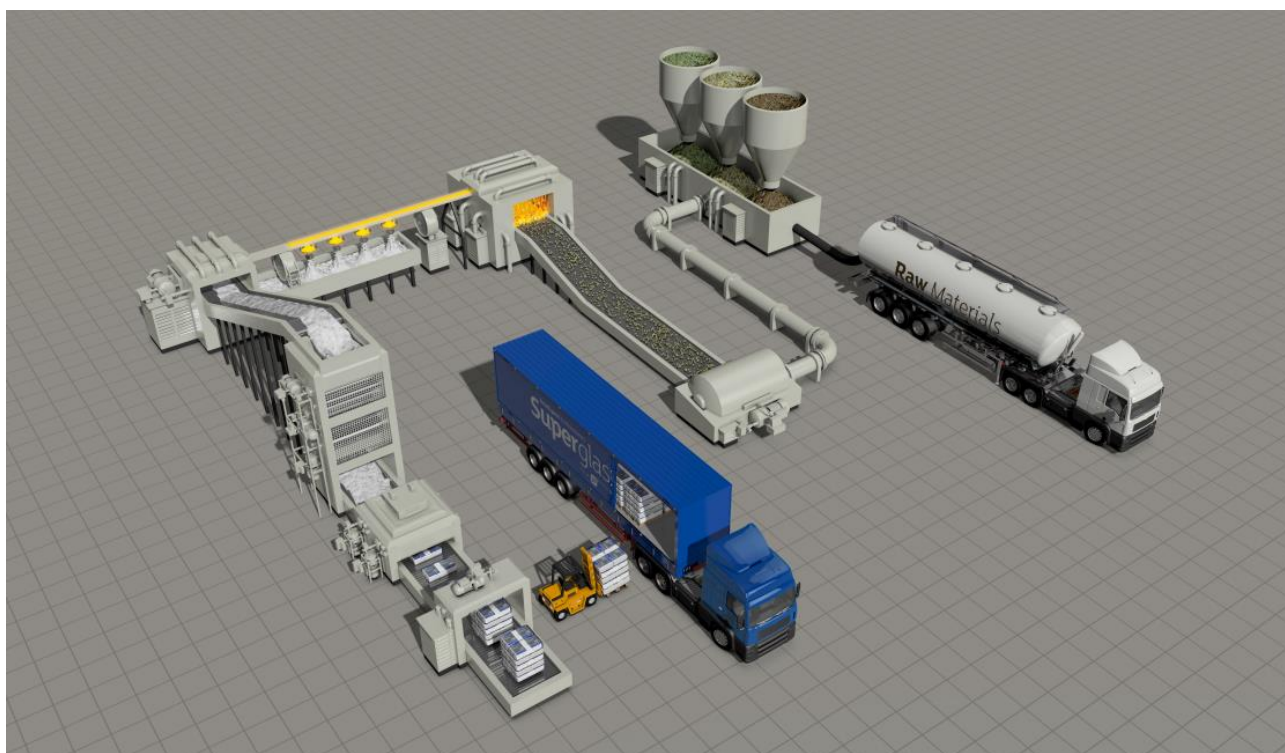
Main Product Contents

Material/Chemical Input	%
Glass cullet	84
Process additives	16

Manufacturing Process

The manufacturing process involves the melting of recycled waste glass with additional raw materials that are needed to give the required compositions. The molten glass leaves the furnace and is formed into glass fibres. A water repellent additive is applied. All glass mineral wool products are compression packed to reduce both storage and transport space.

Process flow diagram



Construction Installation

The installation of the product is undertaken using blowing machines, tested and accepted for use with the product by the BBA. The installer provides all necessary hoses, drilling tools and equipment to install the product according to the manufacturer's instructions. The installer is also responsible for providing materials for making good the walls (if required) after the installation. Where a semi-detached or terraced property is to be insulated, a cavity brush is inserted at the line dividing the properties to contain the insulation. This consists of a continuous nylon brush which is left in place when the installation is completed.

Use Information

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

End of Life

Superglass assume that at the end of life the product will be disposed of in landfill. Technologies are being developed that could allow the product (at end of life) to be recycled or reprocessed.

Life Cycle Assessment Calculation Rules

Declared / Functional unit description

1 kg of Superglass Blowing Wool with an installed thermal conductivity (λ_D) of 0.034-0.045 W·m⁻¹·K⁻¹

System boundary

This is a cradle to gate with options EPD referring to all Superglass blowing wool products with a declared thermal conductivity from 0.034 to 0.045 W·m⁻¹·K⁻¹. Production life cycle stages of modules from A1 to A3, A4, C2 and C4 are reported in accordance with EN 15804:2012+A1:2013.

Data sources, quality and allocation

Data collected by Superglass for the production of the Superglass blowing wool product at the Stirling site for the period 1st July 2019 to 31st August 2020 has been used for this EPD. The months of April and May 2020 are excluded due to a factory shutdown and so the resultant assessment period is for 12 months. As there were more input materials than output materials (including waste), this resulted in a mass balance of 102%.

Superglass manufacture other insulation products at the Stirling site. Figures for the raw materials, ancillary materials and packaging are compiled from actual usages for all included products. Allocation of energy, water, and waste has been done according to the provisions of the BRE PCR PN514 and EN 15804. Energy per product type is not individually metered. Values of total site electricity and natural gas have been taken from bills for the 2019-2020 years, and allocated based on percentage of mass of overall production output as the other insulation products are of similar density. All energy used on site (i.e. energy such as factory and office lighting and heating) is included, not only that specifically used in the manufacture of the product.

Data for transport to installation and disposal to landfill at end of life were supplied by Superglass. No losses are assumed during transportation.

Superglass blowing wool products have BBA certification which assesses the product for durability. The certificate states "*The product is unaffected by the normal conditions in a wall, and is durable, rot-proof, water resistant and sufficiently stable to remain effective as insulation for the life of the building.*".

Using this information and by looking at publicly available data on average lifetime of buildings it is possible to estimate a service life of 60 years.

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

No inputs or outputs have been excluded and all raw materials, packaging and transport, energy, water use and wastes as well as direct emissions to air are included. Emissions to air directly related to burning of natural gas have been excluded to avoid double-counting. Direct emissions to soil and water are not measured and so are also excluded. Upstream extraction and/or processing of inputs are included within the use of the background datasets within LINA.

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 ₂ H 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	1.22E+00	1.30E-07	5.78E-03	1.44E-03	5.32E-04	1.94E-04	2.10E+01
Construction process stage	Transport	A4	1.62E-01	2.99E-08	5.52E-04	1.44E-04	9.52E-05	4.26E-07	2.45E+00
End of life	Transport	C2	8.36E-03	1.54E-09	2.80E-05	7.38E-06	4.88E-06	2.20E-08	1.26E-01
	Disposal	C4	8.62E-02	2.97E-08	6.64E-04	1.64E-04	1.15E-04	9.32E-08	2.50E+00

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	1.76E+00	4.55E-06	1.76E+00	2.37E+01	5.29E-01	2.42E+01
Construction process stage	Transport	A4	3.26E-02	1.21E-07	3.26E-02	2.44E+00	0.00E+00	2.44E+00
End of life	Transport	C2	1.68E-03	6.24E-09	1.68E-03	1.25E-01	0.00E+00	1.25E-01
	Disposal	C4	6.46E-02	9.80E-08	6.46E-02	2.48E+00	0.00E+00	2.48E+00

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

LCA Results (continued)

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	1.49E+01	0.00E+00	0.00E+00	3.23E-02
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	5.32E-04
End of life	Transport	C2	0.00E+00	0.00E+00	0.00E+00	2.74E-05
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	2.86E-03

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;

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

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	6.69E-03	2.05E-01	9.08E-05	
Construction process stage	Transport	A4	1.03E-03	1.14E-01	1.69E-05	
End of life	Transport	C2	5.29E-05	5.89E-03	8.71E-07	
	Disposal	C4	8.99E-04	1.66E+01	1.69E-05	

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

LCA Results (continued)

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
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	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

Scenarios and additional technical information

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
A4 – Transport to the building site	Distances derived from analysis of delivery data for period covered. Split by delivery area (including goods that are exported)		
	Diesel/ 16-32 t lorry	Kg/vkm	0.3
	Distance:	km	968
	Lorry capacity utilisation (incl. empty returns)	%	35
	Ship distance by sea	km	46
	Ship capacity utilisation (incl. empty returns)	%	65
	Bulk density of transported products	kg/m ³	165
Reference service life	Superglass blowing wool products have BBA certification which assesses the product for durability. The certificate states “ <i>The product is unaffected by the normal conditions in a wall, and is durable, rot-proof, water resistant and sufficiently stable to remain effective as insulation for the life of the building.</i> ”. Using this information and by looking at publicly available data on average lifetime of buildings it is possible to estimate a service life of between 50-60 years.		
C2 - Transport from site to pre-processing facility or landfill	Estimate of average distance from a typical building site where Superglass wool is installed to the nearest waste disposal / landfill facility		
	Diesel/ 16-32 t lorry	Kg/vkm	0.3
	Distance:	km	50
	Lorry capacity utilisation (incl. empty returns)	%	35
	Density of waste insulation	kg/m ³	12-25
C4 - Disposal	Superglass assume that at the end of life the product will be disposed of in landfill. Technologies are being developed that could allow the product (at end of life) to be recycled or reprocessed.		
	Disposal to landfill	kg	1.0

Interpretation

Glass cullet is by far the largest material input at 84% of the total. However it only forms 7% of the overall impact in terms of GWP. The largest impacts in terms of GWP in modules A1-A3 are electricity usage at 45% and gas usage at 24%.

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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