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Statement of Verification

BREG EN EPD No.: 000251   Issue 1

ECO EPD Ref. No. 00000835

This is to verify that the

Environmental Product Declaration

provided by:

MW Insulation Ltd

is in accordance with the requirements of:

EN 15804:2012+A1:2013

and

BRE Global Scheme Document SD207

This declaration is for:

Supaphen Phenolic

BRE / Global Verified EPD

Company Address

Unit 2
Guinness Road Trading Estate
Trafford Park
Manchester
M17 1SB

MW insulation
UK Manufacturers of Thermal Insulation Products
www.mwinsulation.co.uk

Signed for BRE Global Ltd	Laura Crition _Operator_	18 February 2019 _Date of this Issue_
18 February 2019 _Date of First Issue_		17 February 2024 _Expiry Date_

BRE / Global Verified EPD

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BRE Global Ltd., Garston, Watford WD25 9XX.
T: +44 (0)333 321 8811 F: +44 (0)1923 664603 E: Enquiries@breglobal.com

ECO PLATFORM EPD EN 15804 VERIFIED

Environmental Product Declaration

EPD Number: 000251

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
MW Insulation Ltd Unit 2 Guinness Road Trading Estate Trafford Park Manchester M17 1SB	BRE LINA v2.0

Declared/Functional Unit	Applicability/Coverage
1 linear meter of Supaphen phenolic insulation of specified dimensions	Manufacturer specific product

EPD Type	Background database
Cradle to Gate	ecoinvent

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:
Click here to enter text.

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

EPD Number: 000251
BF1805-C-ECOP Rev 0.0

Date of Issue:18 February 2019
Page 2 of 12

Expiry Date 17 February 2024
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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		End-of-life				
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

The manufacturing site for the Supaphen insulation is:

MW Insulation Ltd Unit 2 Guinness Road Trading Estate Trafford Park Manchester M17 1SB	Click here to enter address.

Construction Product:

Product Description

MW Insulation fabricated Supaphen, is a foil faced phenolic pipe insulation product with a foam density of $40 kg/m^3$. The pipe insulation is fabricated into a range of diameters/thicknesses for use as insulation in building services and process pipe work.

Technical Information

Property	Value, Unit
Density of Supaphen foam for products covered	$40 kg/m^3$
Foam colour	Green
Thermal conductivity of foam (EN12667), at 10°C	0.024 W/m.K max
Closed cell content (EN4590)	≥ 90%
Dimensional stability (EN1604)	≤ 1.5%
Water absorption (EN1609)	≤ $1.25 kg/m^2$

EPD Number: 000251
BF1805-C-ECOP Rev 0.0

Date of Issue:18 February 2019
Page 3 of 12

Expiry Date 17 February 2024
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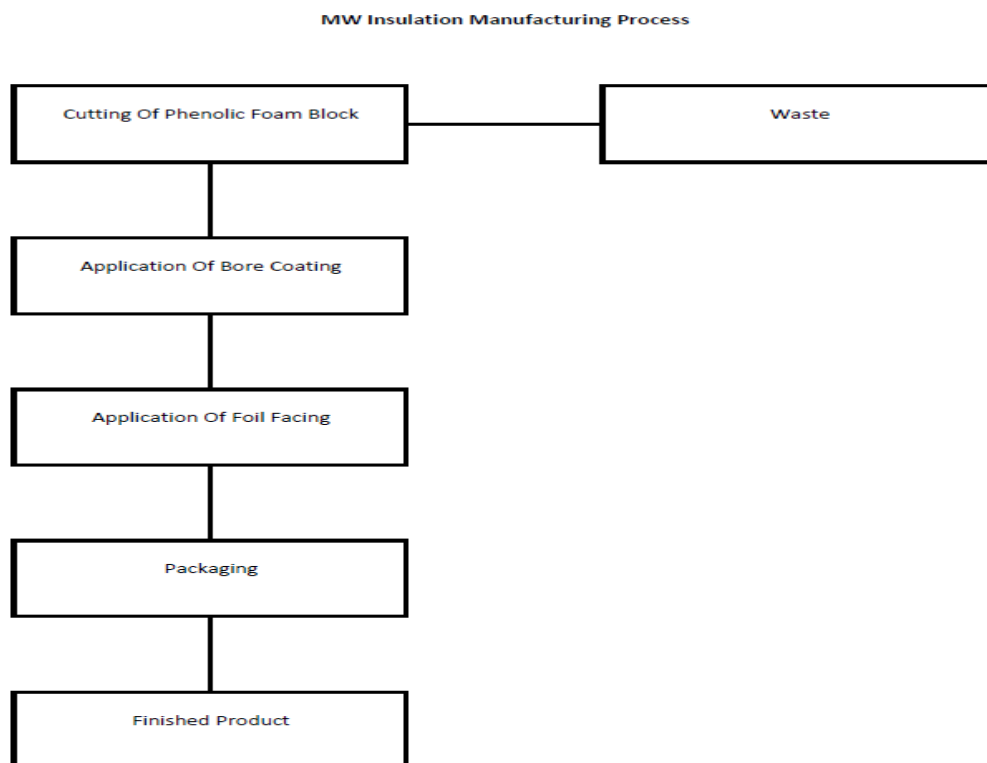
Main Product Contents

Clearly, the raw material input per linear metre of pipe insulation varies depending on the dimensions of the pipe. However, the average raw material inputs by percentage solid content for the faced Supaphen phenolic pipe insulation, based raw material usage as provided by MW Insulation, can be found in the table below:

Material/Chemical Input	%
Phenolic foam	95
Adhesive	4
Bore coating	<1
Aluminium facer	<1

Manufacturing Process

Raw phenolic foam blocks received from upstream manufacturers are fabricated into pipe section using CNC cutting machines. The sections are stripped from cut blocks and the carcass of block is compacted and put in skip in bags as waste. The cut sections are dedusted and bore coated. Adhesive and aluminium foil is applied to the bore coated section and the finished faced product placed in cardboard carton for dispatch.

Process flow diagram

MW Insulation Manufacturing Process

```
Cutting Of Phenolic Foam Block ──────── Waste
            │
Application Of Bore Coating
            │
Application Of Foil Facing
            │
       Packaging
            │
    Finished Product
```

EPD Number: 000251
BF1805-C-ECOP Rev 0.0

Date of Issue:18 February 2019
Page 4 of 12

Expiry Date 17 February 2024
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Life Cycle Assessment Calculation Rules

Declared / Functional unit description

The declared unit is for 1 linear metre of Supaphen phenolic pipe insulation of specified pipe diameter and insulation thickness. Note that results in this EPD are provided per kg of Supaphen phenolic pipe insulation and per m^2 of Supaphen aluminium facer. The results per linear metre can be obtained by multiplying the specified weight of the foam in the pipe insulation and area of the facer, by the relevant pipe insulation and facer results, respectively, in the LCA results tables. The dimensions (outer pipe diameter and insulation thickness), of 25 of the most commonly sold Supaphen phenolic pipe insulation products have been given alongside the corresponding foam weight and facer area, to facilitate this calculation.

System boundary

This is a cradle-to-gate LCA follows the modular design defined in EN 15804:2012+A1:2013. The LCA models and reports the production stage modules, A1 to A3.

Data sources, quality and allocation

The supporting LCA study has been carried out using BRE LINA v2.0 using manufacturer specific data provided by MW Insulation for their production site in the UK, covering a 12-month data period from 1st July 2017 to 30th June 2018.

At the MW Insulation manufacturing site, other insulation is manufactured in addition to the Supaphen phenolic insulation, so allocation, was applied to total site processes (packaging, electricity and gas, water, waste, wastewater), with the Supaphen phenolic insulation under study, representing approximately 98% of total site manufacture on a linear metre basis. Allocation was not possible on a mass basis as MW Insulation were unable to provide total site production as a mass.

Total site usage of raw materials used to make all Supaphen 40 kg/m^3 phenolic insulation was used as input to the modeling, so no allocation of raw materials was required.

Production waste and non-production waste is recorded as a single figure by MW Insulation. Therefore, it was assumed that all waste was production waste, to err on the site of worst-case scenario. The mass balance low on inputs, so an uplift factor of 1.17 was applied to adjust raw materials accordingly to account for production waste.

Secondary data has been drawn from the BRE LINA database v2.0.47 and the background LCI datasets are based on ecoinvent v3.2.

Cut-off criteria

No inputs or outputs have been excluded and all raw materials, packaging and transport, energy, water use and wastes, are included, except for direct emissions to air, water and soil, which are not measured.

EPD Number: 000251
BF1805-C-ECOP Rev 0.0

Date of Issue:18 February 2019
Page 5 of 12

Expiry Date 17 February 2024
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LCA Results

The LCA results (see following pages) are provided in two tables; one for 1 kg of unfaced Supaphen phenolic pipe insulation and one for 1 m² of facer. Note that (MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated).

In order to obtain results for a linear metre of faced Supaphen phenolic insulation, first select the relevant specification of pipe from the 25 listed in the table immediately below:

Dimensions of faced Supaphen pipe section (outside diameter of pipe to be insulated in mm x insulation thickness in mm)	Foam weight (kg per linear metre)	Facer area (m² per linear metre)
15 x 15	0.06	0.141
21 x 15	0.07	0.160
21 x 20	0.10	0.192
27 x 20	0.12	0.211
15 x 20	0.09	0.173
34 x 20	0.14	0.233
27 x 15	0.08	0.179
42 x 20	0.16	0.258
22 x 15	0.07	0.163
27 x 25	0.16	0.242
42 x 25	0.21	0.289
22 x 20	0.11	0.195
34 x 25	0.19	0.264
21 x 25	0.14	0.223
54 x 20	0.19	0.295
34 x 15	0.09	0.201
54 x 25	0.25	0.327
28 x 20	0.12	0.214
28 x 25	0.17	0.245
15 x 25	0.13	0.204
76 x 25	0.32	0.396
60 x 25	0.27	0.346
48 x 20	0.17	0.276
48 x 25	0.23	0.308
28 x 15	0.08	0.182

Then for that specific pipe dimension, multiply the results of 1kg of unfaced Supaphen phenolic insulation for the foam weight in the table, and the results of 1m² of Supaphen aluminium facer, by the facer area in the same row. The sum of these two values for each individual results indicator, represents the results of one linear metre of that particular dimension of faced Supaphen phenolic pipe insulation.

EPD Number: 000251
BF1805-C-ECOP Rev 0.0
Date of Issue:18 February 2019
Page 6 of 12
Expiry Date 17 February 2024
© BRE Global Ltd, 2017

LCA results for 1 kg of unfaced Supaphen phenolic pipe insulation.

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	12.0	7.92e-7	0.0493	0.0203	0.0177	4.20e-5	316

LCA results for 1 m^2 of Supaphen phenolic pipe facer

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	0.955	3.61e-8	0.00646	0.00147	0.000502	1.64e-6	12

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;

EPD Number: 000251
BF1805-C-ECOP Rev 0.0
Date of Issue:18 February 2019
Page 7 of 12
Expiry Date 17 February 2024
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LCA Results (continued)

LCA results for 1 kg of unfaced Supaphen phenolic pipe insulation

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	10.8	1.19e-4	10.8	324	0	324

LCA results for 1 m^2 of Supaphen phenolic pipe facer

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	1.23	6.33e-7	1.23	12.4	0	12.4

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

EPD Number: 000251
BF1805-C-ECOP Rev 0.0

Date of Issue:18 February 2019
Page 8 of 12

Expiry Date 17 February 2024
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LCA Results (continued)

LCA results for 1 kg of unfaced Supaphen phenolic pipe insulation

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m³
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	0	0	0.462

LCA results for 1 m² of Supaphen phenolic pipe facer

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m³
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	0	0	0.00718

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

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

EPD Number: 000251
BF1805-C-ECOP Rev 0.0

Date of Issue:18 February 2019
Page 9 of 12

Expiry Date 17 February 2024
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LCA Results (continued)

LCA results for 1 kg of unfaced Supaphen phenolic pipe insulation

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	0.183	0.838	3.98e-4

LCA results for 1 m² of Supaphen phenolic pipe facer

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	0.0827	0.0398	1.66e-5

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

EPD Number: 000251
BF1805-C-ECOP Rev 0.0

Date of Issue:18 February 2019
Page 10 of 12

Expiry Date 17 February 2024
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LCA Results (continued)

LCA results for 1 kg of unfaced Supaphen phenolic pipe insulation

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	8.45e-3	1.48	0

LCA results for 1 m^2 of Supaphen phenolic pipe facer

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	0	0	0

CRU = Components for reuse;
MFR = Materials for recycling

MER = Materials for energy recovery;
EE = Exported Energy

EPD Number: 000251
BF1805-C-ECOP Rev 0.0

Date of Issue:18 February 2019
Page 11 of 12

Expiry Date 17 February 2024
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EPD Number: 000251
BF1805-C-ECOP Rev 0.0

Date of Issue:18 February 2019
Page 12 of 12

Expiry Date 17 February 2024
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