



# ENVIRONMENTAL PRODUCT DECLARATION

*In accordance with EN 15804 and ISO 14025*

**15mm**

**Gyproc SoundBloc**

Date of issue : December 2013  
Valid until : December 2018



The **environmental impacts** of this product have been assessed over its **whole life cycle**. Its Environmental Product Declaration has been verified by an **independent third party**.

**DECLARATION NUMBER**

**S-P-00509**



# 1. General information

**Manufacturer:** BPB United Kingdom Limited trading as British Gypsum

**Programme used:** The International EPD® System. For more information see [www.environdec.com](http://www.environdec.com)

**EPD registration number/declaration number:** S-P-00509

**PCR identification:** EN 15804 as the core PCR + InstitutBauen und Umwelt e.V. PCR Guidance-Texts for Building-Related Products and Services, Part B: Requirements on the EPD for Plasterboard version 1.5. And with reference to The International EPD® System PCR 2012:01 version 1.2 for Construction Products and CPC 54 construction services.

**Product / product family name and manufacturer represented:** 15mm Gyproc SoundBloc

**Declaration issued:** December 2013, **valid until:** December 2018

**Owner of the declaration:** BPB United Kingdom Limited trading as British Gypsum, Saint-Gobain House, Binley Business Park, Coventry. CV3 2TT

**EPD Prepared by:** Rachel Morris, LCA Analyst, British Gypsum

**Scope:** The LCA is based on 2012 production data for three sites in the United Kingdom for 12.5 mm SoundBloc. The three production sites are East Leake, Leicestershire; Robertsbridge, East Sussex and Sherburn-in-Elmet, North Yorkshire. This EPD covers information modules A1 to C4 (cradle to grave) as defined in EN 15804:2012.

The declared unit is 1m<sup>2</sup> of 15mm thick Gyproc SoundBloc. The assumed density is 941.33 kg/m<sup>3</sup> (14.12 kg/m<sup>2</sup>) of 15mm SoundBloc.

CEN standard EN 15804 serves as the core PCR<sup>a</sup>

Independent verification of the declaration, according to EN ISO 14025:2010

Internal  External

Third party verifier<sup>b</sup>:

Dr Andrew Norton, Renewables

<sup>a</sup> Product Category Rules

<sup>b</sup> Optional for business-to-business communication; mandatory for business to consumer communication (see EN ISO 14025:2010, 9.4)

## 2. Product description

### 2.1 Product description

Gyproc SoundBloc consists of an aerated gypsum core encased in, and firmly bonded to, strong paper liners. The gypsum core contains various additives and has a higher density core when compared with standard plasterboard. Gyproc SoundBloc has tapered edges on the long edges and has short edges sawn straight. Gyproc SoundBloc is a plasterboard that is suitable for drylining internal surfaces.

### 2.2 Application

Gyproc plasterboards are the ultimate lining solution for today's buildings, providing fire, sound, thermal, moisture and impact resistance to create modern internal environments that offer comfort and safety for occupants. They offer high quality, high performance linings for walls and ceilings, lift shafts and stairwells, corridors and auditoria, in buildings as diverse as houses, schools, hospitals and cinemas.

### 2.3 Technical Data

Gyproc SoundBloc conforms to EN 520:2004 + A1:2009 Gypsum plasterboards – Definitions, requirements and test methods.

Type D: Gypsum plasterboard with control density: These boards have a controlled density, with a face to which suitable gypsum plasters or decoration may be applied. This enables improved performance in certain applications to be obtained

<b>EN CLASSIFICATION</b>	D
<b>NOMINAL DENSITY</b>	The assumed density is 941.33 kg/m <sup>3</sup> (14.12 kg/m <sup>2</sup> ) of 15mm SoundBloc.
<b>THERMAL CONDUCTIVITY</b>	0.25 W/mK
<b>SHEAR STRENGTH</b>	NPD
<b>WATER VAPOUR RESISTANCE</b>	10μ
<b>CLASS OF REACTION TO FIRE PERFORMANCE</b>	A2
<b>FLAMING DROPLETS/PARTICLES</b>	d0
<b>SMOKE PRODUCTION</b>	s1

#### Certifications:

**ISO 9001:2008** Quality Management System

**ISO 14001:2004** Environmental Management System

**BES 6001:Issue 2** Responsible Sourcing of Construction Products

**BS OHSAS 18001:2007** Occupational Health and Safety Management

### 2.4 Placing on the market/Application rules

Gyproc SoundBloc conforms to EN 520:2004 + A1:2009 Gypsum plasterboards – Definitions, requirements and test methods

## 2.5 Delivery status

The EPD refers to 15mm thick Gyproc SoundBloc.

## 2.6 Base materials/Ancillary materials

PARAMETER	PART	QUANTITY (kg/FU)
GYPSUM	97.0%	13.70
PAPER LINER	2.2%	0.31
ADDITIVES	0.8%	0.11
<b>TOTAL</b>	<b>100%</b>	<b>14.12</b>
<i>PACKAGING: WOODEN PALLET</i>	0.24kg per m <sup>2</sup> board	0.24
<i>AT INSTALLATION: SCREWS</i>	11 per m <sup>2</sup> board	0.015
<i>AT INSTALLATION: JOINTING COMPOUND</i>	0.35kg per m <sup>2</sup> board	0.35
<i>AT INSTALLATION: JOINTING TAPE</i>	1.5m per m <sup>2</sup> board	0.00063

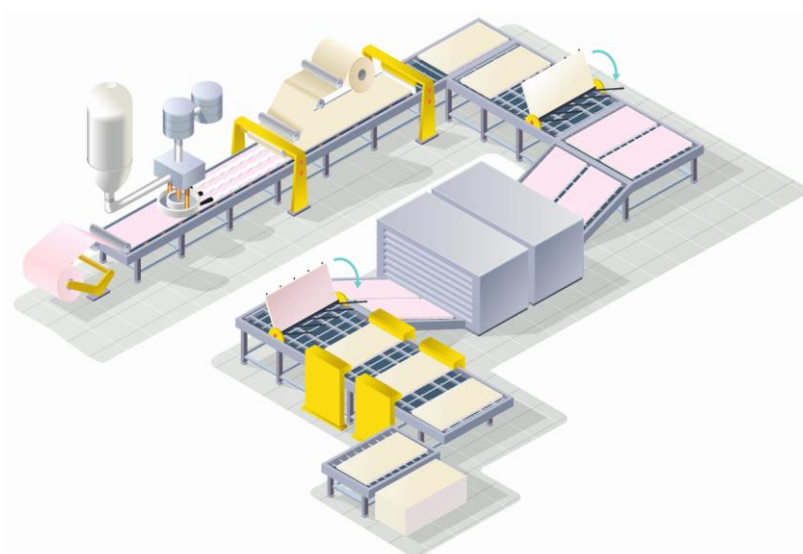
15mm Gyproc SoundBloc contains 97.1% gypsum in a blend of natural gypsum, desulphurised gypsum (DSG) and scrap material. Recycled gypsum (DSG, scrap and recycled construction and demolition waste gypsum) makes up 99.1% of the gypsum blend in 15mm Gyproc SoundBloc.

No additives used are classed as substances of concern, but as proprietary information they are not listed specifically.

Any board may contain small quantities of chopped man-made mineral fibre and microsilica.

## 2.7 Manufacture

15mm Gyproc SoundBloc is manufactured using the same continuous production process over at all four sites.



The initial materials are homogeneously mixed to form a gypsum slurry that is spread via multiple hose outlets onto a paper liner on a moving belt conveyor. A second paper liner is fed onto the production line from above to form the plasterboard. The plasterboard continues along the production line where it is finished, dried, and cut to size.

Construction waste from the installation stage of the product's life cycle (A5) is recycled back into the manufacturing process wherever possible.

British Gypsum plants are managed through ISO9001 certified Quality Management Systems.

## **2.8 Environment and health during manufacture**

At British Gypsum, Health and Safety is a core value. The Company's aim is always to be injury-free. A target of zero accidents at work for employees, visitors and contractors is set by the business.

In all aspects of the Company's activities, the Health and Safety at Work Act and relevant Regulations and Codes of Practice must be complied with. In addition there are a number of definitive Company Safety Procedures and together these determine the minimum standards expected by the Company. In order to achieve this, close co-operation with representatives of the relevant enforcement agencies is ensured.

To ensure that the Company's objectives are achieved, documented safety management systems are employed at each operational site and within the central functions. These include a systematic identification of hazards, assessment of the risks and the development of safe systems of work to eliminate or reduce any risks to an acceptable level. Audits and Inspections are used to monitor standards of safety management, adherence to the law and Company procedures.

British Gypsum plants are managed through ISO 14001 certified Environmental Management Systems.

British Gypsum has energy, water, waste and recycling targets: based on 2010 levels, by the end of 2013 a 6% reduction per tonne of product in water usage and waste creation is aimed for. Saint-Gobain launched a Group-wide Water Policy in 2011. The aim of the policy is to extract minimum resources and work towards 'zero discharge' of industrial process water in liquid form, while avoiding the creation of new impacts on other environments or stakeholders.

British Gypsum plants are managed through BS OHSAS 18001 Occupational Health and Safety Management Systems.

## **2.9 Product processing/Installation**

### **General**

It is important to observe appropriate health and safety legislation when working on site, i.e. personal protective clothing and equipment, etc. The following notes are intended as general guidance only. In practice, consideration must be given to design criteria requiring specific project solutions.

### **Handling**

Manual off-loading of this product should be carried out with care to avoid unnecessary strain. For further information please refer to the Manual Handling section of the SITE BOOK or Manual Handling Guide, available to download from <http://www.british-gypsum.com>

### **Cutting**

This product may be cut using a plasterboard saw or by scoring with a sharp knife and snapping the board over a straight edge. Holes for switch or socket boxes should be cut out before the boards are fixed using a utility saw or sharp knife. When cutting boards, power and hand tools should be used with care and in accordance with the manufacturers' recommendations. Power tools should only be used by people who have been instructed and trained to use them safely. Appropriate personal protective equipment should be used.

### **Fixing**

Fix boards with decorative side out to receive joint treatment or a skim plaster finish. Lightly butt boards together. Never force boards into position. Install fixings not closer than 13mm from cut edges and 10mm from bound edges. Position cut edges to internal angles whenever possible, removing

paper burrs with fine sandpaper. Stagger horizontal and vertical board joints between layers by a minimum of 600mm. Locate boards to the centre line of framing where this supports board edges or ends.

## **2.10 Packaging**

Gyproc SoundBloc is supplied on returnable 100% recyclable pallets. All pallets are FSC certified.

## **2.11 Condition of Use**

When installed in accordance with British Gypsum recommendations, Gyproc SoundBloc maintains its mechanical and physical properties for its entire useful life. Direct contact with water should be avoided.

## **2.12 Environment and health during use**

Gyproc SoundBloc is not classified as dangerous according to the Chemicals (Hazard Information and Packaging for Supply) Regulations (CHIP).

## **2.13 Reference service life**

SoundBloc plasterboard is expected to last the service life of a building (60 years).

## **2.14 Extraordinary effects**

### **Fire**

Plasterboard linings provide good fire protection owing to the unique behaviour of the non-combustible gypsum core when subjected to high temperatures. For the purposes of the national Building Regulations, plasterboard is designated a 'material of limited combustibility' (UK Building Regulations, 2006, Approved Document B).

### **Water**

Gyproc SoundBloc is unsuitable for use in areas subject to continuously damp or humid conditions and must not be used to isolate dampness. Plasterboards are not suitable for use in temperatures above 49°C, but can be subjected to freezing conditions without risk of damage.

### **Mechanical destruction**

Gyproc SoundBloc is intended for commercial applications and is a stable product with no significant adverse environmental effects. The products should be installed according to British Gypsum's installation guidelines.

Also refer to section 2.3 Technical data.

## **2.15 Re-use phase**

Gyproc SoundBloc can be recycled through British Gypsum's dedicated Plasterboard Recycling service: 0800 6335040, [bgprs@saint-gobain.com](mailto:bgprs@saint-gobain.com)

## **2.16 Disposal**

Recycling of the product through British Gypsum's dedicated Plasterboard Recycling Service is strongly recommended. If a container of gypsum is sent to landfill, it must be deposited in a separate Monocell. The European waste catalog code is 17 08 02.

## 2.17 Further information

British Gypsum, East Leake, Loughborough, Leicestershire. LE12 6HX

0115 945 1000

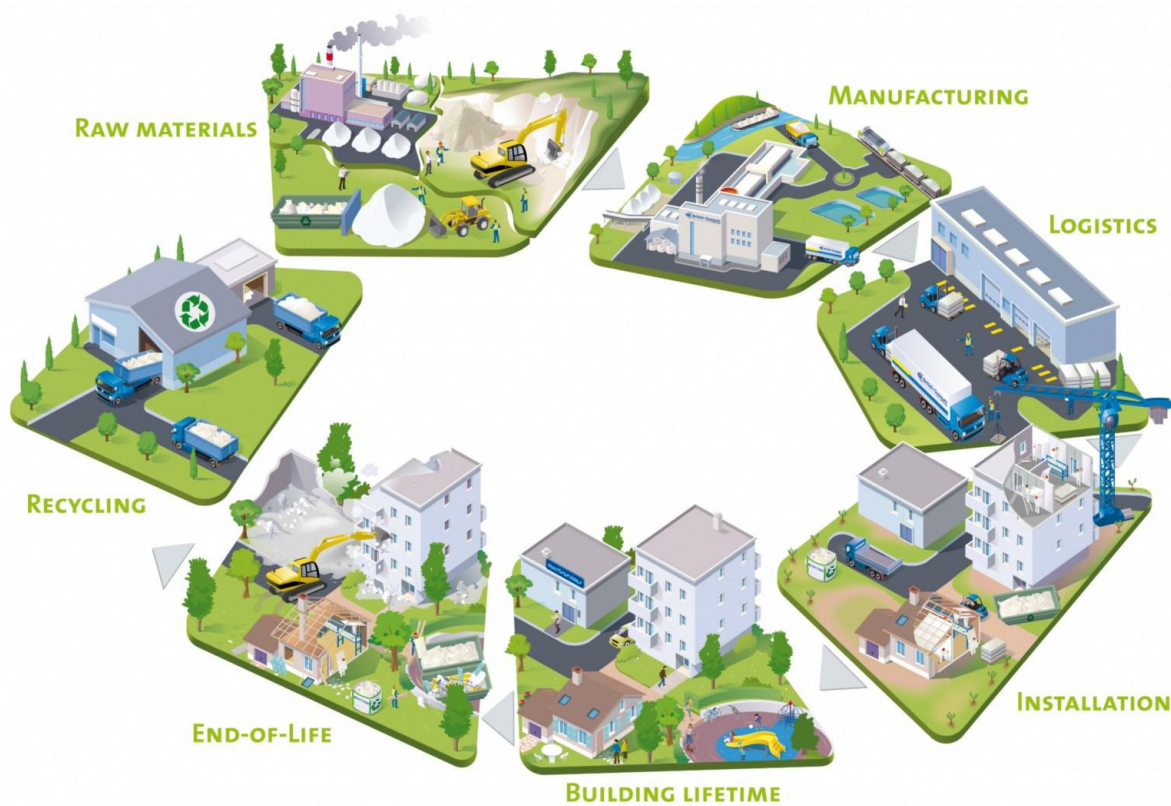
<http://www.british-gypsum.com>

## 3. LCA calculation rules

3.1	<b>FUNCTIONAL UNIT / DECLARED UNIT</b>	The declared unit is 1m <sup>2</sup> of 15mm thick Gyproc SoundBloc. The assumed density is 941.33 kg/m <sup>3</sup> (14.12 kg/m <sup>2</sup> ) of 15mm SoundBloc.
3.2	<b>SYSTEM BOUNDARIES</b>	Cradle to Grave: Mandatory stages = A1-3, A4-5, B1-7, C1-4.
3.3	<b>ESTIMATES AND ASSUMPTIONS</b>	Primary data was gathered from the three production sites in the UK. The distance to a waste disposal site is assumed to be 32km. The end of life and installation waste handling is taken from the Environment Agency's draft report 'An investigation into the disposal and recovery of gypsum waste'.
3.4	<b>CUT-OFF RULES</b>	Data for recycled waste (waste that isn't landfilled or incinerated) is not included in this model, only the transport to the waste recycling centre. Whatever waste is recycled in the Product stage (A1 – A3) is below the cut off limit (1%).
3.5	<b>BACKGROUND DATA</b>	All primary product data was provided by British Gypsum. All secondary data was retrieved using TEAM software using Ecoinvent 2.2 and DEAM databases.
3.6	<b>DATA QUALITY</b>	Primary data was gathered from British Gypsum production figures for four sites in the United Kingdom during the 2012 calendar year. A 2008 fuel mix for electricity usage in the UK was assumed for the production sites.
3.7	<b>PERIOD UNDER REVIEW</b>	The data is representative of the manufacturing processes of 2012.
3.8	<b>ALLOCATIONS</b>	All production data has been calculated on a mass basis.
3.9	<b>COMPARABILITY</b>	A comparison or an evaluation of EPD data is only possible where EN 15804 has been followed and the same building context and product-specific characteristics of performance are taken into account and the same stages have been included in the system boundary. According to EN 15804, EPD of construction products may not be comparable if they do not comply with this standard. According to ISO 21930, EPD might not be comparable if they are from different programmes.

## 4. LCA: Scenarios and additional technical information

### Flow diagram of the Life Cycle



### Product stage, A1-A3

#### Description of the stage:

The product stage of the plasterboard products is subdivided into three modules: A1, A2 and A3 respectively “raw material supply”, “transport” and “manufacturing”.

#### Description of scenarios and additional technical information:

##### A1, raw material supply

This includes the extraction and processing of all raw materials and energy which occur upstream from the 15mm Gyproc SoundBloc manufacturing process.

##### A2, transport to the manufacturer

The raw materials are transported to the manufacturing site. The modelling includes road, boat and/or train transportations (average values) of each raw material.

##### A3, manufacturing

This module includes the manufacture of products and the manufacture of packaging. The production of packaging material is taking into account at this stage. The processing of any waste arising from this stage is also included.



## Construction process stage, A4-A5

### Description of the stage:

The construction process stage is divided into two modules: A4, transport to the building site and A5, installation of 15mm Gyproc SoundBloc in the building.

### A4, transport to the building site:

The table below quantifies the parameters for transporting 15mm Gyproc SoundBloc from production gate to the building site. The distance quoted is a weighted average from production sites to a building site, calculated using postcodes of our customers and quantity of product travelled.

PARAMETER	VALUE (expressed per functional/declared unit)
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc.	44 tonne articulated large goods vehicle (including payload of 24 tonnes) Diesel consumption 38 litres per 100 km travelled
Distance	254.23 km
Capacity utilisation (including empty returns)	100% volume capacity 30% empty returns
Bulk density of transported products	941.33 kg/m <sup>3</sup> (14.12 kg/m <sup>2</sup> )
Volume capacity utilisation factor	1

### A5, installation in the building:

The table overleaf quantifies the parameters for installing 15mm Gyproc SoundBloc at the building site. All installation materials and their waste processing are included.

Figures quoted in the table are based on the Environment Agency's draft report 'An investigation into the disposal and recovery of gypsum waste'. This states that 83% of construction and demolition waste is sent to landfill with the remaining 17% recycled.

British Gypsum encourages recycling construction waste. In 2012, 15mm Gyproc SoundBloc was not sold through retail outlets. 100% of 15mm Gyproc SoundBloc could then be assumed to be recycled by a waste handler at the end of the construction process stage. The figures quoted in the table are therefore likely to be a 'worst case scenario'.

PARAMETER	VALUE (expressed per functional/declared unit)
Ancillary materials for installation (specified by materials)	Screws: 0.015 kg Jointing Compound: 0.35 kg Jointing Tape: 0.00063 kg
Water use	0.11 m <sup>3</sup>
Other resource use	None
Quantitative description of energy type (regional mix) and consumption during the installation process	0 energy use at installation
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	15mm Gyproc SoundBloc: 1.412 kg Screws: 0 kg Jointing Compound: 0.035 kg Jointing Tape: 0.00063 kg Pallet: 0.24 kg
Output materials (specified by type) as results of waste processing at the building site e.g. of collection for recycling, for energy recovering, disposal (specified by route)	15mm Gyproc SoundBloc: 0.240 kg to recycling 15mm Gyproc SoundBloc: 1.172 kg to landfill Screws: 0 kg Jointing Compound: 0.035 kg to recycling Jointing Tape: 0.00063 kg to landfill Pallet: 0.24 kg to recycling

## Use stage (excluding potential savings), B1-B7

### Description of the stage:

The use stage is divided into the following stages:

- B1, use or application of the installed product**
- B2, maintenance**
- B3, repair**
- B4, replacement**
- B5, refurbishment**
- B6, operational energy use**
- B7, operational water use**

### Description of scenarios and additional technical information:

The product has a reference service life of 60 years. This assumes that the product will last in situ with no requirements for maintenance, repair, replacement or refurbishment throughout this period. Gyproc SoundBloc is a passive building product; therefore it has no impact on this stage.

## End-of-life stage C1-C4

### Description of the stage:

This includes the following stages:

**C1, de-construction, demolition**

**C2, transport to waste processing**

**C3, waste processing for reuse, recovery and/or recycling**

**C4, disposal**

### Description of scenarios and additional technical information:

The end of life scenarios have been taken from the Environment Agency's 'An investigation into the disposal and recovery of gypsum waste' draft report.

### End-of-life:






PARAMETER	VALUE (expressed per functional/declared unit) / DESCRIPTION
Collection process specified by type	2.40 kg collected separately and down-cycled 11.72 kg collected with mixed de-construction and demolition waste to landfill
Recovery system specified by type	2.40 kg for recycling
Disposal specified by type	11.72 kg to landfill
Assumptions for scenario development (e.g. transportation)	44 tonne articulated large goods vehicle (including payload of 24 tonnes) Diesel consumption 38 litres per 100 km travelled 32 km from construction/demolition site to waste handler

## 5. LCA: Results









Description of the system boundary (X = Included in LCA, MND = Module Not Declared)

PRODUCT STAGE			CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
Raw material supply	Transport	Manufacturing	Transport	Construction-Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-recovery
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	MND




**RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: per m<sup>2</sup> 15mm Gyproc SoundBloc**

Parameters	Product stage	Construction process stage		Use stage							End-of-life stage				D Reuse, recovery, recycling
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	
 Global Warming Potential (GWP) - <i>kg CO<sub>2</sub> equiv/FU</i>	3.5E+00	2.1E-01	1.3E-01	0	0	0	0	0	0	0	0	1.9E-02	0	0	MND
	The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas, carbon dioxide, which is assigned a value of 1.														
 Ozone Depletion (ODP) <i>kg CFC 11 equiv/FU</i>	1.2E-07	1.5E-07	2.7E-08	0	0	0	0	0	0	0	0	1.3E-08	0	0	MND
	Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbons or halons), which break down when they reach the stratosphere and then catalytically destroy ozone molecules.														
 Acidification potential (AP) <i>kg SO<sub>2</sub> equiv/FU</i>	1.1E-02	1.3E-03	5.9E-04	0	0	0	0	0	0	0	0	1.1E-04	0	0	MND
	Acid depositions have negative impacts on natural ecosystems and the man-made environment incl. buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production, heating and transport.														
 Eutrophication potential (EP) <i>kg (PO<sub>4</sub>)<sup>3-</sup> equiv/FU</i>	1.2E-03	3.1E-04	8.5E-05	0	0	0	0	0	0	0	0	2.8E-05	0	7.6E-04	MND
	Excessive enrichment of waters and continental surfaces with nutrients, and the associated adverse biological effects.														
 Photochemical ozone creation (POPC) <i>kg Ethene equiv/FU</i>	1.1E-03	2.8E-05	3.7E-05	0	0	0	0	0	0	0	0	2.5E-06	0	0	MND
	Chemical reactions brought about by the light energy of the sun. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.														
 Abiotic depletion potential for non-fossil resources (ADP-elements) - <i>kg Sb equiv/FU</i>	4.7E-07	3.4E-11	5.5E-09	0	0	0	0	0	0	0	0	3.0E-12	0	0	MND
 Abiotic depletion potential for fossil resources (ADP-fossil fuels) - <i>MJ/FU</i>	5.2E+01	2.6E+00	2.0E+00	0	0	0	0	0	0	0	0	2.3E-01	0	0	MND
Consumption of non-renewable resources, thereby lowering their availability for future generations.															

RESULTS OF THE LCA - RESOURCE USE: per m<sup>2</sup> 15mm Gyproc SoundBloc

Parameters	Product stage	Construction process stage		Use stage							End-of-life stage				D Reuse, recovery, recycling
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	
 Use of renewable primary energy as energy carrier (PERE) - MJ/FU	4.0E+00	5.7E-04	5.1E-01	0	0	0	0	0	0	0	0	5.1E-05	0	0	MND
 Use of renewable primary energy resources as material utilisation (PERM) - MJ/FU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MND
Total use of renewable primary energy resources (PERT) - MJ/FU	4.0E+00	5.7E-04	5.1E-01	0	0	0	0	0	0	0	0	5.1E-05	0	0	MND
 Use of non-renewable primary energy as energy carrier (PENRE) - MJ/FU	5.7E+01	2.6E+00	2.2E+00	0	0	0	0	0	0	0	0	2.3E-01	0	0	MND
 Use of non-renewable primary energy as material utilisation (PENRM) - MJ/FU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MND
Total use of non-renewable primary energy (PENRT) - MJ/FU	5.7E+01	2.6E+00	2.2E+00	0	0	0	0	0	0	0	0	2.3E-01	0	0	MND
 Use of secondary material (SM) - kg/FU	6.4E-03	0	2.7E-02	0	0	0	0	0	0	0	0	0	0	0	MND
 Use of renewable secondary fuels (RSF) - MJ/FU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MND
 Use of non-renewable secondary fuels (NRSF) - MJ/FU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MND
 Use of net fresh water (FW) - m <sup>3</sup> /FU	1.1E-02	2.5E-04	1.5E-03	0	0	0	0	0	0	0	0	2.2E-05	0	0	MND

**RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: per m<sup>2</sup> 15mm Gyproc SoundBloc**

Parameters	Product stage	Construction process stage		Use stage							End-of-life stage				D Reuse, recovery, recycling
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	
 Hazardous waste disposed (HWD) - <i>kg/FU</i>	4.0E-02	5.9E-05	4.8E-04	0	0	0	0	0	0	0	0	5.3E-06	0	0	MND
 Non-hazardous(excluding inert) waste disposed (NHWD) - <i>kg/FU</i>	1.8E-01	2.9E-04	5.9E-02	0	0	0	0	0	0	0	0	2.5E-05	0	1.2E+01	MND
 Radioactive waste disposed (RWD) - <i>kg/FU</i>	7.5E-05	4.2E-05	8.4E-06	0	0	0	0	0	0	0	0	3.7E-06	0	0	MND
 Components for re-use (CRU) - <i>kg/FU</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MND
 Materials for recycling (MFR) - <i>kg/FU</i>	4.8E-01	1.2E-06	1.7E+00	0	0	0	0	0	0	0	0	1.1E-07	0	0	MND
 Materials for energy recovery (MER) - <i>kg/FU</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MND
 Exported electrical energy (EEE) - <i>MJ/FU</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MND
 Exported thermal energy (EET) - <i>MJ/FU</i>	1.3E-03	0	8.2E-03	0	0	0	0	0	0	0	0	0	0	0	MND

## 6. LCA results interpretation

60.85MJ of the total primary energy comes from the Product stage of the life cycle. The main fuel used on British Gypsum sites is natural gas. It accounts for over 80% of energy usage.

There are very low impacts from the Transport stage of the life cycle. British Gypsum sells this board within Great Britain only. There are four sites in Great Britain which manufacture 15mm SoundBloc so therefore no great distance for the finished product to travel. The finished product is only transported by road.

Production methods maximise the use of recovered water, such as mine-water and leachate, which total 50% of production requirements. Borehole abstraction and reservoir water make up a further 46%, meaning that less than 3% is from the public network. 1% of the water used in production is derived directly from internal water recycling in the manufacturing process.

British Gypsum send zero gypsum waste to landfill.



[1] This indicator corresponds to the abiotic depletion potential of fossil resources.

[2] This indicator corresponds to the total use of primary energy.

[3] This indicator corresponds to the use of net fresh water.

[4] This indicator corresponds to the sum of hazardous, non-hazardous and radioactive waste disposed.

## 7. Requisite evidence

### VOC emissions

The standards used widely in Europe to evaluate VOC levels in plasterboard products are EN13419 & ISO16000. Based upon indicative testing of a sample of plasterboard products, Gyproc plaster board is estimated not to contain a VOC content or Formaldehyde content which exceeds the requirements of European voluntary labelling schemes connected with indoor air quality.

## 8. References

### General principles

The International EPD® System PCR 2012:01 version 1.2 for Construction Products and CPC 54 construction services.

### PCR

Institut Bauen und Umwelt e.V., Königswinter (pub.): Product Category Rules for Building-Related Products and Services from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report, 1.2, April 2013.

Institut Bauen und Umwelt e.V., Königswinter (pub.): Product Category Rules for Building-Related Products and Services from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part B: Requirements on the EPD for Plasterboard. Version 1.5, October 2013.

### Standards:

#### BES 6001: Issue 2

Responsible sourcing of construction products.

#### BS:OHSAS 18001:2007

Occupational Health and Safety Management

#### EA 2012 Draft Report

An investigation into the disposal and recovery of gypsum waste. Environment Agency.

#### EN 520:2004

Gypsum Plasterboards – Definitions, requirements and test methods.

#### EN 13419 series

Indoor Air – superseded by ISO 16000

#### EN 15804:2012-04

Sustainability of construction works – Environmental Product Declarations – Core rules for the product category of construction products.

#### ISO 9001:2008

Quality management systems - Requirements.

#### ISO 14001:2004

Environmental management systems – Requirements with guidance for use.

#### ISO 14025:2011-10

Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

#### ISO 16000 series

Indoor Air

#### Regulations:



**The Building Regulations, 2006 edition incorporating 2010 and 2013 amendments**  
Schedule 1, Approved Document B (Fire Safety) Volume 1 Dwelling House

**The Building Regulations, 2006 edition incorporating 2007, 2010 and 2013 amendments**  
Schedule 1, Approved Document B (Fire Safety) Volume 2 Buildings other than Dwelling Houses