

## Statement of Verification

BREG EN EPD No.: 000218

Issue 2

This is to verify that the  
**Environmental Product Declaration**  
provided by:  
**SAS International**



is in accordance with the requirements of:  
**EN 15804:2012+A1:2013**

and  
**BRE Global Scheme Document SD207**

This declaration is for:  
**SAS System 500 Metal ceiling Baffle with Acoustic Inserts**

### Company Address

Parc Crescent  
Waterton Industrial Estate  
Bridgend  
CF31 3XU



A handwritten signature in black ink, appearing to read 'Laura Critien'.

Laura Critien  
Operator

05 May 2020  
Date of this Issue

Signed for BRE Global Ltd

13 November 2018  
Date of First Issue

12 November 2023  
Expiry Date



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## Environmental Product Declaration

**EPD Number: 000218**

### General Information

| EPD Programme Operator  | Applicable Product Category Rules   |
|---|---|
| BRE Global<br>Watford, Herts<br>WD25 9XX<br>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   |
| SAS International<br>31 Sutton Business Park<br>Reading<br>UK<br>RG6 1AZ  | BRE LINA Version 2.0.8  |
| Declared/Functional Unit  | Applicability/Coverage  |
| 1m <sup>2</sup> of SAS System 500 metal ceiling baffle with acoustic inserts  | Manufacturer specific 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 <sup>a</sup>   |   |
| Independent verification of the declaration and data according to EN ISO 14025:2010<br><input type="checkbox"/> Internal <input checked="" type="checkbox"/> External   |   |
| (Where appropriate <sup>b</sup> )Third party verifier:<br>Kim Allbury   |   |
| a: Product category rules<br>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 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/>           | <input type="checkbox"/> |

Note: Ticks indicate the Information Modules declared.

## Manufacturing site(s)

SAS International  
Waterton Industrial Estate  
Bridgend  
South Wales  
UK

## Construction Product:

### Product Description

System 500 consist of powder coated steel baffle with acoustic insert, made from various combinations and thicknesses of acoustic facings, insulation layers bonded together with adhesive. Standard baffle lengths are 1200mm, 1500mm and 1800mm. Baffle depths are between 100 mm and 500mm, However bespoke size are available on request. System 500 can be plain or perforated to meet acoustic and client requirements.

System 500 acoustic baffles offer a visually engaging alternative to suspended acoustic ceiling systems, ideal for exposed soffit areas. Baffles offer exceptional absorption characteristics, effectively controlling reverberation within these highly sound reflective interiors. Available in numerous colours and sizes, the baffles can be suspended at a range of heights for further visual interest.

### Technical Information

#### Property

System components are manufactured and tested in accordance with BS EN 13964:2014.

**Essential Characteristics** Performance:

Reaction to Fire: (up to) A2-S1-D0 European Reaction to Fire classification system (Euroclasses)

Release of Formaldehyde: CLASS E1

Release of Asbestos: NO CONTENT

Sound Absorption: (up to) Single Value  $\alpha_{\omega}$  = 1.00 class A

Durability: CLASS B

### Main Product Contents

The raw material quantities have been taken for all variations of the system and modelled as a single dataset. The main product contents listed below represent the average values derived from this dataset, with a weight of 7.078Kg/ m<sup>2</sup>

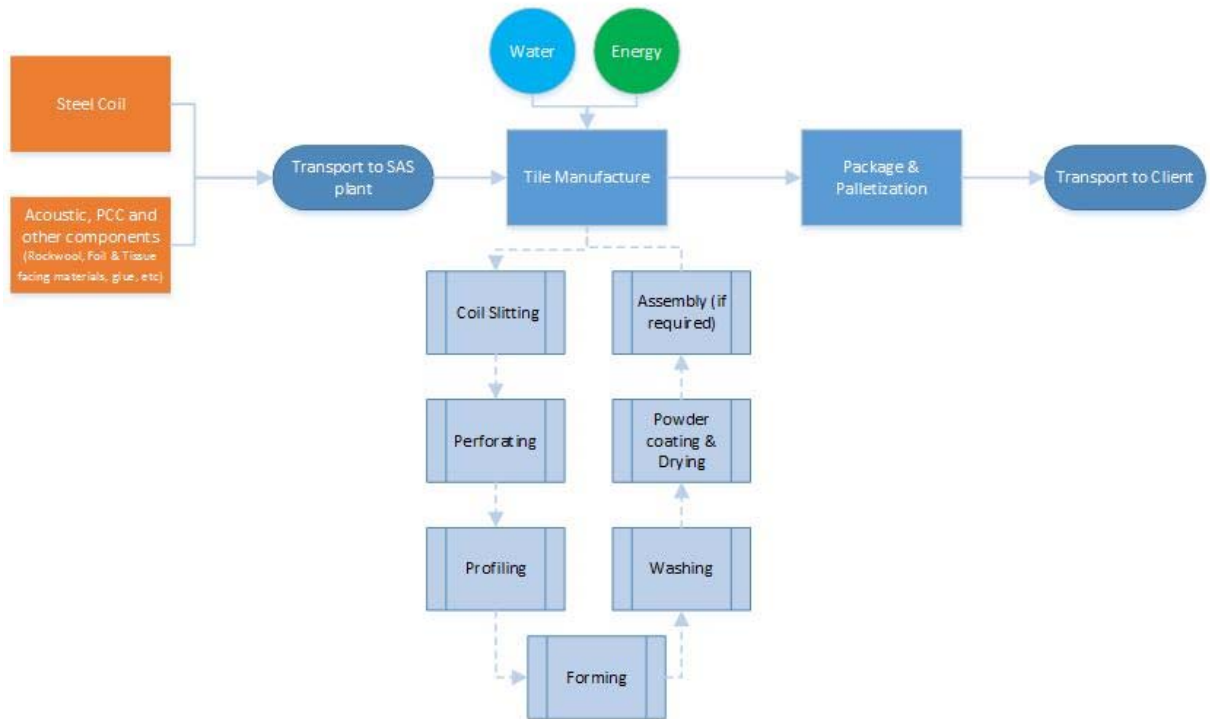
| Material/Chemical Input  | %    |
|--------------------------|------|
| Steel                    | 93%  |
| Polyester Powder Coating | 3%   |
| Acoustic insulation core | 2%   |
| Tissue facing            | 1.5% |
| Adhesive                 | 0.5% |
|                          |      |

### Manufacturing Process

The Bridgend factory is split into two separate units; Unit 1 is where the tile systems are formed, including the addition of the various types of acoustic padding. Key Unit 1 processes include: slitting of the steel/aluminium coils, perforating, washing, spray coating and drying. These processes account for the most energy intensive stages of the products life cycle. Unit 2 is where the grid systems are rolled and formed; it houses less energy-intensive processes than Unit 1.

Process flow diagram

SAS Ceiling Steel Tile Manufacturing Process



Life Cycle Assessment Calculation Rules

Declared / Functional unit description

1m2 of SAS 500 System (7.078Kg/ m<sup>2</sup>) - Polyester powder coated steel Baffle with Acoustic infills for use in ceiling applications. The product represented in this EPD is based on manufacturing data for all types of steel SAS 500 Baffles with acoustic inserts systems made.

System boundary

This is a cradle-to-gate with options LCA, reporting all production life cycle stages of modules A1 to A3, and end of life disposal module C4 in accordance with EN15804:2012+A1:2013.

### Data sources, quality and allocation

The supporting LCA study was carried out using BRE LINA v2.0.8 using manufacturer specific data provided by SAS International for the production period of the 12 months of 2017. Raw material quantities have been taken from recorded production/manufacture data and product geometry from the Syteline internal production system, for all variations of the system 500 steel tile and acoustic insert made in the 12 month period.

SAS International manufacture other products in addition to the System 500 so some allocation of primary data has been carried out. Since the manufacturing steps responsible for slitting, perforating and drying the coated metal are the most energy intensive processes of the site, it is assumed that the gas and electricity consumption is the same for every m<sup>2</sup> of metal product produced. This same allocation was applied to total site water usage. Production waste has been allocated to individual products by applying a percentage wastage rate (based on historical values and used for stock management) to each quantity of raw material. All packaging and non-production waste (waste packaging) has also been allocated using this methodology with applied percentage based on planned/estimated packaging and waste requirements for each product/system/components.

Secondary data has been drawn from the BRE LINA database v2.0.29 and the background LCI datasets are based onecoinvent v3.2 upstream extraction and/or processing of inputs are included within the use of the background datasets within LINA. Emissions from fuels used are included within the relevant datasets.

### 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.

## LCA Results

Results per declared unit 1m<sup>2</sup> (7.078Kg/ m<sup>2</sup>) of this SAS System 500 baffle with acoustic insert for the declared modules can be found in the following.

(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 <sub>2</sub> equiv. | kg CFC 11 equiv. | kg SO <sub>2</sub> equiv. | kg (PO <sub>4</sub> ) <sup>3-</sup> equiv. | kg C <sub>2</sub> H <sub>4</sub> equiv. | kg Sb equiv. | MJ, net calorific value. |
| Product stage                               | Raw material supply      | A1   | 1.66e+1                   | 1.24e-6          | 1.89e-1                   | 6.94e-2                                    | 1.78e-2                                 | 2.20e-3      | 2.32e+2                  |
|   | Transport                | A2   | 1.37e-1                   | 2.60e-8          | 4.69e-4                   | 1.24e-4                                    | 9.49e-5                                 | 2.53e-7      | 2.13                     |
|   | Manufacturing            | A3   | 5.41                      | 5.51e-7          | 3.01e-2                   | 7.45e-3                                    | 2.27e-3                                 | 9.60e-6      | 1.04e+2                  |
|   | Total (of product stage) | A1-3 | 2.21e+1                   | 1.82e-6          | 2.19e-1                   | 7.70e-2                                    | 2.01e-2                                 | 2.21e-3      | 3.38e+2                  |
|   | Disposal                 | C4   | 1.03e-4                   | 2.73e-11         | 7.24e-7                   | 2.38e-7                                    | 1.20e-7                                 | 1.47e-10     | 2.54e-3                  |

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;

## LCA Results (continued)

| Parameters describing resource use, primary energy |                          |      | PERE    | PERM     | PERT    | PENRE   | PENRM | PENRT   |
|--|--------------------------|------|---------|----------|---------|---------|-------|---------|
|  |                          |      | MJ      | MJ       | MJ      | MJ      | MJ    | MJ      |
| Product stage                                      | Raw material supply      | A1   | 2.18e+1 | 2.95e-4  | 2.18e+1 | 2.46e+2 | 0     | 2.46e+2 |
|  | Transport                | A2   | 3.18e-2 | 8.49e-8  | 3.18e-2 | 2.12    | 0     | 2.12    |
|  | Manufacturing            | A3   | 2.18e+1 | 1.53e-5  | 2.18e+1 | 1.28e+2 | 0     | 1.28e+2 |
|  | Total (of product stage) | A1-3 | 4.37e+1 | 3.11e-4  | 4.37e+1 | 3.76e+2 | 0     | 3.76e+2 |
|  | Disposal                 | C4   | 7.76e-5 | 2.12e-10 | 7.76e-5 | 2.56e-3 | 0     | 2.56e-3 |

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<br>net calorific value | MJ<br>net calorific value | m <sup>3</sup> |
| Product stage   | Raw material supply      | A1   | 0  | 0                         | 0                         | 4.37e-1        |
|   | Transport                | A2   | 0  | 0                         | 0                         | 4.92e-4        |
|   | Manufacturing            | A3   | 0  | 0                         | 0                         | 3.25e-2        |
|   | Total (of product stage) | A1-3 | 0  | 0                         | 0                         | 4.68e-1        |
|   | Disposal                 | C4   | 0  | 0                         | 0                         | 2.86e-6        |

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   | 3.56    | 1.51    | 5.50e-4 |  |
|   | Transport                | A2   | 8.20e-4 | 1.71e-1 | 1.48e-5 |  |
|   | Manufacturing            | A3   | 2.20e-2 | 1.78e-1 | 5.96e-4 |  |
|   | Total (of product stage) | A1-3 | 3.58    | 1.86    | 1.16e-3 |  |
|   | Disposal                 | C4   | 1.91e-6 | 1.00e-2 | 1.57e-8 |  |

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   | 0   | 0       | 0   | 0                     |
|  | Transport                | A2   | 0   | 0       | 0   | 0                     |
|  | Manufacturing            | A3   | 0   | 4.07e-1 | 0   | 0                     |
|  | Total (of product stage) | A1-3 | 0   | 4.07e-1 | 0   | 0                     |
|  | Disposal                 | C4   | 0   | 7.06    | 0   | 0                     |

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 |
| C4 disposal at end of life                     | It is assumed that as the main element of the 500 system is steel and a valuable material, 100% of the product is recycled at end of life. Acoustic inserts can be disassembled back to core components/layers and then recycled. Aluminium foil facing as valuable material and is 100% recyclable via general recycling streams. 100% of the mineral wool insulation core can be recycled via to manufacturer. It is assumed that the adhesive bond will mainly remain on the face of the acoustic insulation when the layers are separated and will be disposed of as part of the insulation recycling process. Tissue facing material is 100% recyclable, however significant volume is required to make it commercially viable. Therefore it is assumed that it would be sent to landfill at the end of life |       |         |

## 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.

BSI. Environmental management – Life cycle assessment – requirements and guidelines. BS EN ISO 14044:2006. London, BSI, 2006.

BSI. Suspended Ceilings - Requirements and tests methods. BS EN 13964:2014. London, BSI, 2014.