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Statement of Verification

BREG EN EPD No.: 224   Issue 1

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 710 Linear Profile

BRE/Global Verified EPD

Company Address

Parc Crescent
Waterton Industrial Estate
Bridgend
CF31 3XU

SAS International

(signature)	Laura Critien	13 November 2018
Signed for BRE Global Ltd	Operator	Date of this Issue
13 November 2018		10 November 2023
Date of First Issue		Expiry Date

BRE/Global Verified EPD

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Environmental Product Declaration

EPD Number: 224

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
SAS International 31 Sutton Business Park Reading UK RG6 1AZ	BRE LINA Version 2.0.8

Declared/Functional Unit	Applicability/Coverage
1LM of SAS System 710 Linear profiles	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 [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

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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							
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)

SAS International Waterton Industrial Estate Bridgend South Wales UK	

Construction Product:

Product Description

System 710 comprises a powder coated steel rolled profile which simply hooks onto the notched J-bar carrier rail and is a highly cost-effective linear profile option.
System 710 is a discontinuous linear profile system intended for use in corridors and shorter run applications between ceiling features. Standard lengths of profile are 3000mm and standard width of 30mm with depths of 60mm and 98mm, longer continuous runs of profile can be achieved by using a splices to join profiles. System710 is a discontinuous linear profile system intended for use in corridors and shorter run applications between ceiling features and is ideally suited to high traffic zones requiring open areas for smoke extraction

Technical Information

Property
System components are manufactured and tested in accordance with BS EN 31964:2014. **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

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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 3.784Kg/LM
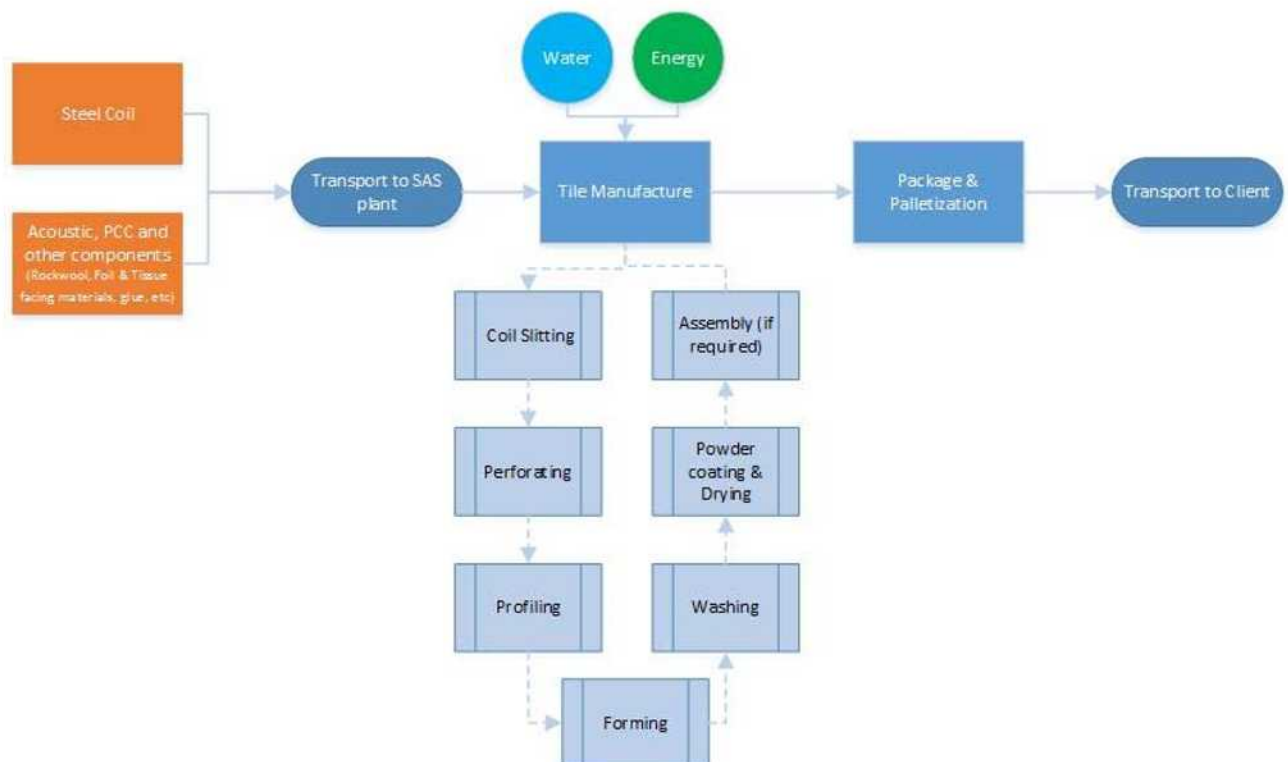
Material/Chemical Input	%
Steel	95%
Polyester Powder Coating	5%

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

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Life Cycle Assessment Calculation Rules

Declared / Functional unit description

1LM of SAS System 710 (3.784Kg/LM) - Polyester powder coated steel linear profile for use in ceiling applications.

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 SAS 710 linear profile system made in the 12 month period.

SAS International manufacture other products in addition to the System 710 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 linear meter (LM) 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 on ecoinvent 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.

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LCA Results

Results per declared unit 1LM (3.784Kg/LM) of this SAS System 710, 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_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	9.27	6.86e-7	1.04e-1	3.87e-2	1.00e-2	1.22e-3	1.31e+2
	Transport	A2	9.36e-2	1.76e-8	3.18e-4	8.41e-5	6.25e-5	1.98e-7	1.44
	Manufacturing	A3	4.53	6.22e-7	3.33e-2	8.73e-3	2.95e-3	1.47e-5	1.15e+2
	Total (of product stage)	A1-3	1.39e+1	1.32e-6	1.38e-1	4.75e-2	1.30e-2	1.24e-3	2.47e+2
	Disposal	C4	0	0	0	0	0	0	0

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	9.67	2.49e-4	9.67	1.38e+2	0	1.38e+2
	Transport	A2	2.13e-2	6.24e-8	2.13e-2	1.43	0	1.43
	Manufacturing	A3	4.40e+1	2.00e-5	4.40e+1	1.41e+2	0	1.41e+2
	Total (of product stage)	A1-3	5.37e+1	2.69e-4	5.37e+1	2.80e+2	0	2.80e+2
	Disposal	C4	0	0	0	0	0	0

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

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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	m³
Product stage	Raw material supply	A1	0	0	0	2.41e-1
	Transport	A2	0	0	0	3.31e-4
	Manufacturing	A3	0	0	0	4.44e-2
	Total (of product stage)	A1-3	0	0	0	2.86e-1
	Disposal	C4	0	0	0	0

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	2.01	8.68e-1	3.11e-4
	Transport	A2	5.78e-4	1.05e-1	9.96e-6
	Manufacturing	A3	3.36e-2	2.26e-1	6.43e-4
	Total (of product stage)	A1-3	2.04	1.20	9.64e-4
	Disposal	C4	0	0	0

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

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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	3.69e-1	0	0
	Total (of product stage)	A1-3	0	3.69e-1	0	0
	Disposal	C4	0	3.78	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 SAS 710 system is steel and a valuable material, 100% of the product is recycled at 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.

BS EN 31964:2014 Suspended Ceiling requirements and tests methods

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