Statement of Verification

BREG EN EPD No.: 000467 Issue 01

This is to verify that the

Environmental Product Declaration

provided by:

Paragon Carpet Tiles

is in accordance with the requirements of:

EN 15804:2012+A1:2013

and

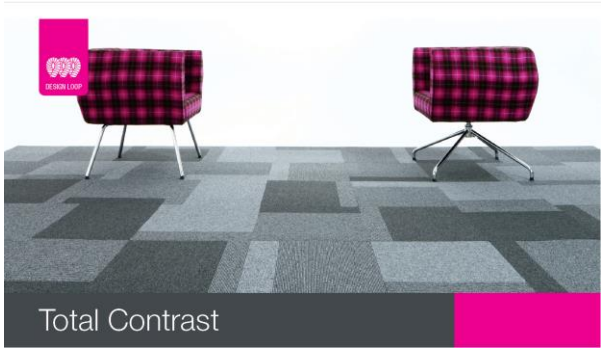
BRE Global Scheme Document SD207

This declaration is for:

1 m² Total Contrast Econyl nylon 6 loop pile tufted bitumen backed carpet tile, total tile weight 4.39 kg/m2

Company Address

Paragon Carpets - A Division of National Floorcoverings Ltd
Farfield Park,
South Yorkshire,
S63 5DB



Signed for BRE Global Ltd	Emma Baker Operator	23 October 2022 Date of this Issue
23 October 2022 Date of First Issue		22 October 2027 Expiry Date

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Environmental Product Declaration

EPD Number: 000467

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**
Paragon Carpets - A Division of National Floorcoverings Ltd Farfield Park, Manvers, Wath upon Dearne, Rotherham, South Yorkshire, S63 5DB	Andrew Dutfield/ BRE LINA 2.0
Declared Unit	**Applicability/Coverage**
1 m² Total Contrast Econyl nylon 6 loop pile tufted bitumen backed carpet tile, total tile weight 4.39 kg/m²	Product Average.
EPD Type	**Background database**
Cradle to Gate	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

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)

Paragon Carpets - A Division of National Floorcoverings Ltd
Farfield Park, Manvers, Wath upon Dearne, Rotherham, South Yorkshire, S63 5DB

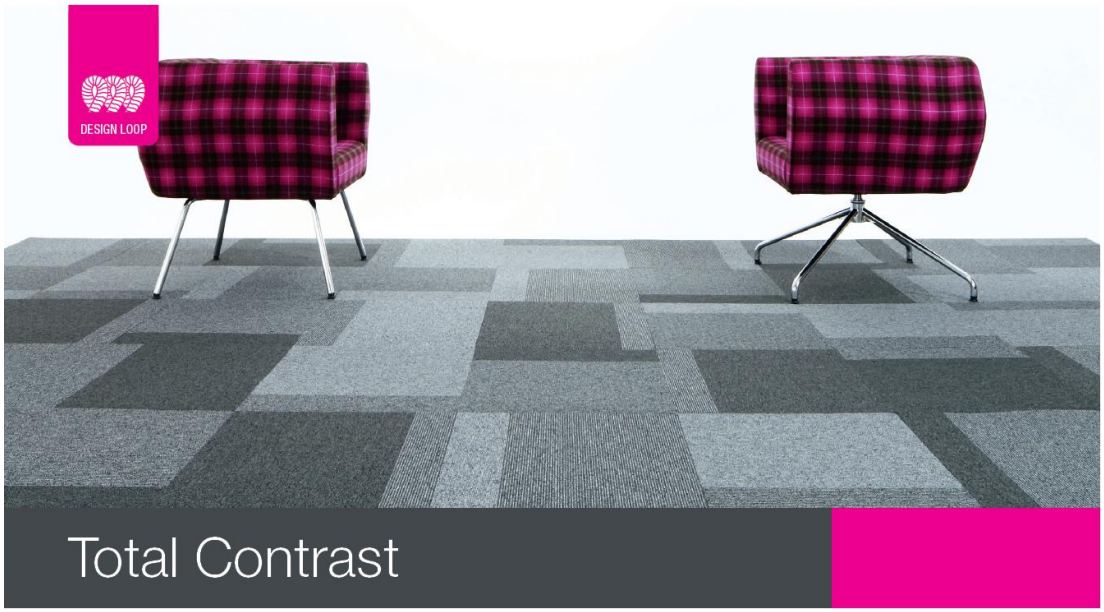
Construction Product

Product Description

This EPD is for the Total Contrast carpet tile product only.
Style: Tufted 1/10” Gauge Loop Pile Tile
Yarn Construction: 100% Econyl nylon 6, pile weight 600 g/m^2
Backing: 100% Envirobase - minimum of 75% recycled material

Technical Information

Property	Value, Unit
Colour Fastness Light (BS EN ISO 105:B02)	>6
Shampoo (BS 1006:UK-TB:1990)	4-5
Dry Rubbing (BS EN ISO 105:B01)	4-5
Wet Rubbing (BS EN ISO 105:X12)	4-5
BS5287 Assessment and labelling of Textile Floorcovering tested to BS4790 (Hot Metal Nut Test)	Low Radius of Char
Flammability BS EN 13501	Class Bfl-s1
VOC Content in relation to EN 14041:2004	E1



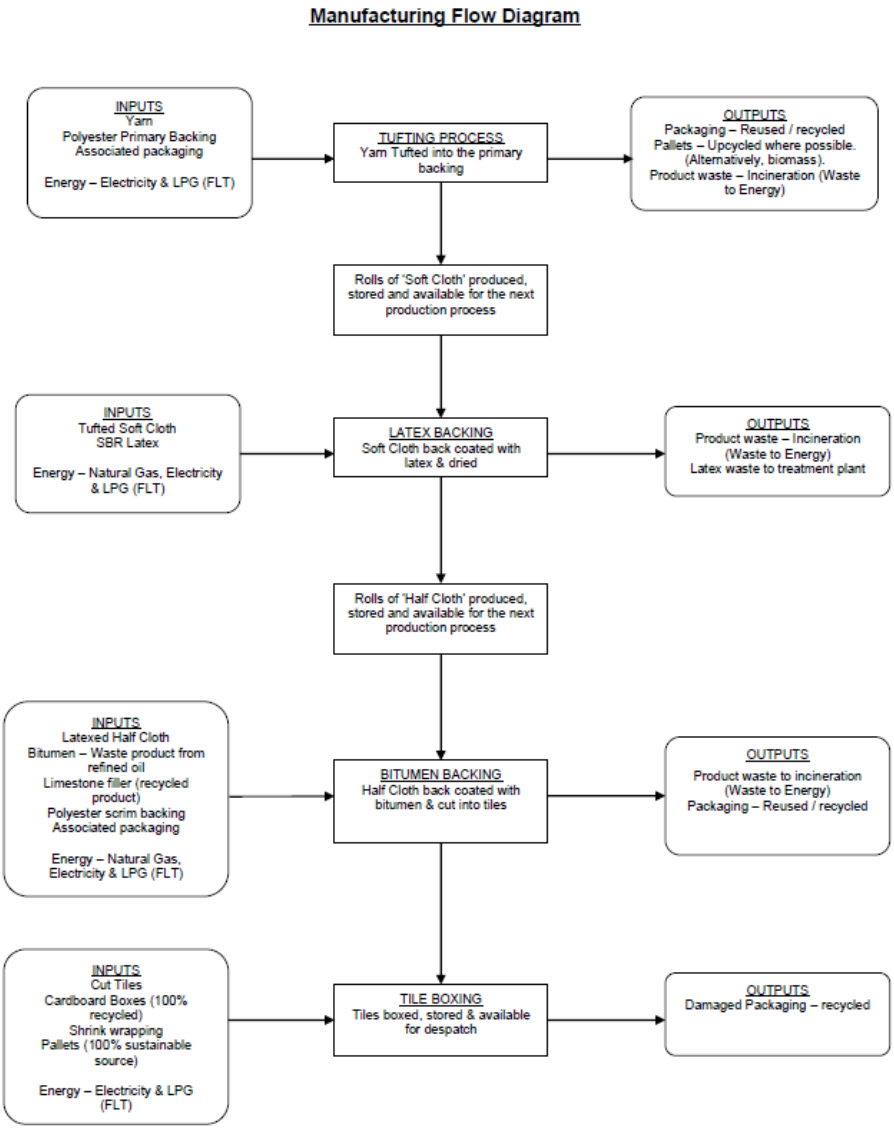
Main Product Contents

Material/Chemical Input	%
Econyl yarn	13.7
Primary backing	2.1
Latex	15.9
Bitumen	15.5
Filler	51.7
Secondary backing	1.1

Manufacturing Process

Yarn is tufted into the primary backing during the tufting process which produces rolls of soft cloth. The soft cloth is coated in latex, heated and then dried, ready for the secondary backing process. The bitumen secondary backing, including the limestone filler and scrim, is then applied to the latex coated soft cloth and the carpet is cut into tiles by a machine. The ‘off-cuts’ are sent to incineration and the carpet tiles are boxed and shrink wrapped ready for dispatch.

Process flow diagram



Construction Installation

The method of installation should conform to BS5325. Tiles should be allowed to condition for 24 hrs at the expected temperature and humidity levels.

Use Information

Daily vacuuming with a twin motored upright vacuum cleaner, preferably with an adjustable head, is recommended. It is essential to remove all loose soil daily because if left to build up, the particles of dirt are much harder to remove and are more damaging to the fibre structure, thereby decreasing the life of the carpet. Attention should be given to areas where there is extra traffic and in entrances to buildings where extra vacuuming is necessary.

Depending on the level of installation trafficking, the carpet should be periodically deep cleaned using high performance hot water extraction equipment. Rotary brush cleaning not recommended.
A reputable contract cleaner should be used, preferably NCCA registered (for NCCA details visit www.ncca.co.uk). It is important that the carpet is deep cleaned at least once a year.

End of Life

Paragon Carpet Tiles operates a zero landfill policy. At present the most practical, current alternative to landfill is energy recovery where the uplifted product is used as a fuel.

Life Cycle Assessment Calculation Rules

Declared unit description

1 m² Total Contrast Econyl nylon 6 loop pile tufted bitumen backed carpet tile, total tile weight 4.39 kg/m²

System boundary

This is a cradle-to-gate LCA, reporting all production life cycle stages of modules A1 to A3 in accordance with EN 15804:2012+A1:2013.

Data sources, quality and allocation

Total Contrast declared unit is 1 m² of product with a weight of 4.39 kg/m². The manufacturing data supplied relates to the Manvers site and covers the working period 1st January 2020 to 31st December 2020. The site manufactures other products in addition to Total Contrast. Allocations have been made according to the following table:

Raw materials	Production by mass x % of recipe
Packaging, energy, water, general waste, production waste	% of total production by m²

Allocations have been made according to the provisions of the BRE PCR PN514 and EN 15804.

Secondary data have been drawn from the BRE LINA database v2.0.87 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

All raw materials and energy input to the manufacturing process have been included, except for direct emissions to air, water and soil, which are not measured. The inventory process in this LCA includes all data

related to raw material, packaging material, ancillary and consumable items. Process energy, water use, water discharge and waste are included.

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_2H_4 equiv.	kg Sb equiv.	MJ, net calorific value.
Product stage	Raw material supply	A1	5.81E+00	6.13E-07	3.55E-02	1.05E-02	5.02E-03	1.00E-04	1.51E+02
	Transport	A2	7.18E-02	1.32E-08	2.40E-04	6.33E-05	4.19E-05	1.89E-07	1.08E+00
	Manufacturing	A3	7.64E-01	6.12E-08	2.70E-03	1.13E-03	2.52E-04	1.39E-06	1.03E+01
	Total (of product stage)	A1-3	6.64E+00	6.87E-07	3.85E-02	1.17E-02	5.32E-03	1.02E-04	1.62E+02

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	7.09E+00	1.17E-02	7.10E+00	1.55E+02	7.52E+01	2.30E+02
	Transport	A2	1.44E-02	5.36E-08	1.44E-02	1.08E+00	0.00E+00	1.08E+00
	Manufacturing	A3	2.94E+00	1.39E-06	2.94E+00	1.21E+01	0.00E+00	1.21E+01
	Total (of product stage)	A1-3	1.01E+01	1.17E-02	1.01E+01	1.69E+02	7.52E+01	2.30E+02

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

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	0.00E+00	0.00E+00	0.00E+00	1.24E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	2.35E-04
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	3.55E-03
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	1.27E-01

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	6.65E-02	2.72E-01	5.26E-04
	Transport	A2	4.54E-04	5.06E-02	7.48E-06
	Manufacturing	A3	1.41E-02	1.18E-01	5.00E-05
	Total (of product stage)	A1-3	8.10E-02	4.40E-01	5.83E-04

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

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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	2.82E-02	0.00E+00	0.00E+00
	Total (of product stage)	A1-3	0.00E+00	2.82E-02	0.00E+00	0.00E+00

CRU = Components for reuse;
MFR = Materials for recycling
MER = Materials for energy recovery;
EE = Exported Energy

Interpretation

Analysis of the results shows that the following raw materials have the highest and second highest impacts for the selected indicators:

Indicator	Highest impact	2nd highest impact
GWP	Econyl (47.4%)	Latex (31.8%)
ODP	Bitumen (44.0%)	Latex (29.8%)
AP	Econyl (48.6%)	Latex (26.0%)
EP	Econyl (50.8%)	Latex (22.4%)
POCP	Latex (45.7%)	Econyl (27.8%)
ADPE	Latex (78.6%)	Econyl (10.4%)
ADPF	Latex (38.3%)	Econyl (27.2%)

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. Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test. BS EN ISO 105-B02:2014.

BSI. Textiles — Tests for colour fastness — Part B01: Colour fastness to light: Daylight. BS EN ISO 105-B01:2014.

BSI. Methods of Test for Colour Fastness of Textiles and Leather. BS 1006, 1990 Edition, October 31, 1990

BSI. Fire classification of construction products and building elements. Classification using data from reaction to fire tests. BS EN 13501-1:2018.

BSI. Resilient, textile and laminate floor coverings - Essential characteristics (incorporating corrigenda Nos. 1 and 2) (Withdrawn). BS EN 14041:2004.