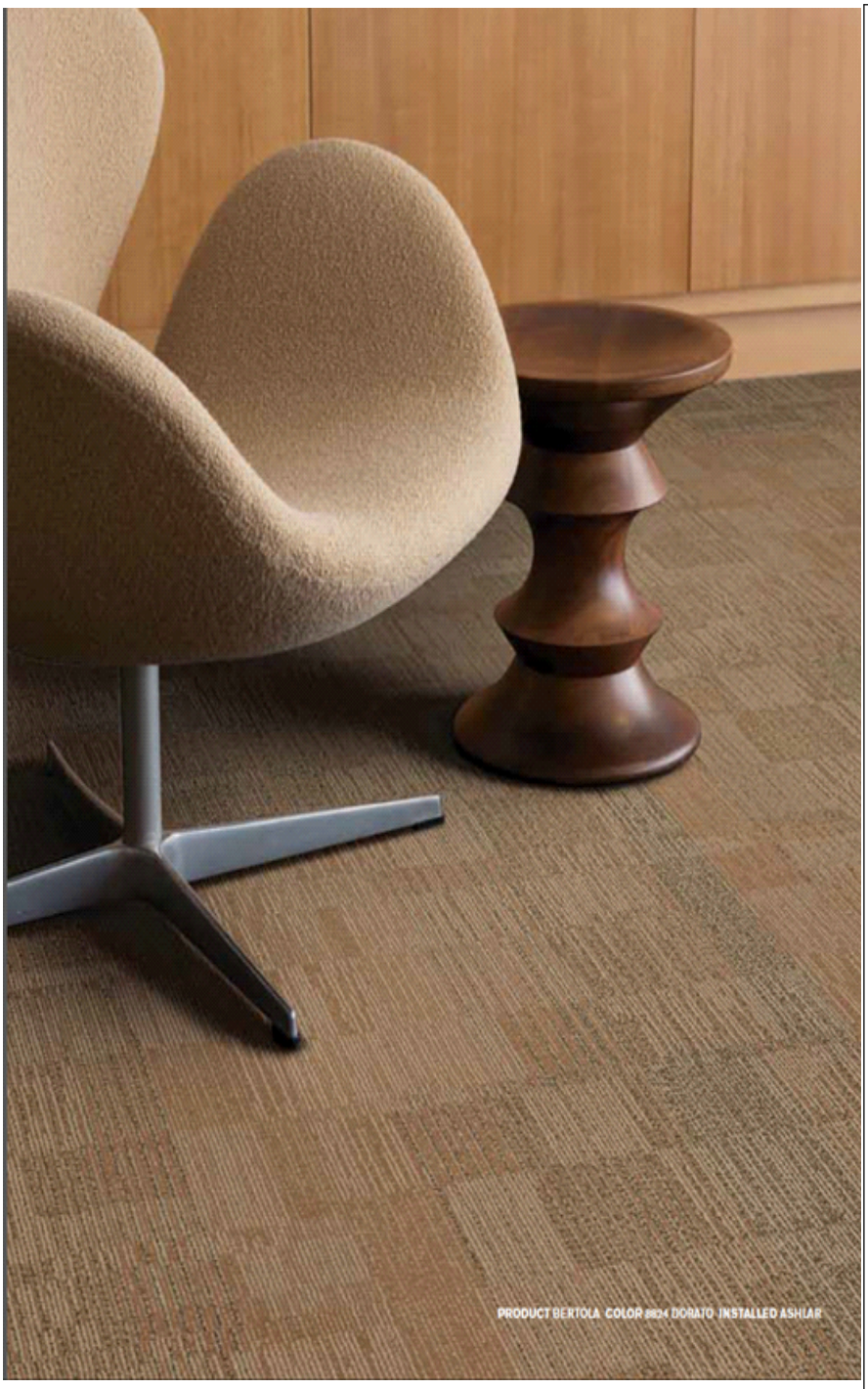
ENVIRONMENTAL PRODUCT DECLARATION

MODULAR CARPET

INTERFACE ASIA PACIFIC - AUSTRALIA
CUSHIONBAC®RE, TYPE 66 NYLON



Interface®

For more than four decades, Interface has consistently led the industry through design and innovation and is a world leader in environmental sustainability. We are committed to transparency and will continue to share our progress as we work to become a carbon negative company by 2040.

At Interface, we believe Life Cycle Assessment is critical for evaluating the environmental impacts of our products. The LCA-based Environmental Product Declaration is the best way to provide full disclosure of those impacts to our customers.

Interface was one of the first companies to develop EPDs for all of our products manufactured globally, and we are committed to providing this level of transparency to our customers, partners and the industry.

For more information visit www.interface.com

UL CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

ENVIRONMENTAL PRODUCT DECLARATION

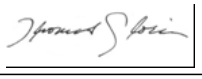
Interface®

According to ISO 14025 and EN 15804

Interface Asia Pacific - Australia
Modular Carpet on CushionBac®RE
Nylon 66 Styles

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

PROGRAM OPERATOR	UL Environment
DECLARATION HOLDER	Interface, Inc.
DECLARATION NUMBER	4787521006.118.1
DECLARED PRODUCT	Interface Asia Pacific - Australia modular carpet on CushionBacRE, Nylon 66 styles
REFERENCE PCR	IBU and UL Environment. PCR for Building-Related Products and Services - Part A: Calculation rules for the LCA and Requirements Project Report, (IBU/ULE,Version 1.306.19.2014) IBU. Part B: Requirements on the EPD for Floor coverings (IBU, V1.6, 07.30.2014)
DATE OF ISSUE	January 20, 2017
PERIOD OF VALIDITY	5 Years
CONTENTS OF THE DECLARATION	Product definition and information about building physics Information about basic material and the material's origin Description of the product's manufacture Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications

The PCR review was conducted by:	UL Environment Review Panel
	IBU Independent Expert Committee (SRV)
	epd@ulenvironment.com
This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories ☐ INTERNAL ☒ EXTERNAL	
	Wade Stout, UL Environment
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	
	Thomas Gloria, Industrial Ecology Consultants

This EPD conforms with EN 15804

ENVIRONMENTAL PRODUCT DECLARATION

Interface®

Interface Asia Pacific - Australia
Modular Carpet on CushionBac®RE
Nylon 66 Styles

According to ISO 14025

Product

Product description

This Environmental Product Declaration covers all styles and patterns of modular carpet on CushionBac®RE recycled backing with recycled Nylon yarn. The products are manufactured in Minto Australia. The products range in yarn weight from 407 to 1424 grams per square meter. A medium yarn weight of 678 grams per square meter is reported and the Global Warming Potential of all additional product yarn weights are reported.

Application

Modular installation of textile floor covering in commercial buildings

Technical Data

Name	Value	Unit
Product Form	Tiles	-
Type of Manufacture	Tufted	-
Yarn Type	Nylon	-
Secondary Backing	Recycled polyester	-
Total Weight	3.663	grams/m^2
Total Yarn Weight	678	grams/m^2

Delivery Status

Available in a range of tile and plank sizes, mostly commonly 0.5 x 0.5 meter squares and 1.0 x 0.25 meter planks.

Base Materials

Component	Material	Mass %
Yarn	Nylon	6%
	Post-consumer recycled Nylon	2%
	Pre-consumer recycled Nylon	15%
Primary backing	Pre-consumer recycled polyester	2%
	Polyester	1%
Precoat backing	Ethylene vinyl acetate copolymer	4%
	Zinc omadine	0%
	Alcohol ethoxy sulfate	0%
Stabilization layer	Fiberglass	2%
Secondary backing	Limestone	28%
	Polyvinyl chloride	10%
	DINCH, cyclohexane dicarboxylic acid, diisononyl ester	7%
	Post-industrial recycled polyester	23%

Yarns are tufted into a primary backing fabric. A precoat backing is applied to the reverse side of the tufted face cloth to fix the yarns in place then a secondary backing which includes a stabilization layer is applied. The product is then cut into tiles and packaged.

Environment and health during manufacturing

- ISO 14001 Environmental Management System

Packaging

Carpet tiles are packaged in boxes made with >50% recycled content cardboard. Packaging waste should be reused or sent local cardboard recycling facilities.

Conditions of use

During the reference service life of the carpet, it should be cleaned in accordance with the product warranty instructions including vacuuming and extraction cleaning. The frequency is dependent upon the expected foot traffic and local conditions.

Environment and health during use

Product has low VOC emissions as indicated by compliance with ISO 10580 total volatile organic compound emissions less than 500 ug/m^2/hr.

Reference service life

The reference service life of this product is 15 years based on product warranty.

Extraordinary effects

Fire

Name	Value
Radiant panel (AS ISO 9239.1)	≤ 4.5
Smoke density (AS ISO 9239.1-2003)	< 200

Water: The product's backing is impervious to water, protecting the subfloor from leaks and spills. Exposure to flooding for long periods may result in damage to the product.

Mechanical destruction: The product is intended for commercial applications with heavy wear (BS EN985 Castor Chair > 3). Performance requires proper installation according to Interface installation guidelines.

Re-use phase

The modular aspect of the product along with Tactile installation as opposed to glue-down methods allows for easy re-use of the product. The product is intended to be recycled through Interface's ReEntry 2.0 process.

Disposal

At end of life the product should be returned to Interface through Interface's ReEntry 2.0 process by contacting Interface customer service at 800-785-277. Disposal in municipal landfill or commercial incineration facilities is permissible in accordance with local regulations.

LCA: Calculation rules

Declared unit

Name	Value	Unit
Declared unit	1	m^2
Conversion factor to 1 kg	0.231	-
Mass	3.663	kg/m^2

System boundary

This study includes all relevant cradle-to-grave environmental information for the life cycle of one square meter of flooring. The analysis period for each module is one fiscal year. The system boundaries include:

A1-A3 Product stage

A1 raw material extraction and processing, and processing of recycled materials
A2 transport to the Interface factory and inter-company transport between buildings
A3 manufacturing at Interface including materials, packaging, energy, and waste disposal or recycling

A4-A5 Construction stage

A4 transport to installation site
A5 installation including ancillary materials required for installation and trim-waste disposal

B2 Maintenance: Includes the energy for vacuuming and wet extraction cleaning and also the production and transport of cleaning agents. The treatment of the waste water from extraction cleaning is included.

C2 Transport of waste to local disposal

C4 Disposal

Estimates and assumptions

The datasets for materials upstream from Interface manufacturing are a combination of information from the GaBi database and supplier provided datasets. Inventories for all materials are not available and when unavailable, conservative proxy datasets were chosen based on similarity of material.

Cut-off criteria

As dictated by the Part A: Calculation rules for the life cycle assessment and requirements, the cut-off criteria is less than 1% for energy use and less than 1% of total mass per unit process, the sum of which shall not exceed 5% of either energy or mass. If a flow met the cut-off criteria for exclusion, yet was thought to have significant environmental impact, then it was included.

Background data

Background data

The datasets for materials upstream from Interface manufacturing are a combination of information from the GaBi database version 6.116 in 2016 and supplier provided datasets. The supplier provided data adds significant confidence to the LCA result because it is geographically and technologically specific to the Interface materials. This supplier specific data covers a majority of the environmental impact of the product and includes the Nylon yarn, tufting primary, fiberglass, plasticizer, filler, and product packaging.

Data quality

The data quality ranges from good to very good. The temporal quality of the data is very good with the Interface data being from 2015, the supplier specific data ranging from 2012 to 2016 and the GaBi background data being from 2016.

Period under review

The data collection and the product described are an average product manufactured in 2015.

Allocation

Where relevant, the background data incorporates some allocation such as in the power mix. There are no co-products produced in the process, so the LCA model does not include allocation. No credits were taken for recycling of production waste.

Comparability

A comparison or an evaluation of EPD data is only possible if all of the data sets were created according to EN15804 and the building contexts are taken into account.

LCA: Scenarios and additional technical information

Declared unit

Name	Value	Unit
Transport to the construction site (A4)		
Liters of fuel	0.00891	l/100 km
Transport distance	805	km
Capacity utilization	85	%
Installation in the building (A5)		
Auxiliary materials	0.004	kg
Maintenance (B2)		
Vacuum cleaning	7	1/week
Vacuum cleaning per RSL	5460	1/RSL
Extraction cleaning	2	1/year
Extraction cleaning per RSL	30	1/RSL
Water consumption	1.93	kg/year
Electricity consumption	1.615	MJ/year
Cleaning agent	0.007	kg/year
Reference service life (RSL)		
RSL	15	years

Transport to disposal	32.2	km
Landfill	3.663	kg

LCA results

Description of the system boundary (X = included in LCA; MND = module not declared)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS (BEYOND THE SYSTEM BOUNDARY)
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement 1)	Refurbishment 1)	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling- potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	X	MND	MND	MND	MND	MND	MND	X	MND	X	MND

Results of the LCA - Environmental impact potentials

CML 2001 - Jan. 2016

	A1-A3	A4	A5	B2	C2	C4
GWP [kg CO2-Equiv.]	7.91E00	1.33E-01	3.26E-02	6.11E-01	3.08E-03	7.26E-02
ODP [kg R11-Equiv.]	2.37E-07	8.72E-13	6.63E-10	1.94E-09	2.02E-14	2.68E-12
AP [kg SO2-Equiv.]	2.85E-02	1.01E-03	1.15E-04	2.30E-03	2.33E-05	1.98E-04
EP [kg Phosphate-Equiv.]	3.28E-03	2.65E-04	4.99E-05	3.04E-04	6.13E-06	1.96E-04
POCP [kg Ethene-Equiv.]	3.08E-03	-4.31E-04	1.54E-05	1.31E-04	-9.97E-06	2.57E-05
ADPe [kg Sb-Equiv.]	8.10E02	2.02E-08	4.03E-09	6.38E-04	4.68E-10	1.39E-08
ADPf [MJ]	1.32E02	1.89E00	5.09E-01	5.94E00	4.39E-02	1.02E00

TRACI 2.1

	A1-A3	A4	A5	B2	C2	C4
GWP [kg CO2-Equiv.]	7.86E00	1.33E-01	3.20E-02	6.09E-01	3.07E-03	7.15E-02
ODP [kg CFC 11-Equiv.]	3.11E-07	9.27E-13	8.67E-10	2.12E-09	2.15E-14	2.85E-12
AP [kg SO2-Equiv.]	2.95E-02	1.37E-03	1.16E-04	2.37E-03	3.18E-05	2.08E-04
EP [kg N-Equiv.]	2.02E-03	1.08E-04	2.38E-05	3.03E-04	2.49E-06	9.42E-05
SFP [kg O3-Equiv.]	4.22E-01	3.12E-02	1.45E-03	3.74E-02	7.22E-04	3.47E-03

Caption	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources; SFP = Smog air

Results of the LCA - Resource use: declared unit and product

	A1-A3	A4	A5	B2	C2	C4
PERE [MJ]	1.09	0.0306	-	0.39	0.000709	0.0729
PERM [MJ]	7.13	-	0.0194	0.0125	-	-
PERT [MJ]	8.22	0.0306	0.0194	0.402	0.000709	0.0729
PENRE [MJ]	21.9	1.9	-	5.34	0.0441	1.06
PENRM [MJ]	120	-	0.543	0.696	-	-
PENRT [MJ]	142	1.9	0.543	6.04	0.0441	1.06
SM [kg]	1.7	-	-	-	-	-
RSF [MJ]	-	-	-	-	-	-
NRSF [MJ]	-	-	-	-	-	-
FW [m^3]	0.0348	0.000385	2.22E-006	0.0025	8.91E-006	4.68E-006

Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources 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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Use of net fresh water

Results of the LCA - Output flows and waste categories: declared unit and product

	A1-A3	A4	A5	B2	C2	C4
HWD [kg]	0.000234	2.43E-009	1.39E-009	3.77E-009	5.63E-011	6.04E-009
NHWD [kg]	0.327	6.42E-005	0.229	0.00161	1.49E-006	0.997
RWD [kg]	0.00298	3.18E-006	4.62E-006	1.86E-005	7.36E-008	1.62E-005
CRU [kg]	-	-	-	-	-	-
MFR [kg]	0	-	-	-	-	0
MER [kg]	0	-	0	-	-	0
EEE [MJ]	-	-	-	-	-	-
EET [MJ]	-	-	-	-	-	-

Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

Results of the LCA - Product stage A1-A3 Global Warming Potential (GWP) for additional product yarn weights (ounces per square yard / grams per square meter)

	GWP [kg CO2-Equiv.]
12 oz. / 407 gr.	6.79
13 oz. / 441 gr.	6.93
14 oz. / 475 gr.	7.07
15 oz. / 509 gr.	7.21
16 oz. / 542 gr.	7.35
17 oz. / 575 gr.	7.49
18 oz. / 610 gr.	7.63
19 oz. / 644 gr.	7.77
20 oz. / 678 gr.	7.91
21 oz. / 712 gr.	8.05
22 oz. / 746 gr.	8.19
23 oz. / 780 gr.	8.33
24 oz. / 814 gr.	8.47
25 oz. / 848 gr.	8.61
26 oz. / 881 gr.	8.75
27 oz. / 915 gr.	8.89
28 oz. / 949 gr.	9.03
29 oz. / 983 gr.	9.17
30 oz. / 1017 gr.	9.31
31 oz. / 1051 gr.	9.45
32 oz. / 1085 gr.	9.59
33 oz. / 1119 gr.	9.73
34 oz. / 1153 gr.	9.87
35 oz. / 1187 gr.	10.01
36 oz. / 1220 gr.	10.14
37 oz. / 1254 gr.	10.28
38 oz. / 1288 gr.	10.42
39 oz. / 1322 gr.	10.56
40 oz. / 1356 gr.	10.70
41 oz. / 1390 gr.	10.84
42 oz. / 1424 gr.	10.98

LCA: Interpretation

The life cycle impacts of modular carpets are driven by the Product Stage and the impacts form this stage are driven by raw materials. Yarns and backing materials are the major contributors to impacts. Recycled polymers in both yarns and backings greatly reduce the impacts as compared to virgin petrochemicaly based materials previously used in Interface carpet manufacture.

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