

## ENVIRONMENTAL PRODUCT DECLARATION

# CQUEST™BIOX

MODULAR CARPET TILE



### CQUEST™BioX

Our backing that stores the most carbon. It's the same material make-up as CQuest™Bio with a higher concentration of carbon negative materials.

## 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](http://www.interface.com).



# ENVIRONMENTAL PRODUCT DECLARATION

## Interface®






CQUEST™BioX

According to ISO 14025,  
EN 15804, and ISO21930:2017

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Environment 333 Pfingsten Rd, Northbrook, IL 60062	www.ul.com www.spot.ul.com
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	Program Operator Rules v 2.7 2022	
MANUFACTURER NAME AND ADDRESS	Interface, Inc.; Scherpenzeel, NL	
DECLARATION NUMBER	4790511060.104.3	
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	One square meter functional floor covering	
REFERENCE PCR AND VERSION NUMBER	Part A: Life Cycle Assessment Calculation Rules and Report Requirements, (UL Environment, V4.0, 2022) and Part B: Flooring EPD Requirements (UL Environment V2.0, 2018)	
DESCRIPTION OF PRODUCT APPLICATION/USE	Modular flooring	
PRODUCT RSL DESCRIPTION (IF APPL.)		
MARKETS OF APPLICABILITY	Europe	
DATE OF ISSUE	June 1, 2023	
PERIOD OF VALIDITY	5 Years	
EPD TYPE	Product Specific	
EPD SCOPE	Cradle to grave	
YEAR(S) OF REPORTED PRIMARY DATA	2021	
LCA SOFTWARE & VERSION NUMBER	Gabi v. 10.0.01	
LCI DATABASE(S) & VERSION NUMBER	Gabi v. 10.0.01	
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.1; CML v. 4.2	
EPD TYPE	Product Specific	

The PCR review was conducted by:	UL Solutions
	PCR Review Panel
	ul.pcr@ul.com
This declaration was independently verified in accordance with ISO 14025: 2006. <input type="checkbox"/> INTERNAL <input checked="" type="checkbox"/> EXTERNAL	 Wade Stout, UL Solutions
	 Aidan Ganzert, Interface
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	 Thomas P. Gloria, Industrial Ecology Consultants

# ENVIRONMENTAL PRODUCT DECLARATION

## Interface®



CQUEST™BioX

According EN 15804:2012+A2:2019

---

### LIMITATIONS

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; the level of accuracy in estimation of effect differs for any particular product line and reported impact.

Comparability: EPDs from different programs may not be comparable. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible". Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

---

## 1. Product Definition and Information

### 1.1. Description of Company/Organization

Interface, Inc. is a global flooring company specializing in carbon neutral carpet tile and resilient flooring, including luxury vinyl tile (LVT) and nora® rubber flooring. We help our customers create high-performance interior spaces that support well-being, productivity, and creativity, as well as the sustainability of the planet. Our mission, Climate Take Back™, invites you to join us as we commit to operating in a way that is restorative to the planet and creates a climate fit for life.

### 1.2. Product Description

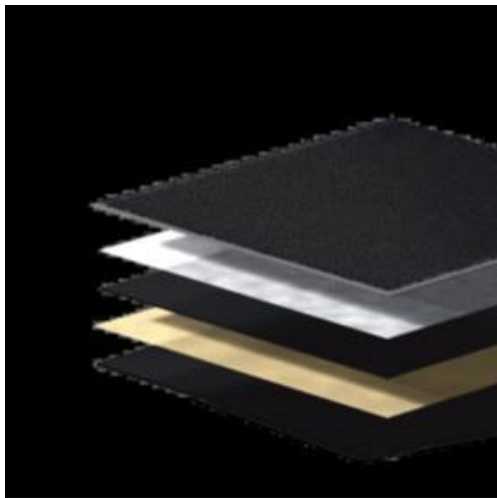


Figure 1 (left) : CQuest™ carbon negative backings, layered with: Yarn tufted into the primary backing; a pre-coat; backing compound; stabilizing glass tissue and an additional layer dependent on manufacture location.

### Product Identification

Interface's CQuest™BioX is a non-vinyl bio-composite backing made with bio-resins, bio-fillers, and bio-oils manufactured in Scherpenzeel, NL. This Environmental Product Declaration covers all styles and patterns of modular carpet on CQuest™BioX backing with 610 grams of recycled Nylon yarn with a negative cradle-to-gate carbon footprint.

### Product Specification

UNSPSC code: 301617

CSI code: 09680

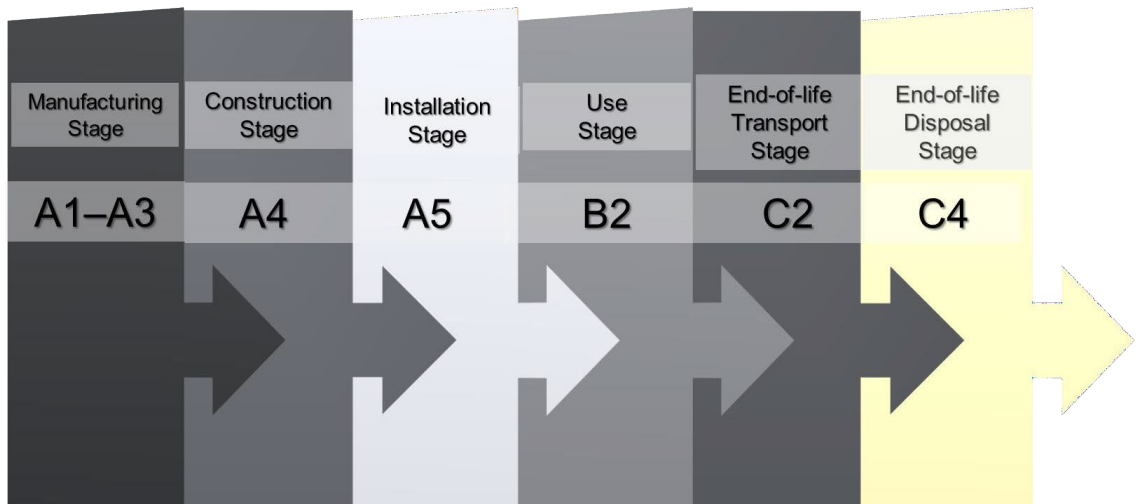


# Interface®

CQUEST™BioX

According EN 15804:2012+A2:2019

## Flow Diagram



### 1.3. Application

Application of product is intended for modular installation of floorcovering in commercial buildings.

### 1.4. Declaration of Methodological Framework

The data is retrieved from a cradle to grave LCA study. The description of study boundaries is declared in Table 11.



## 1.5. Technical Requirements

### Technical Data

Name	Value	Unit
Yarn type	Nylon	
Primary backing type	Polyester	
Secondary backing type	CQuest™BioX (biobased resin)	
CRI rating	3	2.5 Moderate, 3.0 Heavy, 3.5 Severe
Total thickness	Variable	mm
Product weight*	3900	g/m <sup>2</sup>
Surface pile thickness*	1.5	mm
Surface pile weight	610	g/m <sup>2</sup>

\* nominal values

## 1.6. Market Placement / Application Rules

Product considered relevant technical specifications such as ASTM E-648 and ASTM E-662. See Section 6.3 for more info.

## 1.7. Material Composition

Component	Material	% Mass *
Yarn	Nylon	16%
	Post-consumer recycled nylon	8%
	Pre-consumer recycled nylon	8%
Primary backing	Pre- & post-consumer recycled polyester	3%
Precoat backing	Vinyl acetate emulsion	6%
	Pre-consumer recycled limestone	21%
	Alumina trihydrate	0.5%
Stabilization layer	Fiberglass mat	1%
Secondary backing	Bio-based filler	19%
	Bioester	19%
	Ethylene vinyl acetate	2%
	Biobased oil	3%
	Pre-consumer recycled limestone	9%
	Antioxidant	1%

\* nominal values



No substances required to be reported as hazardous or of very high concern are associated with the production of this product.

### 1.8. Manufacturing

---

CQuest™BioX is manufactured in Scherpenzeel, Netherlands.

### 1.9. Packaging

---

Planks and tiles are packaged in cardboard boxes. Packaging waste should be reused or sent local cardboard recycling facilities.

### 1.10. Transportation

---

Delivery is represented as transport by truck over a distance of 500 miles (805 km).

### 1.11. Product Installation

---

Product may be installed with pressure sensitive adhesive. For full installation instructions, see the Interface Installation Guide.

### 1.12. Use

---

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.

Additional information on release of dangerous substances to indoor air, soil and water during the use stage:

NOTE The EPD does not need to give this information if the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

### 1.13. Reference Service Life and Estimated Building Service Life

---

Reference service life is indicated in Table 3. The Estimated Building Service Life is 75 years.

### 1.14. Reuse, Recycling, and Energy Recovery

---

The modular aspect of the product allows for easy reuse of the product. The product is intended to be recycled through Interface's ReEntry process.

### 1.15. Disposal

---

At end of life the product should be returned to Interface through Interface's ReEntry process by contacting Interface at 1 888-733-6873. Disposal in municipal landfill or commercial incineration facilities is permissible in accordance with local regulations.





2. Life Cycle Assessment Background Information

2.1. Functional or Declared Unit

The functional unit is one square meter of floorcovering.

Modular carpet on CQuest™BioX	Value	Unit
Functional unit	1	m²
Mass*	3.9	kg

\*nominal value

2.2. System Boundary

The LCA is for one square meter of flooring. While the warranted service life is 15 years, modules B1, B3 ,B4, and B5 are not declared. The estimated maintenance (B2) is represented for presented for one year in Table 4. The replacement module includes 4 replacements. Results are shown for the full ESL of 75 years.

The system boundaries include:

- A1 Raw material extraction and processing, and processing of recycled materials
- A2 Transport to the factory
- A3 Manufacturing including materials, packaging, energy, and waste disposal or recycling
- A4 Transport to installation sites (Asia, US, and Europe)
- A5 Installation including ancillary materials required for installation and trim-waste disposal
- B2 Maintenance: Includes the energy for vacuuming, extraction cleaning and the production and transport of cleaning agents. The treatment of the waste-water from extraction cleaning is included. This is for one year of use.
- B4 Replacement
- C2 Transport of waste to local disposal
- C4 Disposal
- D Recycling and reuse

2.3. Estimates and Assumptions

The datasets for materials upstream from 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.

2.4. 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. No known flows are deliberately excluded from this EPD.







Interface®

CQUEST™BioX

According EN 15804:2012+A2:2019

2.5. Data Sources and Quality

The datasets for materials upstream from manufacturing are a combination of information from the GaBi database version 10.5.0.78 in 2022 and supplier provided datasets. The data quality ranges from good to very good. The temporal quality of the data is very good with both the manufacturing specific data and the GaBi background data being from 2022.

2.6. Period under Review

The data collection and the product described are an average product manufactured in 2022.

2.7. 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.

3. Life Cycle Assessment Scenarios

Table 1. Transport to the building site (A4)

Name	Value	Unit
Fuel type	Diesel	
Liters of fuel	0.00134	kg/100km
Vehicle type	Truck 34-40	tonnes
Transport distance	805	km
Capacity utilization (including empty runs, mass based)	85	%
Weight of products transported*	2.8	kg
Volume of products transported*	0.001	m³
Capacity utilization volume factor	1	
*nominal values		





Table 2. Installation into the building (A5)

Name	Value	Unit
Ancillary materials	0.107	kg
Net freshwater consumption specified by water source and fate (amount evaporated, amount disposed to sewer)	-	m³
Other resources	-	kg
Electricity consumption	-	kWh
Other energy carriers	-	MJ
Product loss per functional unit	0.06	kg
Waste materials at the construction site before waste processing, generated by product installation	0.16	kg
Output materials resulting from on-site waste processing (specified by route; e.g. for recycling, energy recovery and/or disposal)	-	kg
Mass of packaging waste specified by type	-	kg
Biogenic carbon contained in packaging	0.1	kg CO <sub>2</sub>
Direct emissions to ambient air, soil and water	-	kg
VOC content	-	µg/m³

Table 3. Reference Service Life

NAME	VALUE	UNIT
RSL	15	years

**Table 4. Maintenance (B2)**

Name	Value	Unit
<i>Maintenance values taken in reference to "Care and Maintenance of Commercial Carpet Conventional and Next Generation Technology: Contents of Use Phase Gate to Gate; Life Cycle Inventory Summary, Di Lu, M. Overcash and M. Realff, February 2008," (CCACTI report).</i>		
Maintenance cycle per RSL	15	cycle(s)/RSL
Maintenance cycle	1	cycle(s)/year
Vacuum cleaning	365	cycle(s)/year
Vacuum cleaning per RSL	5460	cycle(s)/RSL
Extraction cleaning	2	cycle(s)/year
Extraction cleaning per RSL	30	cycle(s)/RSL
Net freshwater consumption specified by water source and fate (disposed to sewer)	1.93	kg/year
Ancillary materials (cleaning agent)	0.007	kg/year
Other resources	0.004	kg
Energy input, specified by activity, type and amount	1.6	MJ/year
Other energy carriers specified by type	-	kWh
Power output of equipment	-	kW
Waste materials from maintenance (specify materials)	-	kg
Direct emissions to ambient air, soil and water (waste water)	-	kg/year

Maintenance cycle for B2 stage is measured for 1 year per the functional unit.

**Table 5. Replacement (B4)**

Name	Value	Unit
Reference Service Life	15	Years
Replacement cycle	4	(ESL/RSL) -1
Energy input, specified by activity, type and amount	-	kWh
Net freshwater consumption specified by water source and fate (e.g. X m3 river water evaporated, X m3 city water disposed to sewer)	-	m <sup>3</sup>
Ancillary materials	.107	kg
Weight of replacement parts transported*	3.9	kg
Product loss per functional unit	0.07	kg
Waste materials at the construction site before waste processing, generated by product installation	0.16	kg
Direct emissions to ambient air, soil and water	-	kg
Further assumptions for scenario development, e.g. frequency and time period use	N/A	N/A
*nominal values		



Table 6. End of life (C2, C4)

NAME		VALUE	UNIT
Transport to site		32.0	km
Collection process (specified by type)	Collected separately	-	kg
	Collected with mixed construction waste	-	kg
	Reuse		kg
	Recycling	1.99	kg
Recovery (specified by type)	Landfill	1.47	kg
	Incineration	0.517	kg
	Incineration with energy recovery	-	kg
	Energy conversion efficiency rate	-	-
Disposal (specified by type)	Product or material for final deposition	-	kg
Removals of biogenic carbon (excluding packaging)		-	kg CO <sub>2</sub>

Table 7. Reuse, recovery, recycling potential (D)

NAME	VALUE	UNIT
Kg diverted from landfill	3.9	kg

## 4. Life Cycle Assessment Results

Table 8. Description of the system boundary modules

EPD Type	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Building Operational Energy Use During Product Use	Building Operational Water Use During Product Use	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
	X			X	X	MND	X	MND	X	MND	MND	MND	MND	X	MND	X	X

### 4.1. Life Cycle Impact Assessment Results

Table 9. Core Environmental Impact Indicators

Core Environmental Impact Indicators	A1-A3	A4	A5	B2	B4	C2	C4	D
Climate Change - total [kg CO <sub>2</sub> eq.]	-5.43E-01	1.58E-01	4.19E-02	2.41E+00	7.06E-01	6.15E-03	5.13E-01	-5.13E-01
Climate Change, fossil [kg CO <sub>2</sub> eq.]	5.51E+00	1.58E-01	3.95E-02	2.40E+00	2.46E+01	6.17E-03	4.42E-01	-4.42E-01
Climate Change, biogenic [kg CO <sub>2</sub> eq.]	-6.07E+00	-1.56E-03	2.33E-03	9.00E-03	-2.40E+01	-6.07E-05	7.01E-02	-7.01E-02
Climate Change, land use and land use change [kg CO <sub>2</sub> eq.]	2.56E-02	1.07E-03	5.08E-06	2.45E-04	1.07E-01	4.18E-05	5.08E-05	-5.08E-05
Ozone depletion [kg CFC-11 eq.]	9.60E-08	1.56E-14	-1.92E-09	1.04E-08	1.50E-07	6.10E-16	-5.65E-08	5.65E-08
Acidification [Mole of H <sup>+</sup> eq.]	3.81E-02	9.10E-04	-6.99E-05	6.16E-03	1.36E-01	3.55E-05	-4.90E-03	4.90E-03
Eutrophication, freshwater [kg P eq.]	6.25E-04	5.68E-07	1.89E-06	3.60E-06	2.59E-03	2.22E-08	1.94E-05	-1.94E-05
Eutrophication, marine [kg N eq.]	1.29E-02	4.42E-04	3.25E-06	1.76E-03	5.17E-02	1.72E-05	-3.98E-04	3.98E-04
Eutrophication, terrestrial [Mole of N eq.]	1.29E-01	4.90E-03	4.63E-05	1.62E-02	5.19E-01	1.91E-04	-4.02E-03	4.02E-03
Photochemical ozone formation, human health [kg NMVOC]	3.04E-02	8.37E-04	9.74E-06	4.24E-03	1.20E-01	3.27E-05	-1.32E-03	1.32E-03
Resource use, mineral and metals [kg Sb eq.]	1.23E-05	1.60E-08	2.95E-09	3.16E-07	4.95E-05	6.26E-10	7.24E-09	-7.24E-09
Resource use, fossils [MJ]	8.81E+01	2.09E+00	8.59E-02	2.91E+01	3.21E+02	8.15E-02	-1.00E+01	1.00E+01
Water use [m <sup>3</sup> world equiv.]	3.80E+01	1.78E-03	1.30E-02	4.47E-01	1.53E+02	6.95E-05	7.71E-02	-7.71E-02

Chart 1. Classification of disclaimers to the declaration of core and additional environmental impact indicators

Impact category	Indicator	Unit (expressed per functional unit or per declared unit)
ICLD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone later (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ICLD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential , fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential , fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential , Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ICLD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2
Disclaimer 1 - The impact category deals with mainly the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents , occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from construction materials is also not measured by this indicator.		
Disclaimer 2 - The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with this indicator.		

Table 10. North American Impact Assessment Results

TRACI v2.1	A1-A3	A4	A5	B2	B4	C2	C4	D
GWP [kg CO <sub>2</sub> eq]	-8.59E-01	1.55E-01	2.34E-02	2.37E+00	-5.91E-01	6.04E-03	5.27E-01	-5.27E-01
ODP [kg CFC-11 eq]	1.01E-07	3.24E-16	-7.20E-10	1.48E-08	7.84E-08	1.27E-17	-8.05E-08	8.05E-08
AP [kg SO <sub>2</sub> eq]	4.08E-02	8.43E-04	7.59E-04	5.80E-03	1.54E-01	3.29E-05	-4.05E-03	4.05E-03
EP [kg N eq]	1.39E-02	6.54E-05	2.90E-04	1.93E-03	5.73E-02	2.55E-06	7.09E-05	-7.09E-05
SFP [kg O <sub>3</sub> eq]	5.82E-01	1.89E-02	1.16E-02	9.26E-02	2.35E+00	7.37E-04	-2.57E-02	2.57E-02
ADP <sub>fossil</sub> [MJ, LHV]	9.85E+00	2.99E-01	2.33E-01	1.79E+00	3.97E+01	1.17E-02	-4.71E-01	4.71E-01

Caption	<p>GWP 100 = global warming potential; ODP = ozone depletion potential; AP = acidification potential; EP = eutrophication potential; SFP = smog formation potential; ADP fossil= abiotic resource depletion potential of non-renewable (fossil) energy resources</p>
---------	--



Table 11. EU Impact Assessment Results

CML v4.2	A1-A3	A4	A5	B2	B4	C2	C4	D
GWP 100 [kg CO <sub>2</sub> eq]	-8.22E-01	1.55E-01	2.45E-02	2.37E+00	-4.50E-01	6.06E-03	5.24E-01	-5.24E-01
ODP [kg CFC-11 eq]	8.03E-08	1.84E-14	-9.00E-10	1.36E-08	2.20E-08	7.18E-16	-7.39E-08	7.39E-08
AP [kg SO <sub>2</sub> eq]	3.59E-02	6.21E-04	6.48E-04	5.30E-03	1.31E-01	2.42E-05	-4.48E-03	4.48E-03
EP [kg PO <sub>4</sub> <sup>-3</sup> eq]	1.28E-02	1.59E-04	2.83E-04	1.28E-03	5.35E-02	6.19E-06	1.22E-04	-1.22E-04
POCP [kg ethene eq]	2.82E-03	-2.57E-04	5.75E-05	3.55E-04	9.56E-03	-1.00E-05	-2.21E-04	2.21E-04
ADP <sub>element</sub> [kg Sb-eq]	1.39E-05	1.80E-08	2.64E-07	1.47E-06	5.45E-05	7.03E-10	-5.63E-07	5.63E-07
ADP <sub>fossil</sub> [MJ, LHV]	7.80E+01	2.09E+00	1.71E+00	2.02E+01	2.98E+02	8.14E-02	-7.49E+00	7.49E+00

Caption	<p>GWP 100 = global warming potential; ODP = depletion potential of the stratospheric ozone layer; AP = acidification potential of soil and water; EP = eutrophication potential; POCP = photochemical oxidant creation potential; ADP - elements = Abiotic depletion potential for non-fossil resources; ADP- fossil fuels = abiotic depletion potential for fossil resources</p>
---------	--



Interface®

CQUEST™BioX

According EN 15804:2012+A2:2019

4.2. Life Cycle Inventory Results

Table 12. Resource Use

Parameter	A1-A3	A4	A5	B2	B4	C2	C4	D
RPRE [MJ, LHV]	2.25E+02	1.45E-01	4.48E+00	1.18E+01	9.15E+02	5.65E-03	-9.48E-01	9.48E-01
RPRM [MJ, LHV]	–	–	–	–	–	–	–	–
NRPRE [MJ, LHV]	8.67E+01	2.10E+00	1.82E+00	2.91E+01	3.23E+02	8.18E-02	-1.00E+01	1.00E+01
NRPRM [MJ, LHV]	–	–	–	–	–	–	–	–
SM [kg]	1.79E-01	0.00E+00	3.59E-03	0.00E+00	8.69E+00	0.00E+00	1.99E+00	-1.99E+00
RSF [MJ, LHV]	–	–	–	–	–	–	–	–
NRSF [MJ, LHV]	–	–	–	–	–	–	–	–
RE [MJ, LHV]	–	–	–	–	–	–	–	–
FW [m³]	8.92E-01	1.67E-04	1.81E-02	1.54E-02	3.65E+00	6.53E-06	1.84E-03	-1.84E-03

Caption	<p>RPRE = Renewable primary resources used as energy carrier (fuel); RPRM=Renewable primary resources with energy content used as material; NRPRE= Non-renewable primary resources used as an energy carrier (fuel); NRPRM= Non-renewable primary resources with energy content used as material; SM= Secondary materials; RSF=Renewable secondary fuels; NRSF: Non-renewable secondary fuels; RE= Recovered energy; FW=Use of net fresh water resources</p>
---------	--



**Table 13. Output Flows and Waste Categories**

Parameter	A1-A3	A4	A5	B2	B4	C2	C4	D
HWD [kg]	1.99E-03	1.11E-11	4.16E-05	1.82E-09	8.13E-03	4.33E-13	2.28E-10	-2.28E-10
NHWD [kg]	3.74E-01	3.42E-04	1.49E-01	1.99E-02	7.98E+00	1.33E-05	1.47E+00	-1.47E+00
HLRW [kg]	2.96E-06	3.30E-09	9.50E-09	2.78E-06	5.72E-06	1.29E-10	-1.54E-06	1.54E-06
ILLRW [kg]	2.52E-03	3.89E-06	2.19E-05	3.48E-03	6.59E-03	1.52E-07	-8.98E-04	8.98E-04
CRU [kg]	–	–	–	–	–	–	–	–
MR [kg]	–	–	–	–	–	–	–	–
MER [kg]	–	–	–	–	–	–	–	–
EE [MJ, LHV]	–	–	–	–	–	–	–	–

Caption	<p>HWD = hazardous waste disposed; NHWD= non-hazardous waste disposed; HLRW = high-level radioactive waste, conditioned, to final repository; ILLRW = intermediate and low-level radioactive waste, conditioned to final repository; CRU= components for reuse; MR=materials for recycling; MER=materials for energy recovery; EE= Recovered energy exported from the product system</p>
---------	--

Table 14. Carbon Emissions and Removals

Parameter	A1-A3	A4	A5	B2	B4	C2	C4	D
BCRP [kg CO <sub>2</sub> ]	1.69E+01	1.04E-02	3.36E-01	2.75E-01	6.87E+01	4.07E-04	-6.51E-02	6.51E-02
BCEP [kg CO <sub>2</sub> ]	1.09E+01	8.88E-03	2.20E-01	2.84E-01	4.47E+01	3.46E-04	5.01E-03	-5.01E-03
BCRK [kg CO <sub>2</sub> ]	8.15E-03	0.00E+00	0.00E+00	0.00E+00	3.26E-02	0.00E+00	0.00E+00	0.00E+00
BCEK [kg CO <sub>2</sub> ]	3.58E-02	0.00E+00	0.00E+00	0.00E+00	1.43E-01	0.00E+00	0.00E+00	0.00E+00

Caption	<p>BCRP [kg CO<sub>2</sub>] = Biogenic Carbon Removal from Product; BCEP [kg CO<sub>2</sub>] Biogenic Carbon Emission from Product; BCRK [kg CO<sub>2</sub>] = Biogenic Carbon Removal from Packaging; BCEK [kg CO<sub>2</sub>] = Biogenic Carbon Emission from Packaging; BCEW [kg CO<sub>2</sub>] = Biogenic Carbon Emissions from Combustion of Waste; CCE [kg CO<sub>2</sub>] = Calcination Carbon Emissions; CCR [kg CO<sub>2</sub>] = Carbonation Carbon Removal; CWNR [kg CO<sub>2</sub>] = Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes</p>
---------	--

## 5. LCA Interpretation

The life cycle impacts of modular carpets are driven by the Product Stage and the impacts from 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 petrochemically based materials previously used in Interface carpet manufacture.

## 6. Additional Environmental Information

### 6.1. Environment and Health During Manufacturing

More information on product stewardship can be found on [Interface's sustainability website](#).

### 6.2. Environment and Health During Installation

All recommendations shall be utilized as indicated by SDS and installation guidelines.



# Interface®

CQUEST™BioX

According EN 15804:2012+A2:2019

### 6.3. Extraordinary Effects

#### Fire

NAME	VALUE
Radiant panel (ASTM E-648)	Class 1
Smoke density (ASTM E-662)	< 450

#### 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 (CRI Test method 101 Appearance Retention Rating). Performance requires proper installation according to Interface installation guidelines.

### 6.4. Environmental Activities and Certifications

All environmental activities and certifications can be found on [Interface's sustainability website](#).

### 6.5. Further Information

For more information on the CQUEST™ backings visit [Interface's website](#).





Interface®

CQUEST™BioX

According EN 15804:2012+A2:2019

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

	1 Manufacturing Stage <LC>
12 oz. / 407 gr.	-1.17
13 oz. / 441 gr.	-1.12
14 oz. / 475 gr.	-1.06
15 oz. / 509 gr.	-1.01
16 oz. / 542 gr.	-0.96
17 oz. / 575 gr.	-0.90
18 oz. / 610 gr.	-0.85
19 oz. / 644 gr.	-0.79
20 oz. / 678 gr.	-0.74
21 oz. / 712 gr.	-0.68
22 oz. / 746 gr.	-0.63
23 oz. / 780 gr.	-0.58
24 oz. / 814 gr.	-0.52
25 oz. / 848 gr.	-0.47
26 oz. / 881 gr.	-0.42
27 oz. / 915 gr.	-0.36
28 oz. / 949 gr.	-0.31
29 oz. / 983 gr.	-0.25
30 oz. / 1017 gr.	-0.20
31 oz. / 1051 gr.	-0.14





In addition to the above TRACI Global Warming Potential (GWP) impacts for additional product yarn weights table please find here below a product specific table displaying impact of most (but not all) of the currently available products):

**Results of the LCA – Product stage A1-A3 TRACI Global Warming Potential (GWP) impacts for specific products at specific yarn weights (ounces per square yard/grams per square meter)**

Product Name	Yarn weight	1 Manufacturing Stage <LC>
Touch Of Timber	14.7 oz. / 499 gr.	-1.02
Heuga 727 (SD)	15.8 oz. / 535 gr.	-0.96
World Woven 860	17 oz. / 575 gr.	-0.9
World Woven 865	17 oz. / 575 gr.	-0.9
Recreation	17.2 oz. / 583 gr.	-0.89
Open Air 401	18 oz. / 610 gr.	-0.85
Open Air 402	18 oz. / 610 gr.	-0.85
Open Air 403	18 oz. / 610 gr.	-0.85
Open Air 403 A	18 oz. / 610 gr.	-0.85
Open Air 403 Transition	18 oz. / 610 gr.	-0.85
Open Air 404	18 oz. / 610 gr.	-0.85
Open Air 404 A	18 oz. / 610 gr.	-0.85
Open Air 404 Transition	18 oz. / 610 gr.	-0.85
Open Air 405	18 oz. / 610 gr.	-0.85
CE100	18.4 oz. / 624gr	-0.82
Upon Common Ground - Escarpment	19 oz. / 644 gr.	-0.79
Human Connections Paver	19 oz. / 645 gr.	-0.79
Off Line	21.2oz. / 718 gr.	-0.67
On Line	21.2oz. / 718 gr.	-0.67
Heuga 725	21.2oz. / 720 gr	-0.67
Human Connections Kerbstone	22 oz. / 746 gr.	-0.63
Near and Far 400	22 oz. / 746 gr.	-0.63
Visual Code Darning	22 oz. / 746 gr.	-0.63
Visual Code Decibel	22 oz. / 746 gr.	-0.63
CE200	22 oz. / 747 gr.	-0.63
Monochrome	22.5 oz. / 764 gr.	-0.6
HN 820	23 oz. / 780 gr.	-0.58
Human Connections Flagstone	23 oz. / 780 gr.	-0.58
Upon Common Ground - Dry Bark	23 oz. / 780 gr.	-0.58
World Woven 870	23 oz. / 780 gr.	-0.58
Woven Gradiance WG100	23 oz. / 780 gr.	-0.58
Woven Gradiance WG200	23 oz. / 780 gr.	-0.58
Hydropolis	23.5 oz. / 795 gr.	-0.55
Equilibrium	24 oz. / 814 gr.	-0.52
Visual Code Haptic	24 oz. / 814 gr.	-0.52
Dolomite	25 oz. / 850 gr.	-0.47
World Woven 880	25 oz. / 850 gr.	-0.47
Urban Retreat 501	25.5 oz. / 861 gr.	-0.44







Results of the LCA – Product stage A1-A3 EN15804+A2 Climate Change impacts for specific products at specific yarn weights (ounces per square yard/grams per square meter)

Yarn weight	Gwp-total [kg CO <sub>2</sub> eq.]	Gwp-fossil [kg CO <sub>2</sub> eq.]	Gwp-biogenic [kg CO <sub>2</sub> eq.]	Gwp-luluc [kg CO <sub>2</sub> eq.]
12 oz / 407 gr.	-0,86	5,02	-5,90	0,02
13 oz / 441 gr.	-0,81	5,08	-5,91	0,02
14 oz / 475 gr.	-0,75	5,14	-5,91	0,02
15 oz / 509 gr.	-0,70	5,20	-5,92	0,02
16 oz / 542 gr.	-0,64	5,26	-5,92	0,02
17 oz / 575 gr.	-0,59	5,32	-5,93	0,02
18 oz / 610 gr.	-0,53	5,38	-5,94	0,03
19 oz / 644 gr.	-0,48	5,44	-5,04	0,03
20 oz / 678 gr.	-0,42	5,50	-5,95	0,03
21 oz / 712 gr.	-0,37	5,56	-5,95	0,03
22 oz / 746 gr.	-0,31	5,62	-5,96	0,03
23 oz / 780 gr.	-0,25	5,68	-5,95	0,03
24 oz / 814 gr.	-0,20	5,74	-5,97	0,03
25 oz / 848 gr.	-0,14	5,80	-5,96	0,03
26 oz / 881 gr.	-0,10	5,86	-5,99	0,03
27 oz / 915 gr.	-0,05	5,92	-5,99	0,03

In addition to the above EN15804+A2 Total Climate Change impacts for additional product yarn weights table please find here below a product specific table displaying impact of most (but not all) of the currently available products) with a split for the gwp-total, -fossil, -biogenic and luluc:

**Results of the LCA – Product stage A1-A3 Total Climate Change impacts for specific products at specific yarn weights (ounces per square yard/grams per square meter)**

Product Name	Yarn weight	Gwp-total [kg CO <sub>2</sub> eq.]	Gwp-fossil [kg CO <sub>2</sub> eq.]	Gwp-biogenic [kg CO <sub>2</sub> eq.]	Gwp-luluc [kg CO <sub>2</sub> eq.]
Touch Of Timber	14.7 oz./ 499 gr.	-0.71	5,18	-5,92	0,02
Heuga 727 (SD)	15.8 oz./535 gr.	-0.66	5,24	-5,93	0,02
World Woven 860	17 oz. / 575 gr.	-0.59	5,32	-5,93	0,02
World Woven 865	17 oz. / 575 gr.	-0.59	5,32	-5,93	0,02
Recreation	17.2 oz./ 583 gr.	-0.58	5,33	-5,93	0,02
Open Air 401	18 oz. / 610 gr.	-0.53	5,38	-5,94	0,03
Open Air 402	18 oz. / 610 gr.	-0.53	5,38	-5,94	0,03
Open Air 403	18 oz. / 610 gr.	-0.53	5,38	-5,94	0,03
Open Air 403 A	18 oz. / 610 gr.	-0.53	5,38	-5,94	0,03
Open Air 403 Transition	18 oz. / 610 gr.	-0.53	5,38	-5,94	0,03
Open Air 404	18 oz. / 610 gr.	-0.53	5,38	-5,94	0,03
Open Air 404 A	18 oz. / 610 gr.	-0.53	5,38	-5,94	0,03
Open Air 404 Transition	18 oz. / 610 gr.	-0.53	5,38	-5,94	0,03
Open Air 405	18 oz. / 610 gr.	-0.53	5,38	-5,94	0,03
CE100	18.4 oz. / 624gr	-0.54	5,40	-5,94	0,03
Upon Common Ground - Escarpment	19 oz./ 644 gr.	-0.48	5,44	-5,94	0,03
Human Connections Paver	19 oz. / 645 gr.	-0.48	5,44	-5,94	0,03
Off Line	21.2oz./ 718 gr.	-0.35	5,57	-5,94	0,03
On Line	21.2oz./ 718 gr.	-0.35	5,57	-5,94	0,03
Heuga 725	21.2oz. / 720 gr	-0.35	5,57	-5,95	0,03
Human Connections Kerbstone	22 oz. / 746 gr.	-0.31	5,62	-5,96	0,03
Near and Far 400	22 oz. / 746 gr.	-0.31	5,62	-5,96	0,03
Visual Code Darning	22 oz. / 746 gr.	-0.31	5,62	-5,96	0,03
Visual Code Decibel	22 oz. / 746 gr.	-0.31	5,62	-5,96	0,03
CE200	22 oz. / 747 gr.	-0.31	5,62	-5,96	0,03
Monochrome	22.5 oz. / 764 gr.	-0.28	5,65	-5,96	0,03
HN 820	23 oz. / 780 gr.	-0.25	5,68	-5,95	0,03
Human Connections Flagstone	23 oz. / 780 gr.	-0.25	5,68	-5,95	0,03
Upon Common Ground - Dry Bark	23 oz. / 780 gr.	-0.25	5,68	-5,95	0,03
World Woven 870	23 oz. / 780 gr.	-0.25	5,68	-5,95	0,03
Woven Gradience WG100	23 oz. / 780 gr.	-0.25	5,68	-5,95	0,03
Woven Gradience WG200	23 oz. / 780 gr.	-0.25	5,68	-5,95	0,03
Hydropolis	23.5 oz. / 795 gr.	-0.23	5,71	-5,96	0,03
Equilibrium	24 oz. / 814 gr.	-0.20	5,74	-5,97	0,03
Visual Code Haptic	24 oz. / 814 gr.	-0.20	5,74	-5,97	0,03
Dolomite	25 oz. / 850 gr.	-0.14	5,80	-5,97	0,03
World Woven 880	25 oz. / 850 gr.	-0.14	5,80	-5,97	0,03
Urban Retreat 501	25.5 oz. / 861 gr.	-0.12	5,82	-5,97	0,03



## 7. References

### ASTM

ASTM E-648. Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source. <http://www.astm.org/Standards/E648.htm>

ASTM E-662. Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials. <http://www.astm.org/Standards/E662.htm>

### Carpet & Rug Institute.

CRI Test Method 101. [http://www.carpet-rug.org/technical\\_bulletins/0307\\_CRI\\_TM\\_101.pdf](http://www.carpet-rug.org/technical_bulletins/0307_CRI_TM_101.pdf)

Carpet & Rug institute.

Residential Customers Green Label / Green Label Plus. <http://www.carpet-rug.org/residentialcustomers/selecting-the-right-carpet-of-rug/green-label.cfm>

### GaBi 10

Gabi 10: 2021: Software-System and Databases for Life Cycle Engineering Copyright, TM. Stuttgart, Echterdingen

### Interface, Inc

Interface, Inc.: 2023.: Life Cycle Assessment of EU CQuest BioX.

### ISO 14025

ISO 14025:2006 : Environmental labels and declarations — Type III environmental declarations —Principles and procedures.

### ISO 14040

ISO 14040:2006 : Environmental management — Life cycle assessment —Principles and framework. Amd 1:2020.

### ISO 14044

ISO 14044:2006 : Environmental management — Life cycle assessment —Requirements and guidelines. Amd 1:2017 / Amd 2:2020

### ISO 21930

ISO 21930 :2017 : Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and services

### Interface

Installation Instructions for carpet tiles. Rev. April 12, 2021.

### EN 15804

EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

M. Overcash, Di Lu, and Matthew Realff





---

M. Overcash, Di Lu, and Matthew Realff: 2008: Care and Maintenance of Commercial Carpet Conventional and Next Generation Technology. Georgia Tech.

### **UL Environment**

UL Environment General Program Instructions March 2022. version 2.7

### **UL 10010. PCR Part A**

PCR -Part A: Life Cycle Assessment Calculation Rules and Report Requirements. Version 4.0. UL Environment.  
<https://industries.ul.com/environment>

### **UL 10010-7. PCR Part B**

PCR - Part B: Flooring EPD Requirements. Second Edition. Dated September 28. 2018. UL Environment.  
<https://www.ul.com/>