

ENVIRONMENTAL PRODUCT DECLARATION

MODULAR CARPET

INTERFACE, INC ASIA PACIFIC - AUSTRALIA
GLASBAC®, 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



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Interface, Inc Asia Pacific - Australia
Modular Carpet
GlasBac® Nylon



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

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Environment 333 Pfingsten Road Northbrook, IL 60611	https://www.ul.com/ https://spot.ul.com/
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	General Program Instructions v2.5 March 2020	
MANUFACTURER NAME AND ADDRESS	Interface, Inc.; Minto, NSW, Australia	
DECLARATION NUMBER	4789956802.104.1	
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	Interface Asia Pacific – Australia modular carpet on GlasBac, Nylon	
REFERENCE PCR AND VERSION NUMBER	PCR Guidance for Building-Related Products and Services Part A: Life Cycle Assessment Calculation Rules and Report Requirements. 10010 Version 3.2. UL Environment. December 2018 PCR Guidance for Building-Related Products and Services Part B: Flooring EPD Requirements. 10010-7 Version 2. UL Environment. September 2018.	
DESCRIPTION OF PRODUCT APPLICATION/USE	Interface modular GlasBac carpet	
PRODUCT RSL DESCRIPTION (IF APPL.)	15 years	
MARKETS OF APPLICABILITY	APAC	
DATE OF ISSUE	10/1/2021	
PERIOD OF VALIDITY	5 Years	
EPD TYPE	Product specific	
RANGE OF DATASET VARIABILITY	Industry average	
EPD SCOPE	Cradle to gate with options	
YEAR(S) OF REPORTED PRIMARY DATA	2020	
LCA SOFTWARE & VERSION NUMBER	GaBi 10	
LCI DATABASE(S) & VERSION NUMBER	GaBi 10.5.0.78	
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.1/CML 4.2	
The PCR review was conducted by:		UL Environment
		PCR Review Panel
		epd@ulenvironment.com
This declaration was independently verified in accordance with ISO 14025: 2006. ☐ INTERNAL ☒ EXTERNAL		
		Thomas P. Gloria, Industrial Ecology Consultants
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:		
		Aidan Ganzert, Interface
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:		
		Thomas P. Gloria, Industrial Ecology Consultants

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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

Product Identification

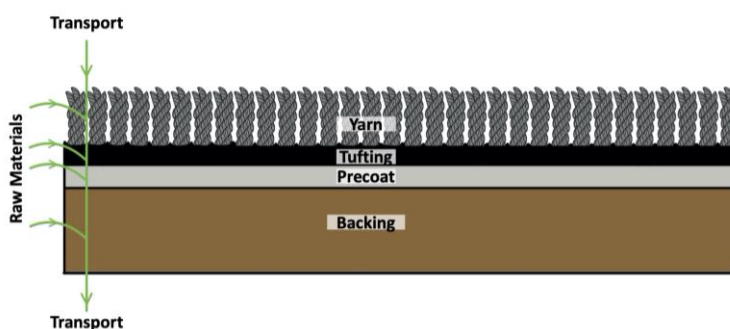
This Environmental Product Declaration covers all styles and patterns of modular carpet on GlasBac® backing with Nylon yarn. The products are manufactured in Minto Australia. The products range in yarn weight from 407 to 1594 grams per square meter. A medium yarn weight of 678 grams per square meter is reported and the Global Warming Potential of all additional product yarn weights are reported.

Product Specification

UNSPSC code: 301617

CSI code: 09680

Flow Diagram



A1-A3 measured flows include manufacturing processes, transport, and raw material inputs for each product layer and sub-layers.

Product Average

The product average of 678 grams per square meter was based on a sales weighted average.



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1.3. Application

Application of product is intended for modular installation of resilient floor covering in commercial building.

1.4. Declaration of Methodological Framework

The data is retrieved from a cradle-to-grave LCA study.

This EPD covers the entire life cycle of the product from cradle to grave (modules A1 to D) excluding modules for which there are no inputs/outputs. No known flows are deliberately excluded from this EPD. The description of the study boundaries is declared in Section 2.2.

For this product, the stated RSL is 15 years. It should be noted, however, that the service life of vinyl flooring may vary depending on the amount and nature of floor traffic and the type and frequency of maintenance. The manufacturer has provided this service life on the basis of its experience of flooring manufacture and supply.

The description of study boundaries is declared in Table 6.

1.5. Technical Requirements

Name	Value	Unit
Product form	Tiles	-
Type of Manufacture	Tufted	-
Yarn Type	Nylon	-
Secondary Backing	Vinyl composite	-
Total Weight	3300	g/m ²
Total Yarn Weight	678	g/m ²

* nominal values





1.6. Material Composition

Component	Material	% Mass
Yarn	Nylon	21%
	Post-consumer recycled nylon	(38% of 21%)
	Pre-consumer recycled nylon	(55% of 21%)
Primary backing	Post-consumer recycled polyester	4%
Precoat backing	Vinyl acetate emulsion	4%
	Alumina trihydrate	<1%
Stabilization layer	Fiberglass mat	2%
Secondary backing	DINCH	10%
	Polyvinyl chloride	15%
	Pre-consumer recycled limestone	44%

*nominal values

1.7. Manufacturing

GlasBac® is manufactured in Minto, NSW. 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.

1.8. Packaging

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

1.9. Transportation

Delivery is represented as transport by truck over a distance of 500 miles (805 km). Available in a range of tile and plank sizes, most commonly 0.5 x 0.5 meter squares and 1.0 x 0.25 meter planks.

1.10. Product Installation

Product may be installed with pressure sensitive adhesive. For full installation instructions, see the Interface Installation Guide on the [website](#).

1.11. Use



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Conditions of use: During the 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.

1.12. Reference Service Life and Estimated Building Service Life

The reference service life of this product is 15 years based on product warranty. The Estimated Building Service Life (ESL) is 75 years.

1.13. Reuse, Recycling, and Energy Recovery

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

1.14. Disposal

At the end of life the product should be returned to Interface through Interface’s ReEntry process by contacting Interface customer service at 1800-804-361. 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 Glasbac™	Value	Unit
Declared unit	1	m²
Mass	3.3	kg/ m²

**nominal value*





2.2. System Boundary

The LCA is “cradle-to-gate with options” for one square meter of flooring. While the warranted service life is 15 years, modules **B1**, **B3**, **B4**, and **B5** are not declared, so the maintenance (**B2**) is represented for one year. 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.
- **C2** Transport of waste to local disposal
- **C4** Disposal

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. When unavailable, conservative proxy datasets were chosen based on similarity of material.

2.4. Cut-off Criteria

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.

2.5. Data Sources

The datasets for materials upstream from manufacturing are a combination of information from the GaBi database version 10.5.0.78 and supplier provided datasets. The supplier provided data adds significant confidence to the ICA 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.

2.6. Data Quality

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 2020.

2.7. Period Under Review

The data collection and the product described are an average product manufactured in 2020.



2.8. 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	0.00891	l/100km
Vehicle type	Truck 34-40	tons
Transport distance	805	km
Capacity utilization (including empty runs, mass based)	85	%
Weight of products transported*	3.2	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	0.004	kg
Net freshwater consumption specified by water source and fate (amount evaporated, amount disposed to sewer)	-	m ³
Other resources	-	kg
Electricity consumption	-	kWh
Other energy carriers	-	MJ
Product loss per functional unit	0.02	kg
Waste materials at the construction site before waste processing, generated by product installation	0.23	kg
Output materials resulting from on-site waste processing (specified by route; e.g. for recycling, energy recovery and/or disposal)	-	kg
Biogenic carbon contained in packaging	0.1	kg CO ₂
Direct emissions to ambient air, soil and water	-	kg
VOC content	-	µg/m ³

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. End of life (C1-C4)

NAME	VALUE	UNIT
Transport to disposal	100	km
Landfill	3.3	kg

4. Life Cycle Assessment Results

Table 6. Description of the system boundary modules (X = system included in boundary; MND = module not declared)

	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
EPD Type	X			X	X	MND	X	MND	MND	MND	MND	MND	MND	X	MND	X	MND

4.1. Life Cycle Impact Assessment Results

Table 7. North American Impact Assessment Results

TRACI v2.1	A1-A3	A4	A5	B2	C2	C4
GWP [kg CO ₂ eq]	5.54E+00	1.35E-01	3.01E-02	5.85E-01	5.04E-03	2.21E-01
ODP [kg CFC-11 eq]	1.11E-07	3.61E-17	8.67E-10	2.12E-09	1.35E-18	7.59E-16
AP [kg SO ₂ eq]	2.72E-02	7.25E-04	1.08E-04	2.19E-03	2.71E-05	6.03E-04
EP [kg N eq]	2.89E-03	5.43E-05	2.09E-05	3.01E-04	2.03E-06	2.86E-04
SFP [kg O ₃ eq]	3.87E-01	1.63E-02	1.34E-03	3.62E-02	6.07E-04	1.02E-02
ADP _{fossil} [MJ, LHV]	1.32E+01	2.61E-01	6.41E-02	3.58E-01	9.75E-03	4.42E-01

Key	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
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Table 8. EU Impact Assessment Results

CML v4.2	A1-A3	A4	A5	B2	C2	C4
GWP 100 [kg CO ₂ eq]	5.59E+00	1.35E-01	3.06E-02	5.87E-01	5.06E-03	2.24E-01
ODP [kg R11 eq]	8.86E-08	3.61E-17	6.62E-10	1.95E-09	1.35E-18	7.59E-16
AP [kg SO ₂ eq]	2.62E-02	5.34E-04	1.08E-04	2.09E-03	1.99E-05	5.80E-04
EP [kg PO ₄ ⁻³ eq]	3.45E-03	1.35E-04	4.62E-05	2.97E-04	5.06E-06	6.30E-04
POCP [kg ethene eq]	2.18E-03	-2.23E-04	1.11E-05	1.17E-04	-8.32E-06	5.22E-05
ADP _{element} [kg Sb-eq]	1.10E-05	1.36E-08	3.69E-09	1.94E-07	5.08E-10	4.29E-08
ADP _{fossil} [MJ, LHV]	1.02E+02	1.82E+00	4.93E-01	5.65E+00	6.81E-02	3.34E+00

Key	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 = abiotic resource depletion potential for fossil resources
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According to ISO 14025,
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4.2. Life Cycle Inventory Results

Table 9. Resource Use

Parameter	A1-A3	A4	A5	B2	C2	C4
RPRE [MJ, LHV]	7.76E+00	–	–	8.01E-01	–	–
RPRM [MJ, LHV]	2.17E+01	–	–	6.19E-03	–	–
NRPRE [MJ, LHV]	6.53E+00	–	–	3.49E+00	–	–
NRPRM [MJ, LHV]	1.03E+02	–	–	6.25E-01	–	–
SM [kg]	4.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF [MJ, LHV]	9.64E-05	–	–	–	–	–
NRSF [MJ, LHV]	1.47E-03	–	–	–	–	–
RE [MJ, LHV]	–	–	–	–	–	–
FW [m³]	1.15E-01	1.20E-04	2.56E-04	2.89E-03	4.49E-06	3.17E-05

Key	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 freshwater resources
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According to ISO 14025,
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Table 10. Output Flows and Waste Categories

Parameter	A1-A3	A4	A5	B2	C2	C4
HWD [kg]	1.62E-03	9.65E-11	4.07E-11	4.31E-10	3.60E-12	6.19E-10
NHWD [kg]	3.28E-01	2.87E-04	2.15E-01	1.82E-03	1.07E-05	3.28E+00
HLRW [kg]	1.43E-06	2.89E-09	4.14E-09	3.08E-08	1.08E-10	4.11E-08
ILLRW [kg]	1.11E-03	3.32E-06	3.49E-06	1.86E-05	1.24E-07	3.99E-05
CRU [kg]	–	–	–	–	–	–
MR [kg]	–	–	–	–	–	–
MER [kg]	–	–	–	–	–	–
EE [MJ, LHV]	–	–	–	–	–	–

Key	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
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Results of the LCA – Product stage A1-A3 TRACI Global Warming Potential (GWP) measured in kg CO²-e for additional product yarn weights (ounces per square yard / grams per square meter)

YARN WEIGHT (oz./YD ²) AND (GM/M ²)		GWP MEASURED IN KG CO ₂ -E
12 oz.	407 gr.	4.89
13 oz.	441 gr.	4.97
14 oz.	475 gr.	5.05
15 oz.	509 gr.	5.13
16 oz.	542 gr.	5.21
17 oz.	575 gr.	5.29
18 oz.	610 gr.	5.37
19 oz.	644 gr.	5.46
20 oz.	678 gr.	5.54
21 oz.	712 gr.	5.62
22 oz.	746 gr.	5.70
23 oz.	780 gr.	5.78
24 oz.	814 gr.	5.86
25 oz.	848 gr.	5.94
26 oz.	881 gr.	6.02
27 oz.	915 gr.	6.11
28 oz.	949 gr.	6.19
29 oz.	983 gr.	6.27
30 oz.	1017 gr.	6.35
31 oz.	1051 gr.	6.43
32 oz.	1085 gr.	6.51
33 oz.	1119 gr.	6.59
34 oz.	1153 gr.	6.68
35 oz.	1187 gr.	6.76
36 oz.	1220 gr.	6.84
37 oz.	1254 gr.	6.92
38 oz.	1288 gr.	7.00
39 oz.	1322 gr.	7.08
40 oz.	1356 gr.	7.16
41 oz.	1390 gr.	7.24
42 oz.	1424 gr.	7.33
43 oz.	1458 gr.	7.41
44 oz.	1492 gr.	7.49
45 oz.	1526 gr.	7.57
46 oz.	1560 gr.	7.65
47 oz.	1594 gr.	7.73



According to ISO 14025,
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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 of product stewardship can be found on [Interface's sustainability website](#). ISO 14001 Environmental Management System

6.2. 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/m²/hr.

6.3. 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.

6.4. Environmental Activities and Certifications

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





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

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GaBi 10

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ISO 14025

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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

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EN 15804

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

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