

ENVIRONMENTAL PRODUCT DECLARATION

FLOTEX NEXT SHEET

FORBO FLOORING SYSTEMS
FLOCKED FLOOR COVERING

Flotex Next Sheet Curve Zinc



FLOORING SYSTEMS

Flotex is an innovative flocked flooring technology combining the durability and cleanability of resilient floorings with the softness and warmth offered by carpet.

It is made by electrostatically flocking 80 million nylon fibers into a watertight backing, resulting in a floor covering that is strong, hygienic, and completely waterproof. It has been proven to contribute towards better indoor air quality and is the only textile floorcovering that carries the Allergy UK seal of approval

Flotex Next is the adhesive free version of Flotex sheet. It can be used in high traffic applications. It can be installed quickly without adhesives, but it is even more time and cost efficient at time of replacement.

Flotex Next can be rotary or digitally printed, the latter allowing for high-definition quality.

Forbo was the first flooring manufacturer to publish a complete Life Cycle Assessment (LCA) report verified by CML in 2000 to create full transparency that is independently evaluated. To offer further transparency this EPD also includes additional information to show the impacts on human health and eco-toxicity.

For more information visit:
www.forbo-flooring.com



ENVIRONMENTAL PRODUCT DECLARATION



FLOORING SYSTEMS

Flotex Next Sheet

Flocked Floor covering

According to ISO 14025 and EN 15804

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 Solutions 333 Pfingsten Road Northbrook, IL 60611	
DECLARATION HOLDER	Forbo Flooring B.V. Industrieweg 12 P.O. Box 13 NL-1560 AA Krommenie	
DECLARATION NUMBER	4791748655.105.1	
DECLARED PRODUCT	Flotex Next Sheet Flocked Floor Covering (loose lay)	
REFERENCE PCR	EN 15804+A2: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products EN 16810:2017 Resilient, textile and laminate floor coverings – Environmental product declarations – Product category rules	
DATE OF ISSUE	August 11, 2026	
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:		European Standards
		CEN/TC 134
		https://www.en-standard.eu/

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories ☐ INTERNAL ☒ EXTERNAL	 Cooper McCollum, UL Solutions
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	 Kun Chen, UL Solutions

This EPD conforms with EN 15804

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

1 Product Definition

1.1 Description of Company/Organization

Forbo Flooring Systems has mastered the craft of manufacturing Flotex over the last 50 years and has been driving this development experience through its Flotex brand. Flotex is made in Ripley in the United Kingdom. The manufacturing location is a state-of-the-art production site that makes sheets, tiles and planks in hundreds of different designs and colours.

Making Flotex has always been done in a way to achieve the lowest carbon footprint, the starting point for innovation and development. The Forbo organization has key environmental focus areas to display a carbon-negative product portfolio, using renewable electricity, becoming a zero-waste company, and actively contributing to the circular economy.

For its complete manufacturing of Flotex, Forbo holds all the main certifications. For environmental performance ISO 14001, for quality ISO 9001, SA8000 for social accountability, and ISO 45001 for Occupational Health and Safety Management Systems. In addition, Flotex is the only textile floor covering to receive the Allergy UK Seal of Approval™.

1.2 Product Classification and description

Flotex is an innovative flocked flooring technology combining the durability and cleanability of resilient floorings with the softness and warmth offered by carpet.

It is made by electrostatically flocking 80 million nylon fibers into a watertight backing, resulting in a floor covering that is strong, hygienic, and completely waterproof. It has been proven to contribute towards better indoor air quality and is the only textile floorcovering that carries the Allergy UK seal of approval

Flotex Next is the adhesive free version of Flotex sheet. It can be used in high traffic applications. It can be installed quickly without adhesives, but it is even more time and cost efficient at time of replacement.

Flotex Next can be rotary or digitally printed, the latter allowing for high-definition quality.

This declaration covers a wide range of designs and colorways for Flotex Next products that are manufactured and printed using both rotary and digital print methods. Flotex Next is suitable for any commercial specification.

Flotex Next is comprised of a Nylon 6.6 pile above three fiberglass scrims reinforced by a compact layer, and a PVC cushioned backing.

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

Flotex Next Sheet is built up in 7 layers as illustrated in the following image:

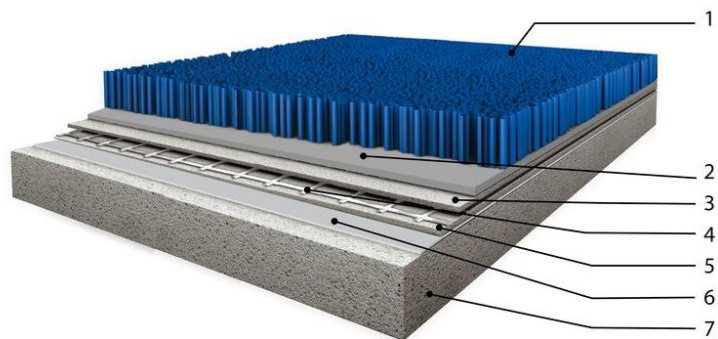


Figure 1: Typical construction

- 1. **Nylon 6.6 pile:** This layer gives Flotex Next Sheet its design, colour and wear properties.
- 2. **Pile adhesive:** This layer bonds the surface layer to the backing
- 3. **Fibreglass #1:** This layer provides strength and dimensional stability to the product
- 4. **Fibreglass scrim:** This layer provides gives additional stability plus tear resistance
- 5. **Compact layer:** This layer gives the right rigidity to the product
- 6. **Fibreglass #2:** This layer provides strength and dimensional stability to the product
- 7. **Closed cell PVC backing:** This layer provides cushioning and acoustic properties

This declaration refers to the declared/functional unit of 1 m² installed flooring product.

1.3 Range of application

Flotex Next Sheet is classified in accordance with EN1307 to be installed in the following use areas defined in EN-ISO 10874:

Area of application	Flotex Next Sheet
Domestic	Class 23
Commercial	Class 33

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804



Flotex Next | latitude grey 202037



Flotex Next | code nimbus 203073

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

1.4 Product Standard

The product considered in this EPD has the following technical specifications:

- Meets or exceeds all requirements of EN1307: Textile Floor Coverings - Classification of Pile Carpets.

Flotex Next Sheet meets the requirements of EN 14041 and BS EN 14041



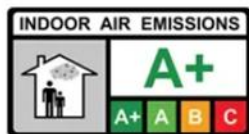
EN 13501-1	Reaction to fire	B _{fl} - s1
EN 13893	Slip resistance	DS: ≥ 0.30
ISO 6356	Body voltage	< 2 kV
ISO 8302	Thermal conductivity	0.06 W.mK

Fire Testing:

- Class 1 when tested in accordance with ASTM E 648/NFPA 253, Standard Test Method for Critical Radiant Flux.
- Meets 450 or less when tested in accordance with ASTM E 662/NFPA 258, Standard Test Method for Smoke Density.

Emission testing:

- AgBB requirements following EN ISO 16000-9 Indoor Air Emissions: TVOC at 28 days
- French act Grenelle: A+
- Eurofins Indoor Air Quality Gold



1.5 Accreditation

All Forbo Flooring Systems' manufacturing operations have certified Management System in accordance with:

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 45001 Occupational Health and Safety Management Systems
- SA 8000 Social Accountability standard

Forbo's Flotex Next Sheet is rewarded with the Allergy UK Seal of Approval™.



ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

1.6 Delivery Status

Table 1: Specification of delivered product

Characteristics	Nominal Value	Unit
Product thickness	3.9	mm
Product Weight	2150	g/m ²
Rolls Width	2.0	m
Length	25	m

2 Material Content

2.1 Material Content of the Product

Table 2: Composition of Flotex Next Sheet

Component	Material	Availability			Amount [%]	Origin
		Renewable	Recycled	Non-Renewable		
Polymer	Emulsion PVC			X	35	Europe
Plasticizer	DOTP			X	23	Europe
Recycled Filler	Calcium carbonate		Pre-consumer		22	Europe
Substrate	Glass fleece			X	5	Europe
Carpet Pile	Polyamide 6.6			X	11.5	Europe/USA
Additives	Various chemicals			X	3.5	Europe/Asia

2.2 Production of Main Materials

Emulsion PVC: Polymer which is manufactured by the polymerisation of vinyl chloride monomer.

DOTP: A non-phthalate plasticiser, being the diester of terephthalic acid and the branched-chain 2-ethylhexanol. This colorless viscous liquid used for softening PVC plastics is known for chemical similarity to general purpose phthalates such as DEHP and DINP, but without any negative regulatory pressure.

Calcium carbonate: An abundant mineral found in all parts of the world as the chief substance in rocks (i.e., marble and limestone). The Calcium carbonate used is coming from a postindustrial recycling process.

Glass tissue: A non-woven sheet material comprising chopped glass fibre filaments bound together with a binder imparts dimensional stability and lay-flat properties

Glass net: A non-woven grid structure comprising glass filament yarn bound together with a binder. Increases tear resistance of finished flooring

Nylon 6.6: Synthetic fibre made from the condensation reaction of hexamethylene diamine and adipic acid. Forms the pile surface of Flotex and gives excellent abrasion resistance and durability.

Various chemicals: Minor components including – conductive fibre, pigments, fire retardant, heat stabilizer

ENVIRONMENTAL PRODUCT DECLARATION

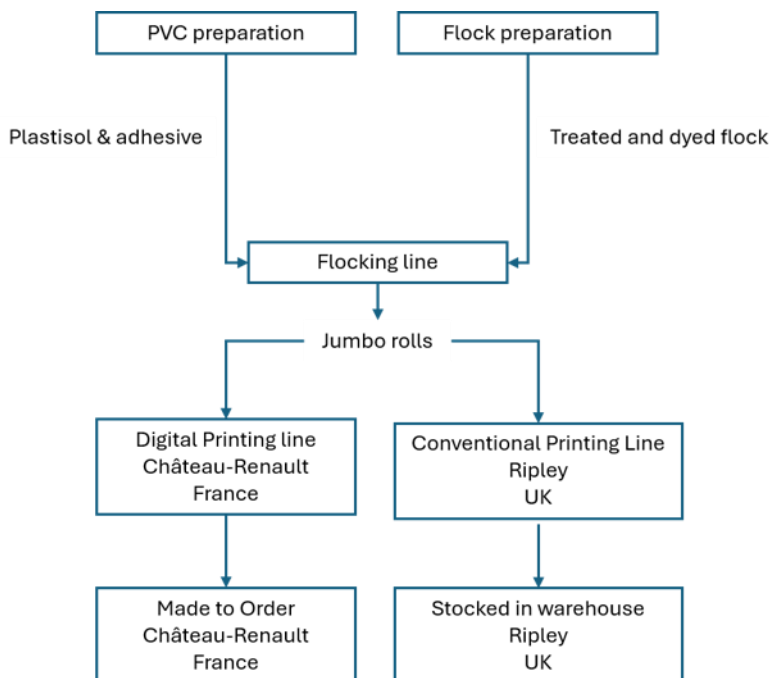


Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

3 Production of the Floor Covering

3.1 Manufacturing



Flotex Next Sheet is produced in several stages starting with PVC prep, where the compounding of PVC emulsion polymers with plasticizer and other functional additives is carried out to produce various PVC plastisols. These plastisols are then spread-coated onto a glass substrate on the flocking line. The top surface of Flotex Next Sheet is based on Nylon-6.6 tow, which is cut into 2mm fibers in the flock prep area. These fibers are scoured and dyed to give the desired color base shade before electrostatically flocking into the wet PVC plastisol on the Flocking Line. The flocked fibers form the surface pile of Flotex Next Sheet. After flocking, the plastisols are fully cured at elevated temperature on the flocking line.

The flocked base material is then processed on the Ripley printing line where specific designs can be applied to the surface layer using a rotary screen technique, or at the digital printing facility in Chateau-Renault, France. The printed material is then steamed to fix dyestuffs then washed and dried.

3.2 Production Waste

Rejected material and the cuttings of the trimming stage are being reused in the manufacturing process. Packaging materials are collected separately and externally recycled.

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

4 Delivery and Installation of the Floor Covering

4.1 Delivery

A worldwide distribution by truck and container ship is considered. On average every square meter of Flotex Next Sheet is transported as follows:

- | | |
|--|--------|
| ○ Transport distance 40 t truck | 760 km |
| ○ Transport distance 7.5t truck (Fine distribution) | 246 km |
| ○ Capacity utilization trucks (including empty runs) | 100% |
| ○ Transport distance Ocean ship | 800 km |
| ○ Capacity utilization Ocean ship | 100% |

4.2 Installation

Because of the specific techniques used during the installation of Flotex Next Sheet approximately 2% of the material is cut off as installation waste.

PE-foil can be collected separately and should be used in a local recycling process.

Waste during the installation process may be recycled as floor covering through the manufacturers' facility. Forbo Flooring has a Back to The Floor program in which both post-installation and end of life flooring can be recycled.



BACK TO THE FLOOR
RECYCLING PROGRAM

6 Use stage

The service lifetime of a floor covering for a certain application on a floor is too widespread to give one common number. For this EPD model, the reference service lifetime (RSL) is set to one year. This means that all impacts for the use phase are based on the cleaning and maintenance model for one year. Depending on the area of use, the technical lifetime advised by the manufacturer and the estimated time on the floor by the customer, the service lifetime can be determined. The use phase impacts should be multiplied with the foreseen service life to calculate the total environmental impact.

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

6.1 Cleaning and Maintenance

Level of use	Cleaning Process	Cleaning Frequency	Consumption of energy and resources
High traffic areas (Commercial/Residential)	Vacuuming	Twice a week	Electricity
	Wet Cleaning	Once a week	Hot water Neutral detergent Electricity

For the calculations the following cleaning regime is considered:

- Dry cleaning with a 1.5 kW vacuum cleaner for 0.21 min/m², twice a week. This equates to 0.55 kWh/m²*year.
- Once a week wet cleaning with 0.062 l/m² water and 0.0008 kg/m² detergent. This result in the use of 3.224 l/m²*year water and 0.04 kg/m²*year detergent. The wet cleaning takes place with a hot water extraction machine, the heating of the water requires 0.15 kWh/m²*year.

Wastewater treatment of the arising wastewater from cleaning is considered.

The cleaning regime that is recommended in practice will be highly dependent on the use of the premises where the floor covering is installed. In high traffic areas more frequent cleaning will be needed compared to areas where there is low traffic. The use of an entrance mat of at least four steps length will reduce the cleaning frequency.

6.2 Prevention of Structural Damage

All newly laid floor coverings should be covered and protected with a suitable non-staining protective covering if other building activities are still in progress. Castor wheels should be suitable for Textile floor coverings.

7 End of Life

Flotex Next Sheet is designed for easy removal, reuse, and recycling. Thanks to its loose lay installation method using double-sided tape, Flotex Next can be installed without adhesives that might contaminate the product or damage the subfloor. This allows the floor covering and the subfloor to remain intact at the End-of-Life stage, supporting reuse and facilitating recycling.

Deinstallation can be carried out manually, without the need for mechanical stripping or specialized equipment, thereby reducing energy consumption during removal. As no significant energy input is required for deconstruction, no additional energy consumption is considered in the end-of-life calculations.

For the end-of-life stage, two scenarios have been calculated assuming that the flooring is either 100% incinerated or 100% landfilled.

8 Life Cycle Assessment

A full Life Cycle Assessment has been carried out according to ISO 14040 and ISO 14044.

The following Life Cycle Stages are assessed:

- A1-3: Product Stage (Raw material acquisition, transportation to Manufacturing and Manufacturing)
- A4-5: Construction process stage (Transport Gate to User, installation flooring)
- B2: Use Stage (Maintenance of the floor). For floor coverings the modules B1, B3 to B7 are not relevant to the environmental performance of a product.
- C1-4: End of Life Stage (Deconstruction, transport, waste processing, Disposal). Two different End of Life scenarios are declared, and the results are indicated separately in module C. Each scenario is calculated as a 100% scenario:
Scenario 1: 100% Municipal Waste Incineration (MWI) with $R_1 > 60\%$
Scenario 2: 100% landfill disposal
- D: Benefits and loads beyond the system boundary (Reuse, recovery, recycling potential)

End of life scenario 1: 100% Municipal Waste Incineration (MWI) with $R_1 > 60\%$

- C3-1 (Waste processing): Impact from waste incineration, generated electricity and steam are listed in the result table as exported energy
- C4-1 (Disposal): The product waste leaves the system in module C3-1 and causes no additional impact
- D-1 (Recycling potential): Benefits for generated energy due to incineration of product waste at the end-of-life

End of life scenario 2: 100% landfill disposal

- C3-2 (Waste processing): Landfill disposal needs no waste processing and causes no additional impact
- C4-2(Disposal): Impact from landfill disposal
- D-2 (Recycling potential): Benefits for generated energy due to landfill disposal of product waste at the end of life

Modules C3-2 and C4-1 cause no additional impact and are therefore not displayed in the result tables

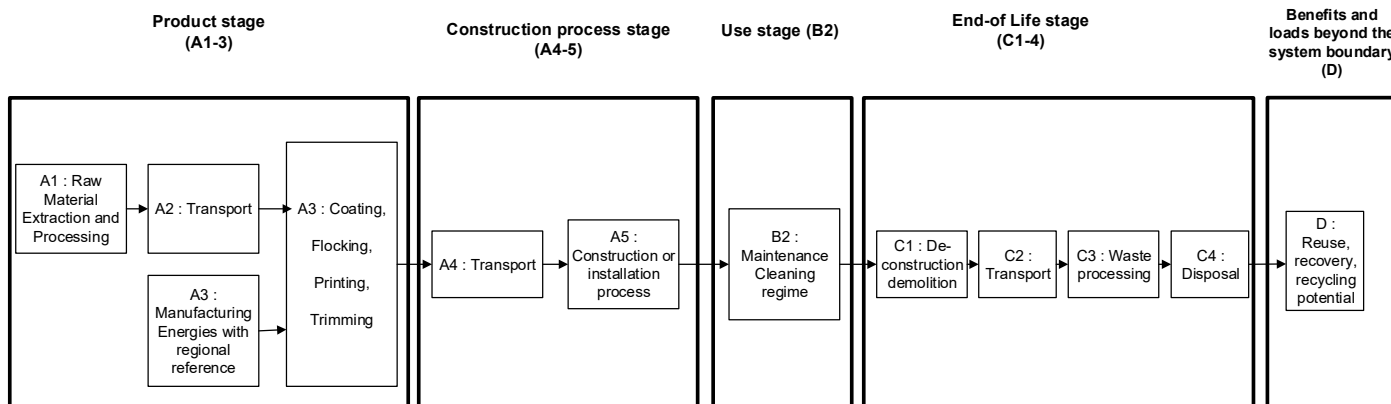


Figure 2: Flow chart of the Life Cycle Assessment

Comparisons of different floor coverings are only allowed, where EN 15804 consistent and/or pre-verified background data and EN 15804 consistent calculation methods and database versions are used and when the building context is taken into account, i.e. on the basis of the same use-classification (EN ISO 10874), same service life and comparable assumptions for the end of life.

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

8.1 Description of the Declared Functional Unit

The functional unit is one square meter of installed product, and the use stage is considered for one year of service life.

8.2 Cut off Criteria

The cut-off criteria shall be 1% of renewable and non-renewable primary energy usage and 1% of the total mass of the unit process. The total neglected input flows per module shall be a maximum of 5% of energy usage and mass. In practice, in this assessment, all data from the production data acquisition are considered, i.e. all raw materials used as per formulation, use of water, electricity and other fuels, the required packaging materials, and all direct production waste. Transport data on all considered inputs and output material are also considered.

8.3 Allocations

In the present study, some allocations have been made. Detailed explanations can be found in the chapters below.

8.4 Co-product allocation

No co-product allocation occurs in the product system.

8.5 Allocation of multi-input processes

The Production and End of Life stage include incineration plants. In these processes, different products are treated together within a process. The allocation procedures followed in these cases are based on a physical classification of the mass flows or calorific values.

Credits from energy substitution are allocated to the production stage, because the energy gained from energy substitution is lower than the energy input in this stage. The same quality of energy is considered.

8.6 Allocation procedure of reuse, recycling and recovery

The installation waste and end of life waste is fed into incineration processes. Incineration processes include cogeneration processes which give thermal and power energy as outputs. It is assumed that this recovered energy offsets that produced by the European average grid mix and thermal energy generation from natural gas. The gained energy is declared in module D as avoided environmental burden. Generated electricity and steam due to the incineration of installation and end of life waste are listed in the result table as exported energy.

8.7 Description of the allocation processes in the LCA report

The description of allocation rules in this LCA report meets the requirements of the PCR.

8.8 LCA Data

As a general rule, specific data derived from specific production processes or average data derived from specific production processes have been used as the first choice as a basis for calculating an EPD.

For life cycle modeling of the products considered, the GaBi 10 Software System for Life Cycle Engineering, developed by Sphera has been used. All relevant LCA datasets are taken from the GaBi 10 software database. The datasets from the database GaBi are documented in the online documentation. To ensure comparability of results in the LCA, the basic data of GaBi database were used for energy, transportation, and auxiliary materials.

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

8.9 Data Quality

The requirements for data quality and LCA data correspond to the specifications of the PCR. Foreground data are based on 1-year averaged data (year 2025). The reference ages of LCA datasets vary but are given in the table in the Appendix. The time period over which inputs to and outputs from the system is accounted for is 100 years from the year for which the data set is deemed representative. The technological LCA of the collected data reflects the physical reality of the declared product. The datasets are complete, conform to the system boundaries and the criteria for the exclusion of inputs and outputs and are geographical representative for the supply chain of Forbo Flooring Systems.

For life cycle modeling of the considered products the GaBi 10 Software System for Life Cycle Engineering, developed by Sphera, is used. All relevant LCA datasets are taken from the GaBi 10 software database. The last revision of the used data sets took place within the last 10 years.

8.10 System Boundaries

Production Stage includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of waste state or disposal of final residues during the product stage.

Transport and Installation Stage includes provision of all materials, products and energy, as well as waste processing up to the end-of-waste state or disposal of final residues during the construction stage. These information modules also include all impacts and aspects related to any losses during this construction stage (i.e. production, transport, and waste processing and disposal of the lost products and materials). For the transportation a worldwide distribution is considered.

Use Stage includes provision and transport of all materials, products and related energy and water use, as well as waste processing up to the end-of-waste state or disposal of final residues during this part of the use stage. These information modules also include all impacts and aspects related to the losses during this part of the use stage (i.e. production, transport, and waste processing and disposal of the lost products and materials).

End of Life Stage includes provision and all transports, provision of all materials, products and related energy and water use. It also includes any declared benefits and loads from net flows leaving the product system that have not been allocated as co-products and that have passed the end-of-waste state in the form of reuse, recovery and/or recycling potentials.

8.11 Power mix

The selection of LCA data for the electricity generation is in line with the PCR. The products are manufactured in Ripley, the United Kingdom. The GaBi 10 Wind power dataset has therefore been used (reference year 2026). The energy supplier provides Forbo Flooring Systems with a certificate every year.

8.12 CO₂-Certificates

No CO₂-certificates are considered in this study.

ENVIRONMENTAL PRODUCT DECLARATION



FLOORING SYSTEMS

Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

8.13 Life Cycle Inventory Analysis

In table 3 the environmental impacts are presented for all the lifecycle stages with two End of Life scenarios:

- Scenario 1: 100% Municipal Waste Incineration (MWI) with R1 > 60%
- Scenario 2: 100% landfill disposal.

Table 3: Results of the LCA – Environmental impacts one lifecycle (one year) – Flotex Next Sheet

Parameter	A1-A3	A4	A5	B2	C1	C2	C3/1	C4/2	D/1	D/2
GWP - total [kg CO2 eq.]	7,17E+00	1,36E-01	4,77E-04	2,98E-01	0,00E+00	1,82E-02	3,68E+00	2,76E+00	-1,44E+00	0,00E+00
GWP - fossil [kg CO2 eq.]	7,15E+00	1,34E-01	4,53E-04	2,93E-01	0,00E+00	1,84E-02	9,99E-01	2,76E-01	-1,43E+00	0,00E+00
GWP - biogenic [kg CO2 eq.]	2,22E-02	1,66E-03	2,35E-05	4,85E-03	0,00E+00	-3,08E-04	2,68E+00	2,48E+00	-7,23E-03	0,00E+00
GWP - luluc [kg CO2 eq.]	1,96E-03	2,76E-04	0,00E+00	6,93E-04	0,00E+00	7,81E-05	6,09E-05	9,50E-05	-1,83E-03	0,00E+00
ODP [kg CFC-11 eq.]	9,36E-07	1,62E-14	0,00E+00	1,59E-09	0,00E+00	3,75E-15	9,11E-13	5,62E-13	-2,65E-11	0,00E+00
AP [Mole of H+ eq.]	2,15E-02	9,10E-04	1,82E-06	6,69E-04	0,00E+00	6,36E-05	3,03E-03	7,62E-04	-1,86E-03	0,00E+00
EP - freshwater [kg P eq.]	5,61E-04	1,68E-07	0,00E+00	2,33E-06	0,00E+00	4,65E-08	5,01E-08	2,86E-05	-6,75E-07	0,00E+00
EP - marine [kg N eq.]	4,88E-03	3,11E-04	9,41E-07	1,76E-04	0,00E+00	2,99E-05	1,38E-03	1,50E-03	-5,42E-04	0,00E+00
EP - terrestrial [Mole of N eq.]	5,35E-02	3,41E-03	1,04E-05	1,83E-03	0,00E+00	3,27E-04	1,56E-02	2,79E-03	-6,26E-03	0,00E+00
POCP [kg NMVOC eq.]	1,76E-02	7,06E-04	1,70E-06	4,09E-04	0,00E+00	5,81E-05	3,54E-03	1,64E-03	-1,41E-03	0,00E+00
ADPF [MJ]	2,54E-04	5,22E-09	0,00E+00	6,36E-08	0,00E+00	1,33E-09	8,38E-09	7,62E-09	-1,76E-07	0,00E+00
ADPE [kg Sb eq.]	1,60E+02	1,03E+00	0,00E+00	5,58E+00	0,00E+00	2,38E-01	1,40E+00	2,14E+00	-2,45E+01	0,00E+00
WDP [m³ world equiv.]	3,94E+00	2,49E-04	0,00E+00	1,83E-01	0,00E+00	6,33E-05	4,22E-01	1,09E-02	-1,19E-01	0,00E+00

Caption: GWP - total = global warming potential; GWP - fossil = global warming potential (fossil fuel only); GWP - biogenic = global warming potential (biogenic); GWP - luluc = global warming potential (land use only); ODP = ozone depletion; AP = acidification terrestrial and freshwater; EP - freshwater = eutrophication potential (freshwater); EP - marine = eutrophication potential (marine); EP - terrestrial = eutrophication potential (terrestrial); POCP = photochemical ozone formation; ADPE = abiotic depletion potential (element); ADPF = abiotic depletion potential (fossil) WDP = water scarcity

8.14 Interpretation

The interpretation of the results has been carried out considering the assumptions and limitations declared in the EPD, both methodology- and data-related for a one-year usage.

With the exception of GWP-biogenic and GWP-luluc, the production stage represents the dominant contribution to the overall environmental impact. Within this stage, raw material supply is the primary driver across all impact categories, largely attributable to the use of PA 6.6, PVC, and plasticizers in the production of Flotex Next. The manufacturing stage is mainly influenced by the thermal energy required during production.

Global distribution by truck and container ship contributes notably to GWP-luluc, AP, EP marine, EP terrestrial, and POCP.

Overall, the installation stage has a limited environmental impact. This is due to the minimal installation waste (approximately 2% material loss during cutting) and the fact that Flotex Next is a loose-laid product that does not require adhesive.

During the use stage, calculated over one year of service life, the primary contributors are electricity consumption, cleaning agents (detergents), and wastewater treatment associated with floor maintenance.

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

8.15 Resource use

In table 4 the parameters describing resource use are presented for all the lifecycle stages for a one-year usage with two End of Life scenarios:

- Scenario 1: 100% Municipal Waste Incineration (MWI) with R1 > 60%
- Scenario 2: 100% landfill disposal

Table 4: Results of the LCA – Resource use for Flotex Next Sheet (one year)

	A1-A3	A4	A5	B2	C1	C2	C3/1	C4/2	D/1	D/2
PERE [MJ]	6,54E+00	5,91E-02	0,00E+00	3,35E+00	0,00E+00	1,64E-02	2,85E-01	2,49E-01	-8,71E+00	0,00E+00
PERM [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT [MJ]	6,68E+00	5,91E-02	0,00E+00	3,35E+00	0,00E+00	1,64E-02	2,85E-01	2,49E-01	-8,71E+00	0,00E+00
PENRE [MJ]	1,45E+02	1,03E+00	0,00E+00	5,58E+00	0,00E+00	2,38E-01	1,40E+00	2,14E+00	-2,45E+01	0,00E+00
PENRM [MJ]	2,81E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT [MJ]	1,73E+02	1,03E+00	0,00E+00	5,58E+00	0,00E+00	2,38E-01	1,40E+00	2,14E+00	-2,45E+01	0,00E+00
SM [kg]	4,48E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW [m3]	9,32E-02	1,80E-05	0,00E+00	2,15E-03	0,00E+00	4,80E-06	9,92E-03	3,15E-04	-5,52E-03	0,00E+00

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

8.16 Waste categories and output flows

In table 5 other environmental information describing different waste categories and output flows are presented for all the lifecycle stages with two End of Life scenarios:

- Scenario 1: 100% Municipal Waste Incineration (MWI) with R1 > 60%
- Scenario 2: 100% landfill disposal

Table 5: Results of the LCA – Output flows and Waste categories for Flotex Next Sheet (one year)

	A1-A3	A4	A5	B2	C1	C2	C3/1	C4/2	D/1	D/2
HWD [kg]	5,69E-04	4,35E-11	0,00E+00	6,57E-09	0,00E+00	1,00E-11	5,94E-10	3,90E-10	-1,74E-08	0,00E+00
NHWD [kg]	5,17E-02	1,68E-04	0,00E+00	7,34E-03	0,00E+00	4,37E-05	4,79E-02	1,53E+00	-1,30E-02	0,00E+00
RWD [kg]	1,03E-03	1,08E-06	0,00E+00	6,26E-04	0,00E+00	2,50E-07	3,95E-05	2,11E-05	-1,57E-03	0,00E+00
CRU [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR [kg]	0,00E+00	0,00E+00	4,32E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,57E+00	0,00E+00	0,00E+00	0,00E+00
EET [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,18E+01	0,00E+00	0,00E+00	0,00E+00

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; EET = Exported thermal energy

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

8.17 Biogenic Carbon content

Table 6: Information describing the biogenic carbon content at the factory gate

Biogenic carbon content	Unit (kg CO ₂ /m ²)
Biogenic carbon content in product	0.03
Biogenic carbon content in accompanying packaging	0.00
Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

9 Additional Environmental Impact Indicators

To be fully transparent Forbo Flooring does not only want to declare the environmental impacts required in the PCR, but also the additional environmental impact indicators according to the European Standard EN15804+A2 with two End of Life scenarios:

- Scenario 1: 100% Municipal Waste Incineration (MWI) with R1 > 60%
- Scenario 2: 100% landfill disposal

Table 7: Results of the LCA – Environmental impact for Flotex Next Sheet (one year)

	A1-A3	A4	A5	B2	C1	C2	C3/1	C4/2	D/1	D/2
PM [Disease incidences]	2,02E-07	1,17E-08	1,04E-11	5,31E-09	0,00E+00	4,69E-10	9,54E-09	7,40E-09	-1,54E-08	0,00E+00
IR [kBq U235 eq.]	7,46E-01	1,36E-04	0,00E+00	9,42E-02	0,00E+00	3,15E-05	5,75E-03	2,96E-03	-2,40E-01	0,00E+00
ETF-fw [CTUe]	5,80E+01	8,60E-01	1,21E-06	1,26E+00	0,00E+00	2,03E-01	4,38E-01	5,13E+00	-2,91E+00	0,00E+00
HTP-c [CTUh]	5,78E-09	1,64E-11	5,96E-17	7,59E-11	0,00E+00	4,04E-12	1,04E-10	4,49E-11	-2,45E-10	0,00E+00
HTP-nc [CTUh]	3,67E-08	7,83E-10	1,41E-15	2,29E-09	0,00E+00	2,11E-10	9,58E-09	3,95E-09	-5,84E-09	0,00E+00
SQP [Pt]	7,21E+00	2,27E-01	0,00E+00	1,82E+00	0,00E+00	6,40E-02	2,64E-01	2,61E-01	-4,75E+00	0,00E+00

Caption: PM = Particulate matter emissions; IR = Ionizing radiation, human health; ETF-fw = Eco-toxicity (freshwater); HTP-c = Human toxicity, cancer effects; HTP-nc = Human toxicity, non-cancer effects, SQP = Soil quality potential/ Land use related impacts

9.1 Interpretation

The interpretation of the results has been carried out considering the assumptions and limitations declared in the EPD, both methodology- and data-related for a one-year usage.

As with the mandatory environmental impact categories, the production phase is dominant in the contribution of the total lifespan of the additional environmental impact indicators. This is largely due to the production of the raw materials. A much smaller impact is coming from the thermal energy used to manufacture the Flotex Next Sheet.

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

9.2 Disclaimers to the declaration of core and additional environmental impact indicators

According to the "ILCD Handbook: Recommendations for Life Cycle Impact Assessment in the European context" the recommended characterization models and associated characterization factors are classified according to their quality into three levels:

- Type 1 (recommended and satisfactory),
- Type 2 (recommended but in need of some improvements)
- Type 3 (recommended, but to be applied with caution).

Table 8: Classification of disclaimers to the declaration of core and additional environmental impact indicators

ILCD classification	Indicator	Disclaimer
ILCD Type 1	Global Warming Potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD 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
ILCD Type 2	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 – This impact category deals mainly with 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 some 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 experience with the indicator.		

ENVIRONMENTAL PRODUCT DECLARATION



Flotex Next Sheet
Flocked Floor covering

According to ISO 14025 and EN 15804

10 References

GaBi 10 2012	Sphera; GaBi 10: Software-System and Database for Life Cycle Engineering. Copyright, TM. Stuttgart, Echterdingen, 1992-2017.
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PE 2012 ILCD Handbook: General guide for Life Cycle Assessment - Detailed guidance	Description of Selected Impact Categories, Sphera, 2012 European Commission-Joint Research Centre - Institute for Environment and Sustainability: International Reference Life Cycle Data System (ILCD) Handbook-Recommendations for Life Cycle Impact Assessment in the European context. First edition November 2011. EUR 24571 EN. Luxemburg. Publications Office of the European Union; 2011
STANDARDS AND LAWS	
DIN EN ISO 14044	Environmental management - Life cycle assessment - Requirements and guidelines (ISO 14044:2006); German and English version EN ISO 14044
ISO 14025 2006	DIN EN ISO 14025: Environmental labels and declarations — Type III environmental declarations — Principles and procedures
ISO 14040 2006	Environmental management - Life cycle assessment - Principles and framework (ISO 14040); German and English version EN ISO 14040
CEN/TR 15941	Sustainability of construction works - Environmental product declarations - Methodology for selection and use of generic data; German version CEN/TR 15941
EN15804:2012+A2:2019+AC:2021	EN 15804: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products
EN 16810:2017	Resilient, textile and laminate floor coverings – Environmental product declarations – Product category rules
CPR	REGULATION (EU) No 305/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 March 2011 laying down harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
EN-ISO 10874 EN 1307	Resilient, Textile and laminate floor coverings – Classification Textile floor coverings - Specification