

Declaration Owner

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Product

SPC Flooring

(UNSPSC Class Code 30161700/CSI Code 09 65 00)

Functional Unit

1 m^2 of floor covering installed and maintained for use over a 1-year period

EPD Number and Period of Validity

SCS-EPD-10620
EPD Valid March 25, 2026 through March 24, 2031

Product Category Rule

The International EPD System, 2025-06-05, PCR 2019:14 CONSTRUCTION PRODUCTS, PCR 2019:14, VERSION 2.0.1, VALID UNTIL: 2030-04-07.
The International EPD System, C-PCR-004 (TO PCR 2019:14), RESILIENT, TEXTILE AND LAMINATE FLOOR COVERINGS (EN 16810:2017), VERSION 1.0.0, DATE 2025-04-08, Valid until: 2030-04-08
CEN standard EN 15804 serves as the core Product Category Rules (PCR)

Program Operator

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Declaration Owner:	Thien Lam New Material Technology Co., Ltd.
Address:	Southern Industrial Park, Phu Thinh Commune Yen Binh District, Yenbai Province, Viet Nam
Declaration Number:	SCS-EPD-10620
Declaration Validity Period:	EPD Valid March 25, 2026 through March 24, 2031
Program Operator:	SCS Global Services
Declaration URL Link:	https://www.scsglobalservices.com/certified-green-products-guide
LCA Practitioner:	Gerard Mansell, Ph.D., SCS Global Services
LCA Software and LCI database:	OpenLCA v2.4 software and the Ecoinvent v3.11 database
Product RSL:	1 year
Markets of Applicability:	Europe
EPD Type:	Product-Specific
EPD Scope:	Cradle-to-Grave and Module D (A+B+C+D)
LCIA Method and Version:	EN15804 (EF3.1)
Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071	☐ internal ☒ external
LCA Reviewer:	Lindita Bushi Lindita Bushi, PhD, Athena Sustainable Materials Institute
Product Category Rule:	The International EPD System, 2025-06-05, PCR 2019:14 CONSTRUCTION PRODUCTS, PCR 2019:14, VERSION 2.0.1, VALID UNTIL: 2030-04-07.
Part A PCR Review conducted by:	The Technical Committee of the International EPD® System. Review chair: Rob Rouwette (chair), Noa Meron (co-chair)
Complementary Product Category Rule:	The International EPD System, C-PCR-004 (TO PCR 2019:14), RESILIENT, TEXTILE AND LAMINATE FLOOR COVERINGS (EN 16810:2017), VERSION 1.0.0, DATE 2025-04-08, Valid until: 2030-04-08.
Part B PCR Review conducted by:	The Technical Committee of the International EPD® System
Independent verification of the declaration and data, according to ISO 14025 and the PCR	☐ internal ☒ external
EPD Verifier:	Lindita Bushi Lindita Bushi, PhD, Athena Sustainable Materials Institute
Declaration Contents:	1. Thien Lam New Material Technology Co., Ltd. ....2 2. Product....3 3. LCA: Calculation Rules....6 4. LCA: Scenarios and Additional Technical Information....13 5. LCA: Results....16 6. LCA: Interpretation....20 7. References....21

Disclaimers: *This EPD conforms to ISO 14025, 14040, 14044, and EN 15804.*

Scope of Results Reported: *The PCR requirements limit the scope of the LCA metrics such that the results exclude environmental and social performance benchmarks and thresholds, and exclude impacts from the depletion of natural resources, land use ecological impacts, ocean impacts related to greenhouse gas emissions, risks from hazardous wastes and impacts linked to hazardous chemical emissions.*

Accuracy of Results: *Due to PCR constraints, this EPD provides estimations of potential impacts that are inherently limited in terms of accuracy.*

Comparability: *EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.*

The owner of the declaration shall be liable for the underlying information and evidence; SCS shall not be liable with respect to manufacturer information, life cycle assessment data, and evidence supplied or made available to SCS.

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Acronyms & Abbreviations

CH_4	Methane
CO_2	Carbon dioxide
Eq	Equivalent
GHG	Greenhouse gas
GLO	Global
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LCA	Life Cycle Assessment
LCI	Life Cycle Inventory
LCIA	Life Cycle Impact Assessment
LVT	Luxury Vinyl Tile
m	meters
MJ	Megajoule
PCR	Product Category Rules
RER	Regional Europe
SCS	SCS Global Services
SPC	Stone Polymer Composite
VN	Vietnam
VOC	Volatile Organic Compounds

1. Thien Lam New Material Technology Co., Ltd.

Thien Lam New Material Technology Co., Ltd., located in Yen Bai City, Lao Cai Province, Vietnam, it was established in 2022. It is a PVC flooring company integrating R&D, production and sales. Its products cover multiple series such as SPC stone plastic flooring, which are widely used in shopping malls, hospitals, schools, home decoration and other places. Products are exported to Europe, the United States and other markets.

2. Product

2.1 PRODUCT DESCRIPTION

Product Name	Representative Thickness (mm)	Use Class Code	Description
SPC Flooring	5.0	UNSPSC Class Code 30161700	Thien Lam SPC flooring is Environmentally friendly and formaldehyde-free: no harmful substances such as glue, formaldehyde and benzene are used. it is Waterproof and moisture-proof: not easy to deform in a humid environment. Wear-resistant and durable: The surface uses a transparent wear-resistant layer, the wear resistance is more than 100,000 times, and the service life is 20-30 years. It is easy to install: The lock design does not require glue and is easy to assemble and disassemble. Comfortable feeling for the feet: The material is soft and elastic, which reduces fatigue when walking.

2.2 PRODUCT FLOW DIAGRAM

A flow diagram illustrating the production processes and life cycle phases included in the scope of the EPD is provided below.



2.3 APPLICATION

The products provide the primary function of flooring for interior applications. The flooring products are used in various residential and commercial applications including retail, healthcare, education, and hospitality.

2.4 DECLARATION OF METHODOLOGICAL FRAMEWORK

The scope of the EPD is cradle-to-grave, including raw material extraction and processing, transportation, product manufacture, product delivery, installation and use, and product disposal. Cut-off and allocation procedures are described below and conform to the PCR and ISO standards.

The life cycle phases included in the product system boundary are shown below.

Table 1. *Life cycle phases included in the product system boundary.*

	Product			Construction Process		Use							End-of-life				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 extraction and processing	Transport to manufacturer	Manufacturing	Transport	Construction - installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, recovery and/or recycling potential
Modules Declared	x	x	x	x	x	n/a	x	n/a	n/a	n/a	n/a	n/a	x	x	x	x	x
Geography	GLO	GLO	VN	RER	RER	n/a	RER	n/a	n/a	n/a	n/a	n/a	RER	RER	RER	RER	GLO
Share of specific data	>90%			>90%		-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	-			-		-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	-			-		-	-	-	-	-	-	-	-	-	-	-	-

X = Included in system boundary; n/a = Not applicable
GLO = Global; RER = Regional Europe; VN = Vietnam

2.5 TECHNICAL DATA

Technical specifications for the SPC flooring product are summarized in Table 2.

Table 2. *Product characteristics for the* **SPC** *flooring product.*

Characteristic			Description			
Sustainable certifications						
VOC emissions test method						
Characteristic			**Average Value**	**Unit**	**Min Value**	**Max Value**
Product thickness			5.00 (0.197)	mm (in)	3.20 (0.126)	8.00 (0.315)
Wear layer thickness (where applicable)			0.30 (0.012)	mm (in)	0.30 (0.012)	0.70 (0.028)
Product weight			7,700 (25.2)	g/m^2 (oz/ft^2)	6,600 (21.6)	16,400 (53.7)
Product Form	Planks	Width	150.0 (5.91)	mm (in)	150.0 (5.91)	457.0 (17.99)
		Length	1.22 (4.00)	m (ft)	0.75 (2.46)	1.59 (5.23)

2.6 MARKET PLACEMENT/APPLICATION RULES

Technical specifications of the flooring products are summarized below.

2.7 PROPERTIES OF DECLARED PRODUCT AS DELIVERED

The flooring products are delivered for installation in the form of planks of various dimensions.

2.8 MATERIAL COMPOSITION

The flooring products (UNSPSC Class Code 30161700/CSI Code 09 65 00) are manufactured at the production facility in Vietnam. The flooring is made primarily from calcium carbonate (mineral reinforcement), polymer resin, stabilizers and additives (i.e., pigments and coatings).

Table3. *Material content for the flooring products in kg per square meter and percent of total mass.*

Component	SPC Flooring		
	kg/m² (%)	Pre-consumer recycled content (%)	Post-consumer recycled content (%)
PVC	1.27 (16.0%)	0%	0%
Regrind (Internal)	1.44 (19.0%)	0%	0%
Filler	3.91 (51.0%)	0%	0%
Stabilizer	$8.55x10^{-2}$ (1.1%)	0%	0%
PE	0.152 (2.0%)	0%	0%
Pigment/Coatings/Adhesives	0.843 (11.0%)	0%	0%
Total Product	**7.70 (100.0%)**		

In conformance with the PCR, product materials were reviewed for the presence of any toxic or hazardous chemicals. Based on a review of the product components provided by the manufacturer, no regulated chemicals, i.e., substances of Very High Concern (SVHC) or substances on the REACH Candidate List, were identified in the product or product components.

2.9 MANUFACTURING

The products are manufactured at the production facility in Vietnam. The manufacturer provided primary data for their annual production, resource use and electricity consumption and waste generation at the facility. Electricity consumption is modeled using Ecoinvent datasets for the regional electricity grid resource mix on the market[1]. Additionally, no green power sources or CO_2 certificates are included in the study.

The production of the flooring involves the following general manufacturing processes. The raw materials are first mixed and heated. The mixture is then pressed into a sheet to create the backing or the transparent wear layers. The sheets are cut and laminated with a print film. Finally, the product is cut into planks and packaged. Quality checks are made at each step of the production process.

The manufacturer provided material-specific scrap rates which are accounted for within the raw material extraction and processing and upstream transport phases of the assessment. All manufacturing scrap is re-ground and used as material input to the product.

2.10 PACKAGING

The products are packaged for shipment using plastic wrap, corrugated board and wooden pallets.

Table 4. *Material content for the flooring product packaging in kg per square meter of flooring.*

Component	SPC Flooring		
	kg/m² (%)	Pre-consumer recycled content (%)	Post-consumer recycled content (%)
Corrugated	0.156 (42.0%)	0%	0%
Plastic	$8.50x10^{-3}$ (2.3%)	0%	0%
Wood	0.210 (56.0%)	0%	0%
Total Packaging	**$3.74x10^{-0}$ (100.0%)**	**0%**	**0%**
Biogenic C in Packaging (kg C/m²)	**0.183**		

[1] The Vietnamese electricity resource mix consists of approximately 49% coal, 38% hydropower, 12% natural gas and 2% wind as represented in the Ecoinvent v3.11 database. The GWP-GHG (AR6) impact of the Vietnamese grid electricity is ~0.6310 kg CO_2e/kWh.

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2.11 PRODUCT INSTALLATION

Installation of the product is accomplished using hand tools with negligible impacts. Approximately 4% installation waste is assumed. The impacts associated with packaging disposal, as well as the production, transport and disposal of installation waste are included with the installation phase as per PCR requirements.

2.12 USE CONDITIONS

No special conditions of use are noted.

2.13 REFERENCE SERVICE LIFE

The Reference Service Life (RSL) of the flooring product is one year based on PCR requirements.

2.14 RE-USE PHASE

The flooring products are not reused at end-of-life.

2.15 DISPOSAL

At end-of-life, the products may be disposed of in a landfill or via incineration. Although in some instances, flooring can be recycled into other products, the practice is not typical, nor widely available as a disposal route for the products in the consumer markets considered. It is assumed that products are 100% landfilled and no components of the product are recycled at end-of-life.

2.16 FURTHER INFORMATION

Further information on the product can be found from the manufacturer at vananhle2004@gmail.com or +0352311938.

3. LCA: Calculation Rules

3.1 FUNCTIONAL UNIT

The functional unit used in the study is defined as 1 m^2 of floor covering installed and maintained for use over a 1-year period. The corresponding reference flow for the product system is defined as the mass, in kg, of 1 m^2 of flooring product, excluding packaging and is presented in Table 5. For the present assessment, a reference service lifetime (RSL) is 1-year in conformance with the PCR.

Table 5. *Reference flow and RSL for the flooring products.*

Product Name	Reference Flow (kg/m^2)	Reference Service Life – RSL (years)
SPC Flooring	7.70	1

3.2 SYSTEM BOUNDARY

The scope of the EPD is cradle-to-grave and Module D (A+B+C+D), including raw material extraction and processing, transportation, product manufacture, product delivery, installation and use, and product disposal. The life cycle phases included in the EPD scope are described in Table 6 and illustrated in Figure 1.

Consistent with PCR requirements, processes excluded from the system boundary include the following:

- Construction activities, capital equipment, and infrastructure
- Maintenance and operation of capital equipment
- Personnel travel and resource use

The deletion of these processes is permitted since it is not expected to significantly change the overall conclusions of the study.

Table 6. *The modules and unit processes included in the scope for the flooring product system.*

Module	Module Description	Unit Processes Included in Scope
A1	Extraction and processing of raw materials; any reuse of products or materials from previous product systems; processing of secondary materials; generation of electricity from primary energy resources; energy, or other recovery processes from secondary fuels	Extraction and processing of raw materials for the product components.
A2	Transport (to the manufacturer)	Transport of component materials to the manufacturing facilities
A3	Manufacturing, including ancillary material production	Manufacturing of the flooring products and packaging (including upstream unit processes*)
A4	Transport (to the building site)	Transport of product (including packaging) to the building site
A5	Construction-installation process	Impacts from the installation of the product are assumed negligible. Impacts from the production, transport and disposal of waste material associated with installation are included in this phase in addition to impacts from packaging disposal
B1	Product use	Not applicable
B2	Product maintenance	Maintenance of products over the product the 1-year RSL, including periodic cleaning.
B3	Product repair	Not applicable
B4	Product replacement	Not applicable
B5	Product refurbishment	Not applicable
B6	Operational energy use by technical building systems	Not applicable
B7	Operational water uses by technical building systems	Not applicable
C1	Deconstruction, demolition	Demolition of the product
C2	Transport (to waste processing)	Transport of the product to waste treatment at end-of-life
C3	Waste processing for reuse, recovery and/or recycling	Loading and sorting of waste for landfilling
C4	Disposal	Disposal of the product including compacting of inert construction waste for landfills (including backfilling)
D	Reuse-recovery-recycling potential	There are no significant impacts associated with Module D.

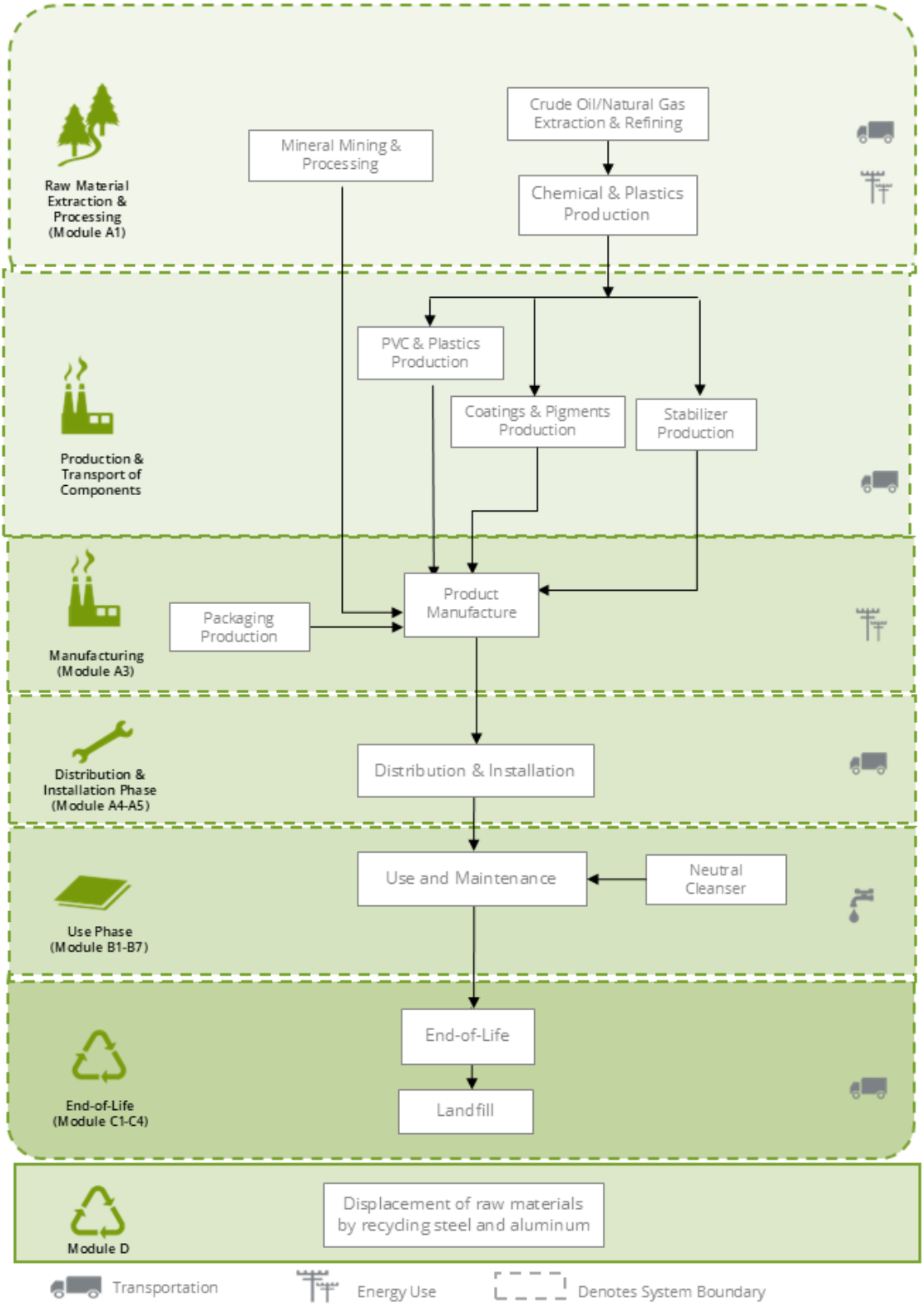


Figure 1. *Flow diagram for the life cycle of the flooring products.*

3.3 PRODUCT SPECIFIC CALCULATION FOR USE PHASE

The recommended cleaning regime is 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. For the purposes of this EPD, average maintenance (moderate traffic levels) is presented based on typical installations.

3.4 UNITS

All data and results are presented using SI units.

3.5 ESTIMATES AND ASSUMPTIONS

- Electricity use at the manufacturing facility was allocated to the products based on the product area as a fraction of the total production.
- The Thien Lam facility under review is located in Vietnam. An Ecoinvent inventory dataset for the country-specific energy grid was used to model resource use and emissions from electricity use at the manufacturing facility.
- The Reference Service Life (RSL) of the products was modeled based on PCR requirements.
- Downstream transport was modeled based on information provided by the manufacturer representing distribution to consumer markets in Europe.
- The maintenance phase of the product life cycle was modeled based on information provided by the manufacturer including recommended installation and cleaning methods, as well as cleaning frequency.
- For the product end-of-life, disposal of product is landfilled while product packaging is modeled based on regional statistics regarding recycling rates of packaging materials.
- For final disposal of the packaging materials at end-of-life, all materials are assumed to be transported 80 km by diesel truck to either a landfill or material reclamation facility (for recycling). Datasets representing disposal in a landfill and waste incineration are from Ecoinvent.
- For final disposal of the flooring products at end-of-life, all materials are assumed to be transported 80 km by diesel truck to landfill. Datasets representing disposal in a landfill are from Ecoinvent.

The PCR requires the results for several inventory flows related to construction products to be reported including energy and resource use and waste and outflows. These are aggregated inventory flows, and do not characterize any potential impact; results should be interpreted taking into account this limitation.

3.6 CUT-OFF RULES

According to the PCR, processes contributing greater than 5% of the total environmental impact indicator for each impact are included in the inventory. No data gaps were allowed which were expected to significantly affect the outcome of the indicator results. No known flows are deliberately excluded from this EPD.

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3.7 DATA SOURCES

Primary data were provided for the manufacturing facility. The sources of secondary LCI data are the Ecoinvent database.

Table 7. *Data sources for the flooring products.*

Component	Dataset	Data Source	Publication Date
PRODUCT			
Polymer Binder			
Polyvinyl Chloride	market for polyvinylchloride, bulk polymerised | polyvinylchloride, bulk polymerised | EN15804GD, S/GLO	EI v3.11	2024
Filler			
Calcium Carbonate	limestone production, crushed, washed | limestone, crushed, washed | EN15804GD, S/RoW	EI v3.11	2024
Plastics			
Polyethylene	polyethylene production, low density, granulate | polyethylene, low density, granulate | EN15804GD, S/RoW	EI v3.11	2024
Stabilizer			
Ca-Zn stabilizer	chemical production, organic | chemical, organic | EN15804GD, S/GLO	EI v3.11	2024
	solvent production, organic | solvent, organic | EN15804GD, S/GLO	EI v3.11	2024
	limestone production, crushed, washed | limestone, crushed, washed | EN15804GD, S/RoW	EI v3.11	2024
	zinc oxide production | zinc oxide | EN15804GD, S/RoW	EI v3.11	2024
Pigments			
Carbon black	carbon black production | carbon black | EN15804GD, S/GLO	EI v3.11	2024
Others			
Coatings	chemical production, organic | chemical, organic | EN15804GD, S/GLO	EI v3.11	2024
	chemical production, inorganic | chemical, inorganic | EN15804GD, S/GLO	EI v3.11	2024
Adhesive	polyurethane adhesive production | polyurethane adhesive | EN15804GD, S/GLO	EI v3.11	2024
PACKAGING			
Cardboard/Paper	containerboard production, linerboard, kraftliner | containerboard, linerboard | EN15804GD, S/RoW kraft paper production | kraft paper | EN15804GD, S/RoW	EI v3.11	2024
Plastic	packaging film production, low density polyethylene | packaging film, low density polyethylene | EN15804GD, S/RoW	EI v3.11	2024
Wood	EUR-flat pallet production | EUR-flat pallet | EN15804GD, S/RoW	EI v3.11	2024
TRANSPORT			
Road transport	transport, freight, lorry 16-32 metric ton, EURO4 | transport, freight, lorry 16-32 metric ton, EURO4 | EN15804GD, S/RER; transport, freight, lorry 16-32 metric ton, EURO4 | transport, freight, lorry 16-32 metric ton, EURO4 | EN15804GD, S/RoW	EI v3.11	2024
Rail transport	transport, freight, train, diesel | transport, freight, train, fleet average | EN15804GD, S/RoW	EI v3.11	2024
Ship transport	transport, freight, sea, container ship | transport, freight, sea, container ship | EN15804GD, S/GLO	EI v3.11	2024
MAINTENANCE			
Neutral cleaner	market for ethoxylated alcohol (AE7) | ethoxylated alcohol (AE7) | EN15804GD, S/RER fatty acid production, from palm oil | fatty acid | EN15804GD, S/RER tap water production, conventional treatment | tap water | EN15804GD, S/Europe without Switzerland	EI v3.11	2024

Component	Dataset	Data Source	Publication Date
Electricity	market group for electricity, low voltage | electricity, low voltage | EN15804GD, S/RER	EI v3.11	2024
Water	tap water production, conventional treatment | tap water | EN15804GD, S/Europe without Switzerland	EI v3.11	2024
WASTE DISPOSAL			
Landfill	treatment of municipal solid waste, sanitary landfill | municipal solid waste | EN15804GD, S/RoW[1]	EI v3.11	2024
	treatment of inert waste, sanitary landfill | inert waste | EN15804GD, S/RoW	EI v3.11	2024
	treatment of waste paperboard, sanitary landfill | waste paperboard | EN15804GD, S/CH	EI v3.11	2024
	treatment of waste wood, untreated, sanitary landfill | waste wood, untreated | EN15804GD, S/CH	EI v3.11	2024
	treatment of waste plastic, mixture, sanitary landfill | waste plastic, mixture | EN15804GD, S/CH	EI v3.11	2024
	treatment of waste polyethylene terephthalate, sanitary landfill | waste polyethylene terephthalate | EN15804GD, S/RoW	EI v3.11	2024
	transport, freight, lorry 16-32 metric ton, EURO4 | transport, freight, lorry 16-32 metric ton, EURO4 | EN15804GD, S/RER	EI v3.11	2024
Incineration	treatment of municipal solid waste, municipal incineration | municipal solid waste | EN15804GD, S/RoW	EI v3.11	2024
	treatment of waste polyethylene, municipal incineration | waste polyethylene | EN15804GD, S/GLO	EI v3.11	2024
	treatment of waste polyethylene terephthalate, municipal incineration | waste polyethylene terephthalate | EN15804GD, S/GLO	EI v3.11	2024
	treatment of waste paperboard, municipal incineration | waste paperboard | EN15804GD, S/GLO	EI v3.11	2024
	treatment of waste wood, untreated, municipal incineration | waste wood, untreated | EN15804GD, S/GLO	EI v3.11	2024
Demolition	diesel, burned in building machine | diesel, burned in building machine | EN15804GD, S/GLO	EI v3.11	2024
Waste processing (Sorting/Loading)	market group for electricity, medium voltage | electricity, medium voltage | EN15804GD, S/RER	EI v3.11	2024
Landfill (compacting/Backfilling)	diesel, burned in building machine | diesel, burned in building machine | EN15804GD, S/GLO	EI v3.11	2024
Transport	transport, freight, lorry, 16-32 metric ton, diesel, EURO 5 | transport, freight, lorry, 16-32 metric ton, diesel, EURO 5 | EN15804GD, S/RoW	EI v3.11	2024
Wastewater	treatment of wastewater, average, wastewater treatment | wastewater, average | EN15804GD, S/RoW	EI v3.11	2024
RESOURCES			
Grid electricity[2]	market for electricity, medium voltage | electricity, medium voltage | EN15804GD, S/VN[2]	EI v3.11	2024
Water	tap water production, conventional treatment | tap water | EN15804GD, S/RoW	EI v3.11	2024

[1] RoW LCI datasets are used as a proxy for RER LCI datasets, as RER LCI datasets were not available.
[2] The Vietnamese electricity resource mix consists of approximately 49% coal, 38% hydropower, 12% natural gas and 2% wind as represented in the Ecoinvent v3.11 database. The GWP-GHG (AR6) impact of the Vietnamese grid electricity is ~0.6310 kg CO_2e/kWh.

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3.8 DATA QUALITY

The data quality assessment addressed the following parameters: time-related coverage, geographical coverage, technological coverage, precision, completeness, representativeness, consistency, reproducibility, sources of data, and uncertainty.

Table 8. *Data quality assessment for the resilient flooring product system.*

Data Quality Parameter	Data Quality Discussion
Time-Related Coverage: Age of data and the minimum length of time over which data is collected	The most recent available data are used, based on other considerations such as data quality and similarity to the actual operations. Typically, these data are less than 5 years old. All of the data used represented an average of at least one year's worth of data collection, and up to three years in some cases. Manufacturer-supplied data (primary data) are based on annual production for 2024-25.
Geographical Coverage: Geographical area from which data for unit processes is collected to satisfy the goal of the study	The data used in the analysis provide the best possible representation available with current data. Electricity use for product manufacture is modeled using representative data for Asia. Surrogate data used in the assessment are representative of global or European operations. Data representative of European operations are considered sufficiently similar to actual processes. Data representing product disposal are based on regional statistics.
Technology Coverage: Specific technology or technology mix	For the most part, data are representative of the actual technologies used for processing, transportation, and manufacturing operations. Representative fabrication datasets, specific to the type of material, are used to represent the actual processes, as appropriate.
Precision: Measure of the variability of the data values for each data expressed	Precision of results are not quantified due to a lack of data. Data collected for operations were typically averaged for one or more years and over multiple operations, which is expected to reduce the variability of results.
Completeness: Percentage of flow that is measured or estimated	The LCA model included all known mass and energy flows for production of the flooring products. In some instances, surrogate data used to represent upstream and downstream operations may be missing some data which is propagated in the model. No known processes or activities contributing to more than 5% of the total environmental impact for each indicator are excluded.
Representativeness: Qualitative assessment of the degree to which the data set reflects the true population of interest	Data used in the assessment represent typical or average processes as currently reported from multiple data sources and are therefore generally representative of the range of actual processes and technologies for production of these materials. Considerable deviation may exist among actual processes on a site-specific basis; however, such a determination would require detailed data collection throughout the supply chain back to resource extraction.
Consistency: Qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis	The consistency of the assessment is considered to be high. Data sources of similar quality and age are used; with a bias towards Ecoinvent v3.11 data where available. Different portions of the product life cycle are equally considered.
Reproducibility: Qualitative assessment of the extent to which information about the methodology and data values would allow an independent practitioner to reproduce the results reported in the study	Based on the description of data and assumptions used, this assessment would be reproducible by other practitioners. All assumptions, models, and data sources are documented.
Sources of the Data: Description of all primary and secondary data sources	Data representing energy use at the manufacturing facility represents an annual average and are considered of high quality due to the length of time over which these data are collected, as compared to a snapshot that may not accurately reflect fluctuations in production. For secondary LCI data, Ecoinvent v3.11 LCI data are used.
Uncertainty of the Information: Uncertainty related to data, models, and assumptions	Uncertainty related to materials in the products and packaging is low. Actual supplier data for upstream operations were not available and the study relied upon the use of existing representative datasets. These datasets contained relatively recent data (<10 years) but lacked geographical representativeness. Uncertainty related to the impact assessment methods used in the study are high. The impact assessment method required by the PCR includes impact potentials, which lack characterization of providing and receiving environments or tipping points.

3.9 PERIOD UNDER REVIEW

The LCA results are based on annualized production data for 2024-25.

3.10 ALLOCATION

Resource use at the manufacturing facility (e.g., water and energy) was allocated to the products based on the product area as a fraction of the total facility production volume (i.e., area-based allocation). Area-based allocation was deemed most appropriate for the flooring products as total facility production was available as total square meters of product. Electricity use at the manufacturing facility was modeled using Ecoinvent inventory datasets for the country-specific electrical grid.

Material-specific scrap rates associated with product manufacture were provided and accounted for within the raw material extraction and processing and upstream transport phases of the assessment. All manufacturing scrap is re-ground and used in the products. No allocation of scrap is necessary.

Impacts from transportation, including product distribution to point of sale, were attributed to the products based on the mass of material and distance transported.

3.11 COMPARABILITY

The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled.

4. LCA: Scenarios and Additional Technical Information

Delivery and Installation stage (A4 - A5)

Distribution of the flooring products to the point of sale is included, based on data from the manufacturer. Average transport distances for distribution of the products from the manufacturing facility to distribution centers in Europe were provided by the manufacturer. Transport by diesel truck from the distribution centers to the point of installation is also included, based on information provided by the manufacturer. Transportation parameters for modeling product distribution are summarized in Table 9.

Table 9. *Product distribution parameters by transport mode.*

Parameter	Unit	Value
Truck transport		
Fuel type	-	Diesel
Liters of fuel	L/100km	18.7
Vehicle type	-	Diesel truck
Capacity utilization	%	76
Transport distance	km	360
Gross mass transported	kg	8.07
Ocean transport		
Fuel type	-	Fuel oil
Liters of fuel	g/tkm	2.52
Vehicle type	-	Ocean freighter
Capacity utilization	%	70
Transport distance	km	12,000
Gross mass transported	kg	8.07

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Installation of the product and periodic cleaning are included in the life cycle Use phase. The manufacturer provided installation and maintenance guidelines detailing the recommended installation methods, as well as maintenance and cleaning guidance. For the current assessment, the impacts associated with the product installation are assumed negligible. Approximately 4% of the product mass is assumed lost as waste during product installation which is landfilled. The VOC emissions associated with the installation, use and maintenance of the products are negligible.

Impacts associated with the disposal of packaging materials are also included in the installation life cycle phase. Assumed recycling rates for packaging component materials are based on the PCR requirements and are summarized in Table 10.

Table 10. *Recycling rates for packaging materials at end-of-life.*

Material	Packaging Recycling Rate (%)
Recycling Rates	
Plastics	40.3%
Paper & Pulp	82.8%
Wood	39.8%
Disposal of Non-recyclables	
Landfill	55%
Incineration	45%

Table 11 summarizes the relevant parameters for the product installation phase including biogenic carbon emissions and removals, and wastes associated with product packaging.

Table 11. *Installation parameters for the flooring products, per 1 m^2.*

Parameter		SPC Flooring
Ancillary materials		0.00
Net freshwater consumption (m^3)		0.00
Electricity consumption (kWh)		0.00
Product loss per functional unit (kg)		0.308
Waste materials generated by product installation (kg)		0.682
Output materials resulting from on-site waste processing (kg)		n/a
Mass of packaging waste (kg)	Plastic	8.50×10^{-3}
	Corrugate	0.156
	Wood	0.210
Biogenic carbon contained in packaging (kg CO_2)[1]		0.670
Direct emissions (kg)		0.00

[1] Biogenic carbon contained in packaging is calculated assuming the carbon content of corrugate and wood is 50% by weight.

Use stage (B1)

No impacts are associated with the use of the product over the Reference Service Lifetime.

Maintenance stage (B2)

According to the manufacturer, typical maintenance involves regular sweeping and damp mopping, as well as periodic machine cleaning of the vinyl flooring. The present assessment is based on a recommended weekly cleaning schedule including sweeping and mopping with a neutral cleaner and monthly machine cleaning. The parameters used to model the product maintenance are summarized in Table 12.

Table 12. *Maintenance parameters for the flooring products, per 1 m^2.*

Parameter	Unit	SPC Flooring
Maintenance cycle	Cycles / ESL	52
Maintenance cycle	Cycles / RSL	52
Maintenance process	-	Damp mopping
Net freshwater consumption	$m^3/m^2/yr$	0.0058
Cleaning agent	$kg/m^2/yr$	0.119
Maintenance process	-	Vacuuming
Electricity	$kWh/m^2/yr$	0.022
Further assumptions	-	Moderate traffic; weekly maintenance

Disposal stage (C1 - C4)

The disposal stage includes removal of the products (C1); transport of the flooring products to waste treatment facilities (C2); waste processing (C3); and associated emissions as the product degrades in a landfill or is burned in an incinerator (C4).

At end-of-life, the product is assumed to be disposed of in a landfill per PCR requirements. Transportation for end-of-life scenarios was modeled assuming a distance of 80 km from the point of product use to a landfill. Lacking primary data for product disposal, default processes specified by the PCR are used to model demolition and waste processing as summarized in Table 13. Ecoinvent datasets are used to model the impacts associated with landfilling, which does not include energy recovery from landfill gas. The end-of-life disposal parameters are summarized in Table 14.

Table 13. *Default data for modelling modules C1, C2, C3 and C4.*

Module	Processes	Energy carrier	Quantity (kWh/tonne)
C1	Demolition/deconstruction of steel, wood, and other materials	Diesel	1.1
C2	Transport (for products/materials not to be incinerated)	--	
C3	Loading and unloading at sorting facility	Diesel	1.8
	Mechanical sorting	Electricity	2.2
C4	Compacting of inert construction waste for landfills (including backfilling)	Diesel	1.6

Table 14. *End-of-life disposal scenario parameters for the flooring products per m^2.*

Parameter	Value
Assumptions for scenario development	100% Landfill
Collected with mixed construction waste (kg)	7.70
Recovery	n/a
Disposal - Landfill (kg)	7.70
Removals of biogenic carbon (kg CO_2 eq)	n/a

Benefits and loads beyond the product system boundary (Module D)

Information Module D aims at transparency for the environmental loads and benefits resulting from reusable products, recyclable materials and/or useful energy carriers leaving a product system.

None of the product materials are assumed recycled at end-of-life and there are no Module D impacts associated with the product systems.

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5. LCA: Results

Results of the Life Cycle Assessment are presented below. It is noted that LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. All LCA results are stated to three significant figures in agreement with the PCR for this flooring product and therefore the sum of the total values may not exactly equal 100%.

The impact indicators specified by the PCR include:

- Potential for Global Warming,
- Acidification Potential,
- Eutrophication Potential,
- Ozone Depletion Potential,
- Photochemical Ozone (smog) Creation Potential.
- Ecotoxicity,
- Human Toxicity, and
- Land Use/Land Occupation

Impact category indicators for acidification, eutrophication, ozone depletion potential and photochemical ozone creation are estimated using the characterization factors[2], as prescribed by the PCR, including from CML-IA and ReCiPe methodologies as well as those defined by EN 15804 reference package based on EF 3.1. Impact indicators for Ecotoxicity and Human Toxicity are estimated using the USEtox 2.02 characterization method, while Land Occupation impacts are estimated using the ReCiPe 2016 version 1.1 methodology. The impact category indicators included in the assessment are summarized below.

Note that the use of the results of modules A1-A3 without considering the results of module C is discouraged.

[2] https://www.environdec.com/resources/indicators

Table 15. *Core Life Cycle Impact Assessment results for the flooring products over a 1-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.*

Impact Category	Unit	Production (A1-A3)	Downstream Transport	Installation	Use & Maintenance	Demolition	Transport to Disposal	Waste Processing	Disposal
Core Indicators									
Global Warming Potential - total (GWP-total)	kg CO_2 eq.	9.94	1.54	0.882	$4.72x10^{-2}$	$3.07x10^{-3}$	0.123	$1.08x10^{-2}$	0.105
	%	79%	12%	7%	0.37%	0.024%	0.97%	0.085%	0.83%
Global Warming Potential - fossil fuels (GWP-fossil)	kg CO_2 eq.	10.5	1.54	0.542	$5.55x10^{-2}$	$3.07x10^{-3}$	0.123	$1.06x10^{-2}$	0.105
	%	81%	12%	4.2%	0.43%	0.024%	0.96%	0.082%	0.82%
Global Warming Potential - biogenic (GWP-biogenic)	kg CO_2 eq.	-0.533	$2.29x10^{-4}$	0.339	$-3.29x10^{-2}$	$6.21x10^{-7}$	$4.05x10^{-5}$	$1.92x10^{-4}$	$3.74x10^{-4}$
	%	240%	-0.1%	-150%	15%	-0.00027%	-0.018%	-0.085%	-0.17%
Global Warming Potential - land use and land use change (GWP-luluc)	kg CO_2 eq.	$1.19x10^{-2}$	$7.15x10^{-4}$	$5.13x10^{-4}$	$2.46x10^{-2}$	$3.14x10^{-7}$	$5.59x10^{-5}$	$1.70x10^{-5}$	$5.11x10^{-5}$
	%	31%	1.9%	1.4%	65%	0.00083%	0.15%	0.045%	0.13%
Global warming potential except emissions and uptake of biogenic carbon (GWP-IOBC/GHG)	kg CO_2 eq.	10.5	1.54	0.719	$8.03x10^{-2}$	$3.07x10^{-3}$	0.123	$1.06x10^{-2}$	0.105
	%	80%	12%	5.5%	0.61%	0.023%	0.94%	0.081%	0.8%
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	$2.01x10^{-6}$	$2.60x10^{-8}$	$8.23x10^{-8}$	$1.01x10^{-9}$	$4.55x10^{-11}$	$1.67x10^{-9}$	$1.67x10^{-10}$	$2.11x10^{-9}$
	%	95%	1.2%	3.9%	0.047%	0.0021%	0.079%	0.0079%	0.099%
Acidification potential, Accumulated Exceedance (AP)	mol H+ eq.	$5.86x10^{-2}$	$3.13x10^{-2}$	$3.89x10^{-3}$	$3.49x10^{-4}$	$2.74x10^{-5}$	$5.21x10^{-4}$	$7.24x10^{-5}$	$9.39x10^{-4}$
	%	61%	33%	4.1%	0.36%	0.029%	0.54%	0.076%	0.98%
Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	$3.83x10^{-3}$	$7.28x10^{-5}$	$1.80x10^{-4}$	$1.95x10^{-5}$	$9.89x10^{-8}$	$1.34x10^{-5}$	$5.27x10^{-6}$	$1.31x10^{-4}$
	%	90%	1.7%	4.2%	0.46%	0.0023%	0.32%	0.12%	3.1%
Eutrophication potential - marine (EP-marine)	kg N eq.	$1.06x10^{-2}$	$8.09x10^{-3}$	$1.18x10^{-3}$	$2.09x10^{-4}$	$1.28x10^{-5}$	$1.86x10^{-4}$	$2.58x10^{-5}$	$2.78x10^{-4}$
	%	51%	39%	5.7%	1%	0.062%	0.91%	0.13%	1.4%
Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	0.108	$8.96x10^{-2}$	$9.21x10^{-3}$	$9.29x10^{-4}$	$1.40x10^{-4}$	$2.03x10^{-3}$	$2.70x10^{-4}$	$2.64x10^{-3}$
	%	51%	42%	4.3%	0.44%	0.066%	0.95%	0.13%	1.2%
Photochemical Ozone Creation Potential (POCP)	kg NMVOC eq.	$4.20x10^{-2}$	$2.51x10^{-2}$	$3.25x10^{-3}$	$3.13x10^{-4}$	$4.18x10^{-5}$	$7.07x10^{-4}$	$8.18x10^{-5}$	$9.35x10^{-4}$
	%	58%	35%	4.5%	0.43%	0.058%	0.97%	0.11%	1.3%
Abiotic depletion potential - fossil resources (ADPF)	MJ	182	20.0	8.74	1.12	$3.99x10^{-2}$	1.72	0.195	1.93
	%	84%	9.3%	4.1%	0.52%	0.019%	0.8%	0.091%	0.9%
Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	$8.72x10^{-5}$	$2.91x10^{-6}$	$3.65x10^{-6}$	$5.35x10^{-7}$	$1.13x10^{-9}$	$4.18x10^{-7}$	$1.41x10^{-8}$	$1.63x10^{-7}$
	%	92%	3.1%	3.8%	0.56%	0.0012%	0.44%	0.015%	0.17%
Water (user) deprivation potential (WDP)[1]	m^3 World eq.	4.47	$7.60x10^{-2}$	0.191	$4.52x10^{-2}$	$1.03x10^{-4}$	$9.13x10^{-3}$	$3.60x10^{-3}$	$8.25x10^{-2}$
	%	92%	1.6%	3.9%	0.93%	0.0021%	0.19%	0.074%	1.7%

1) The results of this environmental impact indicator shall be used with care as uncertainties on these results are high or as there is limited experience with the indicator.

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Table 16. *Additional Life Cycle Impact Assessment results for the flooring products over a 1-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.*

Impact Category	Unit	Production (A1-A3)	Downstream Transport	Installation	Use & Maintenance	Demolition	Transport to Disposal	Waste Processing	Disposal
Additional Indicators									
Potential incidence of disease due to PM emissions (PM)	Disease Incidence	$3.85x10^{-7}$	$7.44x10^{-8}$	$2.49x10^{-8}$	$5.06x10^{-9}$	$7.83x10^{-10}$	$9.83x10^{-9}$	$1.38x10^{-9}$	$1.49x10^{-8}$
	%	75%	14%	4.8%	0.98%	0.15%	1.9%	0.27%	2.9%
Potential Human exposure efficiency relative to U235 (IRP)	kBq U235 eq.	0.515	$1.46x10^{-2}$	$2.15x10^{-2}$	$6.56x10^{-3}$	$1.70x10^{-5}$	$1.38x10^{-3}$	$3.71x10^{-3}$	$1.45x10^{-3}$
	%	91%	2.6%	3.8%	1.2%	0.003%	0.24%	0.66%	0.26%
Potential Comparative Toxic Unit for ecosystems (ETP-fw)	CTUe	67.8	1.89	5.81	0.684	$2.17x10^{-3}$	0.313	$1.58x10^{-2}$	1.33
	%	87%	2.4%	7.5%	0.88%	0.0028%	0.4%	0.02%	1.7%
Potential Comparative Toxic Unit for humans - cancer effects (HTP-c)	CTUh	$9.96x10^{-9}$	$3.04x10^{-10}$	$4.22x10^{-10}$	$2.14x10^{-11}$	$3.13x10^{-13}$	$2.09x10^{-11}$	$1.43x10^{-12}$	$3.32x10^{-11}$
	%	93%	2.8%	3.9%	0.2%	0.0029%	0.19%	0.013%	0.31%
Potential Comparative Toxic Unit for humans - non-cancer effects (HTP-nc)	CTUh	$1.00x10^{-7}$	$7.83x10^{-9}$	$5.49x10^{-9}$	$6.07x10^{-10}$	$4.94x10^{-12}$	$1.07x10^{-9}$	$5.00x10^{-11}$	$1.54x10^{-9}$
	%	86%	6.7%	4.7%	0.52%	0.0042%	0.91%	0.043%	1.3%
Potential Soil quality index (SQP)	Dimensionless	95.0	5.51	4.32	1.23	$2.65x10^{-3}$	1.01	$2.28x10^{-2}$	4.44
	%	85%	4.9%	3.9%	1.1%	0.0024%	0.91%	0.02%	4%

1) The results of this environmental impact indicator shall be used with care as uncertainties on these results are high or as there is limited experience with the indicator.

2) 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.

Table 17. *Resource use for the flooring products over a 1-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.*

Parameter	Unit	Production (A1-A3)	Downstream Transport	Installation	Use & Maintenance	Demolition	Transport to Disposal	Waste Processing	Disposal
Resources									
Use of renewable primary energy resources used as energy carrier (PERE)	MJ	24.2	0.220	0.983	0.916	$2.51x10^{-4}$	$2.39x10^{-2}$	$2.98x10^{-2}$	$2.47x10^{-2}$
	%	92%	0.83%	3.7%	3.5%	0.00095%	0.09%	0.11%	0.093%
Use of renewable primary energy resources used as raw materials (PERM)	MJ	0.00	0.00	0.265	0.00	0.00	0.00	0.00	0.00
	%	0%	0%	100%	0%	0%	0%	0%	0%
Total use of renewable primary energy resources (PERT)	MJ	24.2	0.220	1.25	0.916	$2.51x10^{-4}$	$2.39x10^{-2}$	$2.98x10^{-2}$	$2.47x10^{-2}$
	%	91%	0.82%	4.7%	3.4%	0.00094%	0.089%	0.11%	0.092%
Use of nonrenewable primary energy resources used as energy carrier (PENRE)	MJ	182	20.0	8.74	1.15	$3.99x10^{-2}$	1.72	0.195	1.93
	%	84%	9.3%	4.1%	0.53%	0.019%	0.8%	0.091%	0.9%
Use of nonrenewable primary energy resources used as raw materials (PENRM)	MJ	24.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	%	100%	0%	0%	0%	0%	0%	0%	0%
Total use of nonrenewable primary energy resources (PENRT)	MJ	206	20.0	8.74	1.15	$3.99x10^{-2}$	1.72	0.195	1.93
	%	86%	8.3%	3.7%	0.48%	0.017%	0.72%	0.082%	0.81%
Use of secondary materials (SM)	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	%	0%	0%	0%	0%	0%	0%	0%	0%
Use of renewable secondary fuels (RSF)	MJ	0.116	$2.45x10^{-3}$	$4.79x10^{-3}$	$1.50x10^{-3}$	$2.37x10^{-6}$	$1.47x10^{-4}$	$1.06x10^{-3}$	$1.81x10^{-4}$
	%	92%	1.9%	3.8%	1.2%	0.0019%	0.12%	0.84%	0.14%
Use of nonrenewable secondary fuels (NRSF)	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	%	0%	0%	0%	0%	0%	0%	0%	0%
Use of net fresh water (FW)	m^3	0.138	$1.74x10^{-3}$	$4.07x10^{-3}$	$6.95x10^{-3}$	$2.56x10^{-6}$	$2.35x10^{-4}$	$8.40x10^{-5}$	$-2.85x10^{-2}$
	%	110%	1.4%	3.3%	5.7%	0.0021%	0.19%	0.068%	-23%

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Table 18. *Waste and outflows for the flooring products over a 1-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.*

Parameter	Unit	Production (A1-A3)	Downstream Transport	Installation	Use & Maintenance	Demolition	Transport to Disposal	Waste Processing	Disposal
Wastes									
Hazardous waste disposed (HWD)	kg	0.631	$2.10x10^{-2}$	$2.70x10^{-2}$	$5.66x10^{-3}$	$3.56x10^{-5}$	$2.88x10^{-3}$	$1.81x10^{-4}$	$2.53x10^{-3}$
	%	91%	3%	3.9%	0.82%	0.0052%	0.42%	0.026%	0.37%
Nonhazardous waste disposed (NHWD)	kg	15.0	0.177	2.06	0.115	$2.62x10^{-4}$	$1.66x10^{-2}$	$1.25x10^{-3}$	20.3
	%	40%	0.47%	5.5%	0.31%	0.0007%	0.044%	0.0033%	54%
High-level radioactive waste - EDIP 2003	kg	$3.43x10^{-5}$	$9.48x10^{-7}$	$1.44x10^{-6}$	$4.05x10^{-7}$	$1.21x10^{-9}$	$9.92x10^{-8}$	$2.13x10^{-7}$	$1.03x10^{-7}$
	%	91%	2.5%	3.8%	1.1%	0.0032%	0.26%	0.57%	0.28%
Low-level Radioactive waste - EDIP 2003	kg	$9.75x10^{-5}$	$2.63x10^{-6}$	$4.07x10^{-6}$	$1.25x10^{-6}$	$2.97x10^{-9}$	$2.39x10^{-7}$	$7.37x10^{-7}$	$2.52x10^{-7}$
	%	91%	2.5%	3.8%	1.2%	0.0028%	0.22%	0.69%	0.24%
Components for re-use (CRU)	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	%	0%	0%	0%	0%	0%	0%	0%	0%
Materials for recycling (MFR)	kg	0.00	0.00	0.203	0.00	0.00	0.00	0.00	0.00
	%	0%	0%	100%	0%	0%	0%	0%	0%
Materials for energy recovery (MER)	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	%	0%	0%	0%	0%	0%	0%	0%	0%
Exported electrical energy (EEE)	MJ	$7.71x10^{-2}$	$2.06x10^{-3}$	$3.21x10^{-3}$	$9.89x10^{-4}$	$1.86x10^{-6}$	$1.41x10^{-4}$	$6.38x10^{-4}$	$3.09x10^{-4}$
	%	91%	2.4%	3.8%	1.2%	0.0022%	0.17%	0.76%	0.37%
Exported thermal energy (EET)	MJ	$4.07x10^{-2}$	$2.18x10^{-3}$	$1.88x10^{-3}$	$5.86x10^{-4}$	$8.83x10^{-7}$	$2.50x10^{-4}$	$8.64x10^{-6}$	$1.75x10^{-4}$
	%	89%	4.8%	4.1%	1.3%	0.0019%	0.55%	0.019%	0.38%

6. LCA: Interpretation

With the exception of the Eutrophication, Acidification and Smog Formation Potential indicators, impacts over a single product life cycle are dominated by the production stages (A1-A3) followed by product distribution (A4) and product disposal (C4). Impacts related to phase A1 are associated primarily with the extraction and processing of plastics, while manufacturing impacts (A3) are dominated by electricity consumption at the production facility.

Contributions to the Eutrophication, Acidification and Ozone Depletion Potential indicators are dominated by impacts associated with extraction and processing of plastic component materials and the product distribution and disposal stages.

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