SMART EPD Environmental Product Declaration

Program Operator: Smart EPD®
www.smartepd.com

IN ACCORDANCE WITH ISO 14025 AND ISO 21930:2017

ROPPE.
Proven. Flooring. Experiences.

SmartEPD-2025-001-0540-01

Armour Multi-Use Rubber Tile

Date of Issue	Expiration date	Last updated
Jun 23, 2025	**Jun 23, 2030**	**Jun 23, 2025**

Refer to the EPD Library at www.smartepd.com for the latest EPD listing information

General Information

Roppe Corporation, USA

1602 North Union Street, Fostoria, OH 44830

419-435-8546

sustainability@roppe.com roppe.com

Product Name:	Armour Multi-Use Rubber Tile
Functional Unit:	1 m2 installed flooring
Declaration Number:	SmartEPD-2025-001-0540-01
Date of Issue:	June 23, 2025
Expiration:	June 23, 2030
Last updated:	June 23, 2025
EPD Scope:	Cradle to grave A1 - A3, A4, A5, B1 - B7, C1 - C4
Market(s) of Applicability:	North America

General Organization Information

Roppe Corporation, the EPD Owner, is a family-owned business headquartered in Fostoria, Ohio, USA, where the declared product is manufactured. Established in 1955, Roppe is an integral part of the community in which it operates and has a longstanding commitment to delivering high-quality resilient flooring products to a diverse range of customers.
As a family-owned company, Roppe emphasizes responsible manufacturing practices, efficient resource use, and environmentally conscious product design. The organization actively works to reduce waste, optimize material use, and lower emissions across its operations in support of sustainable building practices and customer expectations for environmentally preferable products.

Limitations, Liability, and Ownership

Environmental Product Declarations from different programs (following ISO 14025) may not be comparable. Comparison of the environmental performance of products using EPD information shall be based on the product's use and impacts at the building level. EPDs that do not cover all life cycle stages (e.g., cradle-to-grave) shall not be used to make comparisons without additional context and assumptions.
EPD comparability is only possible when all relevant life cycle stages are included and equivalent data quality, system boundaries, and assessment methods are used. Variations in results may occur due to differences in background LCI datasets, regional factors, and LCA modeling approaches or software tools.
The EPD Owner has sole ownership, liability, and responsibility for the content of this EPD.

Reference Standards

Standard(s):	ISO 14025 and ISO 21930:2017
Core PCR:	UL Part A PCR for Building-Related Products and Services v.4 Date of issue: March 01, 2022

Sub-category PCR:	UL Part B: Flooring v.2 Date of issue: September 28, 2018 Valid until: July 31, 2025
Sub-category PCR review panel:	Contact Smart EPD for more information.
General Program Instructions:	Smart EPD General Program Instructions v.1.0, November 2022

Verification Information

LCA Author/Creator:	Sevda Alanya Rosenbaum | sevda.rosenbaum@beath.us
EPD Program Operator:	Smart EPD | info@smartepd.com | www.smartepd.com 585 Grove St., Ste. 145 PMB 966, Herndon, VA 20170, USA
Verification:	Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071: External Mari Kirss | mari.kirss@meetripuu.ee Independent external verification of EPD, according to ISO 14025 and reference PCR(s): External Mari Kirss | mari.kirss@meetripuu.ee

Product Information

Functional Unit:	1 m2 installed flooring
Mass:	11.8 kg
Product Specificity:	✗ Product Average ✓ Product Specific

Product Description

Roppe Armour Multi-Use Flooring is a durable, high-performance, homogeneous vulcanized rubber flooring tile designed for multi-use commercial and institutional interior environments. The product is manufactured at Roppe Corporation's facility in Fostoria, Ohio, USA, and conforms to ASTM F1344 Standard Specification for Rubber Floor Tile (Type I, A, Grade 1).
Armour features a textured surface and is supplied with no factory-applied finish. The product is available in a nominal tile format of 19 11/16 in 19 11/16 in (50 cm 50 cm) with a thickness of 1/4 in (6.3 mm). It is intended for indoor use only and is compatible with in-floor radiant heating systems. Heat welding is not recommended. Armour is engineered for slip resistance, dimensional stability, and abrasion resistance in high-impact settings. The product is commonly used in sports, fitness, education, recreation, and commercial facilities, particularly where floor protection from heavy foot traffic, rolling loads, and occasional equipment impacts is desired.
Performance Characteristics:
Roppe Armour meets or exceeds the following performance standards:

- ASTM E648 Critical Radiant Flux, Class I (0.45 W/cm2)
- ASTM E662 Smoke Density 450
- ASTM D2047 Static Coefficient of Friction 0.50
- ASTM F970 Static Load Resistance: < 0.005 in indentation at 250 psi and 1,100 psi modified
- ASTM F925 Chemical Resistance: Excellent
- ASTM G21 Fungal Resistance: Excellent
- ASTM F2199 Dimensional Stability: 0.15%
- ASTM D3389 Abrasion Resistance: 1 g loss (after 1,000 cycles)

- ASTM F1514 Heat Stability: E 8
- ASTM D2240 Durometer Hardness: 85 Shore A

Acoustical Performance:

- ASTM E2179 IIC 9 (Impact sound reduction over 6 in concrete slab)
- ASTM E492 IIC 51 (Impact Insulation Class over slab and ceiling assembly)
- ASTM E90 STC 63 (Sound Transmission Class over slab and ceiling assembly)

Certifications and Environmental Attributes:

- Manufactured in Fostoria, Ohio, USA
- NSF/ANSI 332 Level 1 Certified
- FloorScore Certified for low VOC emissions
- Complies with CA Section 01350, CHPS, and contributes to LEED v4/4.1
- USDA BioPreferred Certified with 38% certified biobased content
- Red List Free (no substances from the Living Future Institute's Red List)
- Contains no recycled content
- Recyclable through the Roppe Impact Program

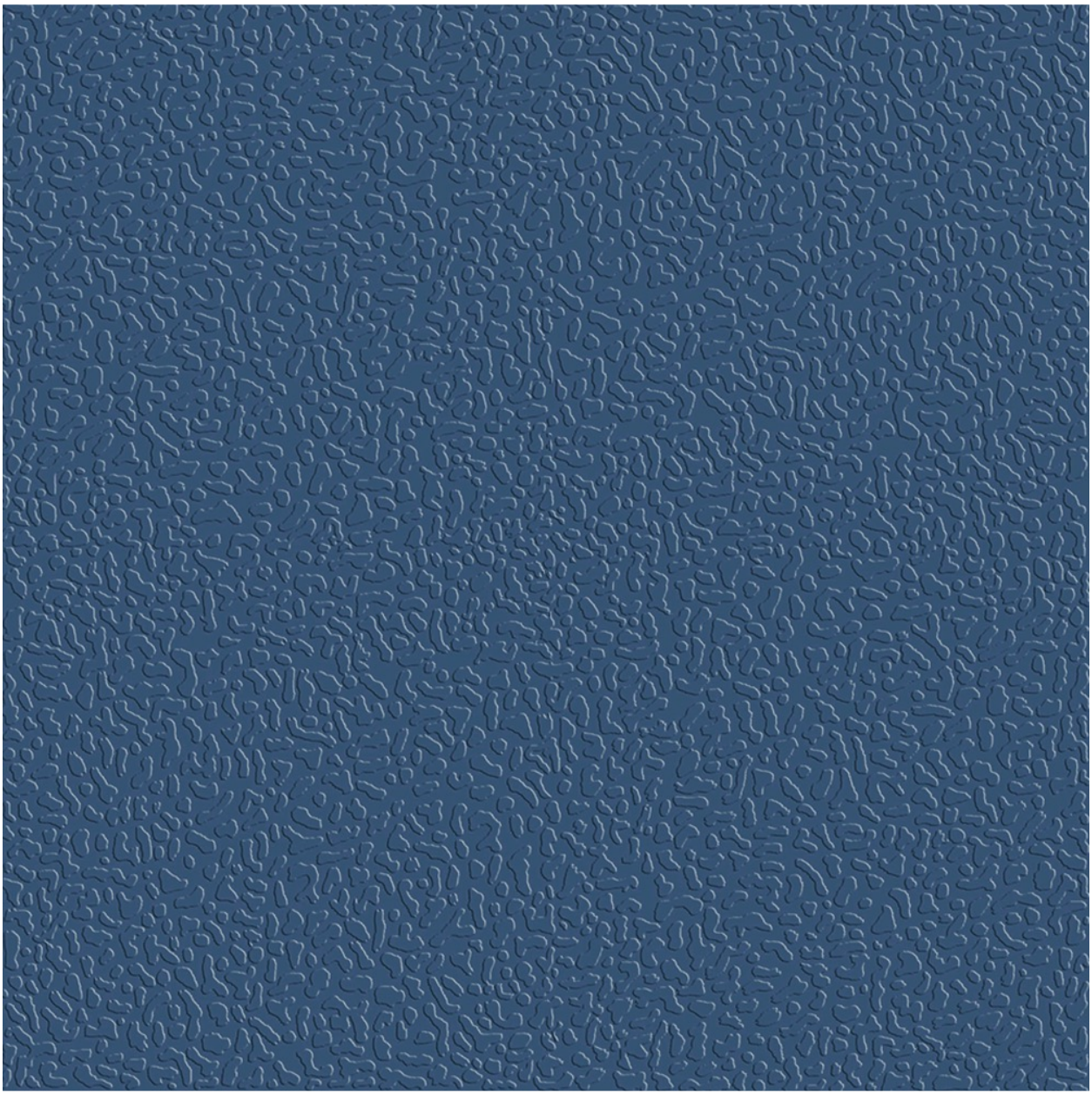
Product mass and density are calculated based on the total material required to produce one square meter of installed flooring, in accordance with the applicable product category rules.

Further information can be found at: https://roppe.com/armour-multi-use-rubber-tile/

Product Specifications

Product Classification Codes:	Masterformat - 09 65 19 EC3 - Finishes -> Flooring -> ResilientFlooring
Flooring type:	Resilient
Product thickness:	6.35 mm
Product weight:	1.18e4 g/m2
Product form:	Tiles

Product Composition Diagram



Material Composition

Material/Component Category	Origin	% Mass
Filler	United States	36-46
Binder	Various	29-37
Additive	Various	20-26
Pigment	Various	1-5

Packaging Material	Origin	kg Mass
Corrugated cardboard	United States	0.641
Polyethylene wrap	United States	0.021
Pallet (wood)	United States	0.484

Biogenic Carbon Content	kg C per m2 installed flooring
Biogenic carbon content in product	0.7272
Biogenic carbon content in accompanying packaging	1.175

Hazardous Materials
No regulated hazardous or dangerous substances are included in this product.

EPD Data Specificity

Primary Data Year: 2023

Manufacturing Specificity:

- ✗ Industry Average
- ✗ Manufacturer Average
- ✓ Facility Specific

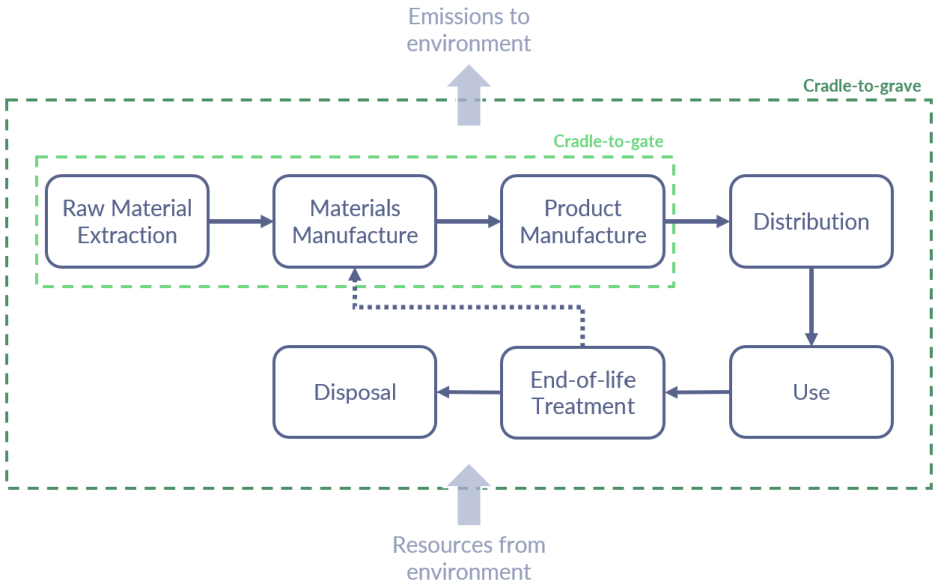
Averaging:

EPD averaging was not conducted. This EPD represents a specific product manufactured at a single production facility.

System Boundary

Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓

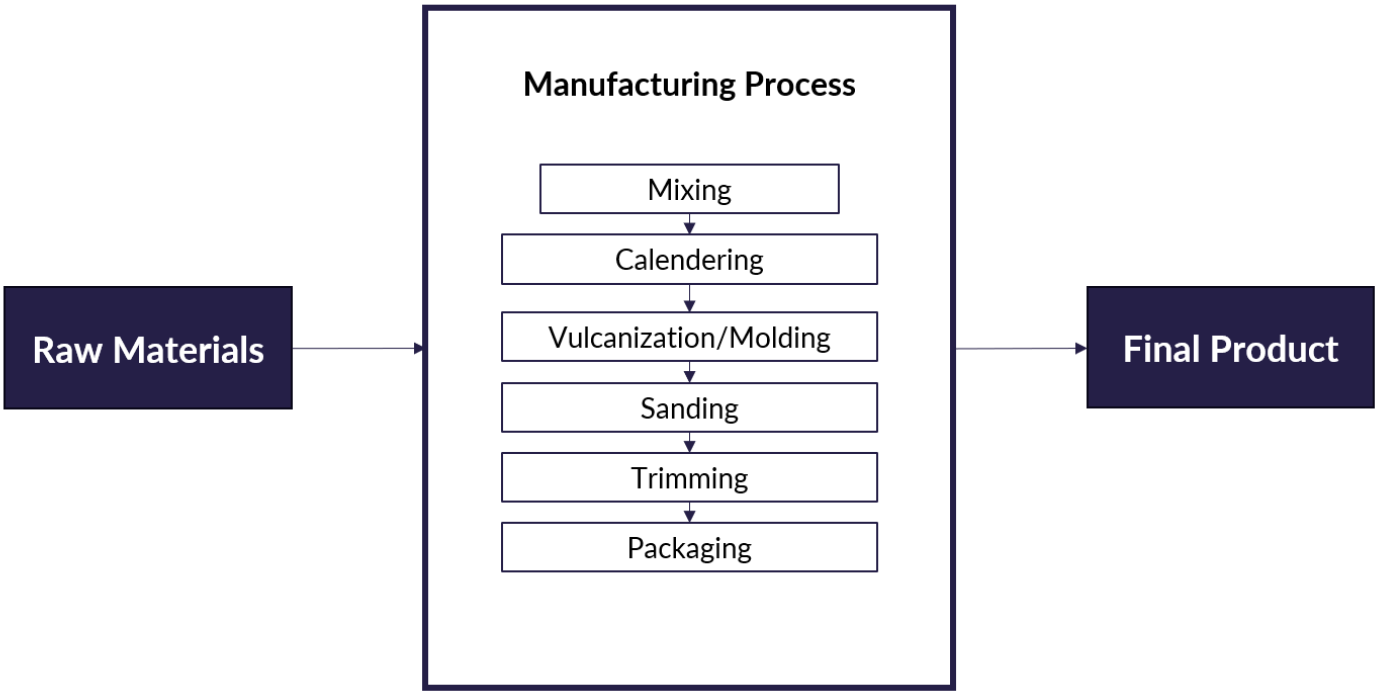
Construction	A4	Transport to site	✓
	A5	Assembly / Install	✓
Use	B1	Use	✓
	B2	Maintenance	✓
	B3	Repair	✓
	B4	Replacement	✓
	B5	Refurbishment	✓
	B6	Operational Energy Use	✓
	B7	Operational Water Use	✓
End of Life	C1	Deconstruction	✓
	C2	Transport	✓
	C3	Waste Processing	✓
	C4	Disposal	✓
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	ND



Plants

Roppe Plant
1602 North Union Street, Fostoria, OH, USA

Product Flow Diagram



Software and Database

LCA Software:	openLCA v. 2.4
LCI Foreground Database(s):	Ecoinvent v. 3.10 | Global, Rest of World (RoW), and United States Cut-off approach; no allocation for in-house recycling
LCI Background Database(s):	Ecoinvent v. 3.10 | Global, Rest of World (RoW), and United States Cut-off approach; no allocation for in-house recycling

Data Quality

Primary data were collected from RHC's manufacturing facility for the 2023 calendar year and represent actual production processes for the declared product. Background data were sourced from the ecoinvent v3.10 database using the cut-off system model. All data meet the data quality requirements of the UL PCR for Flooring and Smart EPD General Program Instructions v2.0. No significant data gaps or representativeness issues were identified; therefore, no data quality disclaimer is required for this EPD.

Life Cycle Module Descriptions

Modules A1A3 (Raw Material Supply, Transport, and Manufacturing):
These modules include the extraction and processing of raw materials used in the product, including synthetic rubber, plasticizers, fillers, and other additives. Transport of raw materials to the manufacturing facility is included, along with manufacturing processes such as mixing, molding, and curing. Energy and water use, as well as packaging materials, are included. Manufacturing occurs in Tuscumbia, Alabama, and data are based on annual facility-level consumption values.
Modules A4 (Transport to Site and Installation): This module includes shipping of the product from manufacturing site to project site.
Module A5 (Installation): This module includes product installation. 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.
Modules B1B7 (Use Stage):

- **B1 (Use):** No emissions or environmental impacts are associated with passive use of the product.
- **B2 (Maintenance):** Cleaning with detergent and water is assumed weekly over a 75-year building life.
- **B3 (Repair):** No repairs are anticipated.
- **B4 (Replacement):** Product is replaced at the end of its 40-year reference service life. Impacts from replacement are included based on material and energy for a second product.
- **B5 (Refurbishment):** No refurbishment is anticipated.
- **B6B7 (Operational Energy and Water Use):** No operational energy or water use is required.

Modules C1C4 (End-of-Life):

- **C1 (Deconstruction):** Deconstruction is assumed to be manual with negligible environmental impact.
- **C2 (Transport):** Product is transported 161 km by truck to end-of-life treatment.
- **C3 (Waste Processing):** No additional waste processing is required prior to final disposal.
- **C4 (Disposal):** It was assumed that all products are landfilled at the end of their life. Impacts from disposal are modeled accordingly.

LCA Discussion

Allocation Procedure

Co-product Allocation
No co-product allocation was necessary in the system. During the final stages of manufacturing, sanding operations generate sanding dust. In some cases, this material is reused internally in the production of other product types. However, because the sanding dust has no economic value, no allocation is applied.
Allocation of Background Data
Background data sourced from the ecoinvent v3.10 database are modeled using the cut-off, at classification system model. Under this method, recycled content carries no upstream environmental burdens, and the burdens of waste treatment are assigned to the original product system.
End-of-Life Allocation
At end of life, the product is treated using the same cut-off approach. Any material recovered for recycling is considered to exit the system boundary without further allocation of burdens or credits.

Cut-off Procedure

No cut-off criteria were defined within the system boundary. All available energy and material flow data were included in the model. Proxy data were used when necessary to ensure comprehensive representation of life cycle impacts.

Renewable Electricity

Energy Attribute Certificates (EACs) such as Renewable Energy Certificates (RECs) or Power Purchase Agreements (PPAs) are included in the baseline reported results:	✕ No

Scenarios

Transport to the building/construction site (A4)

A4 Module

Fuel Type:	Diesel
Vehicle Type:	Diesel Truck
Transport Distance:	800 km
Packaging Mass:	1.146 kg
Gross density of products transported:	1860 kg/m3
Weight of products transported:	11.8 kg
Capacity utilization volume factor:	<1
Assumptions for scenario development:	Transport to the construction site is modeled as 800 km via heavy-duty truck, using diesel fuel.

Installation in to the building/construction site (A5)

A5 Module

Installation Scrap Rate Assumed:	6 %
Ancillary Materials:	0.3 kg
Product Lost per Declared/Functional Unit:	0.753 kg
Waste Materials at the Construction Site Before Waste Processing:	1.899 kg
Output Materials Resulting from On-site Waste Processing:	n/a kg
Mass of Packaging Waste Specified by Type:	1.146 kg
Biogenic Carbon Contained in Packaging:	1.175 kg
Assumptions for scenario development:	Installation is performed manually without operational energy or water use. Adhesive is applied at a rate of 0.20 kg per m². Installation loss is assumed to be 6%. No VOC emissions or direct environmental emissions are reported during installation.

Reference Service Life (B1)

B1 Module

RSL:	40 Years

Declared Product Properties:

The declared product consists of resilient rubber flooring available in homogeneous sheet and tile forms. The average product thickness is approximately 2.54 mm, with a product mass of 11.80 kg/m². The product is ready to install and does not require additional on-site finishing. It complies with applicable ASTM standards for commercial interior flooring.

Design Application Parameters:

Product is designed for interior use in commercial and institutional applications, including education, healthcare, and public buildings. Installation should follow the manufacturer's guidelines, using appropriate adhesives and surface preparation per ASTM F1344 and ASTM F1861 standards.

An Assumed Quality of Work, When Installed in Accordance with The Manufacturer's Instructions:

Installation is assumed to be carried out by professionals in accordance with Roppe's official installation instructions and industry best practices, ensuring proper surface preparation, adhesive use, and acclimation conditions.

Outdoor Environment:

Not applicable. Product is intended for indoor use only.

Indoor Environment:

Indoor use in temperature-controlled environments (60–85°F). The product is expected to be installed in commercial spaces with controlled humidity and minimal chemical exposure beyond routine maintenance cleaning.

Use Conditions:

Designed for moderate to high foot traffic in commercial settings. The surface is textured for slip resistance and can withstand mechanical stress such as rolling loads and static loads without permanent deformation.

Maintenance:

Routine maintenance includes dust mopping or vacuuming and damp mopping with a pH-neutral cleaner. No waxes or finishes are needed. Cleaning frequency depends on traffic volume but typically ranges from daily to weekly. Product does not require material replacement under normal use within its RSL.

Maintenance (B2)

B2 Module

Maintenance Cycle:	2080 Cycles/RSL 3900 Cycles/ESL
Net Fresh Water Consumption Specified by Water Source and Fate:	0.0058 m3 tap water evaporated m3
Ancillary Materials Specified by Type:	0.119 kg of detergent kg
Energy Input:	0.022 kWh
Maintenance Process Information:	Maintenance modeled as daily dust mopping, weekly wet mopping using detergent, and monthly spray buffing and finishing. Cleaning frequency and material quantities based on RFCI industry average data. Maintenance modeled over ESL of 75 years.

Repair (B3)

B3 Module

Repair Process Information:	No repair of the product is anticipated under normal conditions of use. Flooring is assumed to remain fully functional for the duration of its reference service life without requiring repair.
Inspection Process Information:	Inspections are assumed to be visual and part of regular maintenance; no separate inspection-related energy or material inputs are modeled.
Further assumptions for scenario development:	Due to the durability and resistance to wear of the rubber tile flooring product, and based on industry standard performance data, no repair is needed over the RSL or ESL.

Replacement (B4)

B4 Module

Reference Service Life:	40 Years
Replacement Cycle:	0.9 (ESL/RSL)-1
Energy Input:	0 kWh
Net Fresh Water Consumption Specified by Water Source and Fate:	0 m3
Direct Emissions to Ambient Air, Soil and Water:	0 kg
Further assumptions for scenario development:	The product is assumed to be replaced once during the 75-year ESL based on its 40-year RSL. Environmental impacts for B4 include the same processes as modules A1–A5 to represent the manufacture, transport, and installation of a new product.

Refurbishment (B5)

B5 Module

Refurbishment Process Description:	No refurbishment is anticipated for the product during its reference service life.
Further assumptions for scenario development:	The product is not refurbished during the reference or estimated service life.

Operational Energy Use (B6) & Operational Water Use (B7)

B6 & B7 Modules

Characteristic Performance:

Not applicable. The product does not consume energy or water during use.

Further assumptions for scenario development:

No operational energy or water is required for this product. These modules are declared not relevant, consistent with the LCA.

End of Life (C1 - C4)

C1 - C4 Modules

Collection Process

Collected Separately:	11.8 kg

Recovery

Landfill:	11.8 kg

Disposal

Product or Material for Final Disposal:	11.8 kg

Assumptions for scenario development:

At end of life, 100% of the product mass (11.8 kg/m²) is assumed to be removed manually and sent to a municipal landfill. No reuse, recycling, or energy recovery is modeled. No direct emissions to air, soil, or water are associated with the disposal process. This scenario reflects a conservative baseline consistent with the UL Part B PCR and industry practice.

Results

Environmental Impact Assessment Results

IPCC AR5 GWP 100, TRACI 2.1, CML 2016 v4.8

per 1 m2 installed flooring of product .

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Impact Category	Method	Unit	A1A2A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
GWP-total	IPCC AR5 GWP 100	kg CO2 eq	1.62e+1	1.55e+0	6.03e+0	0	2.49e+0	0	3.65e+1	0	0	0	0	2.66e+0	0	1.64e+1
ODP	TRACI 2.1	kg CFC 11 eq	2.17e-6	2.36e-8	1.47e-7	0	4.13e-8	0	2.12e-6	0	0	0	0	4.27e-8	0	4.25e-9
AP	TRACI 2.1	kg SO2 eq	8.54e-2	6.31e-3	1.89e-2	0	1.32e-2	0	1.13e-1	0	0	0	0	1.27e-2	0	1.97e-3
EP	TRACI 2.1	kg N eq	8.81e-1	1.75e-3	5.35e-2	0	1.12e-2	0	1.06e+0	0	0	0	0	1.34e-3	0	2.57e-1
POCP	TRACI 2.1	kg O3 eq	1.36e+0	1.76e-1	3.01e-1	0	1.13e-1	0	2.06e+0	0	0	0	0	4.21e-1	0	3.33e-2
ADP-fossil	CML 2016 v4.8	MJ	3.83e+2	2.15e+1	6.57e+1	0	2.64e+1	0	4.54e+2	0	0	0	0	3.38e+1	0	3.61e+0

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particular Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparison can be inaccurate, and could lead to erroneous selection of materials or products which are higher-impact, at least in some impact categories.

Resource Use Indicators

per 1 m2 installed flooring of product .

Indicator	Unit	A1A2A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
PERE	MJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERM	MJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERT	MJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRE	MJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRM	MJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRT	MJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RPRE	MJ	9.81e+1	2.98e-1	3.41e+0	0	3.16e+0	0	9.02e+1	0	0	0	0	1.48e-1	0	1.18e-1
RPRM	MJ	9.30e+1	0	0	0	0	0	3.25e+3	0	0	0	0	0	0	0
RPRT	MJ	1.91e+2	2.98e-1	3.41e+0	0	3.16e+0	0	3.34e+3	0	0	0	0	1.48e-1	0	1.18e-1
NRPRE	MJ	4.28e+2	2.18e+1	6.95e+1	0	3.20e+1	0	4.99e+2	0	0	0	0	3.40e+1	0	3.76e+0
NRPRM	MJ	1.54e+2	0	9.23e+0	0	0	0	1.43e+2	0	0	0	0	0	0	0
NRPRT	MJ	5.82e+2	2.18e+1	7.87e+1	0	3.20e+1	0	6.42e+2	0	0	0	0	3.40e+1	0	3.76e+0
ADP-fossil	MJ	3.83e+2	2.15e+1	6.57e+1	0	2.64e+1	0	4.54e+2	0	0	0	0	3.38e+1	0	3.61e+0
SM	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NRSF	MJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FW	m3	7.91e-1	1.48e-3	1.49e-2	0	1.49e-2	0	7.13e-1	0	0	0	0	7.04e-4	0	7.07e-4
RE	MJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

RPRE or PERE = Renewable primary resources used as energy carrier (fuel), RPRM or PERM = Renewable primary resources with energy content used as material, RPRT or PERT = Total use of renewable primary resources with energy content, NRPRE or PENRE = Non-renewable primary resources used as an energy carrier (fuel), NRPRM or PENRM = Non-renewable primary resources with energy content used as material, NRPRT or PENRT = Total non-renewable primary resources with energy content, SM = Secondary materials, RSF = Renewable secondary fuels, NRSF = Non-renewable secondary fuels, RE = Recovered energy, ADPF = Abiotic depletion potential, FW = Use of net freshwater resources, VOCs = Volatile Organic Compounds.

Waste and Output Flow Indicators

per 1 m2 installed flooring of product .

Indicator	Unit	A1A2A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
HWD	kg	4.31e-3	1.49e-4	1.30e-3	0	2.73e-4	0	5.47e-3	0	0	0	0	2.38e-4	0	2.36e-5
NHWD	kg	4.57e+0	1.34e+0	1.35e+0	0	2.50e-1	0	1.60e+1	0	0	0	0	1.61e-1	0	1.18e+1
RWD	kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HLRW	kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ILLRW	kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CRU	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	2.89e+0	0	4.53e-1	0	0	0	4.20e-1	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MNER	kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EEE	MJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EET	MJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

HWD = Hazardous waste disposed, NHWD = Non-hazardous waste disposed, RWD = Radioactive waste disposed, HLRW = High-level radioactive waste, ILLRW = Intermediate- and low-level radioactive waste, CRU = Components for re-use, MFR or MR = Materials for recycling, MER = Materials for energy recovery, MNER = Materials for incineration, no energy recovery, EE or EEE = Recovered energy exported from the product system, EET = Exported thermal energy.

Carbon Emissions and Removals

per 1 m2 installed flooring of product .

Indicator	Unit	A1A2A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
BCRP	kg CO2	-8.58e+0	0	-5.15e-1	0	0	0	-7.96e+0	0	0	0	0	0	0	0
BCEP	kg CO2	0	0	5.15e-1	0	0	0	7.96e+0	0	0	0	0	0	0	8.58e+0
BCRK	kg CO2	-1.18e+0	0	0	0	0	0	-1.03e+0	0	0	0	0	0	0	0
BCEK	kg CO2	0	0	1.18e+0	0	0	0	1.03e+0	0	0	0	0	0	0	0
BCEW	kg CO2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CCE	kg CO2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CCR	kg CO2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CWNR	kg CO2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note:

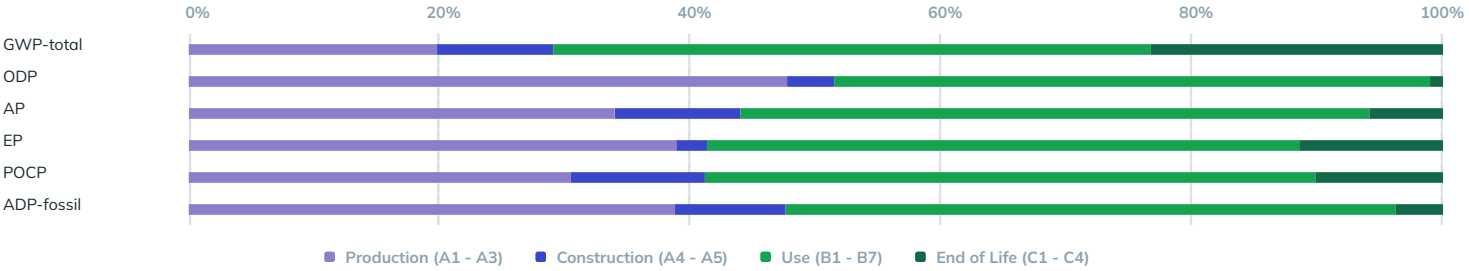
Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

BCRP = Biogenic Carbon Removal from Product, BCEP = Biogenic Carbon Emission from Product, BCRK = Biogenic Carbon Removal from Packaging, BCEK = Biogenic Carbon Emission from Packaging, BCEW = Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes, CCE = Calcination Carbon Emissions, CCR = Carbonation Carbon Removals, CWNR = Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes, GWP-luc = Carbon Emissions from Land-use Change.

Interpretation

The results of the LCA indicate that Replacement (B4) is the largest contributor to impacts of each product assessed in this study, across all impact categories. This is due to the fact that 1.88 installations are required within the service lifetime of the building of 75 years. Raw Materials (A1) contribute to the second largest portion of impacts across most indicators. The materials of fossil origin, such as styrene butadiene rubber is the primary driver of impacts within Module A1.



Additional Environmental Information

Environmental Programs:
This product is eligible for recycling through the Roppe Impact program, which enables recovery of used flooring materials for responsible end-of-life management. For more information, visit roppe.com or contact technical support.
Waste Management:
While the LCA models landfill as the end-of-life treatment per PCR defaults, Roppe encourages participation in the Roppe IMPACT program where available. This take-back program diverts flooring waste from landfill and offers a more sustainable end-of-life option, though it was not included in the LCA modeling for this EPD.
LCA-Derived Data:
This EPD includes results for global warming potential (including fossil and biogenic), ozone depletion, acidification, eutrophication, smog formation, and abiotic depletion of fossil fuels and minerals. All results are calculated using the TRACI 2.1 method. Biogenic carbon content associated with packaging is reported in the Additional Carbon Emissions and Removals section.
Materials of Concern:
This product contains natural and synthetic polymers, mineral fillers, additives, and pigments. It contains internally sourced pre-consumer recycled content and is free of substances listed on the Living Building Challenge (LBC) Red List and California Proposition 65 at the time of publication.
Use Instructions:
The product is intended for indoor use only and is not suitable for installation in exterior applications. VOC emissions are compliant with CA Section 01350, and FloorScore certification has been achieved.
Environmental Performance Data:
The product is certified under NSF/ANSI 332. It meets the requirements of the Collaborative for High Performance Schools (CHPS) and contributes to LEED v4/v4.1 credits. This product is also certified Biobased by the USDA Biopreferred Certified program.

Environmental Activities and Certifications

Certification
FloorScore, demonstrating CA Section 01350 VOC compliance
NSF/ANSI 332 Level 1 Certification
USDA Biopreferred Certified Biobased
Roppe IMPACT Recycling Program

References

• ISO 14025:2006. *Environmental labels and declarations Type III environmental declarations Principles and procedures*. International Organization for Standardization (ISO), Geneva, Switzerland.

• ISO 21930:2017. *Sustainability in buildings and civil engineering works Core rules for environmental product declarations of construction products and services*. International Organization for Standardization (ISO), Geneva, Switzerland.

• ISO 14044:2006. *Environmental management Life cycle assessment Requirements and guidelines*. International Organization for Standardization (ISO), Geneva, Switzerland.

• UL Environment. (2022). *Part A: Building-Related Products and Services*. Version 4.0.

• UL Environment. (2018). *Part B: Flooring EPD Requirements*. Version 2.0.

• SmartEPD. (2025). *General Program Instructions for Environmental Product Declarations*. Version 2.0, March 11, 2025.

• JBE, Inc. (2025). *Life Cycle Assessment of Resilient Flooring Products for Roppe Holding Company Product 1*. Prepared for Roppe Holding Company. April 3, 2025.

• Ecoinvent Association. (2023). *Ecoinvent Database v3.10*, accessed via openLCA. Zrich, Switzerland.

• openLCA. (2023). *openLCA v2.4 LCA Software for Sustainability Assessment*. GreenDelta GmbH, Berlin, Germany.