



Environmental Product Declaration

Program Operator: Smart EPD®

www.smartepd.com

IN ACCORDANCE WITH ISO 14025 AND ISO 21930:2017



SmartEPD-2026-142-0935-01

Sealer 985 SS

Date of Issue

Jun 23, 2026

Expiration Date

Jun 23, 2031

Last Updated

Jun 23, 2026



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

General Information

Carboline

📍 2150 Schuetz Road - St. Louis, MO 63146

☎ 1-314-644-1000

✉ info@carboline.com

🌐 [carboline.com](https://www.carboline.com)



Product Name:	Sealer 985 SS
Functional Unit:	1 m2 of covered and protected substrate for a period of 60 years
Declaration Number:	SmartEPD-2026-142-0935-01
Date of Issue:	June 23, 2026
Expiration:	June 23, 2031
Last updated:	June 23, 2026
EPD Scope:	Cradle to grave A1 - A3, A4, A5, B1 - B7, C1 - C4, D
Market(s) of Applicability:	North America

General Organization Information

Carboline is a global leader in high-performance protective coatings, linings, and fireproofing, specializing in the preservation of critical infrastructure through advanced corrosion and fire protection technologies. Founded in 1947 and now a subsidiary of RPM International Inc., the company operates an extensive global network with over 20 manufacturing facilities serving industries such as oil and gas, power generation, and commercial construction. They are widely recognized for iconic product lines like Carbozinc, Carboguard, and Southwest fireproofing, as well as their rigorous UL-certified testing and commitment to low-VOC, sustainable solutions. By combining deep technical expertise with a focus on research and development, Carboline provides engineered systems that extend the service life of assets in some of the world's most aggressive environments.

Further information can be found at: <https://www.carboline.com/>

Limitations, Liability and Ownership

Environmental declarations from different programs (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, and therefore EPDs may not be used for comparability purposes when not considering the whole building life cycle. EPD comparability is only possible when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared. The EPD owner has sole ownership, liability, and responsibility for the EPD.

Reference Standards

Standard(s):	ISO 14025 and ISO 21930:2017
PCR:	NSF PCR for Resinous Floor Coatings v.1e Date of issue: December 17, 2018

Valid until: June 30, 2026

PCR review panel:

 Contact Smart EPD for more information.

General Program Instructions:

 Smart EPD General Program Instructions v.2.0, March 2025

Verification Information

LCA Author/Creator:

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EPD Program Operator:

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 585 Grove St., Ste. 145, Herndon, VA 20170, USA

Verification:

Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071:

External

 Amy Landis |  Michigan Technological University |  landis@mtu.edu

Independent external verification of EPD, according to ISO 14025 and reference PCR(s):

External

 Amy Landis |  Michigan Technological University |  landis@mtu.edu

Product Information

Functional Unit:

1 m2 of covered and protected substrate for a period of 60 years

Mass:

0.636 kg

Reference Service Life:

15 Years

Product Specificity:

-  Product Average
-  Product Specific
-  Representative Product EPD

Product Description

Sealer 985 SS is a high-solids polyaspartic floor coating specifically engineered to balance rapid return-to-service with an extended working time for seamless, self-leveling applications. At 95% volume solids, it is a virtually odor-free and low-VOC system that provides a thick, high-gloss finish of 10 to 15 mils DFT in a single coat, making it ideal for USDA-inspected facilities and high-traffic commercial environments. It offers a "Class A" fire rating and superior resistance to chemicals, abrasion, and UV degradation, ensuring the floor remains flexible and impact-resistant without yellowing over time. Designed for application over epoxy primers, it can be walked on in as little as 3 to 5 hours while maintaining temperature resistance up to 200°F (93°C), though it is aesthetically limited to 160°F (71°C) when applied over concrete.

Further information can be found at: <https://www.carboline.com/products/product-details/Sealer-985-SS/>

Product Specifications

Product SKU(s):

Sealer 985 SS

Product Classification Codes:	EC3 - Finishes -> Flooring
Coating Type:	Thin mil floor coating
Options:	✓ Commercial
Estimated market service life:	10 years
Estimated technical service life:	15 years

Material Composition

Material/Component Category	Origin	% Mass
Additive		< 10
Resin		77 - 100

Packaging Material	Origin	kg Mass
Steel generic		0.07

Hazardous Materials
ASPARTIC ESTER (136210-32-7)
ALIPHATIC CARBOXYLIC ESTER (623-91-6)
ETHYL BENZENE (100-41-4)

EPD Data Specificity

Primary Data Year:	Jan 1, 2025 - Dec 31, 2025
Manufacturing Specificity:	✗ Industry Average ✗ Manufacturer Average ✓ Facility Specific

Averaging:

Averaging was not conducted for this EPD.

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	✓

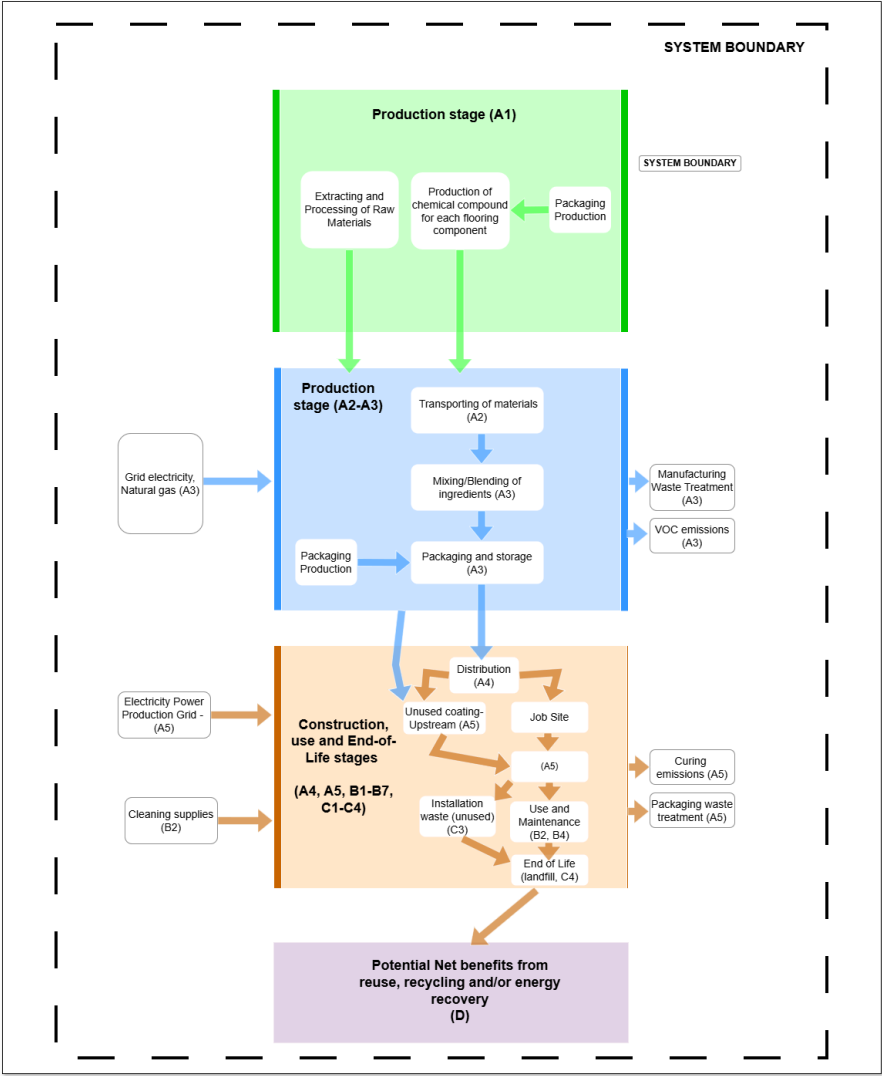
Note:

ND = Module not declared

Plants

 Carboline - Green Bay, WI 2122 Angie Ave, Green Bay, WI 54302, USA

Product Flow Diagram



Software And Database

LCA Software:	☰	SimaPro v. 10.2
LCI Foreground Database(s):	☰	Ecoinvent v. 3.9.1 ☞ Cut-off by Classification
LCI Background Database(s):	☰	Ecoinvent v. 3.9.1 ☞ Cut-off by Classification

A foreground LCI database is the database used to model the primary, site-specific data collected for this EPD. A background LCI database is the database used to model generic or non-specific data.

Data Quality

The quality of inventory data is evaluated based on several criteria, including precision, completeness, consistency, and representativeness. The analysis follows the data quality level and criteria of the UN Environment Global Guidance on LCA database development. Based on these factors, the overall data quality is rated as "Good".

Precision and completeness:

- Precision (Very Good): The inventory data used in this study were either directly measured, calculated, or estimated based on primary data sources, ensuring high precision. Background data from ecoinvent v3 database also has documented precision to the extent available.
- Completeness (Very Good): The product system's mass balance and inventory completeness were thoroughly checked. Some exclusions were made in line with the PCR requirements, such as personnel impacts, R&D activities, business travel, secondary packaging, point of sale infrastructure, and the coating applicator. However, no data was intentionally omitted.

Consistency and reproducibility:

- Consistency (Good): Primary data were collected with a similar level of detail, while background data primarily came from the ecoinvent database, with other databases used only if necessary or more representative. The modeling approach and other methodological choices were applied consistently throughout the model.
- Reproducibility (Very Good): This study ensures reproducibility by providing comprehensive disclosure of input-output data, dataset choices, and modeling approaches. A knowledgeable third party should be able to approximate the results using the same data and modeling methods.

Representativeness (Good):

- Temporal: Primary data were collected for the totality of the reference study period to ensure the representativeness. Secondary data from the ecoinvent v3.9.1 database is typically representative of recent years, a detailed data quality analysis following ISO 21930 was performed on the background database and is available at request.
- Geographical: Primary data represents Carboline's production facility in Green Bay, WI. We considered regional differences in electric grid mix using appropriate secondary data. Country-specific data ensures high geographical representativeness, with proxy data used only when necessary.
- Technological (Good): Both primary and secondary data were tailored to the specific technologies studied, ensuring high technological representativeness.

Life Cycle Module Description

The product stage (A1-A3) starts with raw material extraction and upstream processing, and continues through transport to the manufacturing site, coating manufacture, and packaging. Raw materials are processed and mixed to form the finished resinous floor coating system, and manufacturing wastes are accounted for in this stage. The construction stage (A4-A5) starts with the packaged and finished coating leaving the production site and ends with the coating being installed, applied, and cured onto the flooring substrate. Impacts include transport to site, installation, curing emissions, packaging disposal, and upstream impacts associated with the 2% of wet coating mass assumed to remain unused. The use stage (B1-B7) begins after the resinous floor coating has fully cured and continues until the product reaches end of life. Impacts include cleaning and required recoating or replacement events during the service life. The end-of-life stage (C1-C4) includes disposal of unused and applied coating materials. Waste water-based coatings are sent to landfill, while waste solvent-based coatings are incinerated with energy recovery. Applied coating is generally treated as incremental mass landfilled with the substrate, unless better data are available. Module D describes potential loads and credits beyond the system boundary associated with energy recovery from incineration of unused solvent-based coating and recycling of packaging materials.

LCA Discussion

Allocation Procedure

Allocation of co-products was avoided to the extent possible by subdividing unit processes or applying system expansion/substitution, where applicable, following ISO 14044 and ISO 21930. Where allocation could not be avoided, allocation was based on mass or another relevant physical relationship. Economic allocation was used only when physical allocation was not representative. For shared manufacturing-site flows, including energy use, water consumption, wastewater treatment, and VOC emissions, impacts were allocated to the studied resinous floor coating system based on mass where product-specific data were not available. Solid waste was estimated using packaging masses, manufacturing material losses, application losses, and site waste records, and was assigned to the module in which the waste occurred, consistent with the modularity and polluter-pays principles. For installation-related waste, the PCR assumption that 2% of the wet coating mass remains unused was applied, unless product- or site-specific data were available. Packaging waste and unused coating from installation were assigned to the construction stage, while recoating-related flows were assigned to the relevant use-stage replacement module

Cut-off Procedure

The system boundary was defined based on relevance to the goal of the study. For the raw material (A1) and process related inputs (A3), all available energy and material flow data have been included in the model. Exclusions allowed by the PCR such as secondary and tertiary packaging, were implemented.

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:	Truck and Trailer
Transport Distance:	1000 km
Capacity Utilization:	33 %
Packaging Mass:	7.31e-02 kg
Gross density of products transported:	1590 kg/m3
Weight of products transported:	7.09e-01 kg
Volume of products transported:	4.45e-7 m3
Capacity utilization volume factor:	=1
Assumptions for scenario development:	Transport distance includes finished product to distribution center and distribution center to point of sale.

Installation in to the building/construction site (A5)

A5 Module

Installation Scrap Rate Assumed:	2 %
Product Lost per Declared/Functional Unit:	1.27e-02 kg
Mass of Packaging Waste Specified by Type:	7.31e-02 kg
Assumptions for scenario development:	2% installation scrap rate assumed in accordance with the PCR.
VOC Assumptions:	3.76e-02 kg

Use (B1)

B1 Module

Use Conditions:

Once the product is cured, the use stage starts. No impacts associated with this module have been calculated

Maintenance (B2)

B2 Module

Maintenance Cycle:	36.67 Cycles/RSL 220 Cycles/ESL
Net Fresh Water Consumption Specified by Water Source and Fate:	8.30e-01 m3
Ancillary Materials Specified by Type:	1.32e+00 kg

Repair (B3)

B3 Module

Further assumptions for scenario development:	No repair impacts assumed as per PCR guidance
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Replacement (B4)

B4 Module

Reference Service Life:	10 Years
Replacement Cycle:	5 (ESL/RSL)-1
Replacement of Worn Parts:	3.18e+00 kg
Further assumptions for scenario development:	Values assume market service life

Refurbishment (B5)

B5 Module

Further assumptions for scenario development:	No refurbishment impacts assumed as per PCR guidance
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Operational Energy Use (B6) & Operational Water Use (B7)

B6 & B7 Modules

Further assumptions for scenario development:
No operational energy and water use as per PCR guidance.

End of Life (C1 - C4)

C1 - C4 Modules

Collection Process

Collected Separately: 6.40e-02 kg

Recovery

Landfill: 3.18e+00 kg

Assumptions for scenario development:
According to the ecoinvent 3.9.1 process “treatment of waste paint,” the incineration of unused product at installation achieves a gross thermal efficiency of 74.4% and a gross electrical efficiency of 10%.

Reuse, Recovery and / or Recycling Potentials & Relevant Scenario Information (D)

D Module

Recycling Rate of Product:	0 %
Recycled Content of Product:	0 %
Net Energy Benefit from Energy Recovery from Waste Treatment Declared as Export Energy in C3:	0 MJ
Net Energy Benefit from Thermal Energy Due to Treatment of Waste Declared as Exported Energy in C4:	0 MJ
Net Energy Benefit from Material Flow Declared in C3 for Energy Recovery:	0 MJ
Further assumptions for scenario development:	Impacts limited to recycling of packaging material.

Results

Environmental Impact Assessment Results

IPCC AR5 GWP 100, TRACI 2.1

per 1 m2 of product of covered and protected substrate for a period of 60 years.

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

Market service lifetime

Impact Category	Unit	Method	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2-eq	IPCC AR5 GWP 100	2.66e+0	7.50e-2	5.49e-2	0	6.14e+0	0	1.40e+1	0	0	0	0	1.16e-2	0	6.93e-1	-5.86e-1
ODP	kg CFC-11 eq	TRACI 2.1	5.90e-5	1.29e-9	1.18e-6	0	1.85e-7	0	3.01e-4	0	0	0	0	1.98e-10	0	1.90e-8	-1.23e-8
AP	kg SO2 eq	TRACI 2.1	9.84e-3	2.39e-4	2.03e-4	0	2.34e-2	0	5.14e-2	0	0	0	0	3.69e-5	0	2.40e-3	-1.98e-3
EP	kg N eq	TRACI 2.1	5.69e-3	6.61e-5	1.15e-4	0	2.87e-2	0	2.94e-2	0	0	0	0	1.02e-5	0	2.39e-3	-1.90e-3
POCP	kg O3 eq	TRACI 2.1	1.34e-1	5.48e-3	2.82e-3	0	3.24e-1	0	7.11e-1	0	0	0	0	8.45e-4	0	3.90e-2	-3.17e-2

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 = Particulate 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.

The estimated service life under this scenario is 10.0 years.

Technical service lifetime

Impact Category	Unit	Method	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2-eq	IPCC AR5 GWP 100	2.66e+0	7.50e-2	5.49e-2	0	6.14e+0	0	1.40e+1	0	0	0	0	1.16e-2	0	6.93e-1	-5.86e-1
ODP	kg CFC-11 eq	TRACI 2.1	5.90e-5	1.29e-9	1.18e-6	0	1.85e-7	0	3.01e-4	0	0	0	0	1.98e-10	0	1.90e-8	-1.23e-8
AP	kg SO2 eq	TRACI 2.1	9.84e-3	2.39e-4	2.03e-4	0	2.34e-2	0	5.14e-2	0	0	0	0	3.69e-5	0	2.40e-3	-1.98e-3
EP	kg N eq	TRACI 2.1	5.69e-3	6.61e-5	1.15e-4	0	2.87e-2	0	2.94e-2	0	0	0	0	1.02e-5	0	2.39e-3	-1.90e-3
POCP	kg O3 eq	TRACI 2.1	1.34e-1	5.48e-3	2.82e-3	0	3.24e-1	0	7.11e-1	0	0	0	0	8.45e-4	0	3.90e-2	-3.17e-2

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.

The estimated service life under this scenario is 10 years.

Resource Use Indicator

per 1 m2 of product of covered and protected substrate for a period of 60 years.

Market service lifetime

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
RPRE	MJ	6.93e-1	1.04e-2	1.41e-2	0	3.05e+0	0	3.59e+0	0	0	0	0	1.60e-3	0	1.77e-1	-3.79e-1
RPRM	MJ	2.27e+0	3.43e-3	4.55e-2	0	5.03e+1	0	1.16e+1	0	0	0	0	5.28e-4	0	2.53e+0	-1.03e-1
RPRT	MJ	2.96e+0	1.38e-2	5.96e-2	0	5.33e+1	0	1.52e+1	0	0	0	0	2.13e-3	0	2.70e+0	-4.82e-1
NRPRE	MJ	5.40e+1	1.09e+0	1.11e+0	0	8.81e+1	0	2.81e+2	0	0	0	0	1.68e-1	0	7.75e+0	-6.90e+0
NRPRM	MJ	1.05e-3	1.88e-5	2.15e-5	0	1.13e-2	0	5.47e-3	0	0	0	0	2.89e-6	0	3.66e-4	-3.80e-4
NRPRT	MJ	5.40e+1	1.09e+0	1.11e+0	0	8.81e+1	0	2.81e+2	0	0	0	0	1.68e-1	0	7.75e+0	-6.90e+0
ADPF	MJ	6.77e+0	1.53e-1	1.39e-1	0	1.03e+1	0	3.53e+1	0	0	0	0	2.36e-2	0	4.77e-1	-5.31e-1
FW	m3	7.60e-2	1.42e-4	1.52e-3	0	1.07e+0	0	3.89e-1	0	0	0	0	2.19e-5	0	3.33e-3	-2.50e-3
RE	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SM	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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:

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.

The estimated service life under this scenario is 10.0 years.

Technical service lifetime

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
RPRE	MJ	6.93e-1	1.04e-2	1.41e-2	0	3.05e+0	0	3.59e+0	0	0	0	0	1.60e-3	0	1.77e-1	-3.79e-1
RPRM	MJ	2.27e+0	3.43e-3	4.55e-2	0	5.03e+1	0	1.16e+1	0	0	0	0	5.28e-4	0	2.53e+0	-1.03e-1
RPRT	MJ	2.96e+0	1.38e-2	5.96e-2	0	5.33e+1	0	1.52e+1	0	0	0	0	2.13e-3	0	2.70e+0	-4.82e-1
NRPRE	MJ	5.40e+1	1.09e+0	1.11e+0	0	8.81e+1	0	2.81e+2	0	0	0	0	1.68e-1	0	7.75e+0	-6.90e+0
NRPRM	MJ	1.05e-3	1.88e-5	2.15e-5	0	1.13e-2	0	5.47e-3	0	0	0	0	2.89e-6	0	3.66e-4	-3.80e-4
NRPRT	MJ	5.40e+1	1.09e+0	1.11e+0	0	8.81e+1	0	2.81e+2	0	0	0	0	1.68e-1	0	7.75e+0	-6.90e+0
ADPF	MJ	6.77e+0	1.53e-1	1.39e-1	0	1.03e+1	0	3.53e+1	0	0	0	0	2.36e-2	0	4.77e-1	-5.31e-1
FW	m3	7.60e-2	1.42e-4	1.52e-3	0	1.07e+0	0	3.89e-1	0	0	0	0	2.19e-5	0	3.33e-3	-2.50e-3
RE	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SM	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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:

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.

The estimated service life under this scenario is 10 years.

Waste and Output Flow Indicators

per 1 m2 of product of covered and protected substrate for a period of 60 years.

Market service lifetime

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	2.45e-2	0	4.91e-4	0	0	0	1.25e-1	0	0	0	0	0	0	3.42e+0	0
NHWD	kg	1.71e-4	0	3.15e-2	0	0	0	1.58e-1	0	0	0	0	0	0	0	0
MR	kg	2.67e-2	0	4.22e-2	0	0	0	3.44e-1	0	0	0	0	0	0	0	0
MER	kg	3.32e-3	0	6.64e-5	0	0	0	1.69e-2	0	0	0	0	0	0	0	0
ILLRW	m3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HLLRW	m3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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:

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.

The estimated service life under this scenario is 10.0 years.

Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-grave waste performance between products should be derived from these reported values.

Technical service lifetime

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	2.45e-2	0	4.91e-4	0	0	0	1.25e-1	0	0	0	0	0	0	3.42e+0	0
NHWD	kg	1.71e-4	0	3.15e-2	0	0	0	1.58e-1	0	0	0	0	0	0	0	0
MR	kg	2.67e-2	0	4.22e-2	0	0	0	3.44e-1	0	0	0	0	0	0	0	0
MER	kg	3.32e-3	0	6.64e-5	0	0	0	1.69e-2	0	0	0	0	0	0	0	0
ILLRW	m3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HLLRW	m3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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:

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.

The estimated service life under this scenario is 10 years.

Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-grave waste performance between products should be derived from these reported values.

Carbon Emissions and Removals

per 1 m2 of product of covered and protected substrate for a period of 60 years.

Market service lifetime

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Bio Carbon Removal from Product	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bio Carbon Emission from Product	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bio Carbon Removal from Packaging	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bio Carbon Emission from Packaging	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bio Carbon Emission from Waste during Manufacturing (renewable source)	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calcination Carbon Removal	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbonation Carbon Emission	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbon Emission from Waste during Manufacturing (non-renewable source)	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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:

BCRP = Biogenic Carbon Removal from Product, BCP = 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.

The estimated service life under this scenario is 10.0 years.

Technical service lifetime

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Bio Carbon Removal from Product	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bio Carbon Emission from Product	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bio Carbon Removal from Packaging	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bio Carbon Emission from Packaging	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bio Carbon Emission from Waste during Manufacturing (renewable source)	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calcination Carbon Removal	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbonation Carbon Emission	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbon Emission from Waste during Manufacturing (non-renewable source)	kg CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note:

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

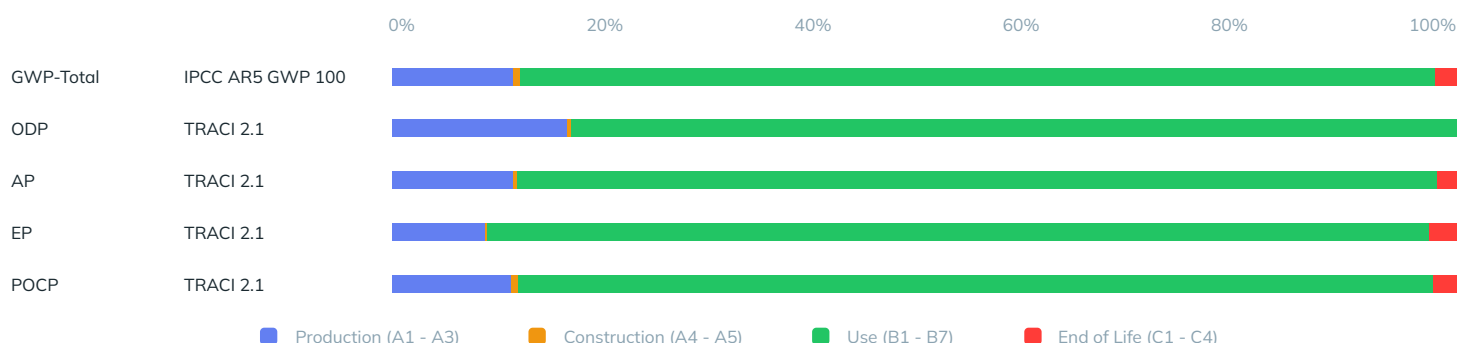
Abbreviations:

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.

The estimated service life under this scenario is 10 years.

Interpretation

Raw materials are sourced from suppliers, transported to manufacturing facilities, and mixed to produce products. The product stage (A1-A3) drives the environmental impact, due to raw material production and energy use. This impacts is amplified in the use phase due to recoatings, making B4 the largest contributor to the overall impact. Market and Technical service life scenarios differ depending on assumed estimated service life (ESL), with lower impacts for longer-lived products. Those scenarios are constructed using PCR prescriptions that are highly conservative, as they assumed the replacemnt of the full coating sytem. End-of-life impacts are relatively low, as products are assumed to be landfilled with building demolition waste. Switching to renewable energy is advised for products with high manufacturing energy demands. The manufacturer should explore lower-impact raw materials and work with suppliers using sustainable methods or renewable energy to enhance product sustainability.



Additional Environmental Information

None

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