Environmental Product Declaration

Program Operator: Smart EPD®
www.smartepd.com

IN ACCORDANCE WITH ISO 14025 AND ISO 21930:2017

SmartEPD-2026-108-0846-01

StormMaster Hip & Ridge (Ardmore)

Date of Issue	Expiration Date	Last Updated
Apr 20, 2026	**Apr 20, 2031**	**Apr 20, 2026**

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

General Information

Atlas Roofing Corp.

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support@atlasroofing.com

atlasroofing.com

Product Name:	StormMaster Hip & Ridge (Ardmore)
Declared Unit:	1 m2 one (1) square meter of shingle product at a specific mass and thickness to be reported
Declaration Number:	SmartEPD-2026-108-0846-01
Date of Issue:	April 20, 2026
Expiration:	April 20, 2031
Last updated:	April 20, 2026
EPD Scope:	Cradle to gate A1 - A3
Market(s) of Applicability:	North America

General Organization Information

Atlas Roofing Corporation started with a single asphalt shingle manufacturing facility in 1982 and has grown to 36 facilities in North America providing worldwide product distribution. Today, products from the company's four major divisions, Polyiso Roof & Wall Insulation, Shingle & Underlayment, Molded Products, and Web Technologies, are manufactured in state-of-the-art facilities and shipped from a network of manufacturing plants and distribution facilities in the United States, Canada, and Mexico.

Further information can be found at: https://www.atlasroofing.com/

Limitations, Liability and Ownership

The EPD owner has sole ownership, liability, and responsibility for the EPD.

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 or construction works 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 in results upstream or downstream of the life cycle stages declared.

The environmental impact results of products in this document are based on a declared unit and therefore do not provide sufficient information to establish comparisons. The results shall not be used for comparisons without knowledge of how the physical properties of the product impact the precise function at the construction level. The environmental impact results shall be converted to a functional unit basis before any comparison is attempted.

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: Asphalt Shingles, Built-up Asphalt and Modified Bituminous Membrane Roofing
	Date of issue: May 24, 2021
	Valid until: May 31, 2026
Sub-category 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:	Jana Fogarty
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Verification:	Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071: External
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	Independent external verification of EPD, according to ISO 14025 and reference PCR(s): External
	Amy Landis | Michigan Technological University | landis@mtu.edu

Product Information

Declared Unit:	1 m2 one (1) square meter of shingle product at a specific mass and thickness to be reported
Mass:	4.08 kg
Product Specificity:	✗ Product Average
	✓ Product Specific

Product Description

StormMaster® Hip & Ridge shingles featuring 3M™ Scotchgard™ Protector help resist black streaks caused by algae, while providing a finished designer look at the hip and ridge.

Further information can be found at: https://www.atlasroofing.com/products/roof-shingles/pinnacle-pristine-shingles

Product Specifications

Product SKU(s): StormMaster Hip & Ridge

Product Classification Codes: EC3 - ThermalMoistureProtection -> MembraneRoofing -> BituminousRoofing

Masterformat - SECTION 07 31 13

Select subcategory: Asphalt Shingles - Roof Cover

Material Composition

Material/Component Category	Origin	% Mass
Asphalt	None	20 - 30 %
Calcium Carbonate	None	30 - 40 %
Sand	None	< 10 %
Mineral Granules	None	30 - 40 %
Fiberglass Mat	None	< 10 %

Packaging Material	Origin	kg Mass
LDPE Film	None	0.00666
Wooden pallet	None	0.0771

Biogenic Carbon Content	kg C per m2
Biogenic carbon content in product	None
Biogenic carbon content in accompanying packaging	0.0385

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:

Averaging methods were not used for this EPD.

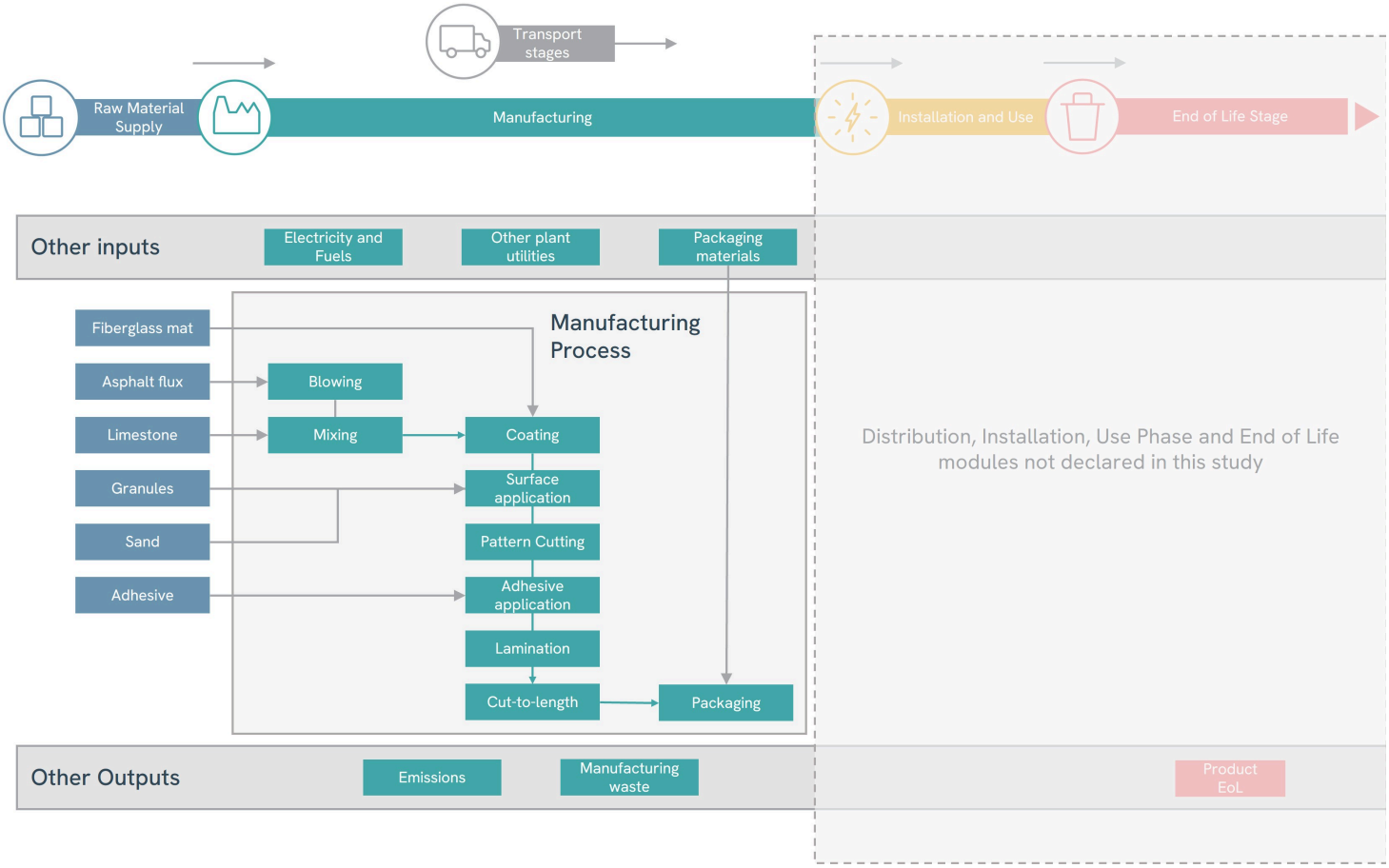
System Boundary

Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓
Construction	A4	Transport to site	ND
	A5	Assembly / Install	ND
Use	B1	Use	ND
	B2	Maintenance	ND
	B3	Repair	ND
	B4	Replacement	ND
	B5	Refurbishment	ND
	B6	Operational Energy Use	ND
	B7	Operational Water Use	ND
End of Life	C1	Deconstruction	ND
	C2	Transport	ND
	C3	Waste Processing	ND
	C4	Disposal	ND
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	ND

Note:

ND = Module not declared

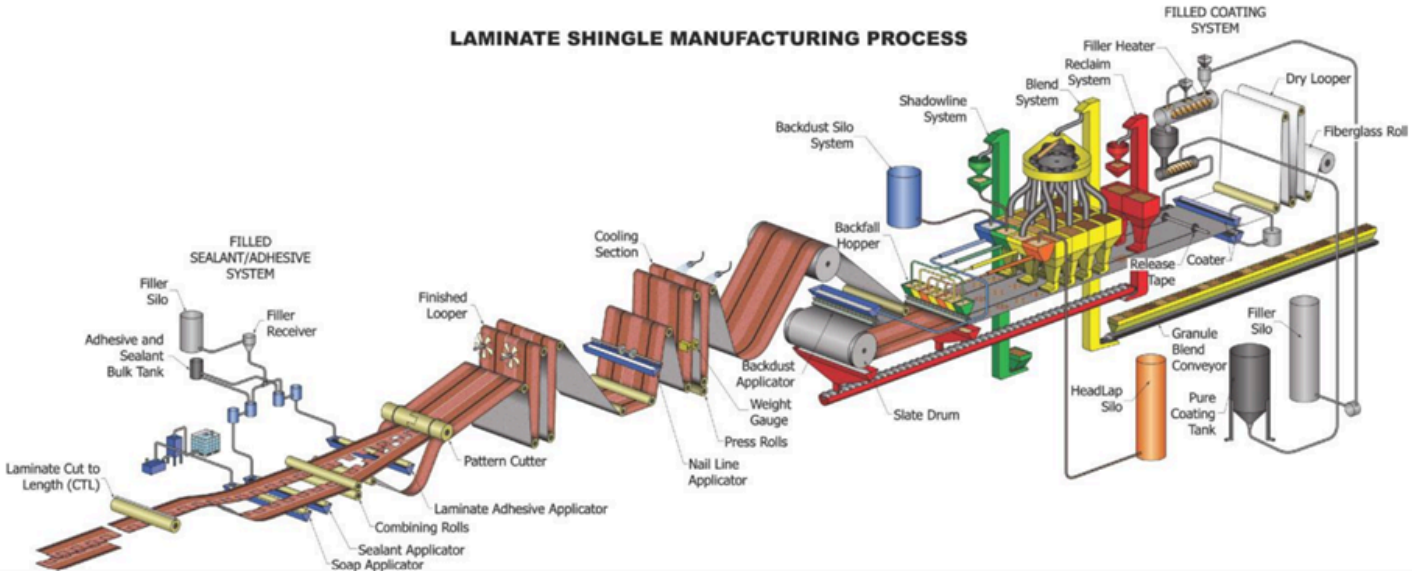
Product Composition Diagram



Plants

Ardmore 2300 Veterans Blvd, Ardmore, OK 73401, USA

Product Flow Diagram



Manufacturing happens in several process steps (below).

1. A roll of fiberglass membrane is loaded into a felt looper.
2. The blown asphalt coating is heated to over 400° F and mixed with calcium carbonate. This mixture is applied to both sides of the glass mat.
3. A 1.25-2" release tape is applied which will keep shingles from sticking together when stacked.
4. Mineral granules of different chemistries and colors are blended and applied to the top of the shingles. Granules give shingles their color and make them resistant to the sun's ultraviolet rays. Pinnacle Pristine includes copper granules to reduce algal growth.
5. The back surface of the shingle roll is showered with sand to prevent shingles from sticking together.
6. A series of cold rollers and water jets are employed to cool the asphalt before cutting.
7. The roll is cut into strips of the desired size and profile.
8. An adhesive laminating asphalt is used to glue two shingle layers (one notched strip and one straight strip) together, granting the laminates increased wind-resistance and a three-dimensional appearance.
9. Lines of another adhesive sealing asphalt are applied to the front of the shingles. This sealant is activated by the sun's heat after installation, causing shingles to stick to one another.
10. Soap is applied on the sealant adhesive which aids shingles in sliding into bundles during packaging.
11. Shingles are cut to length, stacked and packaged in bundles using polyethylene film. Bundles are then stacked onto pallets for storage and shipment.

Software And Database

LCA Software:	SimaPro v. 9.6	
LCI Foreground Database(s):	Ecoinvent v. 3.9.1	Cut Off
LCI Background Database(s):	Ecoinvent v. 3.9.1	Cut Off

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

Annual facility-wide manufacturing and production data for 2023 was provided by Atlas Roofing Corporation. Where primary data was not available, industry literature, expert judgement and datasets from ecoinvent v3.9.1 were used to develop reasonable assumptions. Ecoinvent v3.9.1 was also the primary source of background datasets for representing upstream and downstream product flows.

Data quality assessment is performed using the Enhanced Pedigree Matrix proposed in the guidance for “Assessing Data Quality of Background Life Cycle Inventory (LCI) Datasets” published by the ACLCA in 2022. This entails qualitatively responding to multiple-choice questions about the flows grouped under 5 criteria: Reliability, Data Collection, Time Period, Geography and Technology. Additionally, two questions are addressed regarding the level of detail of unit processes. The study was found to meet or exceed the desired quality level for all questions.

Life Cycle Module Description

Raw Material Supply (A1)
The A1 information module includes the upstream impacts of the procurement of blown asphalt or polymer modified asphalt (PMA) coating, calcium carbonate stabilizer, fiberglass mat, mineral granules, sand, and other raw materials.

Transportation to Factory (A2, A3)
Transport of product and packaging materials happens nationally by truck and rail. Primary data was used to determine distance per material type and mode. Transport amounts were adjusted based on utilization rates of materials that reach volume limitations rather than exceeding maximum load by mass.

Packaging (A3)
The asphalt shingles packaging consists of wrapping bundles of shingles in LDPE film. The bundles are then stacked on wooden pallets for transport.

Manufacturing (A3)
A3 includes :

- production of ancillary materials or pre-products.
- generation of electricity, steam and heat from primary energy resources used in manufacturing including their extraction, refining and transport.
- emissions from the combustion of secondary fuels and waste used in the manufacturing process.
- manufacturing of products and co-products, including their extraction, manufacturing and transport.
- waste management from manufacturing packaging and manufacturing wastage transport up to the recycler or disposal.

In particular, this study considers all relevant inputs, emissions, and waste flows from the shingle production line and from the blow still of asphalt coating which is oxidized at Atlas locations.

LCA Discussion

Allocation Procedure

The inputs and outputs to the manufacturing plant are allocated per the stepwise method detailed in ISO 21930, Section 7.2.4, 7.2.5, and 7.2.6. Most plant inputs and outputs are assigned across total production volume using mass-based allocation. Subdivision for product and packaging raw material inputs and scrap amounts is possible through product bills of materials (BOMs). In addition, asphalt oxidation was subdivided as a separate unit process to the shingle production line.

This study uses the cut-off method for recycling. According to this approach, the first life of a material bears the environmental burdens of its production (e.g., raw material extraction and processing) and the second life (e.g., scrap input) bears the burdens of refurbishment (e.g., collection and refining of scrap). The

burdens from waste treatment are taken on by the next life of the product and not included in this study.

Secondary data taken from ecoinvent v3.9.1 cut-off by classification has allocation applied to it.

Cut-off Procedure

A thin layer of cellophane release tape is applied to shingles during the manufacturing process preventing shingles from sticking together in the package. This tape comprises less than 0.1% of total shingle weight and was excluded from this study.

All other known energy and material flows within the system boundary are included in the model. No known flows are excluded. All upstream and downstream activities were included using a combination of primary and secondary data. While most inventory data were sourced from primary resources, representative proxies were used to close gaps in the absence of primary data.

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

Results

Environmental Impact Assessment Results

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

per 1 m2 of product one (1) square meter of shingle product at a specific mass and thickness to be reported .

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

North American and European Impact Results

Impact Category	Unit	Method	A1	A2	A3	A1 - A3
GWP-total (IPCC)	kg CO2 eq	IPCC AR5 GWP 100	1.02e+0	3.16e-1	4.79e-1	1.81e+0
ODP	kg CFC 11 eq	TRACI 2.1	1.14e-8	5.31e-9	7.73e-9	2.44e-8
AP	kg SO2 eq	TRACI 2.1	5.31e-3	1.51e-3	1.14e-3	7.96e-3
EP	kg N eq	TRACI 2.1	2.31e-3	3.21e-4	1.87e-3	4.50e-3
POCP	kg O3 eq	TRACI 2.1	6.82e-2	4.03e-2	1.90e-2	1.28e-1
GWP-total (CML)	kg CO2 eq	CML 2016 v4.8	1.01e+0	3.14e-1	4.77e-1	1.80e+0
ODP	kg CFC 11 eq	CML 2016 v4.8	9.48e-9	4.02e-9	5.84e-9	1.93e-8
AP	kg SO2 eq	CML 2016 v4.8	5.25e-3	1.23e-3	9.27e-4	7.41e-3
EP	kg PO4 eq	CML 2016 v4.8	1.64e-3	3.14e-4	8.43e-4	2.80e-3
POCP	kg C2H4 eq	CML 2016 v4.8	5.79e-4	5.45e-5	6.89e-5	7.02e-4
ADP-minerals&metals	kg Sb eq	CML 2016 v4.8	3.01e-5	9.51e-7	6.11e-7	3.17e-5
ADP-fossil	MJ	CML 2016 v4.8	5.47e+1	4.39e+0	6.07e+0	6.52e+1

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.

Impact assessment methodologies indicated by the PCR include the North American Life Cycle Impact Assessment Results (Part A, section 4.7, table 9) and the European Life Cycle Impact Assessment Results (Part A, section 4.8, table 10).

The LCIA Indicators for North America use characterization factors based on the U.S. EPA's Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts, TRACI 2.1 version 1.06. The GWP (100a) impacts use IPCC 2013, developed by the Intergovernmental Panel on Climate Change (IPCC, 2013). It contains the climate change factors of IPCC with a timeframe of 100 years, excluding the uptake of CO2.
These five impact categories are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes.

The LCIA Indicators for Europe use characterization factors from CML-baseline, version 4.2 from April 2013, in addition to GWP 100a Impacts from IPCC 2013 as described above.

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 Indicator

per 1 m2 of product one (1) square meter of shingle product at a specific mass and thickness to be reported .

Indicator	Unit	A1	A2	A3	A1 - A3
RPRE	MJ, LHV	6.52e-1	6.40e-2	1.42e+0	2.14e+0
RPRM	MJ, LHV	0	0	1.22e+0	1.22e+0
RPRT	MJ, LHV	6.52e-1	6.40e-2	2.64e+0	3.36e+0
NRPRE	MJ, LHV	1.83e+1	4.73e+0	6.68e+0	2.97e+1
NRPRM	MJ, LHV	3.77e+1	0	2.59e-1	3.80e+1
NRPRT	MJ, LHV	5.61e+1	4.73e+0	6.94e+0	6.78e+1
ADP-fossil	MJ, LHV	5.62e+0	6.20e-1	8.47e-1	7.09e+0
SM	kg	0	0	0	0
RSF	MJ, LHV	0	0	0	0
NRSF	MJ, LHV	0	0	0	0
FW	m3	6.32e-3	6.72e-4	3.97e-4	7.39e-3
RE	MJ, LHV	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.

Waste and Output Flow Indicators

per 1 m2 of product one (1) square meter of shingle product at a specific mass and thickness to be reported .

Indicator	Unit	A1	A2	A3	A1 - A3
HWD	kg	0	0	0	0
NHWD	kg	0	0	2.46e-1	2.46e-1
HLRW	kg	0	0	0	0
ILLRW	kg	0	0	0	0
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	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.

Carbon Emissions and Removals

per 1 m2 of product one (1) square meter of shingle product at a specific mass and thickness to be reported .

Indicator	Unit	A1	A2	A3	A1 - A3	A5
BCRK	kg CO2	0	0	-1.41e-1	-1.41e-1	3.80e-2
BCEK	kg CO2	0	0	0	0	1.03e-1

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.

Biogenic carbon removals from packaging (BCRK) and biogenic carbon emissions from packaging (BCEK) in the shingle lifecycle are associated with wooden pallets used for product distribution.

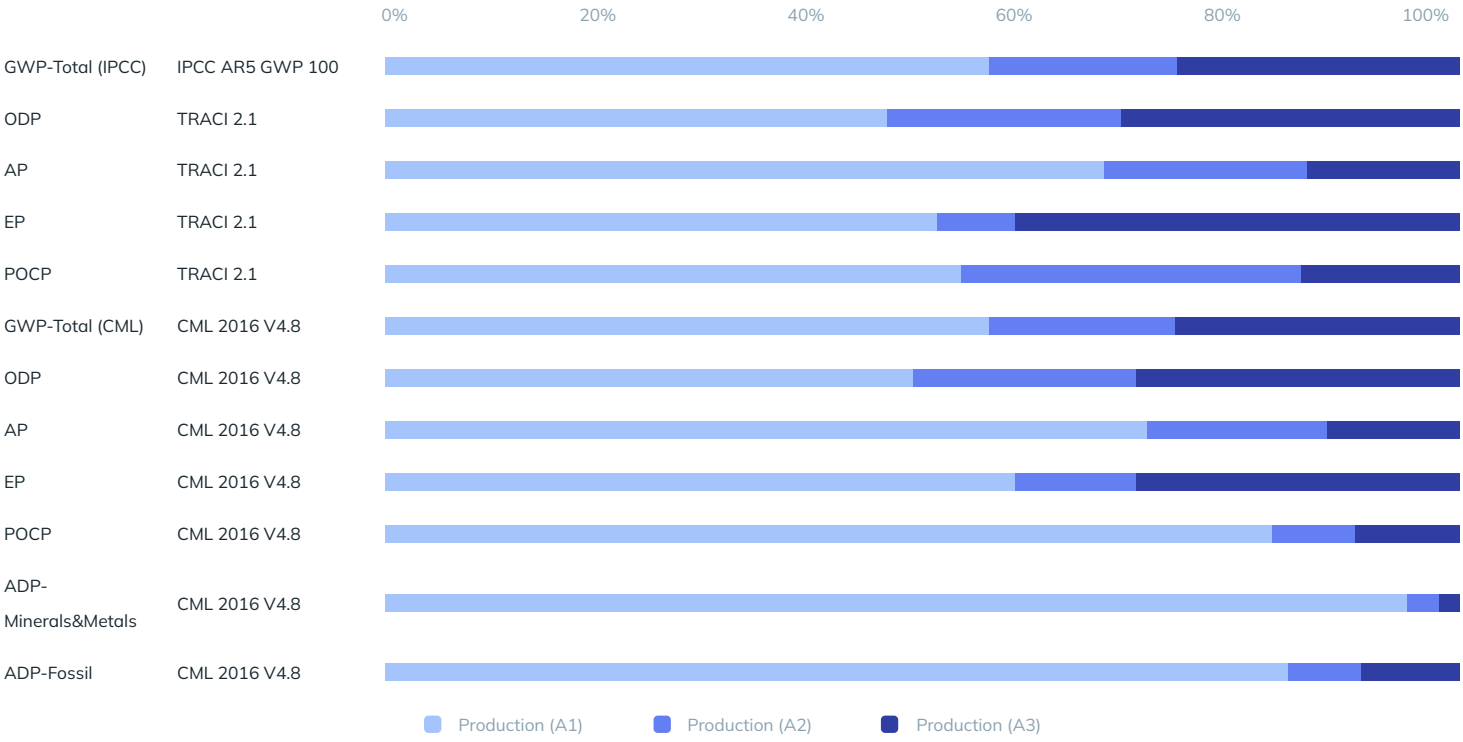
ISO 21930 requires that "the amount of biogenic carbon contained within bio-based material leaving the product system shall be declared as technical scenario information in the module where the material is leaving the product system, irrespective of whether the environmental impacts and aspects of this

module are declared. For bio-based packaging material, the quantity of biogenic carbon (expressed in kg CO2) contained within the packaging for the declared unit shall be documented in information module A5 as technical scenario information."

Interpretation

The contribution analysis indicates that the raw materials module (A1) is the biggest driver for all impact assessment indicators (50-75%) with the largest contributors being raw asphalt flux and various asphalt-based adhesives. Fiberglass mats are also significant contributors while mineral-based materials (granules, limestone, and sand) are not major impact sources. Additionally, each transport to the manufacturing location (A2) and manufacturing (A3) are responsible for approximately 5% to 30% of all impact categories.

The contribution diagram includes the LCIA impact categories shown in the Impact Assessment Results table: the first five are the North American impact indicators from TRACI 2.1 version 1.06, followed by the European indicators from CML-baseline, version 4.2. GWP refers to the 100 year global warming potential, is the first indicator for each set of results, and is labeled with the associated impact assessment method. ODP refers to ozone depletion potential, EP is eutophication potential, AP is acidification potential, POCP is photochemical oxidant creation potential and ADP refers to abiotic depletion potential (for either fossil or non-fossil resources, as labeled).



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