

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025:2006 AND ISO 21930:2017

SmartEPD-2026-149-1013-01

Carbon Steel Slab



Date of Issue:	Expiration:	Last updated:
Aug 13, 2026	Aug 13, 2031	Aug 13, 2026

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



General Information

JSW Steel USA

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Product Name:	Carbon Steel Slab
Declared Unit:	1 metric ton
Declaration Number:	SmartEPD-2026-149-1013-01
Date of Issue:	August 13, 2026
Expiration:	August 13, 2031
Last updated:	August 13, 2026
EPD Scope:	Cradle to gate A1 - A3
Market(s) of Applicability:	North America

General Organization Information

JSW Steel USA (reporting company) is part of the diversified US \$22 billion JSW Group. As affiliates of JSW Group, with more than 35.7 million tons of installed capacity worldwide, JSW USA benefits from having access to team members with world class expertise and product knowledge. JSW USA produces specialty grade, dimension and certifications of carbon steel slab, plate, pipe, and hot-rolled coil that most domestic mills do not carry. for applications where specification compliance, domestic origin, and environmental documentation are critical procurement requirements.

Operating from Baytown, Texas and Mingo Junction, Ohio, JSW USA manufactures steel products using Consteel Electric Arc Furnace (EAF) technology and provides the documentation packages, material traceability, and verified environmental reporting required for federally funded, industrial, energy-sector, and infrastructure projects.

Environmental Product Declarations (EPDs), country-of-melt documentation, and product-level environmental data are available to support Buy America compliance, Buy Clean requirements, LEED documentation, Scope 2 and ESG audit processes.

JSW USA serves infrastructure such as bridges, utility structures, heavy fabrication, IJIA funded projects, LNG & petrochemical pressure vessels, storage, process, energy pipeline API 5L line pipe, sour service, HIC, agricultural frames, chassis, ground tools, tubing and hollow, heavy equipment such as yellow goods, mining, OEM heavy, marine and defense (Berry Amendment compliant) shipbuilding, offshore wind monopiles, jackets, transition pieces, automotive structural wheels, rims, brackets and mounts and several markets where project schedules, supply chain, specifications, and compliance requirements cannot afford uncertainty.

We prove what other mills declare: we are melted and manufactured in America with verified domestic, zero import, low embodied carbon emission steel, with verified energy grades.

Further information can be found at: <https://jswsteel.us/about-us/>.

Limitations, Liability and Ownership

Construction product environmental impact results provide a sufficient basis for comparison only when considered in the context of the construction works project. In all cases of comparing construction products, the principle that the basis for comparison of the assessment is the construction works level shall be maintained by ensuring that the same functional requirements are met and the criteria in ISO 21930:2017 Section 5.5 "Comparability of EPDs for construction products" are satisfied.

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

Environmental declarations from different programs may not be comparable per ISO 14025 (ISO, 2006). Even when the same PCR was followed, different LCA software and background LCI datasets may lead to different results for upstream or downstream of the life cycle stages declared.

Comparisons are possible at the sub-construction works level, for example for assembled systems, components or services for one or more life cycle stages, provided they meet requirements as outline in ISO 21930 Section 5.5. Information has been provided as transparently as possible in this project report to allow a clear understanding of the limitations of comparability.

It is recognized that by following the typical ISO 21930:2017 definitions of module A1, A2 and A3 for a specific production facility, inconsistencies will occur in classifying individual processes as either A1 or A3 based on the scope of the operations that take place at a given facility. Care must be taken not to compare A1, A2 or A3 on an individual basis for a given product from various mill producers, but, instead on the aggregated total of A1, A2 and A3. Separate A1, A2 and A3 values are provided for a better understanding of the processes taking place at a given facility and a greater level of transparency.

Construction product environmental impact results provide a sufficient basis for comparison only when considered in the context of the construction works project. In all cases of comparing construction products, the principle that the basis for comparison of the assessment is the construction works level shall be maintained by ensuring that the same functional requirements are met and the criteria in ISO 21930:2017 Section 5.5 "Comparability of EPDs for construction products" are satisfied.

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

Reference Standards

Standard(s):	ISO 14025:2006 and ISO 21930:2017
Core PCR:	Smart EPD® Part A Product Category Rules for Building and Construction Products and Services, 1000, v1.2 Date of issue: March 14, 2025
Sub-category PCR:	Smart EPD® Part B PCR for Designated Steel Construction Products, 1000-008, v3.0 Date of issue: April 03, 2025 Valid until: April 03, 2030
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

ACLCA PCR Guidance Version:	1.0
ACLCA PCR Conformance Level:	Transparency

LCA Author/Creator:

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Verification:

Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071:
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Independent external verification of EPD, according to ISO 14025 and reference PCR(s):
🌐 Vijay Thakur | 🏢 Individual Verifier | ✉ thakur.vijay3011@gmail.com

External

External

Product Information

Declared Unit: 1 metric ton
Mass: 1000 kg
Product Specificity:
✗ Product Average
✓ Product Specific
Supply Chain Specific Data: 27 %

Product Description

This EPD represents carbon steel slab produced via Electric Arc Furnace (EAF) technology at JSW USA facilities in the United States.

Environmental Product Declarations and product-level environmental data are available to support Buy America compliance documentation, Scope 2 reporting, Buy Clean requirements, LEED documentation, and ESG audit processes.

Further information can be found at: <https://jswsteel.us/products/>

Product Specifications

Product SKU(s): Carbon Steel Slab
Yield Tensile Strength: 235-636 MPa
Product Classification Codes: UNSPSC - 30264400
UNCPC - 411
EC3 - Steel -> StructuralSteel
System boundary option: Mill product (Option 1)
Options: ✓ EAF
EAF Percentage of Representation (optional): 100 %

Steel Type:Carbon/Alloy

Options:☐ Other (Specify)

Options:☒ Other

Table 1. Material Composition

Material/Component Category	Origin	% Mass
Carbon Steel	United States	100

Packaging Material	Origin	kg Mass
Wood Dunnage	United States	1.08E+00

Biogenic Carbon Content	kg C per metric ton
Biogenic carbon content in product	0None
Biogenic carbon content in accompanying packaging	0.538

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

Recycled Content

The recycled content of the product is 84.5% with 70% of the purchased scrap being post-consumer and 30% pre-consumer material.

EPD Data Specificity

Primary Data Year:2025

Manufacturing Specificity:☐ Industry Average

☐ Manufacturer Average

☒ Facility Specific

Averaging:
Averaging was not conducted for this EPD.

Table 2. 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

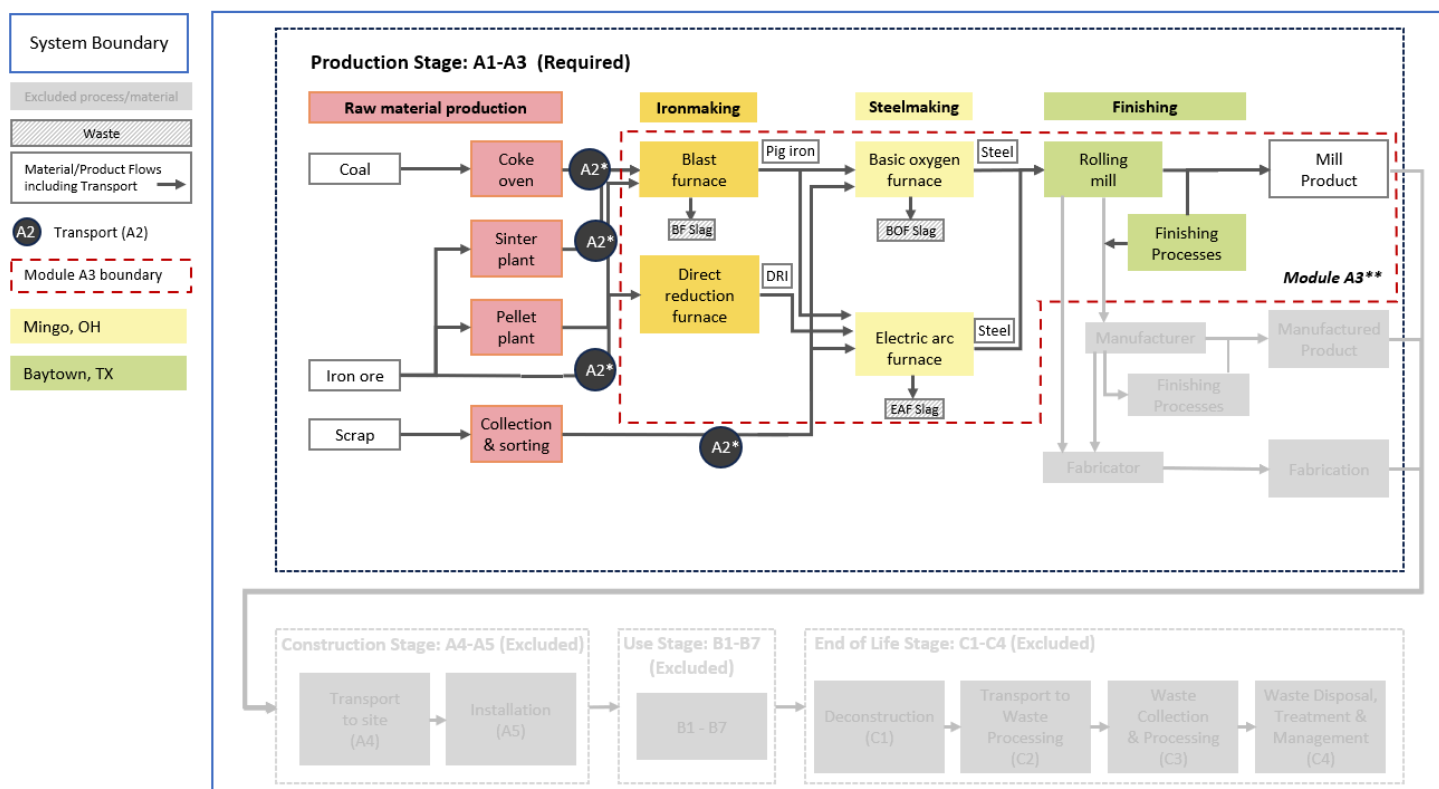
Note:

ND = Module not declared

Plants

 JSW Steel (USA) Inc. 1500 Commercial Ave, Mingo Junction, OH 43938, USA

Product Flow Diagram



Notes

Each unit process shall account for resource inputs (fuels, electricity, water, materials, etc) and emissions to air/land/water, wastes and co-products, if relevant

* A2 transportation is represented by any black arrow that crosses A1 / A3 boundary.

** Processes inside the red dashed line are in module A3 and should include specific data, if available.

Processes prior to the dashed red line indicate processes in module A1

Software And Database

LCA Software:

Simapro v. 10.2

LCI Foreground Database(s):

Ecoinvent v. 3.11

LCI Background Database(s):

Ecoinvent v. 3.11

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 study uses a combination of primary and secondary data. Primary data on manufacturing inputs and outputs were collected from JSW Steel for the year 2025 in the value-chain through customizable templates and reviewed internally to ensure completeness and credibility.

Many factory inputs and outputs do not represent direct flows between the technosphere and the environment, but rather internal flows in the technosphere. In these cases, secondary data is used: suitable datasets from ecoinvent v3.11. Cut-off at Classification and USLCI were chosen to trace product and process flows back to their corresponding elementary flows.

Foreground data was sourced from primary information provided by the client and has been reviewed internally to ensure precision and completeness. In order to balance out seasonal variations, operations data over a 12-month period, corresponding to the 2025 calendar year that was used to represent production activities.

A data quality scoring system was used to evaluate and document the quality and reliability of data used in the study. The aspects evaluated include 'Reliability of the Data', 'Data Collection Methods', 'Time Period of Data', 'Geography of Data', 'Technology of Data', and 'Process Level', and each area was evaluated and given a score between 1-5 with 1 being highest data quality. The average overall score is 1.7 and is well within the desired level.

The reported impact assessment values in this EPD may not be a precise representation of potential environmental burdens.

Table 3. Data Sources

Material/Process Category	Module	Material/Process Name	Inventory Dataset Name	Dataset Geographic Region	Reporting Period/Year Dataset Represents	Reference	Amount (if relevant)	Unit
Raw Material	A1	EAF Coke	Carbon black {GLO} market for carbon black Cut-off, U	GLO	2011-2024	Ecoinvent 3.11	ND	ND
Raw Material	A1	Pig Iron	Pig iron {RoW} market for pig iron Cut-off, U	RoW	2020-2024	Ecoinvent 3.11	ND	ND
Raw Material	A1	Oxygen	Oxygen, liquid {RoW} market for oxygen, liquid Cut-off, U	RoW	2011-2024	Ecoinvent 3.11	ND	ND
Transportation	A2	Truck	Transport, combination truck, average fuel mix {RNA} Transport, combination truck, average fuel mix	US	ND	USLCI	ND	ND
Transportation	A2	Barge	Transport, barge, average fuel mix {US} Transport, barge, average fuel mix	US	2019	USLCI	ND	ND
Energy	A3	Electricity	Electricity, medium voltage {US-TRE} market for electricity, medium	Texas Regional Entity	2022	Ecoinvent 3.11	ND	ND

Material/Process Category	Module	Material/Process Name	Inventory Dataset Name	Dataset Geographic Region	Reporting Period/Year Dataset Represents	Reference	Amount (if relevant)	Unit
			voltage Cut-off, U					
Energy	A3	Natural Gas	Modified - eat, district or industrial, natural gas {RoW}} heat production, natural gas, at industrial furnace >100kW Cut-off, U	RoW	2000-2024	Ecoinvent 3.11	ND	ND

Life Cycle Module Description

Raw Material Supply (A1):
The processes modeled for raw material supply include energy purchases, water, and transport of raw material from the supplier.

Transportation to Factory (A2):
Supplier names and locations were provided for purchased materials, and a weighted average distance was calculated by transportation mode.

Manufacturing (A3):
Electricity, natural gas, diesel, gasoline, water, waste, and packaging data were collected from the manufacturing facility in Mingo Junction, OH between 1/1/2025 to 12/31/2025.

LCA Discussion

Allocation Procedure

Slag produced during the Slab creation is considered a co-product, and the physical partitioning approach developed by the World Steel Association and EUROFER was followed to assign burdens to the product and slag co-product.

Cut-off Procedure

For the processes within the system boundary, described in Study Boundaries, input and output flows of mass and energy greater than 1% (based on total mass of final product and total energy usage of the product system) or greater than 1% of environmental impacts were included within the scope of the analysis. Flows of less than 1% were included if sufficient data were available to warrant inclusion and/or the flow was thought to have significant environmental impact. Where data gaps were identified, they are filled by conservative assumptions with average, generic, or proxy data and assumptions are documented. While packaging data is included, it does not exceed the cutoff criteria, so resource-use indicators were excluded. No other known flows relevant to the product system are deliberately excluded from this LCA.

Renewable Electricity

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

Results

Table 4. Environmental Impact Assessment Results

IPCC AR6 GWP 100, TRACI 2.2

per 1 metric ton 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	Unit	Method	A1	A2	A3	A1 - A3	Total
GWP-total	kg CO2 eq	IPCC AR6 GWP 100	4.56e+2	4.58e+1	2.52e+2	7.53e+2	7.53e+2
GWP-fossil	kg CO2 eq	IPCC AR6 GWP 100	4.55e+2	4.58e+1	2.52e+2	7.52e+2	7.52e+2
GWP-biogenic	kg CO2 eq	IPCC AR6 GWP 100	4.84e-1	0	6.73e-2	5.52e-1	5.52e-1
GWP-luluc	kg CO2 eq	IPCC AR6 GWP 100	6.11e-1	0	2.15e-2	6.32e-1	6.32e-1
ODP	kg CFC 11 eq	TRACI 2.2	4.87e-6	1.35e-7	1.65e-6	6.66e-6	6.66e-6
AP	kg SO2 eq	TRACI 2.2	2.03e+0	5.64e-1	8.15e-1	3.41e+0	3.41e+0
EP	kg N eq	TRACI 2.2	2.42e-1	1.01e-1	8.16e-2	4.25e-1	4.25e-1
SFP	kg O3 eq	TRACI 2.2	2.72e+1	1.25e+1	8.98e+0	4.87e+1	4.87e+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 = 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.

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.

Table 5. Resource Use Indicator

per 1 metric ton of product.

Indicator	Unit	A1	A2	A3	A1 - A3	Total
RPRE	MJ	5.55e+2	3.38e-3	1.34e+2	6.89e+2	6.89e+2
RPRM	MJ	0	0	0	0	0.00e+0
RPRT	MJ	5.55e+2	3.38e-3	1.34e+2	6.89e+2	6.89e+2
NRPRE	MJ	6.10e+3	1.68e+1	4.52e+3	1.06e+4	1.06e+4
NRPRM	MJ	1.03e+3	0	0	1.03e+3	1.03e+3
NRPRT	MJ	7.13e+3	1.68e+1	4.52e+3	1.17e+4	1.17e+4
SM	kg	9.75e+2	0	0	9.75e+2	9.75e+2
RSF	MJ	0	0	0	0	0.00e+0
NRSF	MJ	0	0	0	0	0.00e+0
RE	MJ	0	0	0	0	0.00e+0
ADP-fossil	MJ	6.38e+3	1.56e+1	2.80e+3	9.20e+3	9.20e+3
FW	m3	4.18e+0	4.95e-2	8.70e-1	5.10e+0	5.10e+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.

Table 6. Waste and Output Flow Indicators

per 1 metric ton of product.

Indicator	Unit	A1	A2	A3	A1 - A3	Total
HWD	kg	0	0	1.03e+1	1.03e+1	1.03e+1
NHWD	kg	0	0	2.36e+1	2.36e+1	2.36e+1
HLRW	kg	0	0	0	0	0.00e+0
ILLRW	kg	0	0	0	0	0.00e+0
CRU	kg	0	0	0	0	0.00e+0
MR	kg	0	0	1.18e+1	1.18e+1	1.18e+1
MER	kg	0	0	0	0	0.00e+0
EE	MJ	0	0	0	0	0.00e+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.

Table 7. Carbon Emissions and Removals

per 1 metric ton of product.

Indicator	Unit	A1	A2	A3	A1 - A3	Total
BCRP	kg CO2	0	0	0	0	0.00e+0
BCEP	kg CO2	0	0	0	0	0.00e+0
BCRK	kg CO2	0	0	-1.97e+0	-1.97e+0	-1.97e+0
BCEK	kg CO2	0	0	1.97e+0	1.97e+0	1.97e+0

Note:

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

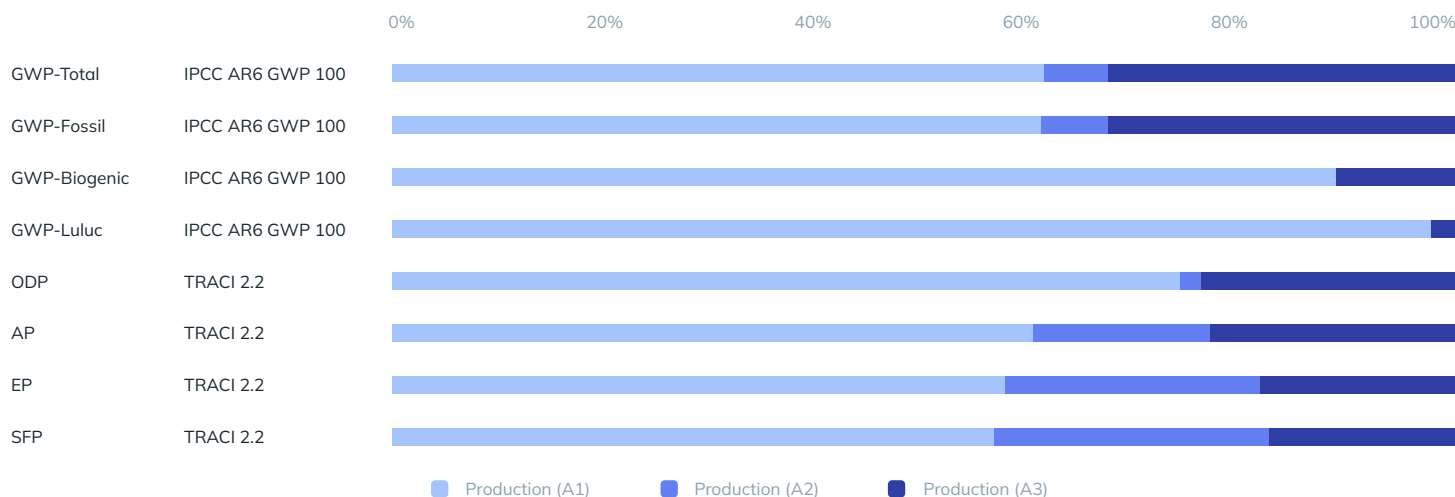
Abbreviations:

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.

Interpretation

The contribution analysis indicates that the majority of the impacts occur because of raw materials (A1) and manufacturing (A3). An average of 69% (ranging from 56% - 97%) for A1 and an average of 21% (ranging from 3% - 33%) for A3 across all impact categories. Note that raw material transport in A2 accounts for an average of 10% (ranging from 0% - 26%) across all impact categories.

Note: A collection of manufacturer-average and/or facility-specific EPDs is insufficient for setting benchmarks and thresholds unless production volumes are taken into account. Benchmarking and threshold setting efforts shall also consider that some manufacturer-average data and facility-specific data may be represented in Industry-average EPDs and may result in double counting of the same data.



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