ENVIRONMENTAL PRODUCT DECLARATION

HOT-ROLLED STRUCTURAL STEEL SECTIONS

In accordance with ISO 14025 and ISO 21930:2017
NUCOR-YAMATO STEEL – A NUCOR COMPANY

NUCOR®
NUCOR-YAMATO STEEL COMPANY

Nucor Corporation (Nucor) is North America's most diversified steel and steel products company specializing in a wide variety of products, including hot-rolled structural steel sections (Beam) produced at Nucor-Yamato Steel facility (the facility). Nucor-Yamato Steel manufactures a wide range of hot-rolled rolled structural steel sections products. The facility, along with another beam facility Nucor Steel Berkely, has the capacity to produce up to 3,250,000 tons of wide-flange steel beams, pilings, and heavy structural steel products for fabricators, construction companies, manufacturers, and steel service centers.

Nucor beam product for this EPD is manufactured at the Nucor-Yamato Steel facility in Blytheville, AR and is made from steel which is melted and rolled in the United States and sourced from Nucor Electric Arc Furnace (EAF) steel mills. Nucor is North America's largest steel producer and recycler, turning approximately 20.6 million net tons of scrap steel in 2023 into new steel. Nucor uses Electric Arc Furnace (EAF) technology at each of its steel recycling facilities. Unlike traditional blast furnace steelmaking—which produces more than 70% of the world's steel using mined iron ore and metallurgical coal as feedstock—EAFs use post-consumer scrap as their major feedstock.

SmartEPD-2025-105-0717-01

Date of Issue	Expiration date	Last updated
Dec 19, 2025	**Dec 19, 2030**	**Dec 19, 2025**

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

General Information

Nucor Corporation

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Product Name:	Nucor-Yamato Hot-Rolled Structural Steel Sections
Declared Unit:	1 metric ton
Declaration Number:	SmartEPD-2025-105-0717-01
Date of Issue:	December 19, 2025
Expiration:	December 19, 2030
Last updated:	December 19, 2025
EPD Scope:	Cradle to gate A1 - A3
Market(s) of Applicability:	North America

General Organization Information

Nucor Corporation (Nucor) is North America's most diversified steel and steel products company specializing in a wide variety of products. This environmental product declaration (EPD) represents hot-rolled structural steel sections (beam) produced by Nucor-Yamato Steel Facility located in Blytheville, Arkansas. As a vertically integrated company, Nucor controls a large and growing part of its supply chain from scrap recycling to raw steelmaking to steel products and distribution. Nucor-Yamato Steel utilizes electric arc furnace (EAF) steel recycling technology. All steel produced by Nucor is 100% recyclable at the end of its useful life.

For production of the raw steel used in Nucor's steel mills, Nucor uses scrap as its primary feedstock, which is largely provided by its wholly owned subsidiary, the David J. Joseph Company (DJJ). DJJ operates more than 60 scrap recycling facilities within close proximity to Nucor steel mills, processing approximately 5,000,000 tons of ferrous scrap annually and providing an abundant supply of scrap to the steel mills. Having an abundant and reliable supply of recycled scrap within close proximity gives Nucor's steel mills a logistics and economic advantage over their competitors.

Further information can be found at: https://nucor.com

Limitations, Liability, and Ownership

Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity.EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc.

Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact.

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.

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.

This declaration was independently verified in accordance with ISO 14025: 2006. The Smart EPD Part A Product Category Rules (PCR) for Building and Construction Products and Services, Smart EPD, Standard 1000, Version 1.2. March 14, 2025, in conformance with ISO 21930:2017, serves as the core PCR, with additional considerations from the USGBC/UL Environment Part A Enhancement (2017). EPDs are only comparable if they conform with ISO 21930, the same sub-category PCR, include all relevant information modules and are based on equivalent scenarios with respect to the construction works context.

Ownership: The EPD owner has sole ownership, liability, and responsibility for the EPD. A manufacturer shall not make claims based on an industry-average EPD which leads the market to believe the industry-average is representative of manufacturer-specific or product-specific results.

Reference Standards

Standard(s):	ISO 14025 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:	McKay Quinn | mquinn@trinityconsultants.com
EPD Program Operator:	Smart EPD | info@smartepd.com | www.smartepd.com 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 Brandie Sebastian | brandie@bsebastianconsulting.com Independent external verification of EPD, according to ISO 14025 and reference PCR(s): External Brandie Sebastian | brandie@bsebastianconsulting.com

Product Information

Declared Unit:	1 metric ton
Mass:	1000 kg
Product Specificity:	✗ Product Average
	✓ Product Specific
Supply Chain Specific Data:	58 %

Product Description

Nucor-Yamato Steel produces beam products, referred to as beams in the balance of this EPD. The manufacturing processes for beam products utilize beam with at least 82% of scrap steel as raw materials and displace traditional carbon source charge carbon with used tire crumbs.

Beams are used in building, bridge, and industrial products. These products are rolled shapes such as wide-flange sections, angles, channels and tees that are detailed, cut, drilled, bolted, welded, and otherwise processed at the fabricator in order to prepare them for installation.

Nucor-Yamato Steel uses a special continuous casting method that produces a beam blank closer in shape to that of the finished beam than traditional methods. Structural steel products come in standard sizes and grades, which allows Nucor to maintain inventory levels of these products to meet customers' expected orders.

Further information can be found at:https://assets.ctfassets.net/aax1cfbwhqog/2VW0pwAVol8zOys8T7QpJV/3c08ef346bde81761c9619d111a2d05e/Recycled_Content_2024

Product Specifications

Product Classification Codes:	UNSPSC - 30103618
	Masterformat - 05 12 00 Structural Steel Framing
	Masterformat - 05 12 13 Architecturally-Exposed Structural Steel Framing
	Masterformat - 05 12 23 Structural Steel for Buildings
	EC3 - Steel -> StructuralSteel -> HotRolledSections
System boundary option:	Mill product (Option 1)
Options:	✓ EAF
Steel Type:	Carbon/Alloy
Options:	✓ Hot-Rolled Sections

Table 1. Material Composition

Material/Component Category	Origin	% Mass
Boron	GLO	<0.9%
Carbon	GLO	<1.2%
Chromium	GLO	0.01%-1.2%
Manganese	GLO	0.2%-2%
Silicon	GLO	0.6%
Iron	US	Balance

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

EPD Data Specificity

Primary Data Year: 2024

Manufacturing Specificity:

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

Averaging:

Averaging was not conducted for this EPD.

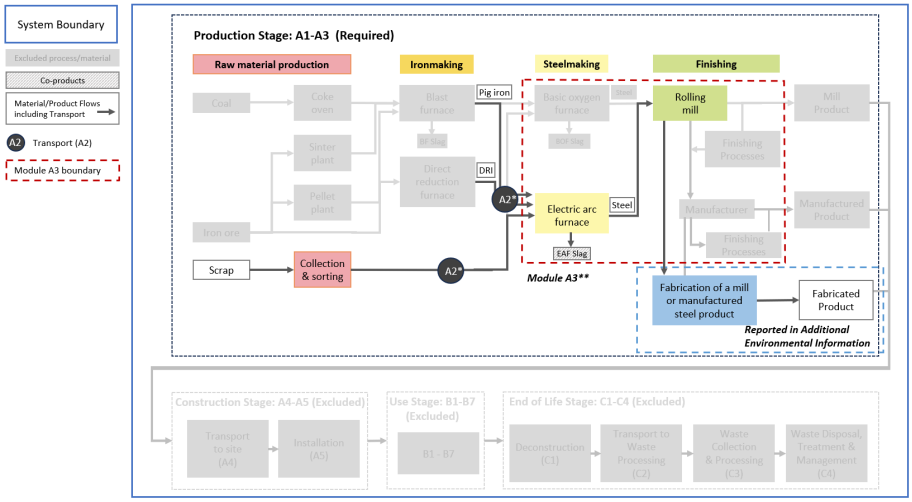
Table 2. System Boundary

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

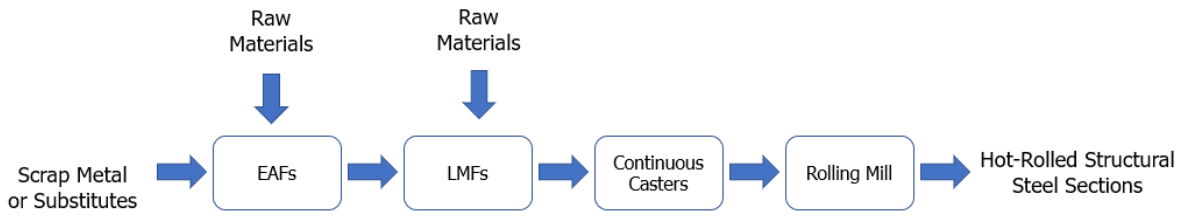


Source: Smart EPD PCR Part B (2025)
Notes: Each unit process shall account for resource inputs (fuels, electricity, water, materials, etc) and emissions to air/land/water, wastes and co-products, if relevant
* A2 transportation is represented by any black arrow that crosses A1 / A3 boundary.
** Processes 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

Plants

Nucor-Yamato Steel
5929 State Highway 18, Blytheville, Arkansas 72315, USA

Product Flow Diagram



Nucor-Yamato Steel uses EAF technology to produce steel from recycled scrap metal or scrap substitutes. Scrap metal or scrap substitutes are received via rail, truck and/or barge and are inspected and sorted into piles located within the on-site scrapyard. Scrap or scrap substitutes are moved from the scrapyard via trucks to the scrap buckets located in the melt shop. Scrap buckets are picked up using an overhead charging crane and dumped into the top of the EAFs.

Once the EAFs are charged with scrap, electric current is applied via large electrodes made of graphite or other high carbon material to melt the raw materials. Other raw materials are introduced to assist the melting process. Once the ideal melt conditions have been reached, ladles are placed at the tapping side of the EAFs, the furnaces are de-energized, and the molten steel is poured into the ladles. The ladles transport the molten steel to a ladle metallurgy furnace (LMF) which promotes a more homogeneous mixture. Additional additives may include various metal alloys to achieve the desired composition and steel grade of the final steel product.

The molten steel is then transported to casters where the steel begins to cool and solidify into blooms. The steel blooms are then directly charged into the reheat furnace or stored for future reheating and run through the rolling mill, from which they are output as steel beam. Metal scrap generated during manufacturing is recycled internally.

Steel is transported via rail, barge, or truck from Nucor-Yamato Steel to various types of customers, including downstream fabrication facilities. At these facilities, the steel is cut, rolled, or bent before being sold to consumers. Finished steel is also sold to distributors for consumer use.

Software and Database

LCA Software:	CarbonGraph v. 2025.11.11.p02
LCI Foreground Database(s):	US LCI v. FY21.Q3.01 | US | Cut-off | Ecoinvent v. 3.9.1 | US, RNA, GLO, RoW | Cut-off
LCI Background Database(s):	US LCI v. FY21.Q3.01 | US | Cut-off | Ecoinvent v. 3.9.1 | US, RNA, GLO, RoW | 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

Production data has been collected by Nucor directly from the production site. The beam product uses the average values from Calendar Year 2024 (12 consecutive months of averaged data as required for manufacturer-specific datasets). The data has been measured and verified internally. The data is assumed to be the most relevant according to current conditions and production practices. Some background data was 10 or greater years old when a more recent dataset was not available for which other data quality parameters were appropriately representative. This might affect the representativeness of the data. The reported impact assessment values in this EPD may not be a precise representation of potential environmental burdens.

Per the ACLCA Guidance for Determining EPD Types and Calculating and Communicating Data Specificity Through the Supply Chain v1, this EPD is facility-specific and product-specific. Supply-chain-specificity = 58%.

Table 3. Data Sources

Input / Unit Process	Sub-Categories	Origin of Material or Process	LCI data source reference
Coal	ND	RNA	Ecoinvent 3.9.1 - hard coal mine operation and hard coal preparation
Lime	ND	RoW	Ecoinvent 3.9.1 - quicklime production, milled, loose
Ferroalloys	Ferro-chrome	RoW	Ecoinvent 3.9.1 - ferrochromium production, high-carbon, 68% Cr
Ferroalloys	Ferro-silicon	RoW	Ecoinvent 3.9.1 - ferrosilicon production
Ferroalloys	Ferro-manganese	RoW	Ecoinvent 3.9.1 - ferromanganese production, high-coal, 74.5% Mn
Ferroalloys	Ferro-molybdenum	RoW	Ecoinvent 3.9.1 - ferroniobium production, from pyrochlore concentrate, 66% Nb
Pig iron	Pig iron	RoW	Ecoinvent 3.9.1 - pig iron production
Pig iron	Charcoal-based Pig Iron	Brazil	Scenario 4 - (Leão, 2023) and Ecoinvent 3.9.1 - pig iron production
Sponge iron	Hot Briquetted Iron	USA	Nucor third-party verified DRI LCA report, confidential primary data
Steel scrap processing	ND	RoW	Ecoinvent 3.9.1 - sorting and pressing of iron scrap
Grid electricity - delivered	Grid Mix	USA - SRMV	US EPA - eGrid 2023 Revision 2
Grid electricity - delivered	Electricity -biomass	USA	NREL/USLCI v1.2025-03.0- Electricity - BIOMASS - Southwest Power Pool
Grid electricity - delivered	Electricity - coal	USA	NREL/USLCI v1.2025-03.0- Electricity - COAL - Southwest Power Pool
Grid electricity - delivered	Electricity - HFO	USA	NREL/USLCI v1.2025-03.0- Electricity - OIL - Southwest Power Pool
Grid electricity - delivered	Electricity - hydro	USA	NREL/USLCI v1.2025-03.0- Electricity - HYDRO - Southwest Power Pool
Grid electricity - delivered	Electricity - natural gas	USA	NREL/USLCI v1.2025-03.0- Electricity - GAS - Southwest Power Pool
Grid electricity - delivered	Electricity - nuclear	USA	NREL/USLCI v1.2025-03.0- Electricity - NUCLEAR - Southwest Power Pool
Grid electricity - delivered	Electricity - photovoltaic	USA	NREL/USLCI v1.2025-03.0- Electricity - SOLAR - Southwest Power Pool
Grid electricity - delivered	Electricity - wind	USA	NREL/USLCI v1.2025-03.0- Electricity - WIND - Southwest Power Pool
Grid electricity - delivered	Electricity - unspecified	USA	NREL/USLCI v1.2025-03.0- Electricity; at grid; generation mix - Southwest Power Pool
Fuels (natural gas, biogas, diesel, hydrogen, etc.) - extraction, processing, transport, combustion/use	Natural gas	USA	Ecoinvent 3.9.1 - market for natural gas, high pressure
Fuels (natural gas, biogas, diesel, hydrogen, etc.) - extraction, processing, transport, combustion/use	Gasoline	RoW	Ecoinvent 3.9.1 - petrol production, unleaded, petroleum refinery operation
Fuels (natural gas, biogas, diesel, hydrogen, etc.) - extraction, processing, transport, combustion/use	Diesel	RoW	Ecoinvent 3.9.1 - diesel production, petroleum refinery operation
Fuels (natural gas, biogas, diesel, hydrogen, etc.) - extraction, processing, transport, combustion/use	Propane	GLO	Ecoinvent 3.9.1 - propane, burned in building machine
Transportation	Truck	USA	NREL/USLCI v1.2025-03.0- Transport, combination truck, diesel powered, South
Transportation	Train	USA	NREL/USLCI v1.2025-03.0- Transport, train, diesel powered
Transportation	Ship	GLO	NREL/USLCI v1.2025-03.0- Transport, ocean freighter, average fuel mix

Transportation	Barge	USA	NREL/USLCI v1.2025-03.0- Transport, barge, average fuel mix
Fabrication (including fabrication overage rate that determines the quantity of inputted unfabricated steel product in A1; transport to fabricator impacts (A2); and fabrication operations impacts (A3))	ND	USA/Canada	AISC EPD - "Fabrication Process for Structural Steel", published October 15, 2025

Life Cycle Module Descriptions

A1: Manufacture/Extraction of raw materials or secondary materials including Scrap processing, Pig Iron, Hot Briquetted Iron, Quicklime, Burnt Dolomite, Coal, Charge Carbon, Anthracite, Electrodes, Used tires processing, Aluminum, Calcium Carbide, Ladle Carbon, Copper, Ferro-Chromium, Ferro-Manganese, Ferro-Silicon, Fluorspar, Nickel, and Silicon Manganese.

A2: Truck, Barge, Ship, and Rail Transport of raw materials and other inputs to Nucor-Yamato Steel, the short and long backhauls are also considered per PCR Part B.

A3: Steelmaking and finishing processes including: Generation of electricity used in manufacturing. Production of ancillary materials including Oxygen Gas, Nitrogen Gas, Argon Gas, Tap Water and Groundwater. Production of fuels including Diesel, Liquefied Petroleum Gas, and Gasoline. Waste generated in the manufacturing and its transportation including Non-Hazardous Waste, Hazardous Waste, Slag, Mill Scale, Baghouse Dust, Recycled Waste, and Process Water Discharge. Unit processes including Electric Arc Furnaces, Ladle Metallurgy Furnaces, and Rolling Mill.

LCA Discussion

Allocation Procedure

Per ISO 21930 and the PCR, this is an attributional LCA and as such, no allocation using system expansion was performed. Allocation of background data taken from the Ecoinvent database and the Federal LCA Commons database is documented online. No allocation was conducted for recycling occurring at the facility, and there are no reuse or energy recovery operations occurring at Nucor-Yamato Steel.

Nucor-Yamato Steel uses external scrap and home scrap as raw materials for the EAF to produce beam. In accordance with ISO 21930's polluter pays principle, external scrap used by Nucor-Yamato Steel carries no upstream material processing impact burden because the burden is associated with the producer of the steel scrap. Per PCR Part B, external scrap is modeled as a secondary material with only impacts associated with scrap processing and transportation from the steel scrap provider to Nucor-Yamato Steel. Any home scrap processing conducted at Nucor-Yamato Steel is assumed to be accounted for in the facility-wide material and energy usages detailed in Section 5.4. Therefore, home scrap is modeled as a secondary material with no additional impacts. There are no expected changes to the inherent properties of recycled materials such as external scrap and home scrap.

The Nucor-Yamato Beam EAF produces steel and slag. All slag is sold as-is. Steel continues onto the LMF and rolling mill to be rolled into beam. Per ISO 21930 Sections 3.4.8 and 7.2.5.2, steel slag meets the definition of a co-product, and the production of steel slag is a joint co-production process. Therefore, this study allocated the environmental burden upstream of the rolling mill between the slag and steel. Per PCR Part B and Worldsteel Association methodology, the steel production process is a thermodynamic system requiring energy to drive production processes; therefore, the energy associated with the mass flows and chemical reactions of the co-products should be the basis for the partitioning of the flows between the coproducts. Nucor performed a slag-related energy analysis in accordance with this methodology for a representative Nucor mill to determine slag allocation for applicable flows. The results of the representative Nucor mill study were applied to Nucor - Yamato Steel.

Nucor-Yamato Steel produces mill scale which is sold as a co-product from the facility. Per PCR Part B, all other co-products besides slag should use the cut-off approach and should not be assigned a share of the steelmaking impacts until a consensus-based methodology is published. Therefore, this LCA allocated no impact to mill scale.

Cut-off Procedure

According to the PCR, processes contributing greater than 1% of the total environmental impact indicator for each impact are included in the inventory. In cases where no matching life cycle inventories were available to represent a flow, proxy data were applied based on conservative assumptions regarding environmental impacts. Due to the lack of primary data, no packaging was included in the study. According to the AISC LCA report for hot-rolled structural steel sections published in March 2025, packaging appears to be a minor contribution across the total impact categories and is composed of multiple mass input streams. Accordingly, it is our assumption that each packaging material will fall below the applicable cut-off thresholds.

No data gaps were allowed which were expected to significantly affect the outcome of the indicator results. No other known flows are deliberately excluded from this EPD.

The mass input of each of these omitted streams is less than 1% of the total mass input streams for their respective unit processes and the cumulative mass input of all of the omitted streams is less than 5% of the total mass input streams. Further, only the raw material processing impacts of those streams have been cut off which meet the above criteria and for which no representative processes were identified in CarbonGraph software. For wastewater chemicals, none of the impacts were included in the LCA if the chemicals were below the cut-off threshold. Therefore, no data gaps were allowed which were expected to significantly affect the outcome of the indicator results.

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

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	Method	Unit	A1	A2	A3	A1 - A3
GWP-total	IPCC AR6 GWP 100	kg CO2 eq	2.75e+2	1.22e+2	5.26e+2	9.22e+2
GWP-fossil	IPCC AR6 GWP 100	kg CO2 eq	2.74e+2	1.22e+2	5.25e+2	9.21e+2
GWP-biogenic	IPCC AR6 GWP 100	kg CO2 eq	3.92e-1	2.21e-3	1.05e+0	1.44e+0
GWP-luluc	IPCC AR6 GWP 100	kg CO2 eq	1.96e-1	2.69e-3	1.47e-2	2.13e-1
ODP	TRACI 2.2	kg CFC 11 eq	5.01e-6	2.91e-7	3.43e-6	8.73e-6
AP	TRACI 2.2	kg SO2 eq	1.23e+0	3.53e-1	9.76e-1	2.56e+0
EP-freshwater	TRACI 2.2	kg P eq	1.26e-1	5.86e-4	4.05e-3	1.31e-1
EP-marine	TRACI 2.2	kg N eq	8.28e-1	1.01e-1	3.72e-1	1.30e+0
SFP	TRACI 2.2	kg O3 eq	2.26e+1	9.58e+0	2.25e+1	5.47e+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.

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.

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, 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 Indicators

per 1 metric ton of product.

Indicator	Unit	A1	A2	A3	A1 - A3
RPRE	MJ, LHV	6.15e+0	0	0	6.15e+0
RPRM	MJ, LHV	0	ND	ND	0
RPRT	MJ, LHV	6.15e+0	0	0	6.15e+0
NRPRE	MJ, LHV	2.95e+3	0	0	2.95e+3
NRPRM	MJ, LHV	1.17e+3	ND	ND	1.17e+3
NRPRT	MJ, LHV	4.12e+3	0	0	4.12e+3
SM	kg	1.07e+3	ND	0	1.07e+3
RSF	MJ, LHV	ND	ND	0	0
NRSF	MJ, LHV	ND	ND	0	0
RE	MJ, LHV	ND	ND	0	0
ADPF	MJ, LHV	6.26e+3	4.77e+1	5.02e+3	1.13e+4
FW	m3	7.25e-1	0	6.29e-1	1.35e+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
HWD	kg	2.59e-5	ND	4.55e-4	4.81e-4
NHWD	kg	7.58e-2	ND	4.74e+0	4.82e+0
HLRW	kg	1.12e-6	0	0	1.12e-6
ILLRW	kg	0	0	0	0
CRU	kg	ND	ND	ND	ND
MFR	kg	1.05e-4	ND	1.12e+1	1.12e+1
MER	kg	ND	ND	0	0
EE	MJ, LHV	ND	ND	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.

Table 7. Carbon Emissions and Removals

per 1 metric ton of product.

Indicator	Unit	A1	A2	A3	A1 - A3
BCRP	kg CO2	ND	ND	ND	ND
BCEP	kg CO2	5.64e+0	ND	ND	5.64e+0
BCRK	kg CO2	ND	ND	ND	ND
BCEK	kg CO2	ND	ND	ND	ND
BCEW	kg CO2	ND	ND	ND	ND
CCE	kg CO2	ND	ND	ND	ND
CCR	kg CO2	ND	ND	ND	ND
CWNR	kg CO2	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:

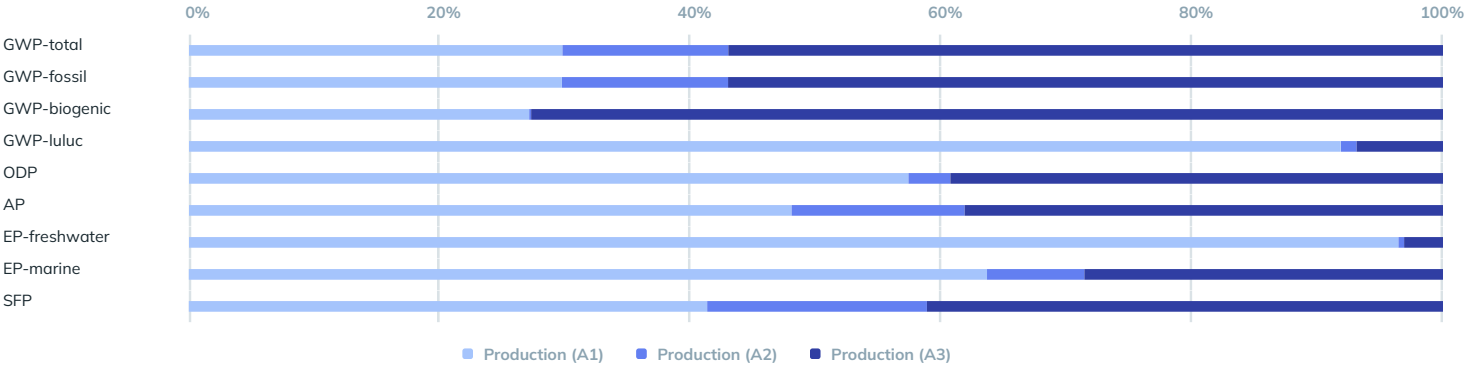
BCRP = Biogenic Carbon Removal from Product, BCEP = Biogenic Carbon Emission from Product, BCRK = Biogenic Carbon Removal from Packaging, BCEK = Biogenic Carbon Emission from Packaging, BCEW = Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes, CCE = 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.

Nucor has a contract with its charcoal-based pig iron suppliers that requires that source forests meet international forestry standards acceptable for the accounting of biogenic carbon under SASB Standards, the GHG protocol, or an acceptable equivalent and that producers must provide documentation demonstrating charcoal meets international forestry standards. Documentation must include a certificate of compliance with international forestry standards from a third-party verifier or equivalent approved by Nucor. The SASB Forestry Management Sustainability Accounting Standard includes certifications that are consistent with those outlined in ISO 21930 that would be applicable to wood products sourced by Nucor. Nucor has a dedicated legal team that collects and confirms that the data and charcoal-based pig iron meet the necessary requirements and terms of the contracts.

Interpretation

The impact assessment results indicate that Module A3, i.e. manufacturing, which includes purchased electricity, on-site natural gas and other fuels combustion, and facility emissions, is the largest contributor to key potential environmental impact categories for Global Warming Potential-Total, Global Warming Potential-Fossil, and Global Warming Potential-Biogenic. Module A1, i.e. raw material procurement is a key contributor to Global Warming Potential-Land Use and Land Use Change, Ozone Depletion Potential, Eutrophication Potential, Acidification Potential, and Smog Formation Potential. Module A2, i.e. transport to manufacturer, is not the most significant contributor to any impact category.

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.



Additional Environmental Information

Health and Safety
Refer to the specific Nucor product SDS for health, safety, and proper handling information.[1]

Safety
Four Nucor divisions employ the American National Standards Institute (ANSI) Z-10 Occupational Health and Safety Management System. And four others participate in the OSHA Series (OSHAS) 45001 Divisions (Nucor Steel Seattle, Berkeley, Marion, Utah). ANSI Z-10 is audited to best practices and in safety and health. OSHAS 45001 is an international safety and health system that provides a framework to promote better safety and health systems.

Environmental Activities and Certifications
Certain additional environmental activities and certifications are discussed in the following subsections. More information on Nucor's certifications and environmental initiatives can be found at nucor.com/esg and www.nucor.com/.

ISO 14001:2015 Environmental Management System
The environmental performance of Nucor's steel mills focuses on continuous improvement through internal and external training, application of new technologies and how data and results are communicated. To provide a framework for Nucor teammates to follow, Nucor utilizes ISO 14001, which is the international standard that establishes specific requirements for an effective environmental management system (EMS). Nucor-Yamato Steel is certified to ISO 14001.

Sustainability
For more than 50 years, Nucor has been making steel using an electric arc furnace (EAF) that melts recycled scrap and turns it into new steel. EAFs are less energy intensive and more energy efficient than traditional blast furnace steel making.[2]

Currently, Nucor accounts for more than 25% of the United States' steel production, but only accounts for 8% of the domestic steel industry's greenhouse gas emissions. Nucor is also committing to a 35% combined reduction in its steel mill Scope 1 and Scope 2 greenhouse gas intensity by 2030, measured against a 2015 baseline.

In November 2022, Nucor, along with five other international steel manufacturers, formed a new coalition to establish and promote a global steel standard that leads toward a cleaner, lower GHG future. This coalition, named the Global Steel Climate Council (GSCC), is a nonprofit association dedicated to sharing best practices, establishing standards, and advocating for carbon emissions reductions by members of the steel industry.

The specific purposes of the GSCC include supporting technology-agnostic reduction methods that reduce greenhouse gas emissions from the global steel industry; creating a system boundary that includes Scope 1, 2, and 3 emissions; and adopting a science-based glidepath to achieve a 1.5 degrees Celsius (1.5C) scenario by 2050.

In alignment with the Global Steel Climate Council's (GSCC) Steel Climate Standard and the International Energy Agency's Net Zero by 2050: A Roadmap for the Global Energy Sector, Nucor is steadfast in its commitment to achieving a net-zero greenhouse gas (GHG) target by 2050. This ambitious target, defined by science-based criteria, aligns with the Paris Agreement's efforts to limit global temperature rise to less than 1.5 degrees Celsius (1.5C) above pre-industrial levels.

Recycled Materials Content
Nucor uses recycled scrap to make high-quality steel with low emissions. Nationwide, in 2024 Nucor Beam products were made from an average of 81.6% recycled content. Nucor Yamato uses at least 82% of scrap in their steel raw materials[3].

Globally, only 26.3% of the more than 2 billion net tons of steel produced in 2020 was made by recycling scrap in EAFs. Scrap inputs for the total crude steel production globally have remained at around 35% since 2013.

Waste and Water Recycling
EAFs, including the Nucor-Yamato Steel mill, emit small amounts of particulate matter and Nucor recycles 99% of the EAF dust it collects in its baghouses. Nucor also recognizes that water is a critical natural resource and is essential to Nucor and the communities in which it operates. Nucor has worked extensively to improve water use efficiency in its processes.

Nucor also participates in the Network for Business Innovation and Sustainability (NBIS) By-Product Synergy Group. This NBIS group brings together environmental experts from a wide variety of industries to allow them to compare waste streams and find ways to divert materials from landfills.

Environmental Training
In 2015, Nucor established Nucor Environmental University (NEU), an online training platform for Nucor teammates with environmental responsibilities and others looking to expand their involvement with the environmental team. From the beginning, Nucor designed this program to help teammates develop a thorough and meaningful understanding of environmental compliance. NEU has had over 1,000 active users since its inception and Nucor teammates have completed at least 10,000 environmental training courses, passed over 6,600 training exams, and helped develop dozens of courses. Because of NEU, Nucor's teammates are better prepared to meet the demands of environmental compliance and achieve Nucor's goal of being a sustainable organization.

[1] https://nucor.com/certifications#sds Bar/Beam-Merchant, Rebar & Structural
[2] Changes in steel production reduce energy intensity - U.S. Energy Information Administration (EIA)
[3] Nucor - 2024 Recycled Content Averages for Nucor Steel Mill Products.

Table 8. Environmental Activities and Certifications

Certification
ISO 14001:2015

Further Information

Fabrication

Per PCR Part B Section 8.2.1, EPDs for mill products where fabrication results are included shall provide aggregated production and fabrication impacts in the Additional Environmental Information section of the EPD. When using industry average fabrication impacts for A1, A2, and A3 modules, these impacts may not be modified in any way and shall be used as reported by the representative industry association.

- A1 shall reflect the aggregated A1, A2 and A3 values of the primary product table adjust for the material overages associated with the fabrication activity. For this LCA, the A1 value reflects the industry average percentage of material overage needed to produce one metric ton of fabricated product. For beam, an average of 1.0771 metric tons of mill product is required to yield one metric ton of fabricated product in 2021 per PCR Part B Annex F. A1 = (mill product aggregated A1, A2 and A3) * (1 + A1 percentage shown in fabrication process EPD).

- A2 shall reflect the transportation distance from the mill or manufacturer to the fabrication facility. For this LCA, these impacts were taken directly from industry average transportation data published by the recognized industry association for that product per PCR Part B Annex D.

- A3 shall be the impacts of the fabrication process. For this LCA, these impacts were taken directly from industry average fabrication data published by the recognized industry association for that product per PCR Part B Annex D.

Fabricated Beam Product Results

The following tables contain results related to fabrication that are not part of the underlying LCA, LCI and additional module-based data for this product. Fabrication impacts were taken directly from published industry-averages available at the time of the publication of this EPD.

The reported fabricated product results are based on industry-average fabrication impacts. Actual impacts for fabricated products vary depending on the particular project and its fabrication demands. EPDs published using this PCR do not include post-fabrication processes, including, but not limited to, epoxy coating, painting, and galvanization.

Environmental Impact Assessment Results (per metric ton of fabricated product)

LCIA Method	Impact Category	Unit	A1 - A3	A1	A2	A3
IPCC AR6 GWP 100	GWP-total	kg CO2 eq	1.10E+03	9.93E+02	2.62E+01	8.24E+01
IPCC AR6 GWP 100	GWP-fossil	kg CO2 eq	1.10E+03	9.92E+02	2.62E+01	8.23E+01
IPCC AR6 GWP 100	GWP-biogenic	kg CO2 eq	1.60E+00	1.55E+00	1.85E-03	4.27E-02
IPCC AR6 GWP 100	GWP-luluc	kg CO2 eq	2.86E-01	2.30E-01	1.71E-03	5.48E-02
TRACI 2.2	ODP	kg CFC 11 eq	1.07E-05	9.40E-06	5.41E-07	7.72E-07
TRACI 2.2	AP	kg SO2 eq	3.07E+00	2.76E+00	9.89E-02	2.15E-01
TRACI 2.2	EP-freshwater	kg P eq	1.41E-01	1.41E-01	0.00E+00	0.00E+00
TRACI 2.2	EP-marine	kg N eq	1.62E+00	1.40E+00	1.13E-01	1.08E-01
TRACI 2.2	SFP	kg O3 eq	6.44E+01	5.89E+01	2.77E+00	2.70E+00

Resource Use Indicators (per metric ton of fabricated product)

Indicator	Unit	A1 - A3	A1	A2	A3
RPRE	MJ, LHV	1.58E+02	6.62E+00	1.11E+00	1.50E+02
RPRM	MJ, LHV	0.00E+00	0.00E+00	N/A	N/A
RPRT	MJ, LHV	1.58E+02	6.62E+00	1.11E+00	1.50E+02
NRPRE	MJ, LHV	5.14E+03	3.18E+03	5.03E+02	1.46E+03
NRPRM	MJ, LHV	1.26E+03	1.26E+03	N/A	N/A
NRPRT	MJ, LHV	6.40E+03	4.44E+03	5.03E+02	1.46E+03
SM	kg	1.15E+03	1.15E+03	N/A	0.00E+00
RSF	MJ, LHV	0.00E+00	N/A	N/A	0.00E+00
NRSF	MJ, LHV	0.00E+00	N/A	N/A	0.00E+00
RE	MJ, LHV	0.00E+00	N/A	N/A	0.00E+00
ADPF	MJ, LHV	1.38E+04	1.22E+04	5.06E+02	1.13E+03
FW	m3	1.84E+00	1.46E+00	5.51E-03	3.72E-01

Waste and Output Flow Indicators (per metric ton of fabricated product)

Indicator	Unit	A1 - A3	A1	A2	A3
HWD	kg	4.60E-03	5.18E-04	N/A	4.08E-03
NHWD	kg	1.75E+01	5.19E+00	N/A	1.23E+01
HLRW	kg	1.20E-06	1.20E-06	0.00E+00	0.00E+00
ILLRW	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CRU	kg	N/A	N/A	N/A	N/A
MFR	kg	8.92E+01	1.21E+01	N/A	7.71E+01
MER	kg	0.00E+00	N/A	N/A	0.00E+00
EE	MJ, LHV	0.00E+00	N/A	N/A	0.00E+00

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