



XCarb™

Recycled and renewably produced

Declaration Owner

ArcelorMittal Europe – Long Products

Luxemburgish production site AMBD
66, rue de Luxembourg
L-4221 Esch-sur-Alzette (Luxembourg)
<https://sheetpiling.arcelormittal.com/> | sheetpiling@arcelormittal.com

Product:

Hot-rolled Steel Sheet Piles

Declared Unit

The declared unit is one (1) metric ton

EPD Number and Period of Validity

SCS-EPD-09981
EPD Valid March 5, 2024 through March 4, 2029


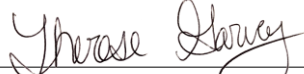
Product Category Rule

UL Product Category Rule (PCR) Guidance for Building-Related Products and Service, Part A: Life Cycle Assessment Calculation Rule and Report Requirements. Version 4.0 March 2022.
UL Product Category Rule (PCR) Guidance for Building-Related Products and Services, Part B: Designated Steel Construction Product EPD Requirements. Version 2.0. August 26, 2020.

Program Operator

SCS Global Services
2000 Powell Street, Ste. 600, Emeryville, CA 94608
+1.510.452.8000 | www.SCSglobalServices.com



Declaration owner:	ArcelorMittal Europe – Long Products																		
Address:	66, rue de Luxembourg, L-4221 Esch-sur-Alzette, Luxembourg																		
Declaration Number:	SCS-EPD-09981																		
Date of Issue:	March 5, 2024																		
Declaration Validity Period:	EPD Valid March 5, 2024 through March 4, 2029																		
Program Operator:	SCS Global Services, 2000 Powell Street, Ste. 600, Emeryville, CA 94608 USA																		
Declaration URL Link:	https://www.scsglobalservices.com/certified-green-products-guide																		
General Program Instructions:	SCS Type III Environmental Declaration Program: Program Operator Manual. V11.0																		
Product(s):	Hot-rolled Steel Sheet Piles (EcoSheetPile™ and EcoSheetPile™ Plus)																		
Declared Unit or Functional Unit:	One metric ton of Hot-rolled Steel Sheet Piles																		
Product's Intended Application and Use:	Unfabricated Structural Steel (Hot-rolled)																		
Product RSL (if applicable):	n/a																		
Markets of Applicability:	Global																		
EPD Type:	Product specific / Facility specific / Manufacturer specific																		
Dataset Variability:	n/a																		
EPD Scope:	Cradle to gate with options: production (A1-A3), C1-C4 and D																		
Year(s) of Reported Manufacturer Primary Data:	2021																		
LCA Software & Version Number:	LCA Sphera for Experts software, version 10.7.1.28																		
LCI Database(s) & Version Number:	MLC database & 2023.2																		
LCA Practitioner:	Leonardo Guimarães Ribeiro																		
Reference PCR:	ISO 21930:2017 serves as core PCR and UL Part A ; UL Product Category Rule (PCR) Guidance for Building-Related Products and Services, Part B: Designated Steel Construction Product EPD Requirements. Version 2.0. August 26, 2020.																		
Sub-category PCR review:	Tom Gloria, Industrial Ecology Associates; Brandie Sebastian, JBE Consultants; James Littlefield, Independent Consultant																		
Independent critical review of the LCA and data, according to ISO 14044 and the PCR:	<input type="checkbox"/> internal <input checked="" type="checkbox"/> external																		
LCA Reviewer:	 Tess Garvey, Ph.D., SCS Global Services																		
Independent verification of the declaration and data, according to ISO 14025 and the PCR:	<input type="checkbox"/> internal <input checked="" type="checkbox"/> external																		
EPD Verifier:	 Tess Garvey, Ph.D., SCS Global Services																		
Declaration Contents:	<table border="0"> <tr> <td>1. ArcelorMittal Europe – Long Products.....</td> <td>2</td> </tr> <tr> <td>2. Product.....</td> <td>2</td> </tr> <tr> <td>3. Methodological Framework.....</td> <td>4</td> </tr> <tr> <td>4. Technical Information and Scenarios.....</td> <td>9</td> </tr> <tr> <td>5. LCA: Results.....</td> <td>11</td> </tr> <tr> <td>6. LCA: Interpretation.....</td> <td>14</td> </tr> <tr> <td>7. Additional Environmental Information.....</td> <td>14</td> </tr> <tr> <td>8. References.....</td> <td>16</td> </tr> <tr> <td>9. Annex.....</td> <td>17</td> </tr> </table>	1. ArcelorMittal Europe – Long Products.....	2	2. Product.....	2	3. Methodological Framework.....	4	4. Technical Information and Scenarios.....	9	5. LCA: Results.....	11	6. LCA: Interpretation.....	14	7. Additional Environmental Information.....	14	8. References.....	16	9. Annex.....	17
1. ArcelorMittal Europe – Long Products.....	2																		
2. Product.....	2																		
3. Methodological Framework.....	4																		
4. Technical Information and Scenarios.....	9																		
5. LCA: Results.....	11																		
6. LCA: Interpretation.....	14																		
7. Additional Environmental Information.....	14																		
8. References.....	16																		
9. Annex.....	17																		

Disclaimers: An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication.

Conformity: This EPD conforms to ISO 14025:2006, and ISO 21930:2017.

Ownership: The EPD owner has the sole ownership, liability, and responsibility of the EPD.

Accuracy of Results: Due to PCR constraints, this EPD provides estimations of potential impacts that are inherently limited in terms of accuracy.

Comparability: Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of environmental performance of steel construction products using EPD information shall be based on the product's use and impacts at the construction works level, and therefore EPDs may not be used for comparability purposes when not considering the construction works energy use phase as instructed under this PCR. Full conformance with the PCR for designated steel products allows EPD comparability only when all stages of a life cycle have been considered, when they comply with all referenced standards, use the same sub-category Part B PCR, and use equivalent scenarios with respect to construction works. However, variation and deviations are possible.

1. ArcelorMittal Europe – Long Products

ArcelorMittal's strategy aims to maintain a long-term position as the world's leading steel and mining business, meet the world's rising demand for steel in a sustainable way while supporting the broader transition to a more circular, increasingly decarbonized economy, and deliver value to all stakeholders – including shareholders – throughout the cycle. As such, five strategic priorities are key to achieving these goals and driving sustainable value creation: Improve safety, Strategic growth, Decarbonization and sustainability leadership, Cost advantage, Consistent return.

ArcelorMittal Europe – Long Products operates 27 production sites in ten countries and is a leader in the manufacture of sections, sheet piles, rails, quality wire rod, rebars, and bars. ArcelorMittal is the world's largest supplier of cost-effective tailor-made steel foundation solutions, as well as the largest manufacturer of sustainable hot-rolled steel sheet piles. ArcelorMittal Sheet Piling is in charge of sales, marketing and promotion of hot rolled and cold formed steel sheet piles, HP bearing piles and steel tubes produced in its European mills, as well as accessories used for installation. Our journey towards becoming carbon neutral by 2050 is well underway. In line with the Paris Climate Goals and the European Green Deal, ArcelorMittal has also committed to reduce CO2 emissions in our European operations by 35% by 2030.

2. Product

2.1 PRODUCT DESCRIPTION



Steel sheet piles are rolled sections with interlocking joints (continuous throughout the entire length of the piece) on each edge to permit being driven edge-to-edge to form continuous walls for retaining earth or water. More specifically at ArcelorMittal, such steel sheet piles, when produced with 100 % scrap input in an electric arc furnace, are branded EcoSheetPile™. When combined with GoOs (Guarantees of Origin) from renewable sources that provide 100 % coverage for the electricity used to generate the product, the product is referred to as EcoSheetPile™ Plus. Hence, there is no difference in the production process for these 2 product-lines, besides the calculation method for renewable electricity. EcoSheetPile™ Plus is part of ArcelorMittal's XCarb® *Recycled and renewably produced* initiative.

The declaration covers the whole range of steel sheet piles produced in the Luxemburgish production site ArcelorMittal Belval & Differdange (AMBD): Z-type, U-type, straight-web and H-type. Sheet piling, as considered in this EPD, is a final product ready to be installed. This EPD is valid for hot-rolled steel sheet piles of trademarks EcoSheetPile™ and EcoSheetPile™ Plus of various grades and geometries as covered by following standards:

- European Standards: EN 10248-1, EN 10248-2;
- ASTM International: ASTM A6, ASTM A572, ASTM A690;
- Canadian Standard Association (CSA): G40.20/G.40/21 260W, 300W, 350W, 400W, 450W.

The sheet piles can also be delivered according to following ArcelorMittal mill specification: steel grade AMLoCor.

The main part of this EPD refers to LCIA results for EcoSheetPile™ (conventional grid mix), whereas the LCIA results for EcoSheetPile™ Plus (renewable electricity) can be found in the annex. The descriptive text generally refers to sheet piles.

2.2 PRODUCT SPECIFICATION

The product can be classified according to the following systems: UNSCPC and Construction Specification Institute (CSI)

- UNSCPC code: 30102803 (Steel pilings)
- CSI: 31 41 16.13 (Steel Sheet Piling)

2.3 FLOW DIAGRAM

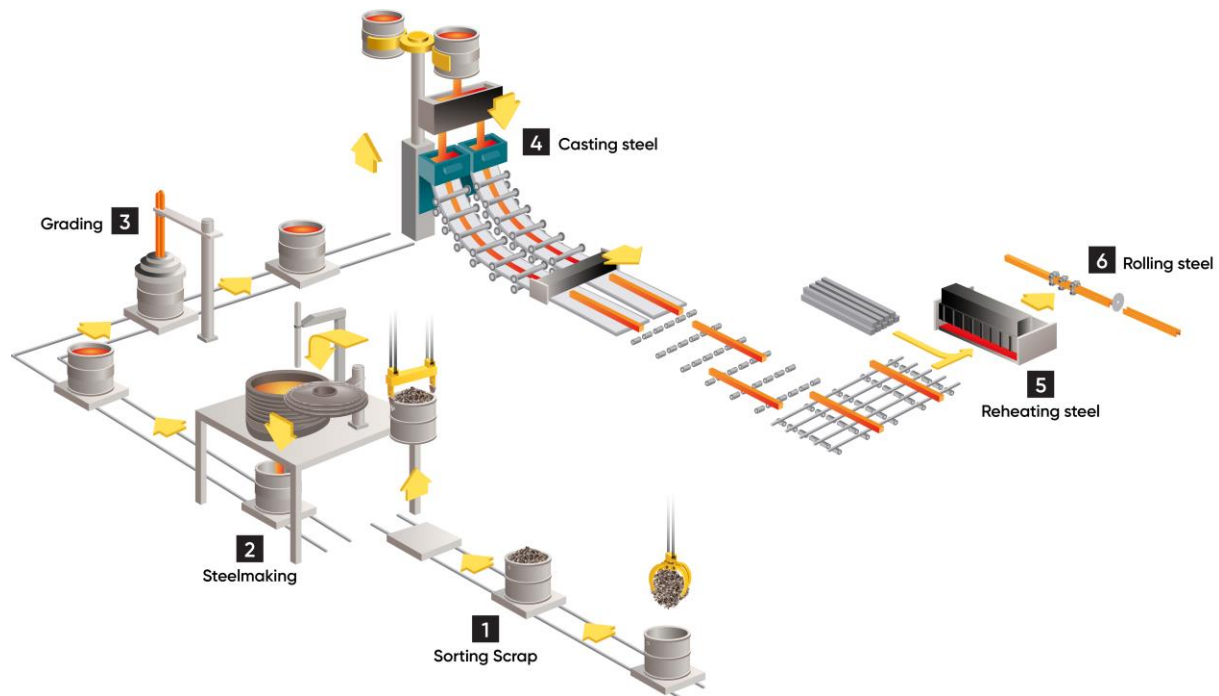


Figure 1: Production process of hot-rolled steel sheet piles

2.4 PRODUCT AVERAGE

This is a product specific EPD, from a single manufacturer, produced at one site, hence no average was used to produce the results.

2.5 APPLICATION

Hot-rolled steel sheet piles (such as EcoSheetPile™ and EcoSheetPile™ Plus) are used to build quite impervious retaining walls and cut-off walls, in permanent or temporary applications in the construction and infrastructure field. The main goal is to retain soil and/or water. Typical applications are quay walls, jetties, breakwaters, riverbanks, embankments, flood protection walls, locks, temporary cofferdams, retaining walls, underground car parks, basements, underpasses, bridge abutments, cut-off walls (polluted soils), pit excavations, a.o.

2.6 PROPERTIES OF DECLARED PRODUCT AS DELIVERED

The hot-rolled steel sheet piles, as covered by this EPD, are manufactured into a final shape by ArcelorMittal prior to shipment to a job site. Manufacturing steps such as crimping, pairing, milling or cutting of handling holes done in the mill are covered by this EPD. Steel Sheet Piles do not require packaging.

3. Methodological Framework

3.1 DECLARED UNIT

The declared unit used in this study is defined as one (1) metric ton of hot-rolled steel sheet piles.

3.2 SYSTEM BOUNDARY

Table 1. *Scope of the study*

Product			Construction		Use							End-of-life				Benefits and loads beyond the system boundary
A1	A2	A3	A4	A5	B1	B1	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw material extraction and processing	Transport to manufacturer	Manufacturing	Transport	Construction - installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, recovery and/or recycling potential
x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x

X = Module Included | MND = Module Not Declared

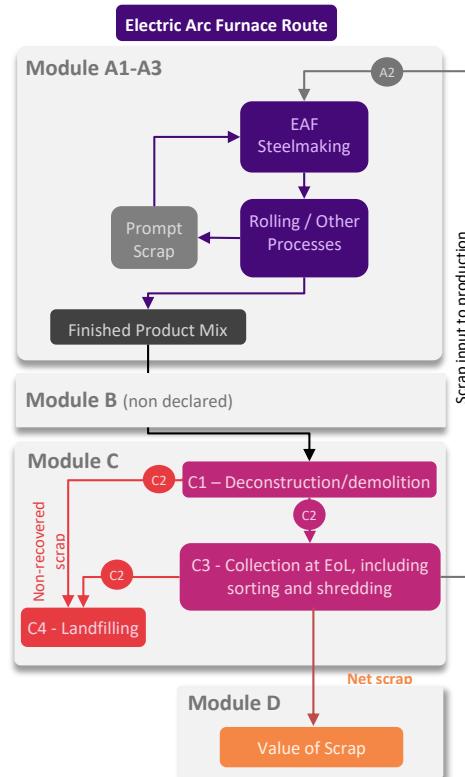


Figure 2: System Diagram

3.3 MODULE D

Module D is used for transparently reporting the additional benefits which result from the recycling or energy recovery at the end of life of the building product. For closed loop material recycling, as is mostly the case with metals, module D avoids any double crediting or counting because the substitution method calculations are based upon the net material flow only, i.e. the secondary material exiting the system boundary at the end of life, minus the secondary material already considered at the production stage. In the current model, external scrap that enters the product system is assumed to reach end of waste state after it has gone through a sorting and shredding process that takes place at demolition sites or waste processing facilities. Scrap emerging sorting and shredding meets the end of waste criteria, as it is a valuable commodity with a well-established existing market. After the collection and sorting stage, the demand for scrap input to the production is met by the amount of steel recycled (already sorted and shredded) at end-of-life. The steel scrap that is generated during production is reused directly in a cycle “loop”. This internally recycled process scrap is not used to calculate the potential environmental benefit or burden that is reported in Module D.

Depending on the product under study the corresponding LCA system boundaries might present a net surplus or deficit. Potential environmental benefits and burdens are given for the net scrap that is produced at the end of a final product’s life. This net scrap is determined as follows: $\text{Net scrap} = \text{Amount of steel recycled at end-of-life} - \text{Scrap input from previous product life cycles}$.

Interpreting the results in Module D: The values in Module D include a recognition of the benefits or impacts related to steel recycling which occur at the end of the product’s service life. The rate of steel recycling and related processes will evolve over time. The results included in Module D attempt to capture future benefits, or impacts, but are based on a methodology that uses current industry-average data reflecting current processes.

3.4 ALLOCATION

For the current product route, allocation was applied only in the Electric Arc Furnace process using the method developed by the worldsteel association and EUROFER, which is compliant with EN 15804 and ISO 21930:2017 standards.

The methodology is based on physical allocation and takes account of the manner in which changes in inputs and outputs affect the production of co-products and material flows that carry specific inherent properties. The method is deemed to provide the most representative partitioning of the processes involved.

For all background data used in the model, the standard allocation assumptions of the used datasets were maintained.

3.5 CUT-OFF RULES

The environmental impact of the product studied has been assessed by considering all significant processes, materials, and emissions contributing to more than 1% to the total impact categories included in the EPD. The production of capital equipment, facilities, and infrastructure required for manufacture has not been considered.

There are no known flows or process deliberately excluded.

3.6 DATA SOURCES

Data quality is compliant with ISO 14025:2006. All primary data were collected from ArcelorMittal production facilities. The sources of secondary data are the MLC database (Sphera) and are representative for the years 2018-2023.

Table 2. Data sources utilized in the LCA.

Flow	Dataset	Data Source	Publication Date
Raw Materials and Consumables			
Nickel	Nickel mix; ore mining and processing, roasting, reduction, magnetic separation; production mix, at plant; 99.9%	MLC 2023.2	2023
Aluminium Ingot	Aluminium ingot mix; primary production; consumption mix, to consumer; aluminium ingot product	MLC 2023.2	2023
Cooper	Copper mix (99,999% from electrolysis); from electrolysis; consumption mix, to consumer; 99,999% Cu	MLC 2023.2	2023
Ferro chrome	Ferro chrome high carbon, consumption mix; primary production; consumption mix, to consumer; 60 % chrome, high carbon	MLC 2023.2	2023
Ferro-manganese	Ferro-manganese, high-carbon (HC FeMn), 74 to 82 wt. % Mn, up to 7.5 wt % carbon; primary production; production mix, at plant; 74 to 82 wt. % Mn, up to 7.5 wt % carbon	MLC 2023.2	2023
Ferro Niobium	Ferro Niobium; pyrchlor ore mining and refining, carbothermic reduction and aluminothermic reduction; single route, at plant; 55% Ni2O5 share	MLC 2023.2	2023
Ferro-vanadium	Ferro-Vanadium; Primary production, ore mining and processing; production mix, at plant; 80% vanadium content	MLC 2023.2	2023
Ferro-silicon	Ferro silicon mix (90% Si); primary production, smelting furnace; production mix, at plant; 90%, silicon	MLC 2023.2	2023
Oxygen	Oxygen (gaseous); via cryogenic air separation; production mix, at plant; 1.429 kg/m ³ , 16.0 g/mol	MLC 2023.2	2023
Nitrogen	Nitrogen (gaseous); via cryogenic air separation; production mix, at plant; 1.250 kg/m ³ , 14.0 g/mol	MLC 2023.2	2023
Argon	Argon (gaseous); Linde process, cryogenic air fractionation; production mix, at plant; 40 g/mol	MLC 2023.2	2023
Metallurgical coke	Metallurgical coke; coke oven process, from hard coal; production mix, at plant; 29 MJ/kg net calorific value	MLC 2023.2	2023
Hard coal mix	Hard coal mix; technology mix; consumption mix, to consumer; 69% carbon content, 27 MJ/kg net calorific value	MLC 2023.2	2023

Flow	Dataset	Data Source	Publication Date
Petroleum coke	Petroleum coke at refinery; from crude oil; production mix, at refinery; 31 MJ/kg net calorific value	MLC 2023.2	2023
Lime	Lime (CaO; quicklime lumpy) (EN15804 A1-A3); technology mix; production mix, at plant; 3.37 g/cm ³ , 56.08 g/mol	MLC 2023.2	2023
Dolomite	Dolomite (ground); dolomite mining and milling; single route, at plant; 2.90 g/cm ³	MLC 2023.2	2023
Natural gas	Natural gas mix; technology mix; consumption mix, to consumer; medium pressure level (< 1 bar)	MLC 2023.2	2023
Process water	Process water from surface water; ion exchange, from surface water; single route, at plant; 1000 kg/m ³ , 18 g/mol	MLC 2023.2	2023
Inert matter landfill	Inert matter (Steel) on landfill; landfill including leachate treatment and without collection, transport and pre-treatment; production mix (region specific sites), at landfill site; landfill for steel	MLC 2023.2	2023
Electrode	Electrode; baking petrol coke, pitch and hard coal tar; production mix, at plant; >99% carbon	MLC 2023.2	2023
Heavy fuel	Heavy fuel oil at refinery (1.0wt.% S); from crude oil; production mix, at refinery; 1 wt.% sulphur	MLC 2023.2	2023
Diesel mix	Diesel mix at refinery; from crude oil and bio components; production mix, at refinery; 10 ppm sulphur, 7.86 wt.% bio components; 5.90 wt.% biogenic Carbon; 6.91 wt.% Share bio C to C-Total; for use in Transport Process share_CO2_bio: 0.0691	MLC 2023.2	2023
Electricity			
Electricity	Electricity grid mix; AC, technology mix; consumption mix, to consumer; <1kV	MLC 2023.2	2023
Transportation			
Container ship	Container ship, 5,000 to 200,000 dwt payload capacity, deep sea; heavy fuel oil driven, cargo; consumption mix, to consumer; global average 52.134 dwt payload capacity, deep sea	MLC 2023.2	2023
Motor ship	Motor ship, 1,100t payload capacity / canal; technology mix, diesel driven, cargo; consumption mix, to consumer; 1,100t payload capacity / canal	MLC 2023.2	2023
Rail transport	Rail transport cargo - Diesel, average train, gross tonne weight 1,000t / 726t payload capacity; diesel driven, cargo; consumption mix, to consumer; average train, gross tonne weight 1,000t / 726t payload capacity	MLC 2023.2	2023
Rail transport	Rail transport cargo - Electric, average train, gross tonne weight 1,000t / 726t payload capacity; electricity driven, cargo; consumption mix, to consumer; gross tonne weight 1,000t / 726t payload capacity	MLC 2023.2	2023
Truck	Truck, Euro 4, more than 32t gross weight / 24.7t payload capacity; diesel driven, Euro 4, cargo; consumption mix, to consumer; more than 32t gross weight, 24.7t payload capacity	MLC 2023.2	2023

3.7. DATA QUALITY

The data quality assessment addressed the following parameters: time-related coverage, geographical coverage, technological coverage, precision, completeness, representativeness, consistency, reproducibility, sources of data, and uncertainty.

Table 3. Data quality assessment for the hot-rolled steel sheet piles product system.

Data Quality Parameter	Data Quality Discussion
Time-Related Coverage: Age of data and the minimum length of time over which data is collected	All primary data are collected for the year 2021. All secondary data come from the MLC (GaBi) 2023 databases and are representative of the years 2017-2023 (< 10 years). As the study intended to compare the product systems for the reference year 2021, temporal representativeness is good.
Geographical Coverage: Geographical area from which data for unit processes is collected to satisfy the goal of the study	All primary and secondary data are collected specific to the countries/regions under study. Where country / region specific data are unavailable, proxy data are used. Geographical representativeness is considered very good.
Technology Coverage: Specific technology or technology mix	Data are representative of current technologies.
Precision: Measure of the variability of the data values for each data expressed	Precisions of results are not quantified. Data collected are based on yearly averages. Cross-checks concerning the plausibility of mass and energy flows are carried out on the data received to reduce variability. Internal checks based on previous years data and on similar processes and sites occur on a feedback loop which corrects potential mistakes.
Completeness: Percentage of flow that is measured or estimated	All relevant process steps are considered and modelled to represent the specific situations. The process chain is considered sufficiently complete regarding the goal and scope of this study. No known processes or activities contributing to more than 1% of the total in each environmental indicator are excluded.
Representativeness: Qualitative assessment of the degree to which the data set reflects the true population of interest	The representativeness is good overall. See time-related, geography, technology and completeness coverages parameters.
Consistency: Qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis	To ensure consistency, all primary data are collected with the same level of detail, while all background data are primarily sourced from the Managed LCA Content databases. Allocation and other methodological choices are made consistently throughout the model.
Reproducibility: Qualitative assessment of the extent to which information about the methodology and data values would allow an independent practitioner to reproduce the results reported in the study	Results of the current study could be reproduced within a reasonable range assuming an independent practitioner would have access to the primary data and database used for the modeling. Reproducibility would be higher with access to the project report, where screenshots of the model with its respective flow quantities were shown.
Sources of the Data: Description of all primary and secondary data sources	Primary data are collected using a specifically adapted spreadsheet. Similar checks are made on the software model developed during the study. MLC content database has been used for secondary data sources.
Uncertainty of the Information: Uncertainty related to data, models, and assumptions	ArcelorMittal uses spreadsheets describing processes inputs and outputs that have been developed and updated for over 20 years. Each site in ArcelorMittal must yearly report processes inputs and outputs for each process using these spreadsheets. Measurement of on-site emissions takes place based on local environmental regulations and on group minimum requirements. Emissions that are linked to the provision of thermal and electrical energy are considered in specific processes. ArcelorMittal sites are also audited by an independent third party on the reported data. Uncertainty is nevertheless inherently in data collection, data secondary sources and modelling approach. All the procedures mentioned above aim to reduce uncertainty.
Renewable electricity / 'Green Power': Description of calculation method	The two result sets describe the same product, with different calculation methods for the electricity. Results with conventional electricity grid can be found in LCIA EcoSheetPile™. Results for 100 % renewable electricity, accounted over Guarantee of Origins, can be found in LCIA EcoSheetPile™ Plus, in the annex.

3.8 PERIOD UNDER REVIEW

The period of review for the hot-rolled sheet piles (EcoSheetPiles™ and EcoSheetPiles™ Plus) produced at ArcelorMittal site in Luxembourg were taken from January 01, 2021 through December 31, 2021.

3.9 COMPARABILITY AND BENCHMARKING

The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled.

3.10 ESTIMATES AND ASSUMPTIONS

Foreground data electricity consumption was modelled using residual mix electricity datasets from the consumption share of 2021 year, composed by France and Belgium residual mixes.

Following the suggested approach on section 2.8.8 of the UL Part A Product Category Rules, the EPD shows an additional result table reporting separately the results using a renewable electricity grid mix.

As it is not possible to know where the deconstruction will take place and whether the building will be dismantled or demolished. For this reason, a generic scenario was used for module C1. For the same reasons, default distances for module C2 were used, assuming 100 km from the point of deconstruction/dismantling to the waste processing site and further 200 km for the final destination (reuse, recycling or landfill).

3.11 UNITS

All data and results are presented using SI units.

4. Technical Information and Scenarios

4.1 MATERIAL COMPOSITION

Hot-rolled steel sheet piles (EcoSheetPile™ / EcoSheetPile™ Plus) are made out of high-strength low-alloy steel. Main component is iron. Alloys are generally added in form of ferro-alloys. Chemical composition of specific grades will follow the relevant standards, cited in this EPD. Packaging is not relevant. The product does not contain any of the substances of very high concern (SVHC) regulated by the Regulation (EC) No 1907/2006 (REACH) or the Regulation (EC) No 1272/2008 of the European Parliament. In case of mechanical destruction, no risks are expected to occur in terms of environment and human health. The product does not cause any adverse health effects or release of VOCs to indoor air.

4.2 MANUFACTURE

The production of hot-rolled sheet piles goes through main technological steps such as:

- Scrap melting in Electric Arc Furnace
- Steel refining in Ladle Furnace
- Continuous casting
- Hot rolling
- Cooling and Finishing

The hot-rolled sheet piles branded as EcoSheetPile™ use 100 % scrap input (standard product). The EcoSheetPile™ Plus brand uses additionally 100% renewable electricity using Guarantees of Origin (GoO).

4.3 DISPOSAL

Within this EPD, the modules C1-C4 are included. These modules consider the dismantling of the considered product (C1), the transportation of the dismantled components to their End of Life (EoL) destination (C2), the waste processing for recovery or recycling (C3) as well as the disposal (C4), if given. At EoL, the steel material leaves the product system in C3 for recycling in Module D. The environmental impacts from grinding, sorting and transportation of steel scrap are not included. The considered End-of-Life scenario for the steel material is 97 % recycling and 3 % landfill, see Table 5.

As the exact location of the deconstruction of the product can't be known, a default scenario for transport is implemented. Details can be found in Table 4.

Table 4. Transport data used for C2. Choices based on prEN 17662.

Route	Transport type	Truck weight (t)	Payload capacity (t)	Utilization (%)	Return	Distance (km)
Deconstruction site to scrap processing plant	Truck	40	27	50	Empty	100
Scrap processing plant to site for end of waste	Truck	40	27	50	Empty	200

Table 5. Assumptions for scenario development.

Name		Unit	Value
Collection process (specified by type)	Collected separately	kg	1,000
	Collected with mixed construction waste	kg	0
Recovery (specified by type)	Reuse	kg	0
	Recycling	kg	970
	Landfill	kg	30
	Incineration	kg	0
	Incineration with energy recovery	kg	0
	Energy conversion (specify efficiency rate)		0
Disposal (specified by type)	Product or material for final deposition	kg	0
Removals of biogenic carbon (excluding packaging)		kg CO2	0

4.4 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY

Potential environmental benefits are given for the net steel scrap that is produced at the end of a final product's life. This net scrap is determined as follows:

Net scrap = Amount of steel recycled at end-of-life – Scrap input from previous product life cycles.

According to data for steel products collected by the American Iron and Steel Institute (AISI & SMA, 2021) and UL Part A Product Category Rules (UL Environment, 2022), the following End-of-Life scenario is implemented: 97 % recycling, 3 % landfill: In the production of sheet piles, 1192 kg of external scrap material was utilized. Upon reaching the end of its life cycle, 970 kg of scrap is reclaimed for recycling. Consequently, the system demonstrates a net output of - 222 kg of scrap (calculated as + 970 - 1192). This net value is reflected in module D and can be considered as either an environmental credit or burden, depending on the specific impact category.

In subchapter 7.3 two additional End-of-Life scenarios are depicted in order to give further information.

According to ISO 14021:2016, the average recycled content, which includes pre- and post-consumer recycled scrap and additional sources of Fe (such as Ferro alloys), is approximately 98%. Table 6 shows the End-of-Life credentials of the product.

Table 6. *End-of-Life credentials.*

Name	Unit	Value
Recycling rate of product	%	97
Recycled content of product	%	98

5. LCA: Results

Results of the Life Cycle Assessment are presented below. It is noted that LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

The following environmental impact category indicators are reported using characterization factors based on:

- TRACI 2.1 (Bare, Young, Qam, Hopton, & Chief, 2012)
- CML-IA (CML, 2016)

For global warming calculations, the CML characterization factors are based on IPCC 2013, while TRACI 2.1 global warming calculations are based on IPCC 2007.

Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.

Table 7. *Impact category indicators*

Impact Category CML-IA	Unit	Impact Category TRACI 2.1	Unit
Global climate change (GWP)	kg CO ₂ eq	Global warming potential (GWP)	kg CO ₂ eq
Ozone depletion (OP)	kg CFC 11 eq	Acidification potential (AP)	kg SO ₂ eq
Acidification (AP)	kg SO ₂ eq	Eutrophication potential (EP)	kg N eq
Eutrophication (EP)	kg (PO ₄) ³ eq	Smog Formation Potential (SFP)	kg O ₃ eq
Photochemical Smog formation	kg C ₂ H ₄ eq	Ozone depletion potential (ODP)	kg CFC 11 eq
Depletion of abiotic resources – fossil fuels	kg Sb eq	Fossil fuel depletion (FFD)	MJ surplus
Depletion of abiotic resources – non fossil fuels	MJ, LHV	-	-

These impact categories are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined in LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes.

The following inventory parameters, specified by the PCR, are also reported.

Table 8. Indicators on resources, waste and output flows

Indicator on use of resources	Unit	Indicators on waste categories and output flows	Unit
RPRre: Use of renewable primary energy excluding the renewable primary energy resources used as raw materials	MJ, calorific value ([Hi] lower calorific value)	HWD: Hazardous waste to be disposed	kg
RPRm: Use of renewable primary energy used as raw materials	MJ, calorific value ([Hi] lower calorific value)	NHWD: Disposed non-hazardous waste	kg
NRPRre: Use of non-renewable primary energy excluding the non-renewable primary energy resources used as raw materials	MJ, calorific value ([Hi] lower calorific value)	HLRW: High-level radioactive waste, conditioned, to final repository	kg
NRPRm: Use of non-renewable primary energy resources used as raw materials	MJ, calorific value ([Hi] lower calorific value)	ILLRW: Intermediate- and low-level radioactive waste, conditioned, to final repository	kg
SM: Use of secondary materials	kg	CRU: Components for re-use	kg
RSF: Use of renewable secondary fuels	MJ, calorific value ([Hi] lower calorific value)	MR: Materials for recycling	kg
NRSF: Use of non-renewable secondary fuels	MJ, calorific value ([Hi] lower calorific value)	MER: Materials for energy recovery	kg
RE: Recovered Energy	MJ, calorific value ([Hi] lower calorific value)	EE: Recovered energy exported from the product system	MJ, calorific value ([Hi] lower calorific value)
FW: Net use of fresh water resources	m ³	-	-

Table 9. Life Cycle Impact Assessment (LCIA) results for 1 metric ton of EcoSheetPile™ – Hot-rolled steel sheet piles. Results reported in MJ are calculated using lower heating values. All values are rounded to two significant digits.

Impact Category	Life cycle stage								
	A1	A2	A3	(A1-A3)	C1	C2	C3	C4	D
CML-IA									
GWP [kg CO ₂ eq]	1.87E+02	2.99E+01	2.22E+02	4.39E+02	4.23E+01	2.60E+01	1.35E+00	4.28E-01	3.82E+02
AP [kg SO ₂ eq]	6.84E-01	1.97E-01	1.97E-01	1.08E+00	1.68E-01	1.31E-01	3.03E-03	2.57E-03	7.97E-01
EP [kg (PO ₄) ³ eq]	5.50E-02	3.96E-02	3.51E-02	1.30E-01	4.26E-02	3.35E-02	4.19E-04	2.92E-04	5.12E-02
POCP [kg C ₂ H ₄ eq]	4.67E-02	-3.33E-02	5.56E-02	6.90E-02	-6.19E-02	-5.10E-02	2.30E-04	1.92E-04	1.83E-01
ODP [kg CFC 11 eq]	3.59E-10	2.08E-11	2.26E-09	2.64E-09	1.82E-11	4.06E-12	2.59E-11	1.35E-12	-6.09E-10
ADPE [kg Sb eq]	1.30E-04	2.32E-06	2.52E-05	1.57E-04	3.29E-06	2.08E-06	2.69E-07	1.37E-07	2.14E-03
ADPF [MJ, LHV]	4.48E+03	4.09E+02	6.01E+02	5.49E+03	5.75E+02	3.60E+02	1.59E+01	5.81E+00	3.99E+03
TRACI 2.1									
GWP [kg CO ₂ eq]	1.86E+02	2.98E+01	2.22E+02	4.37E+02	4.22E+01	2.59E+01	1.34E+00	4.26E-01	3.79E+02
AP [kg SO ₂ eq]	6.85E-01	2.47E-01	2.32E-01	1.16E+00	2.28E-01	1.79E-01	3.37E-03	2.75E-03	7.59E-01
EP [kg N eq]	2.37E-02	1.57E-02	2.50E-02	6.43E-02	1.76E-02	1.34E-02	3.21E-04	1.21E-04	4.53E-02
SFP [kg O ₃ eq]	9.74E+00	5.65E+00	5.53E+00	2.09E+01	5.12E+00	4.05E+00	5.76E-02	5.22E-02	8.18E+00
ODP [kg CFC 11 eq]	6.43E-12	3.73E-13	3.94E-11	4.62E-11	3.25E-13	7.24E-14	4.65E-13	2.41E-14	-1.04E-11
FFP [MJ surplus]	4.98E+02	5.81E+01	7.70E+01	6.33E+02	8.21E+01	5.16E+01	1.48E+00	7.60E-01	4.84E-01

Table 10. Resource use and waste flows for 1 metric ton of EcoSheetPile™ – Hot-rolled steel sheet piles. Results reported in MJ are calculated using lower heating values. All values are rounded to two significant digits.

Parameter	Life cycle stage							
	A1	A2	A3	C1	C2	C3	C4	D
Resource use								
RPR _E [MJ]	2.77E+02	3.67E+01	6.27E+02	4.68E+01	2.63E+01	1.51E+01	9.78E-01	-1.51E+02
RPR _M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPR _E [MJ]	4.74E+03	4.18E+02	5.80E+03	5.83E+02	3.62E+02	2.71E+01	6.00E+00	3.83E+03
NRPR _M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SM [kg]	0.00E+00	0.00E+00	1.19E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE [MJ]	-3.00E+00	-2.00E+00	-1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW [m ³]	2.58E+00	3.75E-02	1.43E+00	4.96E-02	2.88E-02	1.22E-02	1.52E-03	3.90E+01
Waste flows								
HWD [kg]	7.23E-07	1.53E-11	6.70E-09	9.53E-10	1.12E-09	-1.96E-09	1.31E-10	2.87E-05
NHWD [kg]	2.61E+01	7.09E-02	3.65E-01	9.69E-02	5.52E-02	1.87E-02	3.00E+01	-4.64E+01
HLRW [kg]	5.58E-05	2.61E-06	7.51E-04	2.33E-06	5.83E-07	3.12E-06	6.97E-08	-4.22E-07
ILLRW [kg]	9.36E-02	3.26E-03	1.84E+00	2.88E-03	6.77E-04	3.99E-03	6.83E-05	-4.20E-04
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.70E+02	0.00E+00	0.00E+00
MEF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Comparability: 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. 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 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.

6. LCA: Interpretation

As expected, in all categories the product stage (A1-A3) contributes with the highest shares (Figure 3). This is explained by the fact that steel production is an energy-intensive industry. Impacts are mostly related to the consumption of gases and ferro-alloys.

Overall, modules C3 and C4 have a minimized contribution under the base scenario. Modules C1 and C2 contribution towards the indicators associated to the potential of acidification, eutrophication, and smog formation are responsible for around a 30% share of the overall results. This contribution results from the direct nitrogen monoxide and dioxide emissions caused by the diesel consumption of the demolition equipment (C1) and trucks (C2). GWP and FFD in such modules, contribute up to 20% in the overall results. The main responsible is again the diesel consumption in the machinery and trucks.

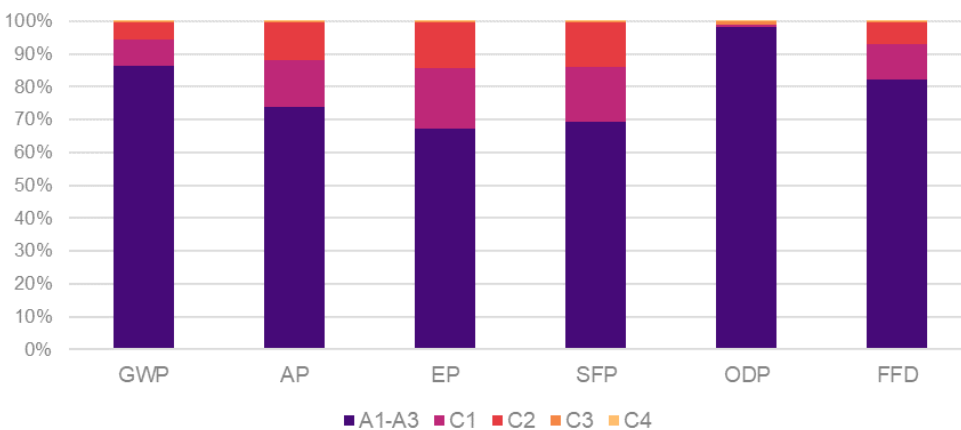


Figure 3. Relative contribution of the different life-cycle modules to the total (TRACI 2.1 indicators).

7. Additional Environmental Information

7.1 ENVIRONMENT AND HEALTH DURING INSTALLATION

In case of mechanical destruction, no risks are expected to occur in terms of environment and human health. The product does not cause any adverse health effects or release of VOCs to indoor air.

7.2 ENVIRONMENTAL ACTIVITIES AND CERTIFICATIONS

ArcelorMittal Belval & Differdange is covered by ISO 9001, ISO 14001, ISO 45001, ISO 50001, and Responsible Steel™

7.3 FURTHER INFORMATION

Hot-rolled sheet piles are generally ready to be installed once they leave the mill. Possible pairing, crimping, milling or cutting of handling holes done in the Luxemburgish mill are covered by this EPD.

Module A4: Transport from mill gate to job site is not covered by this EPD, as it may vary significantly. However, for additional information the following transport route was modeled, including rail and vessel transport: Luxembourg mill to Houston, TX, US: 108 kg CO₂e/t of steel. Gabi software version 10.6.1.35 and Gabi data base 2022.1 was used.

Module D: For additional information and transparency, hereafter two additional End-of-Life scenarios (only Global Warming Potential) that could be useful to precisely describe a project situation:

- Reuse/rental scenario (5x use of sheet piles), adapting a conservative approach, considering some cut-offs and landfill: 80 % reuse, 18 % recycling, 2 % landfill is depicted in Table 11.

Table 11. Global Warming Potential for 1 metric ton of EcoSheetPile™ – Hot-rolled steel sheet piles – Reuse scenario

Impact Category	Life cycle stage								
	A1	A2	A3	(A1-A3)	C1	C2	C3	C4	D
CML-IA									
GWP [kg CO2 eq]	1.87E+02	2.99E+01	2.22E+02	4.39E+02	4.23E+01	2.60E+01	1.35E+00	2.85E-01	-2.50E+02
TRACI 2.1									
GWP [kg CO2 eq]	1.86E+02	2.98E+01	2.22E+02	4.37E+02	4.22E+01	2.59E+01	1.34E+00	2.84E-01	-2.50E+02

- ArcelorMittal average scenario: Considering the average use of sheet piles in Europe, taking into account different applications, corrosion and profiles.: 25 % reuse, 60 % recycling, 15 % landfill is depicted in Table 12.

Table 12. Global Warming Potential for 1 metric ton of EcoSheetPile™ – Hot-rolled steel sheet piles – Average scenario

Impact Category	Life cycle stage								
	A1	A2	A3	(A1-A3)	C1	C2	C3	C4	D
CML-IA									
GWP [kg CO2 eq]	1.87E+02	2.99E+01	2.22E+02	4.39E+02	4.23E+01	2.60E+01	1.35E+00	2.14E+00	3.96E+02
TRACI 2.1									
GWP [kg CO2 eq]	1.86E+02	2.98E+01	2.22E+02	4.37E+02	4.22E+01	2.59E+01	1.34E+00	2.13E+00	3.93E+02

Website: <https://sheetpiling.arcelormittal.com/>

8. References

- AISI, & SMA. (2021). *American Iron and Steel Institute Technical Report. Determination of Steel Recycling Rates in the US*. Retrieved 9 29, 2023, from <https://www.steel.org/wp-content/uploads/2021/08/AISI-and-SMA-Steel-Recycling-Rates-Report-Final-07-27-2021.pdf>
- Environmental Product Declaration of EcoSheetPile™ Plus – Steel Sheet Piles. ArcelorMittal Global R&D. 2023.
- ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and Procedures.
- ISO 14040: 2006 Environmental Management – Life cycle assessment – Principles and Framework
- ISO 14044: 2006/Amd 1:2017/ Amd 2:2020 Environmental Management – Life cycle assessment – Requirements and Guidelines.
- ISO 21930: 2017 Sustainability in building construction – Environmental declaration of building products.
- SCS Type III Environmental Declaration Program: Program Operator Manual. V12.0 November 2023. SCS Global Services.
- Part A: Life Cycle Assessment Calculation Rules and Report Requirements. UL Environment. Version 4.0. March 2022.
- Product Category Rule (PCR) Guidance for Building-Related Products and Services Part B: Designated Steel Construction Product EPD Requirements. UL Environment. Version 2.0. August 26 2020.
- EN 10248-1. EN 10248-1:2023, Hot-rolled sheet piles of non alloy steels - Part 1: Technical delivery conditions. CEN, 2023.
- EN 10248-2. EN 10248-2:1995, Hot rolled sheet piling of non alloy steels - Part 2: Tolerances on shape and dimensions. CEN, 1995.
- ASTM A572. ASTM A572 / A572M-21e1:2021, Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel, ASTM International, West Conshohocken, PA, 2021.
- ASTM A6. ASTM A6 / A6M-22:2022, Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling, ASTM International, West Conshohocken, PA, 2022.
- ASTM A690. A690M-13a(2018), Standard Specification for High-Strength Low-Alloy Nickel, Copper, Phosphorus Steel H-Piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments.
- CML. (2016). *CML-IA Characterisation Factors*. University of Leiden. Department of Industrial Ecology. Retrieved September 2023, from <https://www.universiteitleiden.nl/en/research/research-output/science/cml-ia-characterisation-factors>
- CSA 260W, CSA 300W, CSA 350W, 400W, 450W.
CSA G40.20:2013, General requirements for rolled or welded structural quality steel. Canadian Standard Association.

9. Annex

This annex shows LCA results for one metric ton of EcoSheetPile™ Plus – Hot-rolled steel sheet piles (renewable electricity).

Results of the Life Cycle Assessment are presented below. It is noted that LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

The following environmental impact category indicators are reported using characterization factors based on:

- TRACI 2.1 (Bare, Young, Qam, Hopton, & Chief, 2012)
- CML-IA (CML, 2016)

Results reported in MJ are calculated using lower heating values. All values are rounded to two significant digits.

Table 13. Life Cycle Impact Assessment (LCIA) results for 1 metric ton of EcoSheetPile™ Plus – Hot-rolled steel sheet piles. Results reported in MJ are calculated using lower heating values. All values are rounded to two significant digits.

Impact Category	Life cycle stage								
	A1	A2	A3	(A1-A3)	C1	C2	C3	C4	D
CML-IA									
GWP [kg CO ₂ eq]	1.87E+02	2.99E+01	1.92E+02	4.08E+02	4.23E+01	2.60E+01	1.35E+00	4.28E-01	3.82E+02
AP [kg SO ₂ eq]	6.84E-01	1.97E-01	1.62E-01	1.04E+00	1.68E-01	1.31E-01	3.03E-03	2.57E-03	7.97E-01
EP [kg (PO ₄) ³ eq]	5.50E-02	3.96E-02	2.67E-02	1.21E-01	4.26E-02	3.35E-02	4.19E-04	2.92E-04	5.12E-02
POCP [kg C ₂ H ₄ eq]	4.67E-02	-3.33E-02	5.25E-02	6.60E-02	-6.19E-02	-5.10E-02	2.30E-04	1.92E-04	1.83E-01
ODP [kg CFC 11 eq]	3.59E-10	2.08E-11	2.73E-08	2.77E-08	1.82E-11	4.06E-12	2.59E-11	1.35E-12	-6.09E-10
ADPE [kg Sb eq]	1.30E-04	2.32E-06	1.14E-04	2.46E-04	3.29E-06	2.08E-06	2.69E-07	1.37E-07	2.14E-03
ADPF [MJ, LHV]	4.48E+03	4.09E+02	1.19E+02	5.01E+03	5.75E+02	3.60E+02	1.59E+01	5.81E+00	3.99E+03
TRACI 2.1									
GWP [kg CO ₂ eq]	1.86E+02	2.98E+01	1.92E+02	4.07E+02	4.22E+01	2.59E+01	1.34E+00	4.26E-01	3.79E+02
AP [kg SO ₂ eq]	6.85E-01	2.47E-01	1.86E-01	1.12E+00	2.28E-01	1.79E-01	3.37E-03	2.75E-03	7.59E-01
EP [kg N eq]	2.37E-02	1.57E-02	1.60E-02	5.54E-02	1.76E-02	1.34E-02	3.21E-04	1.21E-04	4.53E-02
SFP [kg O ₃ eq]	9.74E+00	5.65E+00	4.59E+00	2.00E+01	5.12E+00	4.05E+00	5.76E-02	5.22E-02	8.18E+00
ODP [kg CFC 11 eq]	6.43E-12	3.73E-13	4.86E-10	4.92E-10	3.25E-13	7.24E-14	4.65E-13	2.41E-14	-1.04E-11
FFP [MJ surplus]	4.98E+02	5.81E+01	9.48E+00	5.66E+02	8.21E+01	5.16E+01	1.48E+00	7.60E-01	4.84E-01

Table 14. Resource use and waste flows for 1 metric ton of EcoSheetPile™ Plus – Hot-rolled steel sheet piles. Results reported in MJ are calculated using lower heating values. All values are rounded to two significant digits.

Parameter	Life cycle stage							
	A1	A2	A3	C1	C2	C3	C4	D
Resource use								
RPR _E [MJ]	2.77E+02	3.67E+01	7.67E+03	4.68E+01	2.63E+01	1.51E+01	9.78E-01	-1.51E+02
RPR _M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPR _E [MJ]	4.74E+03	4.18E+02	1.29E+02	5.83E+02	3.62E+02	2.71E+01	6.00E+00	3.83E+03
NRPR _M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SM [kg]	0.00E+00	0.00E+00	1.19E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE [MJ]	-3.00E+00	-2.00E+00	-1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW [m³]	2.58E+00	3.75E-02	6.96E-02	4.96E-02	2.88E-02	1.22E-02	1.52E-03	3.90E+01
Waste flows								
HWD [kg]	7.23E-07	1.53E-11	-2.33E-06	9.53E-10	1.12E-09	-1.96E-09	1.31E-10	2.87E-05
NHWD [kg]	2.61E+01	7.09E-02	2.40E+00	9.69E-02	5.52E-02	1.87E-02	3.00E+01	-4.64E+01
HLRW [kg]	5.58E-05	2.61E-06	2.92E-06	2.33E-06	5.83E-07	3.12E-06	6.97E-08	-4.22E-07
ILLRW [kg]	9.36E-02	3.26E-03	3.39E-03	2.88E-03	6.77E-04	3.99E-03	6.83E-05	-4.20E-04
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.70E+02	0.00E+00	0.00E+00
MEF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Comparability: 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. 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 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.

For more information, contact:



ArcelorMittal Europe – Long Products

66, rue de Luxembourg, L-4221 Esch-sur-Alzette (Luxembourg)

<https://sheetpiling.arcelormittal.com/>

Tel. : +352 5313 3105



SCS Global Services

2000 Powell Street, Ste. 600, Emeryville, CA 94608 USA

Main +1.510.452.8000 | fax +1.510.452.8001