ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

PRE-ASSEMBLED OF STEEL FOR REINFORCING CONCRETE

EPD OF MULTIPLE PRODUCTS, BASED ON THE AVERAGE RESULTS OF THE PRODUCT GROUP

from Presider S.p.A.

PRESIDER BUILDING GREEN

EPD® THE INTERNATIONAL EPD® SYSTEM

ECO PLATFORM EPD VERIFIED

Programme:
The International EPD® System, www.environdec.com

Programme operator:
EPD International AB

Valid until:
2030-01-28

Publication date:
2025-01-29

EPD registration number:
EPD-IES- 0018706

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 at www.environdec.com

GENERAL INFORMATION

PROGRAMME INFORMATION

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	**www.environdec.com**
E-mail:	**info@environdec.com**

Accountabilities for PCR, LCA and independent, third-party verification

PRODUCT CATEGORY RULES (PCR)

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR): "Construction products", 2019:14, version 1.3.4, UN CPC code 41

PCR review was conducted by: Martin Erlandsson, IVL Swedish Environmental Research Institute, martin.erlandsson@ivl.se

LIFE CYCLE ASSESSMENT (LCA)

LCA accountability: Aequilibria S.r.l. - SB

THIRD-PARTY VERIFICATION

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

[✓] EPD verification by accredited certification body

Third-party verification: ICMQ Spa is an approved certification body accountable for the third-party verification

The certification body is accredited by: Accredia

Procedure for follow-up of data during EPD validity involves third party verifier:

[✓] Yes [ ] No

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

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

COMPANY INFORMATION

Owner of the EPD:
Presider SpA

Contact:
Mr. Giorgio Oprandi (giorgio.oprandi@it.feralpigroup.com) Quality Manager
Phone: +39 011 40708202

Description of the organisation:

Since 1985 Presider has been a leader in the supply and installation of pre-shaped round bar for reinforced concrete and standard/custom-made electro-welded mesh. Operating on national and international markets, the Company provides each customer with quality, skill and expertise.
In 2015 Presider became part of Feralpi Group, now days its activity is performed in three different plants, located in Borgaro Torinese (TO), Pomezia (RM) and Nave (BS).
Feralpi Group and Presider guarantee an integrated production process checked at each step, with a high profile custom-made service.

Product-related or management system-related certifications:

- Quality management system compliance with the standard UNI EN ISO 9001
- Italian law DM 17/01/2018 (Technical Standards for Buildings)
- NF-Armatures Mark certification reference system

Name and location of production site(s):
Sede e Stabilimento - Strada del Francese, 13/17 - 10071 Borgaro Torinese TO
- Stabilimento - Via Campobello, 29 - 00040 Pomezia RM
- Stabilimento – Via Brescia, 203 - 25030 Nave BS

PRODUCT INFORMATION

Product name:
Pre-Assembled of steel for reinforcing concrete

Product identification:
Pre-Assembled welded fabrications of steel for reinforcing concrete (example applicable standard UNI EN ISO 9001, NF-Armatures Mark certification, Italian law DM 17/01/2018 Technical Standards for Buildings)

Product description:
Engineers and Contractors are increasingly seeing the benefits of specifying factory made pre-assembled welded fabrications to improve on-site productivity. PRESIDER is a leader offer this service, and the use of pre-assembled welded fabrications is increasing significantly. Under controlled conditions away from the construction site, welding can provide:

- Efficient joining of reinforcement robust enough to survive transportation, lifting and installation;
- When required, load bearing joints can be produced to specified strength levels.

Pre-assembled welded fabrications can be manufactured into a range of shapes and sizes to suit applications such as:

- Pile reinforcement: factory-assembled pile cages with the appropriate number of bars, helicals, rings, cage stiffeners and lifting bands (see Figure 2).
- Beam and column cages: factory-assembled with the required number of bars and links.
- Shear head reinforcement: for flat slabs, including a variety of pre-assembled arrangements of stud rails, shear stirrups, shear ladders, shear hoops, etc.
- Diaphragm walls:factory-assembled with the appropriate number of bars and links.

These and other products give the designer a broad range of options for specifying pre-assembled welded fabrications.

UN CPC code: 41

Geographical scope:
Global

LCA INFORMATION

Functional unit / declared unit: 1 ton of steel
Reference service life: Not applicable
Time representativeness: 2023
Database(s) and LCA software used: Ecoinvent 3.10 and SimaPro Developer 9.6.0.1, EF 3.1
Description of system boundaries: cradle to gate with options, modules C1-C4, module D and with optional module A4

System diagram:

LIFE-CYCLE STAGE	INFORMATION MODULES
A1	Purchase of raw material from Feralpi Siderurgica
	Purchase of packaging
	Purchase of auxiliary materials
A2	Transport of products to Presider plants
A3	Plant consumption for raw material processing
	Production of plant waste
A4	Transport of finished product to customer
C1-C4	End of life

Excluded lifecycle stages:
The excluded lifecycle stages are: A5 and B. Cut-off thresholds have been applied for:
- The processing of production equipment, construction, and other capital goods;
- Personnel travel to the workplace by company vehicle and research and development activities;
- The production of production machinery, buildings, and other company infrastructure.

Data proxy: The threshold permitted by PCR to use in the study up to a maximum 10% of general data (not selected) is respected for all impact categories.

More information: https://www.feralpigroup.com

Name and contact information of LCA practitioner: Aequilibria Srl – SB, info@aequilibria.com - www.aequilibria.com

MODULES DECLARED

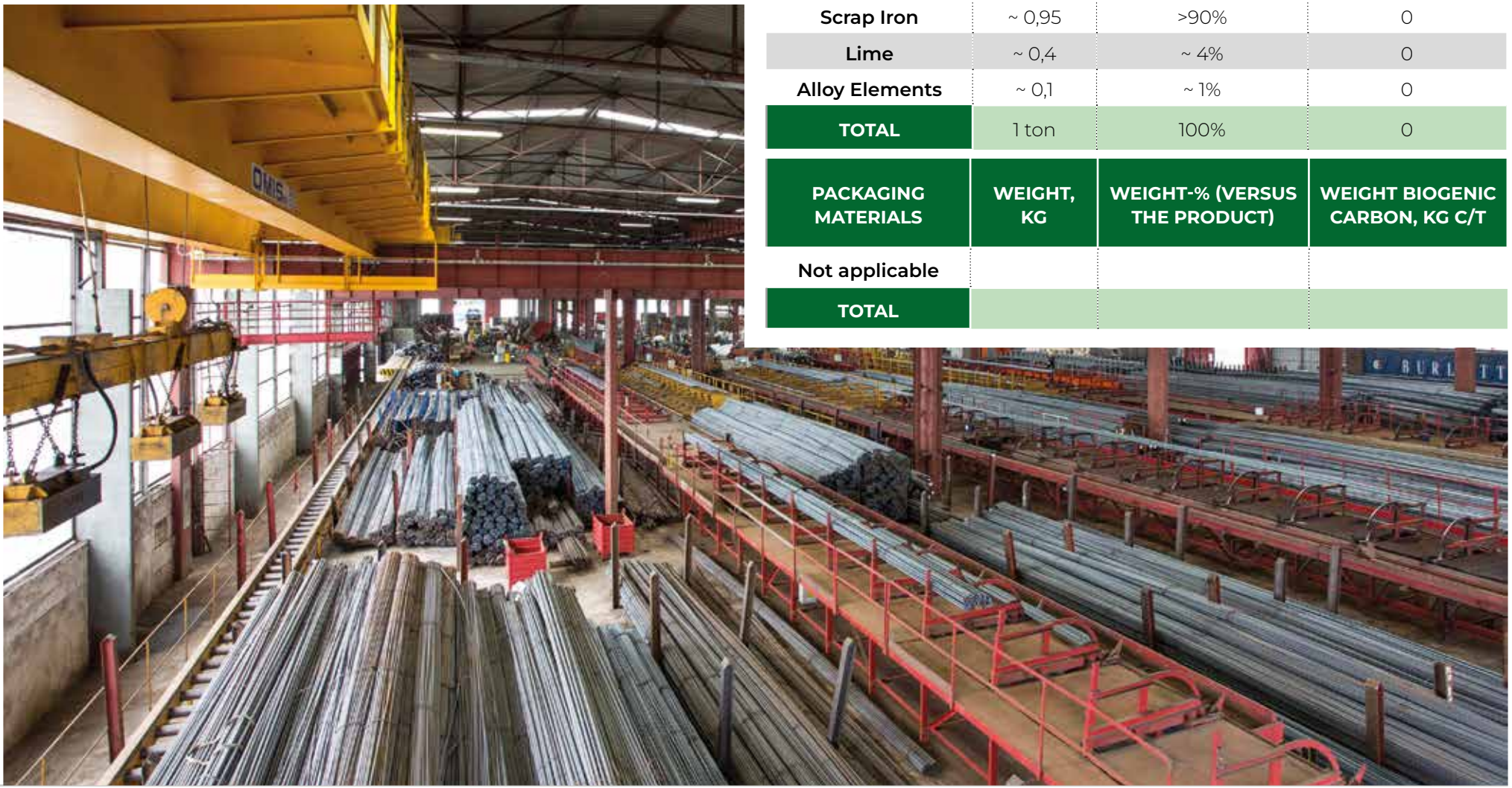
geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				RESOURCE RECOVERY STAGE
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery Recycling potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	x	x	x	x	-	-	-	-	-	-	-	-	x	x	x	x	X
Geography	IT	IT	IT	WLD	-	-	-	-	-	-	-	-	WLD	WLD	WLD	WLD	WLD
Specific data used	> 90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation products	NOT RELEVANT			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation sites	NOT RELEVANT			-	-	-	-	-	-	-	-	-	-	-	-	-	-

CONTENT INFORMATION

PRODUCT COMPONENTS	WEIGHT, TON	POST-CONSUMER MATERIAL, WEIGHT-%	BIOGENIC MATERIAL, WEIGHT-% AND KG C/T
Scrap Iron	~ 0,95	>90%	0
Lime	~ 0,4	~ 4%	0
Alloy Elements	~ 0,1	~ 1%	0
TOTAL	1 ton	100%	0

PACKAGING MATERIALS	WEIGHT, KG	WEIGHT-% (VERSUS THE PRODUCT)	WEIGHT BIOGENIC CARBON, KG C/T
Not applicable			
TOTAL			



RESULTS OF THE ENVIRONMENTAL PERFORMANCE INDICATORS

The energy sources behind the electricity grid used in manufacturing is the italian residual mix 0,62 kg CO_2 eq./kWh (AIB report May 2024).

MANDATORY IMPACT CATEGORY INDICATORS ACCORDING TO EN 15804

RESULTS PER FUNCTIONAL OR DECLARED UNIT								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	5,06E+02	1,02E+02	5,90E+01	3,83E+01	5,28E-01	1,61E+00	-6,86E+01
GWP-biogenic	kg CO_2 eq.	6,74E-01	6,65E-02	9,36E-03	2,32E-02	6,86E-03	3,22E-03	1,42E-01
GWP- luluc	kg CO_2 eq.	1,30E+00	3,91E-02	8,26E-03	1,30E-02	4,29E-05	5,05E-04	-4,20E-02
GWP- total	kg CO_2 eq.	5,08E+02	1,02E+02	5,90E+01	3,83E+01	5,35E-01	1,62E+00	-6,85E+01
ODP	kg CFC 11 eq.	1,78E+00	2,23E-01	5,23E-01	1,72E-01	1,39E-03	1,01E-02	-2,76E-01
AP	mol H^+ eq.	5,40E-01	4,95E-02	2,39E-01	6,75E-02	2,74E-04	3,28E-03	-6,75E-02
EP-freshwater	kg P eq.	1,01E-01	8,10E-03	2,78E-03	2,63E-03	6,86E-05	8,12E-04	-3,51E-02
EP-marine	kg N eq.	5,25E+00	5,36E-01	2,61E+00	7,36E-01	2,90E-03	3,55E-02	-7,16E-01
EP-terrestrial	mol N eq.	7,63E-02	2,01E-06	8,82E-07	7,69E-07	1,13E-08	3,73E-08	-2,60E-07
POCP	kg NMVOC eq.	2,10E+00	3,38E-01	7,80E-01	2,64E-01	1,32E-03	1,28E-02	-2,39E-01
ADP-minerals&metals*	kg Sb eq.	6,37E+03	1,42E+03	7,72E+02	5,47E+02	7,78E+00	2,70E+01	-7,80E+02
ADP-fossil*	MJ	1,59E+02	4,39E-04	3,44E-05	1,19E-04	5,51E-07	4,49E-06	-9,46E-05
WDP*	m^3	2,35E+02	6,03E+00	2,01E+00	2,39E+00	1,32E-01	-5,61E+00	-9,59E+00

Acronyms

GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

ADDITIONAL MANDATORY AND VOLUNTARY IMPACT CATEGORY INDICATORS

RESULTS PER FUNCTIONAL OR DECLARED UNIT								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	5,08E+02	1,02E+02	5,90E+01	3,83E+01	5,35E-01	1,62E+00	-6,85E+01

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Disclaimer discouraging the use of the results of modules A1-A3 without considering the results of module C.

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

RESOURCE USE INDICATORS

RESULTS PER FUNCTIONAL OR DECLARED UNIT								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
PERE	MJ	2,09E+03	3,27E+01	8,83E+00	9,16E+00	1,23E-01	4,86E-01	-6,09E+01
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,09E+03	3,27E+01	8,83E+00	9,16E+00	1,23E-01	4,86E-01	-6,09E+01
PENRE	MJ	7,33E+03	1,42E+03	7,72E+02	5,47E+02	7,78E+00	2,70E+01	-7,80E+02
PENRM	MJ	1,72E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	7,50E+03	1,42E+03	7,72E+02	5,47E+02	7,78E+00	2,70E+01	-7,80E+02
SM	kg	1,14E+03	0,00E+00	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
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	7,04E+00	2,27E-01	6,88E-02	7,91E-02	3,92E-03	-1,20E-01	-3,48E-01

Acronyms

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

WASTE INDICATORS

RESULTS PER FUNCTIONAL OR DECLARED UNIT								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1,94E+00	9,63E-03	5,18E-03	3,65E-03	3,05E-05	1,80E-04	-7,55E-03
Non-hazardous waste disposed	kg	1,27E+02	4,33E+01	5,36E-01	3,37E+01	1,04E-02	4,46E+01	-3,78E+00
Radioactive waste disposed	kg	7,11E-04	6,65E-04	1,64E-04	1,80E-04	4,99E-06	8,86E-06	-1,54E-03

OUTPUT FLOW INDICATORS

RESULTS PER FUNCTIONAL OR DECLARED UNIT								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	1,89E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ADDITIONAL ENVIRONMENTAL INFORMATION

Recycled content of products = 98,8%.

The methodology adopted refers to the procedures of the ICMQ CP DOC 262 rev. 2 of 12/10/2022.

PRODUCT TYPE	PRODUCT NAME	RECYCLED MATERIAL			RECOVERED MATERIAL (%)	BY-PRODUCT MATERIAL (%)	TOTAL CONTENT OF RECYCLED, RECOVERED BY-PRODUCT MATERIAL (%)
		TOTAL (%)	PRE-CONSUMER (%)	POST-CONSUMER (%)			
Hot-rolled and cold-rolled products	Rolls, coils, wire rods, welded mesh	97,8	n.p.d.	n.p.d.	0	1,0	98,8

REFERENCES

- General Programme Instructions of the International EPD® System. Version 4.0.
- PCR 2019:14 – Construction products – v-1.3.4
- CFP SA_EPD Study Report Generale_PRESIDER v.1
- Report specifico confezionato_PRESIDER
- ISO 14040:2007 – Environmental management - Life cycle assessment - Principles and framework
- ISO 14044:2007 – Environmental management - Life cycle assessment - Requirements and guidelines

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

A1

- Scrap pretreatment
- Shredding
- Sorting
- Raw material and Energy production

A2+A3

- Supplying transport
- Hot rolling processes
- Packaging
- Internal handling
- Ancillary materials and activities
- Air emission
- Water emission
- Waste management

A4 Transport

C1 De-construction demolition

C2 Transport

C3 Waste processing

C4 Disposal

D Reuse - Recovery Recycling potential

Broad scheme of cold rolled steel production, in which the main activities included in the system boundaries are listed and divided in the three subsystems: UPSTREAM Process, CORE Module and DOWNSTREAM Process

UPSTREAM PROCESS

UPSTREAM | CORE | DOWNSTREAM

Steel scrap collection (shredded both in external and internal plants) and other raw materials production

Specific secondary materials pre-treatments, where appropriate

A1 - RAW MATERIALS SUPPLY

Production of alloy elements

Scheme of the considered system boundaries (Upstream processes)

Generation of electricity and other fuels from primary and from secondary energy resources (excluding waste treatments)

CORE PROCESS

UPSTREAM | **CORE** | **DOWNSTREAM**

Raw materials transportation from production or collection facilities to the production plant

A2 - TRANSPORT

Hot and cold rolling

Scheme of the considered system boundaries (core processes)

Packaging materials
Internal transportation

Steel mill production, including utilities

A3 - MANUFACTURING

Treatment of waste generated from the manufacturing processes

DOWNSTREAM PROCESS

A4 Transport

Transport to the customers (general market average).

C1 De-construction demolition

Dismantling and demolition operations required to remove the product from the building. Initial onsite sorting of the materials is included as well.

C2 Transport

Transportation of the discarded product as part of the waste processing (to recycling site or to a final disposal site).

C3 Waste processing

Waste processing, including collection of waste fraction from deconstruction and waste processing of material flows intended for reuse, recycling and energy recovery.

C4 Disposal

Waste disposal including physical pre-treatment and management of the disposal site.

D Reuse - Recovery - Recycling potential

Environmental impacts associated to waste use after the investigated system (including recycling).

In this module impacts arising from steel recycling are accounted, including avoided impacts associated to primary steel production. The result is expressed as net value between direct impact (i.e. recycling steel in EAF furnace) and avoided impact (i.e. producing steel from iron ore in BOF furnace).

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