Environmental Product Declaration (EPD)
According to ISO 14025 and EN 15804+A2:2019

2-3 wire PC Strand

Registration number:	EPD-Kiwa-EE-234959-EN
Issue date:	25-02-2026
Valid until:	25-02-2031
Declaration owner:	SIDERURGICA LATINA MARTIN
Publisher:	Kiwa-Ecobility Experts
Programme operator:	Kiwa-Ecobility Experts
Status:	verified

1 General information

1.1 PRODUCT

2-3 wire PC Strand

1.2 REGISTRATION NUMBER

EPD-Kiwa-EE-234959-EN

1.3 VALIDITY

Issue date: 25-02-2026

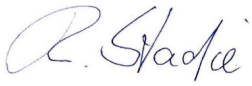
Valid until: 25-02-2031

1.4 PROGRAMME OPERATOR

Kiwa-Ecobility Experts
Wattstraße 11-13
13355 Berlin
DE

Raoul Mancke

(Head of programme operations, Kiwa-Ecobility Experts)



Dr. Ronny Stadie

(Verification body, Kiwa-Ecobility Experts)

1.5 OWNER OF THE DECLARATION

Declaration owner: SIDERURGICA LATINA MARTIN

Address: Via Oger Martin, 21, 03024 Ceprano (FR), Italy

E-mail: info@slmspa.com

Website: https://siderurgicalatinamartin.com/

Production location: Ceprano

Address production location: Via Oger Martin 21, 03024 Ceprano (Fr), Italy

1.6 VERIFICATION OF THE DECLARATION

The independent verification is in accordance with the ISO 14025:2011. The LCA is in compliance with ISO 14040:2006 and ISO 14044:2006. The EN 15804+A2:2019 serves as the core PCR.

☐ Internal ☒ External

Lucas Pedro Berman, Senda

1.7 STATEMENTS

The owner of this EPD shall be liable for the underlying information and evidence. The programme operator Kiwa-Ecobility Experts shall not be liable with respect to manufacturer data, life cycle assessment data and evidence.

1.8 PRODUCT CATEGORY RULES

Kiwa-EE GPI R.3.0 (2025)

Kiwa-Ecobility Experts, General Programme Instructions “Product Level”, SOP EE 1201_R.3.0 (03.06.2025)

Kiwa-EE GPI R.3.0 Annex B1 (2025)

Kiwa-Ecobility Experts, General Programme Instructions “Product Level” – Annex B1 Environmental Information Programme according to EN 15804 / ISO 21930 , SOP EE 1203_R.3.0 (03.06.2025)

1 General information

1.9 COMPARABILITY

In principle, a comparison or assessment of the environmental impacts of different products is only possible if they have been prepared in accordance with EN 15804+A2:2019. For the evaluation of the comparability, the following aspects have to be considered in particular: PCR used, functional or declared unit, geographical reference, the definition of the system boundary, declared modules, data selection (primary or secondary data, background database, data quality), scenarios used for use and disposal phases, and the life cycle inventory (data collection, calculation methods, allocations, validity period). PCRs and general program instructions of different EPD program operators may differ. Comparability needs to be evaluated. For further guidance, see EN 15804+A2:2019 and ISO 14025.

1.10 CALCULATION BASIS

LCA method R<THINK: Ecobility Experts | EN15804+A2

LCA software*: Simapro 9.6

Characterization method: RETHINK characterization method (see references for more details)

LCA database profiles: ecoinvent (for version see references)

Version database: v3.20c (20260113)

** Simapro is used for calculating the characterized results of the Environmental profiles within R<THINK.*

1.11 LCA BACKGROUND REPORT

This EPD is generated on the basis of the LCA background report '2-3 wire PC Strand' with the calculation identifier ReTHiNK-134959.

2 Product

2.1 PRODUCT DESCRIPTION

The Environmental Product Declaration (EPD) represents the environmental performance of the representative product ''2-3 wire PC Strand'', where "PC" stands for *Prestressed Concrete*. 2-3 wire PC Strand consists of a group of two or three high tensile strength cold drawn wires spun together in helical form over a theoretical common axis in one layer with uniform pitch.

2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

The product is mostly intended for the construction industries to produce precast concrete elements, rock & soil anchors, concrete poles as well as for pre-stressing and post-tensioning applications.

2.3 REFERENCE SERVICE LIFE

RSL PRODUCT

The RSL is not relevant for this study. It was added only for technical reasons and does not affect the results.

USED RSL (YR) IN THIS LCA CALCULATION:

50

2.4 TECHNICAL DATA

Technical Specifications

Parameter	Specification or Values
Diameter Range	Ø 4.00 – 7.50 mm
Standard	prEN 10138 – UNI 7676
Steel Grade	1770 – 1860 – 1960 – 2060 – 2160 MPa

Coil Dimensions – Large Coil

Parameter	Values
Inner Diameter (A)	Ø 800 – 900 mm
Outer Diameter (B)	Ø 1,550 mm max
Height (L)	500 – 550 – 760 mm
Weight Range	1,200 – 3,000 kg
Length	12,900 – 19,500 – 32,000 m

Coil Dimensions – Small Coil

Parameter	Values
Inner Diameter (A)	Ø 300 – 310 mm
Outer Diameter (B)	Ø 550 mm max
Height (L)	185 – 190 – 200 – 210 mm
Weight Range	120 – 200 kg
Length	On demand

2.5 SUBSTANCES OF VERY HIGH CONCERN

The product does not contain any (or less than 1%) of the substances from the “Candidate List of Substances of Very High Concern for Authorization” (SVHC).

2.6 DESCRIPTION PRODUCTION PROCESS

Pickling – The wire rod is pickled to remove mill scale from its surface through a chemical descaling process. After pickling, the wire is pre-coated with a carrier to facilitate the adhesion of lubricant during the wire drawing process.

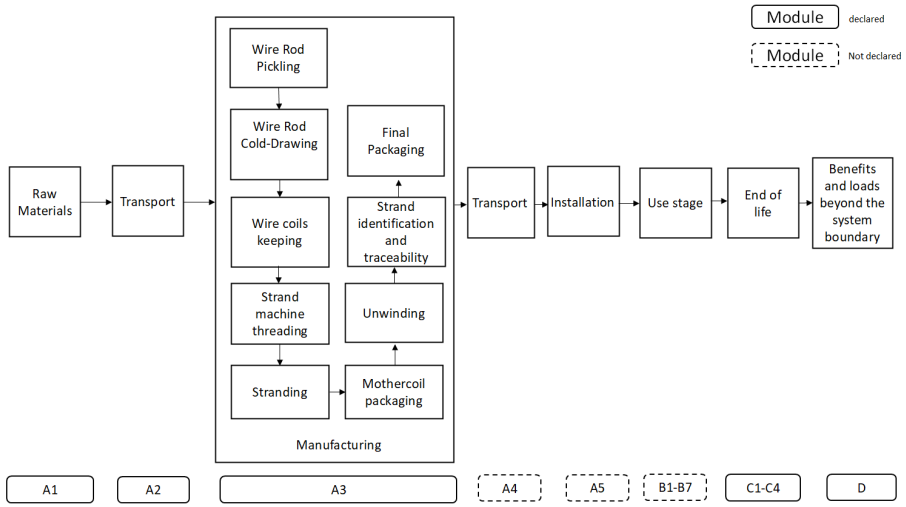
Cold drawing – The wire rod is cold drawn through dry drawing equipment using a series of lubricated dies to reduce its cross-sectional area and to achieve the required mechanical properties.

Winding of drawn wire into spools – The cold-drawn wire is wound into spools.

Spools unwinding – A set of two or three spools is placed into stranding machines, where the wires are synchronously unwound and stranded.

2 Product

Stranding – The stranding machines twist the drawn wires together to form a 2-wire or 3-wire PC strand, consisting of two or three wires helically spun over a common axis, in one layer and with uniform pitch.



3 Calculation rules

3.1 DECLARED UNIT

1 kg

1 kilogram of 2-3 wires PC STRAND

Reference unit: kilogram (kg)

3.2 CONVERSION FACTORS

Description	Value	Unit
Reference unit	1	kg
Conversion factor to 1 kg	1.000000	kg

3.3 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with modules C1-C4 and module D EPD. The life cycle stages included are as shown below:

(X = module included, ND = module not declared)

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

The modules of the EN 15804 contain the following:

Module A1 = Raw material supply	Module B5 = Refurbishment
Module A2 = Transport	Module B6 = Operational energy use
Module A3 = Manufacturing	Module B7 = Operational water use
Module A4 = Transport	Module C1 = De-construction / Demolition
Module A5 = Construction - Installation process	Module C2 = Transport
Module B1 = Use	Module C3 = Waste Processing
Module B2 = Maintenance	Module C4 = Disposal
Module B3 = Repair	Module D = Benefits and loads beyond the product system boundaries
Module B4 = Replacement	

3.4 REPRESENTATIVENESS

This EPD is representative for 2-3 wire PC Strand, a product of SLM. The results of this EPD are representative for European Union.

3.5 CUT-OFF CRITERIA

Product stage (A1-A3)

All input flows (e.g. raw materials, transportation, energy use, packaging, etc.) and output flows (e.g. production waste) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass.

3 Calculation rules

The following processes are excluded:

- Manufacturing of equipment used in production, buildings or any other capital asset
- Transportation of personnel to the plant
- The transportation of personnel within the plant
- Research and development activities
- Long-term emissions

End of life stage (C1-C4)

All input flows (e.g. energy use for demolition or disassembly, transport to waste processing, etc.) and output flows (e.g. end-of-life waste processing of the product, etc.) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass.

Benefits and loads beyond the system boundary (Module D)

All benefits and loads beyond the system boundary resulting from reusable products, recyclable materials and/or useful energy carriers leaving the product system are considered in this LCA.

3.6 ALLOCATION

Allocation was avoided wherever possible. In this life cycle assessment study, allocation is based on physical properties. The declared unit of 1 kg was taken into account. Raw material, energy, and production data were calculated based on the annual production volume using this allocation key. Differences in the composition, diameter, and shape of reinforcing steels were neglected by using annual average production data.

3.7 DATA COLLECTION & REFERENCE PERIOD

All primary data were collected during the accounting period (01.01.2024 – 31.12.2024).

For demolition work (C1), the estimated value of 0.001 litres of diesel per kg of steel was used. The value comes from the average consumption of demolition machines in the European Union (Eurostat database).

3.8 ESTIMATES AND ASSUMPTIONS

This EPD is developed in accordance with EN 15804. It follows the Polluter Pays Principle, assigning environmental impacts to the responsible entity. It also applies the Modularity Principle, ensuring that impacts are reported in the specific life cycle stage in which they occur, supporting transparency, accountability, and comparability across product systems.

3.9 DATA QUALITY

The quality level of geographical representativity can be considered “good,” the quality level of technical representativity can be considered “good,” and the temporal representativity can also be considered “good.” Therefore, the overall data quality for this EPD can be classified as “good.”

The owner of this EPD shall be liable for the underlying information and evidence. The programme operator Kiwa-Ecobility Experts, third party verifier shall not be liable with respect to manufacturer data, life cycle assessment data and evidence.

To ensure comparability of results, only consistent background data from the ecoinvent database version 3.9.1 was used in the life cycle assessment (e.g. datasets for energy, transport, auxiliary and operating materials), which refer to the reference year 2022. The database is regularly reviewed and thus meets the requirements of EN 15804 (background data not older than 10 years). All consistent datasets contained in the ecoinvent database are documented and can be accessed in the ecoinvent online documentation.

3.10 POWER MIX

In general, a market-based approach was used for the electricity consumption in production (A3). So ‘‘Electricity, medium voltage {IT}| electricity, medium voltage, residual mix | Cut-off, U'' was utilized. Where, Global Warming Potential (GWP-total) of the electricity mix: 0.61944063 kg CO_2 per kWh.

4 Scenarios and additional technical information

4.1 DE-CONSTRUCTION, DEMOLITION (C1)

The following information describes the scenario for demolition at end of life.

Description	Amount	Unit
(ei3.9.1) Diesel, burned in machine (incl. emissions)	0.001	l

4.2 TRANSPORT END-OF-LIFE (C2)

The following distances and transport conveyance are assumed for transportation during end of life for the different types of waste processing.

Waste Scenario	Transport conveyance	Not removed (stays in work) [km]	Landfill [km]	Incineration [km]	Recycling [km]	Re-use [km]
(ei3.9.1) Steel, construction profiles (NMD ID 70)	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50

The transport conveyance(s) used in the scenario(s) for transport during end of life has the following characteristics.

	Value and unit
Vehicle type used for transport	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)
Fuel type and consumption of vehicle	not available
Capacity utilisation (including empty returns)	50 % (loaded up and return empty)
Bulk density of transported products	inapplicable
Volume capacity utilisation factor	1

4.3 END OF LIFE (C3, C4)

The scenario(s) assumed for end of life of the product are given in the following tables.
First the assumed percentages per type of waste processing are displayed, followed by the assumed amounts.

Waste Scenario	Region	Not removed (stays in work) [%]	Landfill [%]	Incineration [%]	Recycling [%]	Re-use [%]
(ei3.9.1) Steel, construction profiles (NMD ID 70)	NL	0	1	0	94	5

4 Scenarios and additional technical information

Waste Scenario	Not removed (stays in work) [kg]	Landfill [kg]	Incineration [kg]	Recycling [kg]	Re-use [kg]
(ei3.9.1) Steel, construction profiles (NMD ID 70)	0.000	0.010	0.000	0.940	0.050
Total	**0.000**	**0.010**	**0.000**	**0.940**	**0.050**

4.4 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY (D)

The presented Benefits and loads beyond the system boundary in this EPD are based on the following calculated Net output flows in kilograms and Energy recovery displayed in MJ Lower Heating Value.

Waste Scenario	Net output flow [kg]	Energy recovery [MJ]
(ei3.9.1) Steel, construction profiles (NMD ID 70)	0.113	0.000
Total	**0.113**	**0.000**

5 Results

For the impact assessment long-term emissions (>100 years) are not considered. The results of the impact assessment are only relative statements that do not make any statements about end-points of the impact categories, exceedance of threshold values, safety margins or risks. The following tables show the results of the indicators of the impact assessment, of the use of resources as well as of waste and other output flows.

5.1 ENVIRONMENTAL IMPACT INDICATORS PER KILOGRAM

CORE ENVIRONMENTAL IMPACT INDICATORS EN 15804+A2

Abbr.	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	7.58E-1	8.94E-2	1.96E-1	1.04E+0	3.55E-3	7.52E-3	0.00E+0	6.08E-5	-1.76E-1
GWP-f	kg CO_2 eq.	7.45E-1	8.93E-2	1.95E-1	1.03E+0	3.55E-3	7.50E-3	0.00E+0	6.08E-5	-1.77E-1
GWP-b	kg CO_2 eq.	1.29E-2	2.76E-5	3.94E-4	1.33E-2	4.94E-7	2.44E-6	0.00E+0	2.65E-8	2.13E-4
GWP-luluc	kg CO_2 eq.	3.68E-4	4.53E-5	7.74E-5	4.91E-4	4.00E-7	2.67E-5	0.00E+0	3.67E-8	1.79E-5
ODP	kg CFC 11 eq.	1.37E-8	1.90E-9	4.47E-9	2.01E-8	5.65E-11	1.33E-10	0.00E+0	1.76E-12	-5.59E-9
AP	mol H+ eq.	2.57E-3	4.66E-4	1.09E-3	4.12E-3	3.29E-5	3.59E-5	0.00E+0	4.58E-7	-5.73E-4
EP-fw	kg P eq.	1.22E-4	6.88E-7	3.52E-6	1.27E-4	1.28E-8	7.46E-8	0.00E+0	5.93E-10	4.12E-6
EP-m	kg N eq.	5.99E-4	1.41E-4	9.81E-5	8.38E-4	1.52E-5	1.36E-5	0.00E+0	1.75E-7	-1.14E-4
EP-T	mol N eq.	6.24E-3	1.52E-3	1.11E-3	8.87E-3	1.66E-4	1.45E-4	0.00E+0	1.88E-6	-1.69E-3
POCP	kg NMVOC eq.	1.84E-3	5.49E-4	5.52E-4	2.94E-3	4.91E-5	4.97E-5	0.00E+0	6.56E-7	-1.11E-3
ADP-mm	kg Sb-eq.	2.04E-6	2.72E-7	3.53E-7	2.66E-6	1.24E-9	2.35E-8	0.00E+0	8.44E-11	2.40E-7
ADP-f	MJ	1.02E+1	1.25E+0	2.65E+0	1.41E+1	4.65E-2	1.07E-1	0.00E+0	1.51E-3	-1.67E+0
WDP	m3 world eq.	2.71E-1	4.96E-3	7.91E-2	3.55E-1	1.00E-4	5.86E-4	0.00E+0	6.69E-5	-1.39E-1

GWP-total=Global Warming Potential total (GWP-total) | **GWP-f**=Global Warming Potential fossil fuels (GWP-fossil) | **GWP-b**=Global Warming Potential biogenic (GWP-biogenic) | **GWP-luluc**=Global Warming Potential land use and land use change (GWP-luluc) | **ODP**=Depletion potential of the stratosperic ozon layer (ODP) | **AP**=Acidification potential, Accumulated Exceedance (AP) | **EP-fw**=Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater) | **EP-m**=Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine) | **EP-T**=Eutrophication potential, Accumulated Exceedance (EP-terrestrial) | **POCP**=Formation potential of tropospheric ozone (POCP) | **ADP-mm**=Abiotic depletion potential for non fossil resources (ADP mm) | **ADP-f**=Abiotic depletion for fossil resources potential (ADP fossil) | **WDP**=Water (user) deprication potential, deprivation-weighted water consumption (WDP)

5 Results

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN 15804+A2

Abbr.	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PM	disease incidence	1.63E-8	6.75E-9	4.61E-9	2.76E-8	9.18E-10	7.40E-10	0.00E+0	1.00E-11	-1.48E-8
IR	kBq U235 eq.	1.39E-2	6.05E-4	5.50E-3	2.00E-2	9.51E-6	4.19E-5	0.00E+0	4.00E-7	1.33E-3
ETP-fw	CTUe	1.67E+0	6.19E-1	3.85E-1	2.67E+0	2.22E-2	7.92E-2	0.00E+0	7.11E-4	7.27E-1
HTP-c	CTUh	7.98E-9	4.04E-11	1.56E-10	8.18E-9	1.09E-12	3.97E-12	0.00E+0	2.59E-14	6.77E-10
HTP-nc	CTUh	3.98E-9	8.49E-10	1.30E-9	6.13E-9	7.56E-12	8.62E-11	0.00E+0	3.24E-13	9.14E-9
SQP	Pt	8.00E-1	7.04E-1	5.41E-1	2.05E+0	3.13E-3	8.47E-2	0.00E+0	3.01E-3	-2.92E-1

PM=Potential incidence of disease due to PM emissions (PM) | **IR**=Potential Human exposure efficiency relative to U235 (IRP) | **ETP-fw**=Potential Comparative Toxic Unit for ecosystems (ETP-fw) | **HTP-c**=Potential Comparative Toxic Unit for humans (HTP-c) | **HTP-nc**=Potential Comparative Toxic Unit for humans (HTP-nc) | **SQP**=Potential soil quality index (SQP)

CLASSIFICATION OF DISCLAIMERS TO THE DECLARATION OF CORE AND ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

ILCD classification	Indicator	Disclaimer
ILCD type / level 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD type / level 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD type / level 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2

5 Results

ILCD classification	Indicator	Disclaimer
	Potential Soil quality index (SQP)	2

Disclaimer 1 – This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

5.2 INDICATORS DESCRIBING RESOURCE USE AND ENVIRONMENTAL INFORMATION BASED ON LIFE CYCLE INVENTORY (LCI)

PARAMETERS DESCRIBING RESOURCE USE

Abbr.	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	6.84E-1	1.88E-2	9.47E-2	7.97E-1	2.65E-4	1.52E-3	0.00E+0	1.28E-5	2.45E-2
PERM	MJ	1.04E-1	0.00E+0	0.00E+0	1.04E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ	7.88E-1	1.88E-2	9.47E-2	9.01E-1	2.65E-4	1.52E-3	0.00E+0	1.28E-5	2.45E-2
PENRE	MJ	1.01E+1	1.25E+0	2.62E+0	1.40E+1	4.65E-2	1.08E-1	0.00E+0	1.51E-3	-1.67E+0
PENRM	MJ	0.00E+0	0.00E+0	3.47E-2	3.47E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	MJ	1.01E+1	1.25E+0	2.65E+0	1.40E+1	4.65E-2	1.08E-1	0.00E+0	1.51E-3	-1.67E+0
SM	Kg	8.71E-1	0.00E+0	2.61E-3	8.73E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	m^3	7.92E-3	1.74E-4	2.13E-3	1.02E-2	3.65E-6	2.59E-5	0.00E+0	1.61E-6	-2.82E-3

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 resources | **SM**=Use of secondary material | **RSF**=Use of renewable secondary fuels | **NRSF**=Use of non-renewable secondary fuels | **FW**=Net use of fresh water

5 Results

OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

Abbr.	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
HWD	Kg	1.23E-3	7.87E-6	1.01E-3	2.25E-3	3.13E-7	6.85E-7	0.00E+0	8.02E-9	-2.73E-5
NHWD	Kg	2.44E-1	5.75E-2	3.75E-2	3.39E-1	6.66E-5	7.10E-3	0.00E+0	1.00E-2	1.95E-2
RWD	Kg	2.23E-5	3.90E-7	3.89E-6	2.66E-5	5.10E-9	2.46E-8	0.00E+0	2.24E-10	8.75E-7

HWD=Hazardous waste disposed | **NHWD**=Non-hazardous waste disposed | **RWD**=Radioactive waste disposed

ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

Abbr.	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
CRU	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.00E-2	0.00E+0	0.00E+0
MFR	Kg	1.35E-3	0.00E+0	9.80E-4	2.33E-3	0.00E+0	0.00E+0	9.40E-1	0.00E+0	0.00E+0
MER	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	MJ	0.00E+0	0.00E+0	1.08E-2	1.08E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	MJ	0.00E+0	0.00E+0	6.25E-3	6.25E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

CRU=Components for re-use | **MFR**=Materials for recycling | **MER**=Materials for energy recovery | **EET**=Exported Energy, Thermic | **EEE**=Exported Energy, Electric

5 Results

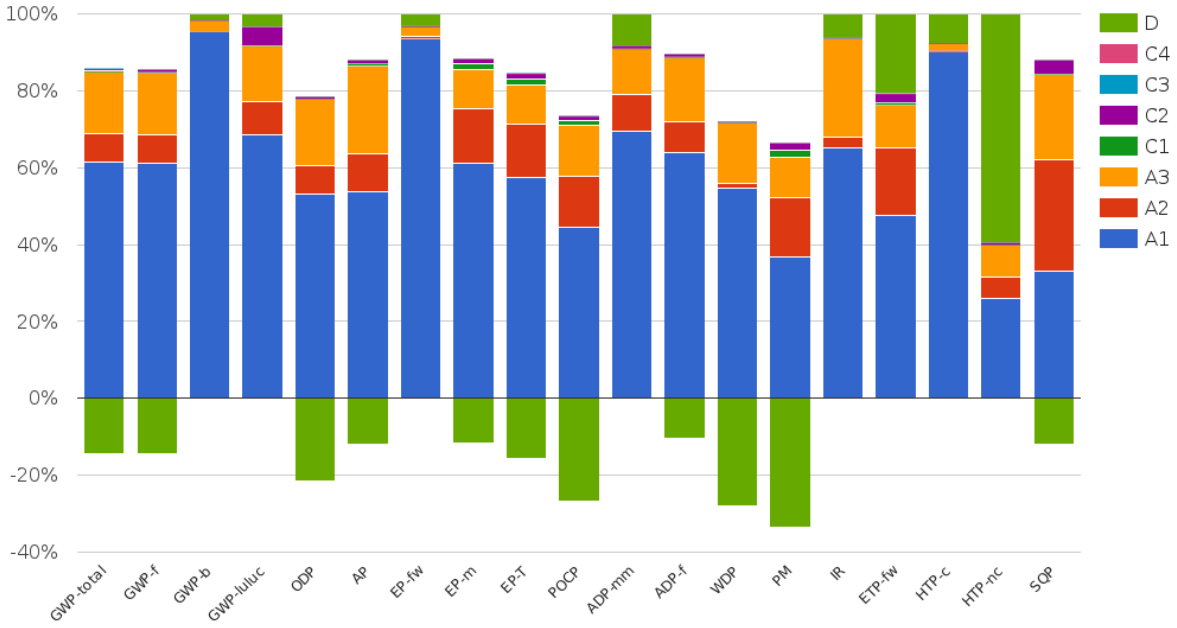
5.3 INFORMATION ON BIOGENIC CARBON CONTENT PER KILOGRAM

BIOGENIC CARBON CONTENT

The following Information describes the biogenic carbon content in (the main parts of) the product at the factory gate per kilogram:

Biogenic carbon content	Amount	Unit
Biogenic carbon content in the product	0	kg C
Biogenic carbon content in accompanying packaging	0	kg C

6 Interpretation of results



The study results are effectively visualized through graphical representation, clearly illustrating the contribution of each life cycle module across various environmental impact categories.

The graph distinctly indicates that module A1 (Raw Material Supply) exhibits the highest contribution to the overall environmental burdens, followed by module A3 (Product Manufacturing). This dominance is primarily attributed to the energy-intensive and emission-heavy nature of steel production, which serves as the core raw material for the product. The extraction, refining, and processing of steel require significant energy input and generate substantial emissions, thereby amplifying impacts across all assessed categories.

6 Interpretation of results

In module A3, the utilization of electricity, ancillary materials, and production-related emissions further intensifies the environmental footprint, reflecting the influence of manufacturing operations across various environmental impacts.

Module D exhibits relatively high values due to significant net environmental credits from recovered materials, particularly steel, displacing primary production burdens. These credits arise from avoided impacts of virgin material extraction and processing, partially offset by recycling operation loads.

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