

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 & EN 15804:2012 + A2:2019

ERW Bare Steel Pipes

BF Routed Steel

from

Goodluck India Limited



Programme:
The International EPD[®] System
www.environdec.com

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EPD India

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Programme Information

Programme	The International EPD® System
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Information about verification and reference PCR:

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

Product category rules (PCR)

PCR 2019:14 Construction products (EN 15804:A2) Version 1.1

PCR review was conducted by

The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members.

Review chair: Claudia A. Peña, University of Concepción, Chile.

The review panel may be contacted via the Secretariat www.environdec.com/contact.

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



EPD Process verification



EPD verification

Third party verifier

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Approved by

International EPD System Technical Committee,
supported by the Secretariat

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



Yes



No

LCA Study & EPD Design Conducted by



SEMTRIO

Semtrio Sustainability Consulting

BUDOTEK Teknopark, No 8/27

Umraniye / Istanbul Turkey

www.semtrio.com

Good Luck India Limited. has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Owner of the EPD

Goodluck India Limited

5/102 Sikka Complex, Community Centre
Preet Vihar, Vikas Marg, Delhi - 110 092 INDIA

Goodluck India Limited, established in 1986, is an ISO 9001:2015 certified organization, engaged in manufacturing and exporting of a wide range of galvanized sheets & coils, towers, hollow sections, CR coils CRCA and pipes & tubes. Leveraging on advanced manufacturing facilities and engineering expertise, the company has been successfully catering to the needs of clients from Public sector, Private sector OEMs and Central & State Government Departments. The company has successfully garnered the trust of most reputed global clients from across 100 countries.

Good Luck India Limited is a diversified engineering company with over three decades of experience in manufacturing of Auto Tubes, Engineering Structures, Forgings and Cold Rolled value added products. We have started journey with the capacity of 12000 MTPA in 1987 to now processing above 2.24 lakhs MT with more than 2000 employee strength.

We are highly diversified company and having around 27% export and 73% domestic business of our total business.

Contact

Darshan Lal Jadon
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The company made a strategic shift to move from regular low margins products to Value added high margin products. In line with this strategy, we have also entered new sectors such as Auto tube, Solar, Transmission and Distribution Towers.

We are well-positioned to benefit from the strong focus on infrastructure development under the current government.

Apart from Infra, our country has seen tremendous growth in auto mobile industry. We are supplying auto tubes and auto accessories to major auto and auto component companies. We expect that Government support towards "Make in India".

Good Luck India is committed to deliver innovative, user friendly and better-quality products at the best value to customers. Keeping this in mind, we continuously update and modernize our plant.

We have very strong relations with our clients, and we export to almost 450 customers around the world. Our supplies are made to over 100 countries around the world.

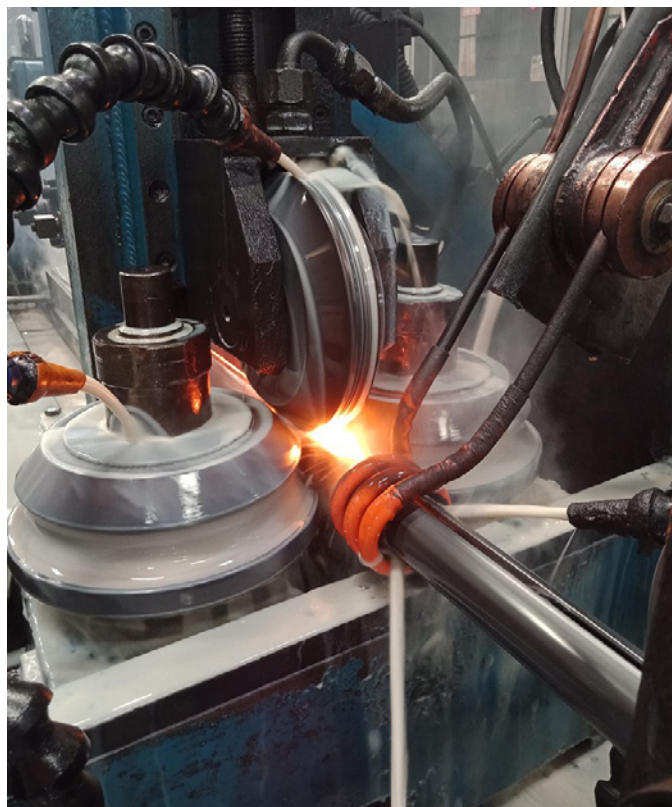
Production Site

Goodluck Metallics
(A Unit of Goodluck India Limited)
Village - Sikra, Taluka-Bhachau (Kutch),
Gujarat - 370140 INDIA



Product Name

ERW Bare Steel Pipes



Bare Steel Pipes are manufactured longitudinally welded with source of high frequency (ERW) from the strips having steel grade at their manufacturing standards. Our standard productions are packaged hexagonally with steel strips. According to customer demands, product may be packed with HDPE clothe as well.

Water Pipes

It is generally used in the transmission and distribution of non-flammable light gases and liquids. It is used in applications such as water installation lines, light gas lines, fire safety lines, water well lines, sleeve manufacturing, elbow manufacturing, greenhouse constructions, and irrigation systems.

Length: 3.0 - 12.0 m

Industrial Pipes

It is used in sectors and applications such as construction structures, automotive, machine manufacturing, scaffolding and formwork, conveyor, rack systems, roof systems, furniture, piles and tunnels.

Scaffolding Pipes

It is used in scaffolding and formwork structures.

Boiler Pipes

It is used for the transmission of non-combustible and non-explosive liquids at high temperature and pressure.

Threaded end, Bevel end, Plain end and Groove end Pipes.

It is used in all installation and construction areas of coupled connections.

Heat-Treated and Hot-Finished Pipes

It is used in all constructions with its mechanical properties and improved grain structure by cold forming and heat treatment.

Technical Specifications

Pipe Types / End Application	Production Standards	Steel Grades
Water and Gas Pipes	EN 10217-1	P195TR1, P235TR1, P265TR1, P195TR2, P235TR2, P265TR2
	EN 10255	S195T
	ASTM A53	Grade A, Grade B
	ASTM A795	Grade A, Grade B
	IS 1239 P-1	
	SLS 829	
	BS 1387	
	AS 1074	
Industrial Tubes and Pipes	EN 10219	S235JRH, S275J0H, S355J0H
	EN 10305-3	E155, E190, E195, E220, E235, E260, E275, E320, E355
	ASTM A500	Grade A, Grade B, Grade C, Grade D
	IS 3074	ERW-1,ERW-2&ERW-3
	IS 3601	WT 160, WT 210, WT 240 & WT 310
	AS/NZS 1163	C250, C350, C450, C250L0, C350L0
Boiler, Super heater and Air preheater tubes/ pipes Heat-Treated	EN 10217-2	P195GH, P235GH, P265GH
	ASTM-A 178/A 178M – 02	Grade A
	ASTM A 423/A 423M	Grade 1
	Indian boiler regulation-1950	
	BS 3059-P1	GR- 320

Technical Specifications (cont.)

Pipe Types / End Application	Production Standards	Steel Grades
Boiler, Super heater and Air preheater tubes/ pipes Heat-Treated	BS 3059-P2	GR- 320, GR-360
	BS 6323 P-5	ERW-1, ERW-2, ERW-3, ERW-4 & ERW-5
Hollow Steel Sections for Structural	IS 4923	YSt. 210, YSt 240, YSt 310 & YSt 355
	ASTM A500	Grade A, Grade B, Grade C, Grade D
	AS/NZS 1163	C250, C350, C450, C250L0, C350L0
	EN 10219	S235JRH, S275J0H, S355J0H
Threaded Pipes	ASTM A53, ISO 7/1, ANSI B1.20.1, EN 10255, IS 1239 P-1, AS 1074,SLS 829	
Heat-Treated and Hot-Finished Pipes	EN 10217 P-1	P195TR2, P235TR2, P265TR2
	ASTM A53	Grade A, Grade B
	ASTM A500	Grade A, Grade B, Grade C, Grade D
	IS 3074	ERW-1, ERW-2 & ERW-3
Conduit Pipes	UL-6, UL-797, UL-1242, ASNZS-61386.21, ASNZS-2053.7	-

LCA Information

Functional Unit

1 tonne (1000kg) of fabricated steel product manufactured in Gujarat facilitate (IN).

Reference service life

Not applicable.

Time representativeness

The production data in this LCA study represents the period of May 2021 and January 2022.

Database(s) and LCA software used

SimaPro v9.2 and Ecoinvent v3.7.1

Description of system boundaries

Cradle to gate (A1-3) with options, modules C1-C4, module D.

Data quality and data collection

According to EN 15804:2012+A2:2019 specific data was used for module A3 (Processes the manufacturer has influence over) and was gathered from Goodluck

Metallics (A Unit of Goodluck India Limited) plants. Specific data includes actual product weights, amounts of raw materials used, product content, energy consumption, transport figures, water consumption and amounts of wastes. For A1 and A2 modules, according to EN 15804:2012+A2:2019, generic data was applied and was obtained from Ecoinvent v3.7.1

Allocation

Mass allocation has been applied for preconsumer recycled materials according to EN 15804:2012+A2:2019.

Cut-off rules

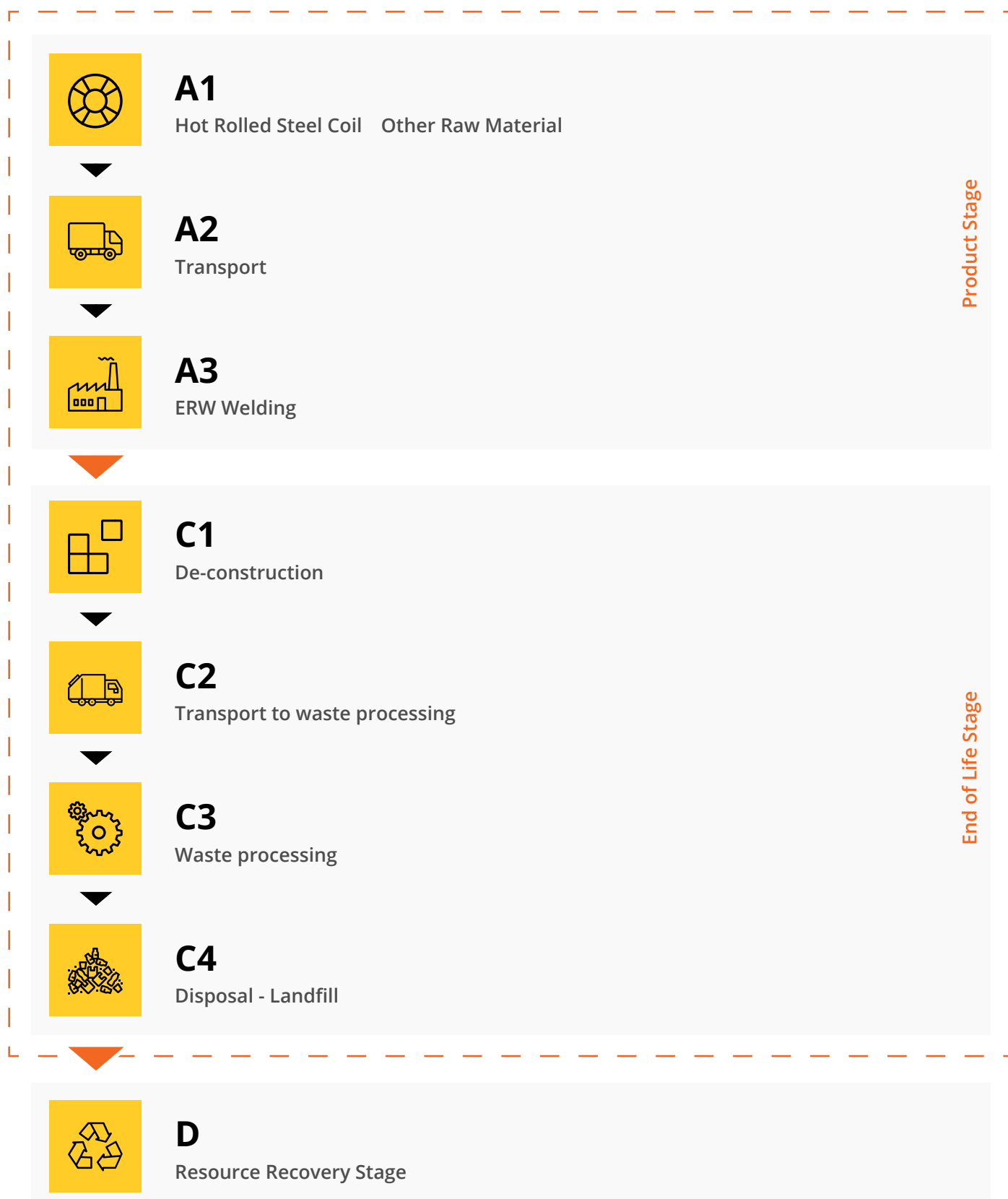
Life Cycle Inventory data for a minimum of 99% of total inflows to the life cycle assesment have been included and a cut-off rule of 1% regarding energy, mass and environmental relevance was applied. Impacts caused by treatment operations have been calculated lower than 1% environmental relevance.

Modules declared, geographical scope, share of specific data (in GWP - GHG indicator) and data variation

	Product Stage			Construction Process Stage		Use Stage							End of Life Stage				Resource Recovery Stage
	Raw Material Supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal	Raw Material Supply
Modules	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	IN	-	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	>99.5%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation- products	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-sites	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-

System Diagram

SYSTEM BOUNDARY



Description of Declared Modules

A1 - Raw Materials Supply

This stage takes into account raw material extraction, processing and energy used in the production process.

A2 - Transport to the Manufacturer

This stages include transportation of the raw materials from supplier to factory gate. Transportation types are considered as road, railroad, etc.

A3 - Manufacturing

This stage includes energy and water consumption during the manufacturing process. Additionally, packaging materials are covered by this stage. Followed production processes are as;

- Electric Arc Furnace
- LF Steel Making
- Hot Strip Rolling
- HFIW - ERW
- Coating

C1 - De-construction

The dismantling of steel pipe has a very low impact considering the impact throughout the life of the installation. It is assumed that, in C1 module, same electricity and diesel is consumed as during the construction installation of steel pipe.

C2 - Transport to Waste Processing

An average distance of 100 km has been assumed for the transport to recycling facility. Transport is calculated on the basis of a scenario with the parameters described in the table below.

Parameters C2 Module	
Transport by road	Lorry > 32 metric ton
Distance (km)	100
Database	Ecoinvent v3.7.1

C3 - Waste processing for reuse, recovery and/or recycling

The material and energy expenses required for Module C3 are negligible. It is assumed that there is no sorting or processing required for steel pipes.

C4 - Final disposal

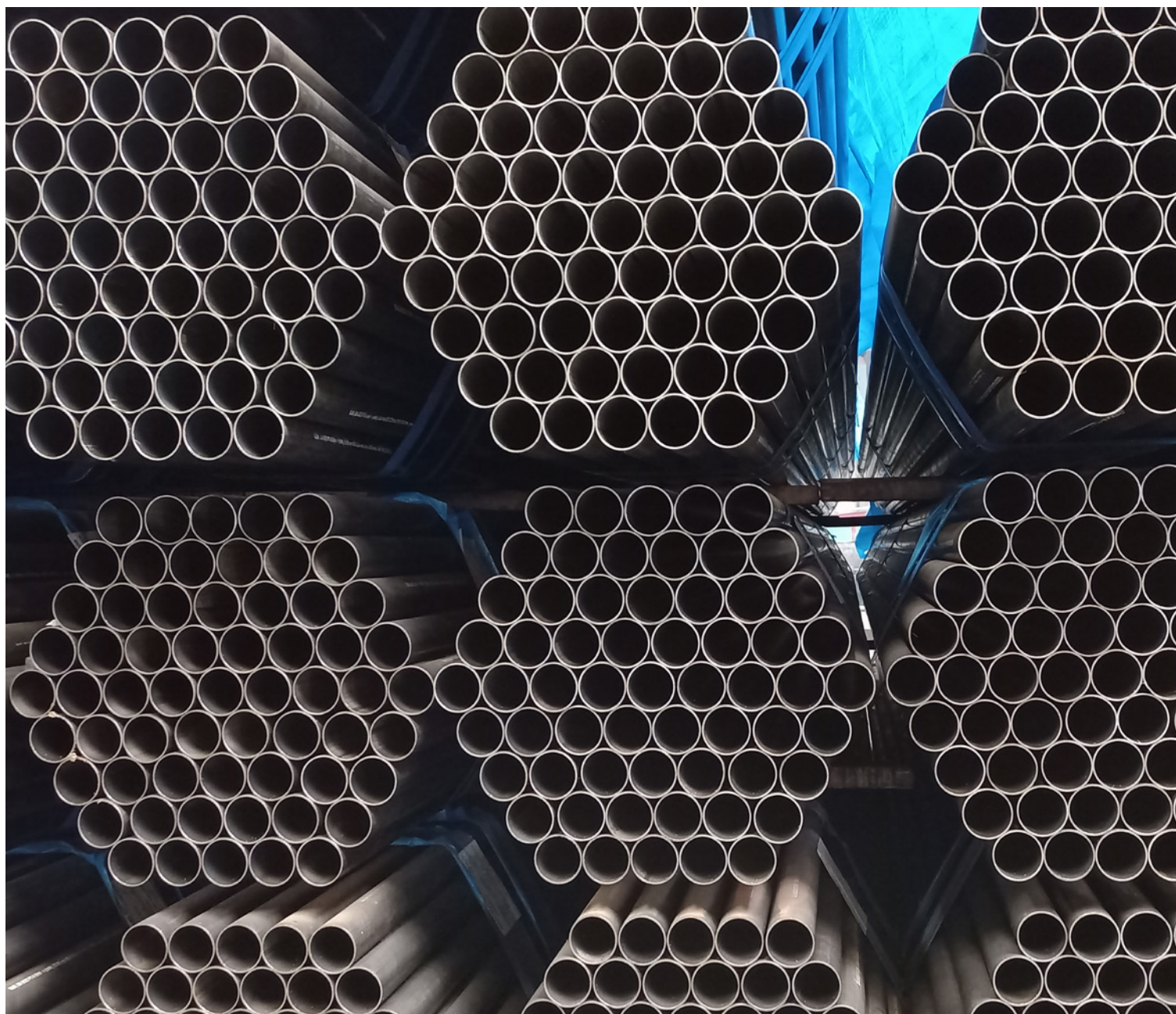
100% of used product after the lifetime will be collected and recycled into the manufacturing system. It is assumed that 5% of the product is lost during de-construction and recycling, and, 95% is reached to recycling system.

D - Reuse, Recovery or Recycling Potential

Scrap inputs to the production stage are subtracted from scrap to be recycled at end of life in order to obtain the net scrap output from the product system. This remaining net scrap is then delivered to recycling process. Module D reports the environmental aspects of recycled scrap generated at the end of life minus that used at the production stage.

Information on which life cycle stages are not considered

This EPD only cover the Cradle to Gate A1-3, C1-4 and D stages because other stages are very dependent on particular scenarios and are better developed for specific building or construction works.



Content Declaration

Content declaration of 1000kg of steel pipe	
Material	Share
BF steel coil	99.0-99.9.%
Coating materials	1-0.01%
Renewable material	0 %
Biogenic Carbon	0 %

* The product does not content "Candidate List of Substances of Very High Concern (SVHC)" compounds.

Potential Environmental Impact *Mandatory Indicators According to EN 15804*

Results for 1000kg of ERW Pipe							
Indicator	Unit	A1:A3	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq	2437	1.62	8.97	0	0.262	-1319
GWP-biogenic	kg CO ₂ eq	-8.1	0.010	0.016	0	8.13E-04	4.50
GWP-luluc	kg CO ₂ eq	1.07	2.08E-03	2.74E-03	0	7.12E-05	-0.521
GWP-total	kg CO ₂ eq	2430	1.63	8.99	0	0.263	-1315
ODP	kg CFC-11 eq	1.35E-04	7.33E-08	2.12E-06	0	1.08E-07	-6.76E-05
AP	mol H ⁺ eq	13.1	7.68E-03	0.029	0	2.48E-03	-7.45
EP-Freshwater	kg PO ₄ ³⁻ eq	1.67	8.92E-04	3.20E-03	0	3.32E-04	-0.979
EP-Aquatic Freshwater	kg P eq	0.165	8.80E-05	7.89E-05	0	2.76E-06	-0.099
EP-Marine	kg N eq	2.99	1.63E-03	6.45E-03	0	8.60E-04	-1.72
EP-Terrestrial	kg N eq	27.2	0.016	0.072	0	9.47E-03	-15.0
POCP	kg NMVOC eq	14.6	5.52E-03	0.028	0	2.75E-03	-8.47
ADP-minerals & metals*	kg Sb eq	4.69E-03	9.24E-06	2.15E-05	0	5.87E-07	-2.62E-03
ADP-fossil	Mj	31350	19.5	143	0	7.35	-16977
WDP	m ³	675	1.02	0.530	0	0.330	-199

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-aquatic freshwater** = Eutrophication potential, fraction of nutrients reaching aquatic 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.

Potential Environmental Impact *Additional Mandatory and Voluntary Indicators*

Results according to PCR2019:14 for 1000 kg of ERW Pipe							
Indicator	Unit	A1:A3	C1	C2	C3	C4	D
GWP-GHG¹	kg CO ₂ eq	2348	1.56	8.88	0	0.258	-1267

Results according to EN 15804+A2 for 1000 kg of ERW Pipe							
PM	[disease inc]	2.26E-04	4.12E-07	7.70E-07	0	4.84E-08	-1.36E-04
IRP	[kBq U235 eq]	41.6	0.071	0.604	0	0.030	-18.9
ET-freshwater	[CTUe]	94868	40.3	119	0	4.62	-57503
HT-cancer	[CTUh]	2.15E-05	3.57E-08	3.38E-09	0	1.38E-10	-1.37E-05
HT-non-cancer	[CTUh]	8.96E-05	3.45E-08	1.15E-07	0	2.88E-09	-5.63E-05
SQP	[pt]	9288	5.10	162	0	15.4	-4783

Acronyms

GWP-GHG = Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology; **IRP** = Ionizing radiation, human health; **ET-freshwater** = Eco-toxicity (freshwater); **HT-cancer** = Human toxicity, cancer effects; **HT-non-cancer** = Human toxicity, non-cancer effects; **SQP** = Potential soil quality index (SQP)

¹ The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Use of Resources

Results according to PCR2019:14 for 1000 kg of ERW Pipe							
Indicator	Unit	A1:A3	C1	C2	C3	C4	D
PERE	MJ	1214	1.88	1.55	0	0.059	-623
PERM	MJ	0	0	0	0	0	0
PERT	MJ	1214	1.88	1.55	0	0.059	-623
PENRE	MJ	33146	20.7	152	0	7.81	-17910
PENRM	MJ	0	0	0	0	0	0
PENRT	MJ	33146	20.7	152	0	8	-17910
SM	kg	1047	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0
FW	m ³	139	0.144	0.123	0	0.012	-64.6

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 resources; **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 Production

Results according to PCR2019:14 for 1000 kg of ERW Pipe							
Indicator	Unit	A1:A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0	0	0	0	0	0
Non-hazardous waste disposed	kg	55.2	0	0	0	0	0
Radioactive waste disposed	kg	0	0	0	0	0	0

Output Flows

Results according to PCR2019:14 for 1000 kg of ERW Pipe							
Indicator	Unit	A1:A3	C1	C2	C3	C4	D
Component for re-use	kg	0.062	0	0	0	0	0
Materials for recycling	kg	0	0	0	0	950	0
Materials for energy recycling	kg	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0
Radioactive waste disposed	MJ	0	0	0	0	0	0

ISO 14020:2000

Environmental labels and declarations — General principles

ISO 14040:2006

Environmental management — Life cycle assessment — Principles and framework

ISO 14044:2006

Environmental management — Life cycle assessment — Requirements and guidelines

ISO 14025:2006

Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804:2012+A2:2019

Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction product

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_ SimaPro LCA Software

www.simapro.com

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