ENVIRONMENTAL PRODUCT DECLARATION

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

ERW Hot Formed Epoxy or Polyester Coated Pipes

EAF Routed Steel

from

Borusan Pipe

PROGRAMME
The International EPD® System
www.environdec.com

PROGRAMME OPERATOR
EPD International AB

LOCAL OPERATOR
EPD Turkey

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EPD® THE INTERNATIONAL EPD® SYSTEM

TURKEY EPD® ENVIRONMENTAL PRODUCT DECLARATIONS

ECO PLATFORM EPD VERIFIED

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: **environdec.com**

BORUSAN PIPE

PROGRAMME INFORMATION

Programme Information

Programme : The International EPD® System
Address : EPD International AB Box 21060 SE-100 31 Stockholm, Sweeden
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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
Sunil Kumar
SimaPro partners for India & Sri Lanka, SIPL Pvt Ltd

Approved by
International EPD System Technical Commiee,
supported by the Secretariat

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

☐ Yes ☑ No

LCA Study & EDP Design Conducted by

Semtrio Sustainability Consulting
BUDOTEK Teknopark, No 8/27
Umraniye / Istanbul Turkey
www.semtrio.com

Borusan Pipe 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.

COMPANY INFORMATION

Owner of the EPD

Borusan Birleşik Boru Fabrikaları San. ve Tic. A.Ş.
Ata Mh. Sanayi Cd. No: 54/68 16601
Gemlik/Bursa

Contact
Ahu OLGUN
aolgun@borusan.com

The first industrial enterprise of one of Türkiye's foremost business conglomerates, the Borusan Group, Borusan Pipe, marked its 65th anniversary in 2023. Since its founding on the first day, Borusan Pipe has continued investing in solutions that create value for its partners with a global vision.

Today, Borusan Pipe continues its global business with more than 2,800 employees and offers more than 4,000 product varieties. Its eleven facilities across three continents and high sales volume have placed it on the map as a leading manufacturer in the steel pipe industry in Europe and the world.

Borusan Pipe brings its experience, expertise, and passion worldwide with state-of-the-art pipes addressing all areas ranging from automotive to construction and energy to machinery production. The company continued its investments with a global perspective following market dynamics. It made its first overseas investment in 2001 when it bought the facility in Vobarno and founded Borusan Vobarno Tubi S.p.A. The company then established Borusan Pipe US Inc. in 2014 to manage its Houston Baytown factory investment in the United States. Borusan Pipe US Inc. achieved success soon thanks to its advanced technology and innovative products. It won the "Best Pipe Manufacturer" award given by one of the most prestigious publications in the United States, the American Metal Market, in 2016, 2017, and 2020. In 2023, within the scope of its strategy to become a local player in global markets, Borusan Pipe acquired Berg Pipe, which produces at the highest quality and largest capacity in the USA

Having entered Türkiye's pioneering overseas investors with these breakthroughs, Borusan Pipe seeks investment opportunities in different countries and aims to boost Türkiye's competitiveness.

In addition to its contributions to our country with its exports to various countries in America, Europe, Africa, and Asia, it is also a driving force for the Turkish economy with the development assurance it gives for the coming years.

Having been ranked among Türkiye's top 100 industrial enterprises for 50 years, Borusan Pipe goes beyond merely manufacturing pipes with its thousands of products, reliable service, quality, and the trails it has blazed in Türkiye and the world and builds Türkiye's future. It delivers a sustainable society with management policies, a developed country, and a secure future with large-scale investments.

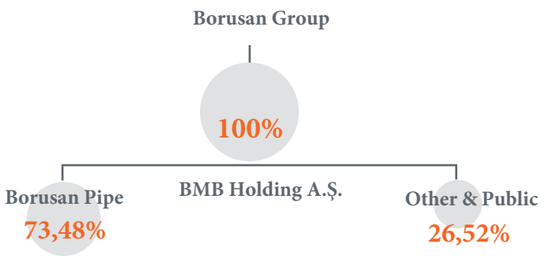
Production Site

Gemlik
Ata Mah. Sanayi Cad. No: 54/68
16601 Gemlik/Bursa

- Flagship of Borusan Group with more than 60 years of pipe manufacturing experience
- Workforce of 1,800 people
- 20 years of Contract Management competency
- Has its own port (Borusan Port) adjacent to the mill, which brings operational flexibility in terms of logistics inbound and outbound
- Sole 24.5 m single seam API/ISO/EN large diameter line pipe producer in Europe
- Operates with 7 mills; 5 in Turkey, 1 in Italy, 1 in USA

Corporate Structure

BMB Holding A.Ş. owns 73,48% shares of Borusan Pipe and the remainder 26,52% is publicly traded. Borusan Pipe is the first industrial organization of the Borusan Group, one of Türkiye's foremost business conglomerates.



BORUSAN PIPE

PRODUCT INFORMATION

Product Name

ERW Hot Formed Epoxy or Polyester Coated Pipes

ERW Water Pipes

Production Standards & Material Qualities

- Production Norms
  EN 10224, EN 10255, ISO 65, ASTM A 53, ASTM A 795, ASTM A 589, EN 10217-1/2
- Production Standard For Threading and Coupling (1/2”-6”)
  ISO 7/1, ANSI B.1.20.1, EN 10255
- Grooving (3/4”-12”) according to Victaulic Standard.
- Medium Series Pipes can be used up to 25 bar operating pressure for water.
- Material Qualities
  DIN 17100 St 37-2, St 44, St 52, DIN 17100 Superseeded by DIN EN 10250-1, EN 10025 S195, S235, S275, S355, ASTM Gr A, Gr B

Tests & Certificates

- Visual and Dimensional Inspection
- Leak tightness testing: Hydrostatic Test, Eddy Current Test
- Destructive Tests: Flattening, Bending
- Mechanical Tests
- Chemical Analysis
- Metallographic Examination
- Others as required by the standards
- Ultrasonic weld seam test if applicable for gas pipes
- Mill Test Certificates
  - Issued upon request according to EN 10204 2.1; 2.2; 3.1; 3.2
- NDT Standards:
  - ET (EN ISO 10893-2), ET (ASTM E309)

Finishing Operations

- Plain end (square cut or bevelled)
- Threaded and coupled (Max OD: 168.3 mm)
- Grooved

Fire Sprinkler Pipes

Technical Specifications

- FM approved
- UL/C-UL Listed
- NSF certified
- Tight tolerances
- Consistent wall thickness, straightness, roundness
- CE, PED certified
- Pressure tested
- Reliable high steel quality
- Galvenised or shop primer coated black, red (RAL 3000, RAL 3002, RAL 3009) or grey (RAL 7012)
- Plain Ends, Grooved or Threaded & Coupled
- Custom length availability

Fire Sprinkler Pipe Specifications

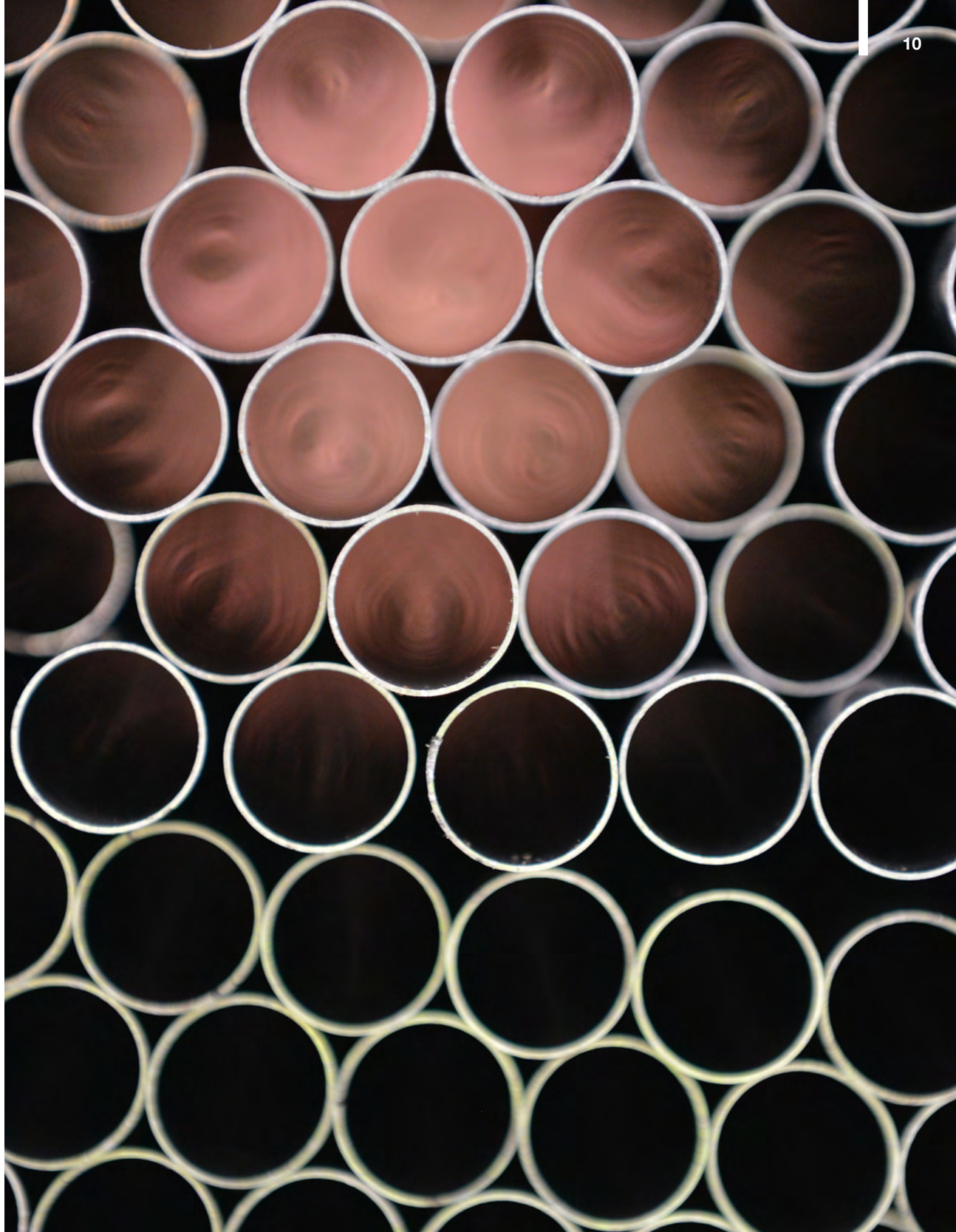
- ASTM A53 & ASTM A795 production standards available; Light wall, Sch7, Sch10, Sch30, Sch40 and Sch 80
- EN 10217 & EN 10255 production standards available; Light wall, light, medium, heavy series
- Easy to weld & install
- Saves labor, time and cost
- Pressure ratings exceeding 300 psi
- Compatible for use in wet, dry, preaction and deluge sprinkler systems
- Black, red and grey primer coated pipes eliminate field painted
- Upon a request; hot dipped galvanized coated
- Plain end, roll grooved, threaded & coupled
- Custom length available
- Tight tolerances
- Consistent roundness, straightness and wall thickness
- Reliable high steel quality
- Inside weld bead can be removed
- Pressure tested

Sizes

ERW Water Pipes	Fire Sprinkler Pipes
Outside Diameter 21.3mm - 88.9mm	**Outside Diameter** 21.3mm - 88.9mm
Wall Thickness 1.9mm - 10.0mm	**Wall Thickness** 1.9mm - 10.0mm
Length 3.00m - 12.80m	Custom length

Technical Specifications

Production Standards	Steel Grades
ERW Water Pipes	
TS EN 10255+A1	S195T
TS EN 10217-1/2	P195 TR1-TR2, P235 TR1-TR2, P265 TR1-TR2
ASTM A53, ASTM A795	GrA, GrB
Self Anchor	
EN 10210	S355JRH, 28Mn6
EN 10219	S355JRH, 28Mn6
Engineering Tubes	
EN 10305-3, EN 10305-2, EN 10305-5	S235JR, S275J2, S355J2, DC01, DC03, DC04, S315MC - S700MC, HC260LA - HC2500LA, DP500 – DP1000, 20MnB5, 22MnB5, 26MnB5, 30MnB5, 34MnB5, DX51, DX52, DX53, S220, S350
Fire Sprinkler Pipes	
ASTM A53, ASTM A795	Grade A, Grade B
EN 10255	S195



LCA Information

Declared unit
1 tonne (1000kg) of fabricated steel product manufactured in Gemlik facility (TR).

Reference service life
Not applicable

Time representatives
The production data in this LCA study represents the period of 1st January 2021 and 30th September 2021.

Database(s) and LCA software used
Simpro 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 Borusan Gemlik plant. 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

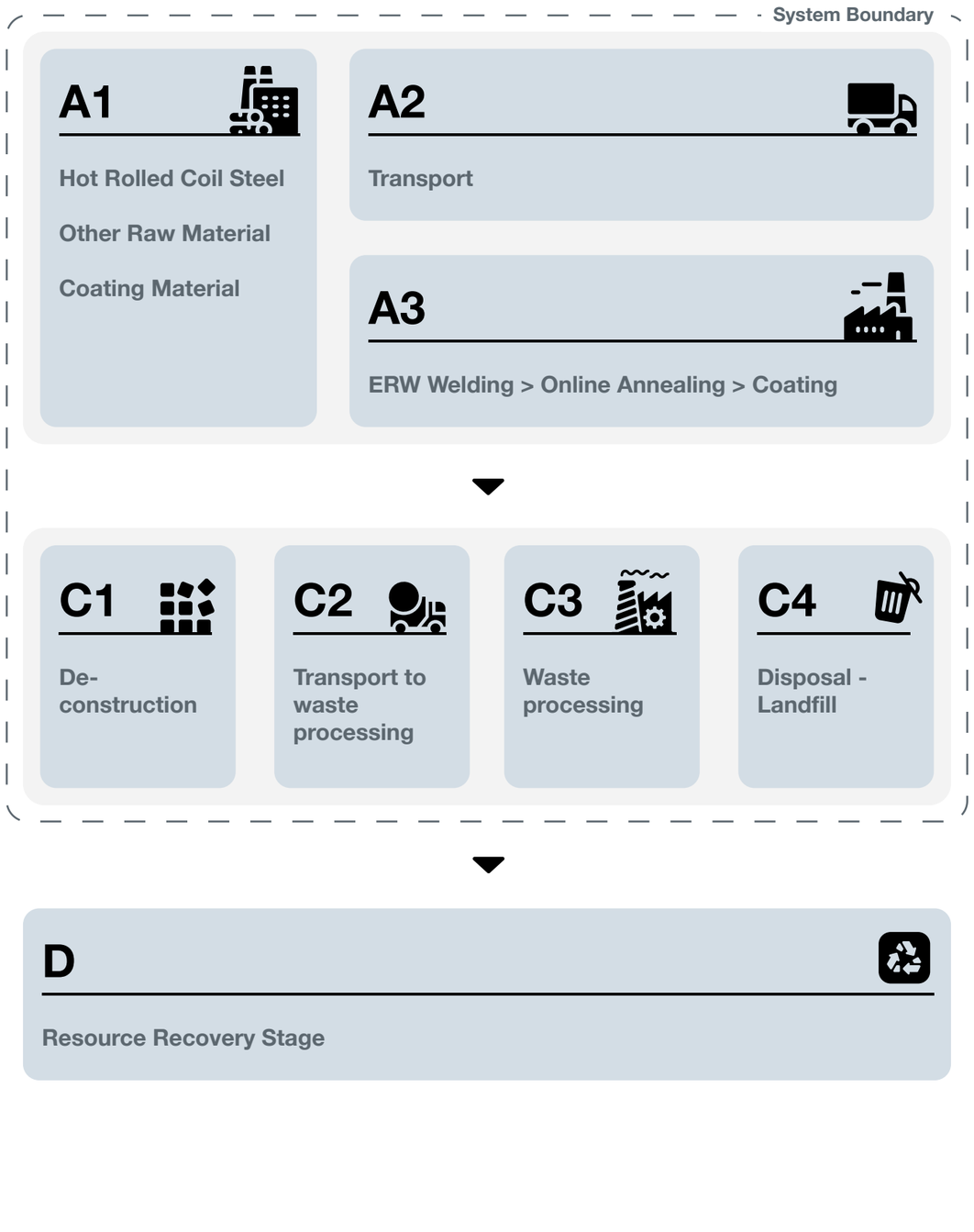
Allocation
Mass allocation has been applied for preconsumer recycled materials according to EN 15804:2012+A2:2019.

Cut-off rules
Life Cycle Inventory data for a minimum of 99% of total inflows to the three life cycle stages 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
X Declared *ND Not Declared*	Raw Material Supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintanence	Repair	Replacement	Refurbisment	Operational Energy Use	Operational Water Use	De-construction	Transport	Disposal	Waste Processing	Reuse - Recovery - Recycling Potential
Modules	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules Declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	TR	–	–	–	–	–	–	–	–	–	GLO	GLO	GLO	GLO	GLO
Specific data used	>99.5%			–	–	–	–	–	–	–	–	–	–	–	–	–	–
Variation-products	Not Relevant			–	–	–	–	–	–	–	–	–	–	–	–	–	–
Variation-sites	Not Relevant			–	–	–	–	–	–	–	–	–	–	–	–	–	–

System Diagram



Description of Raw Materials

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 seaway, road, 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;

- Tape slitting section
- Welding
- 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 100km 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

*Technology is euro 6

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 95% is reached to recycling system.

D - Reuse, Recovery or Recycling Potential
Scrap inputs to the production stage are substracted 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 covers 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 ERW Steel Pipe	
Material	**Share**
Steel Coil	99.0 - 99.9%
Renewable Material	0%
Biogenic Carbon	0%
Coating Materials	0.1 - 1%

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

ENVIRONMENTAL PERFORMANCE

Potential Environmental Impact

Mandatory Indicators According to EN 15804

Results for 1000kg of ERW Steel Pipe							
Indicator	**Unit**	**A1:A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO2 eq	1261	1.28	8.67	0	0.262	-22.6
GWP-biogenic	kg CO2 eq	14.2	0.031	0.019	0	8.13E-04	-0.325
GWP-luluc	kg CO2 eq	2.35	1.65E-03	2.53E-03	0	7.12E-05	-0.044
GWP-total	kg CO2 eq	1277	1.31	8.70	0	0.263	-23.0
ODP	kg CFC 11eq	7.98E-05	7.22E-08	2.13E-06	0	1.08E-07	-1.22E-06
AP	mol H+ eq	5.74	6.19E-03	0.027	0	2.48E-03	-0.166
EP-Freshwater	kg PO43- eq	0.665	7.86E-04	3.03E-03	0	3.32E-04	-0.016
EP- Aquatic Freshwater	kg P eq	0.082	9.32E-05	6.50E-05	0	2.76E-06	-1.42E-03
EP-Marine	kg N eq	1.11	1.28E-03	6.11E-03	0	8.60E-04	-0.033
EP-Terrestrial	kg N eq	12.4	0.012	0.068	0	9.47E-03	-0.376
POCP	kg NMVOC eq	5.17	4.50E-03	0.027	0	2.75E-03	-0.124
ADP-minerals & metals*	kg Sb eq	4.51E-03	9.24E-06	2.12E-05	0	5.87E-07	-1.04E-04
ADP-fossil*	MJ	17275	18.9	141	0	7.35	-312
WDP	m3	619	0.995	0.466	0	0.330	-5.41

Acronmys

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.*

Potential Environmental Impact

Additional Mandatory and Voluntary Indicators

Results for 1000kg of ERW Steel Pipe							
Indicator	**Unit**	**A1:A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO2 eq	1221	1.23	8.59	0	0.258	-21.8
Results for 1000kg of ERW Steel Pipe							
PM	[disease inc]	9.71E-05	3.89E-07	7.57E-07	0	4.84E-08	-1.32E-05
IRP	[kBq U235 eq]	63.4	0.110	0.620	0	0.030	-1.54
ET-freshwater	[CTUe]	23487	30.8	108	0	4.62	-805
HT-cancer	[CTUh]	2.15E-05	3.57E-08	3.31E-09	0	1.38E-10	-1.27E-06
HT-non-cancer	[CTUh]	3.14E-04	3.17E-08	1.12E-07	0	2.88E-09	-3.19E-07
SQP	[pt]	4662	4.80	162	0	15.4	-123

Acronmys

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 for 1000kg of ERW Steel Pipe							
Indicator	**Unit**	**A1:A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	kg CO2 eq	1601	2.22	1.72	0	0.059	-60.3
PERM	kg CO2 eq	0	0	0	0	0	0
PERT	kg CO2 eq	1601	2.22	1.72	0	0.059	-60.3
PENRE	kg CO2 eq	18402	20.0	150	0	7.81	-330
PENRM	kg CFC 11eq	0	0	0	0	0	0
PENRT	mol H+ eq	18402	20.0	150	0	7.81	-330
SM	kg N eq	1047	0	0	0	0	0
RSF	kg N eq	0	0	0	0	0	0
NRSF	kg NMVOC eq	0	0	0	0	0	0
FW	kg Sb eq	105	0.170	0.129	0	0.012	-1.50

Acronmys

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*

Differences versus Previous Versions

This EPD has been revised to reflect the organizational name change, the renewed company logo and the updated official company website address.

Waste Production

Results for 1000kg of ERW Steel Pipe							
Indicator	**Unit**	**A1:A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.30E-03	0	0	0	0	0
Non-hazardous waste disposed	kg	0.274	0	0	0	0	0
Radioactive waste disposed	kg	0	0	0	0	0	0

Output Flows

Results for 1000kg of ERW Steel Pipe							
Indicator	**Unit**	**A1:A3**	**C1**	**C2**	**C3**	**C4**	**D**
Component for re-use	kg	0	0	0	0	0	0
Materials for recycling	kg	72.4	0	0	0	950	0
Materials for energy recycling	kg	7.06	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

REFERENCES

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

The International EPD® System
www.environdec.com

The International EPD® System The General Programme Instructions v3.01

The International EPD® System PCR 2029:14 Construction products v1.1 (EN 15804:A2)

Ecoinvent 3.7.1
www.ecoinvent.org

SimaPro LCA Software
www.simapro.com

Borusan Pipe
https://borusanboru.com/en

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