

ENVIRONMENTAL PRODUCT DECLARATION

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

SPIRAL SUBMERGED ARC WELDED PIPES



Programme: The International EPD System	Licensee: EPD Türkiye	EPD registration number: EPD-IES-0016050
Version Date 2025.02.04	Validity Date 2030.02.03	Geographical Scope: Türkiye

An EPD may be updated or depublished if conditions change. To find the şatest version of the EPD and to see confirm its validity, see www.environdec.com

PROGRAMME INFORMATION

Programme:	The International EPD® System	EPD Türkiye
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden	SÜRATAM Sürdürülebilirlik Danışmanlığı A.Ş. www.suratam.org Nef 09 B Blok No: 7/15 34415 Kağıthane, İstanbul/Türkiye
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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): PCR 2019:14 Construction Product 1.3.4, Valid until: 2025 – 06- 20 UN CPC Code: 4128 Tubes, pipes and hollow profiles, of steel
Life Cycle Assessment (LCA)
LCA accountability: Greenlife Danışmanlık Müh. Eğt. Ve Tas. Hiz. Tic. Ltd. Şti.
Third-party verification
External and independent ('third-party') verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification through an individual EPD verification Third-party verifier: Hudai Kara PhD, Metsims Sustainability Consulting, Oxford, U.K.
Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No [Procedure for follow-up the validity of the EPD is at minimum required once a year with the aim of confirming whether the information in the EPD remains valid or if the EPD needs to be updated during its validity period. The follow-up can be organized entirely by the EPD owner or together with the original verifier via an agreement between the two parties. In both approaches, the EPD owner is responsible for the procedure being carried out. If a change that requires an update is identified, the EPD shall be re-verified by a verifier]

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.

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Owner of the Declaration



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About Our Company



HATBORU TÜRKİYE

Hatboru Sanayi ve Ticaret A.Ş., which has been providing services in the steel pipe market since 1964, switched from the production of irrigation systems and drill pipes to the production of spiral welded pipes in 1998 and achieved to be considered among the best in the steel pipe market today.

In 3 continents and in a geography inhabited by more than a billion people, Hatboru's products are reliably used in major projects of considerable importance to human life such as natural gas, oil pipelines, irrigation water, drinking water, power plants and construction.

Address: Antakya Organize Sanayi Bölgesi Antakya/Hatay/Türkiye





About the Product



SPIRAL SUBMERGED ARC WELDED PIPES

Spiral welded pipes are produced by bending the steel coils in spiral to give it a pipe form with the sides of the strip joined by submerged arc welding method internally and externally as specified by the standards.

. Now, with the anti-corrosion technology and materials developed in our time, the steel pipes have an even longer service life, and with their other superior characteristics, mentioned on the following page, they are at the forefront in their fields of application.

Features

- High resistance
- Compressive and impact strength
- High bearing capacity
- Continuity and long services life
- Flexibility
- Easy to Form

Applications

- Oil pipelines
- Gas Distribution Lines
- Water Distribution Lines
- Foundation Piles
- Industrial Pipe Network
- Steel Structures
- Refineries
- Liquid Hydrocarbons Transmission
- High Temperature Water Transmission
- Storage Applicaiton of Hydrocarbons
- Hydro Power Plants

Technical Data

Product Range

Outside Diameter: From 219.1 mm up to 3600 mm

Wall Thickness: From 4 mm up to 40 mm

Pipe Length: From 6 m up to 60 m

Production Standards

- **Oil and Natural Gas Pipelines**

API 5L, EN ISO 3183

- **Water Line Pipes**

TS EN 10217-1, TS EN 10217-3, TS EN 10217-5, AWWA C200, EN 10224

- **Piling Pipes**

ASTMA A 252, EN 10219, DIN 1615

- **Pipes for General Use**

BS 3601, DIN 1626, ASTM A 139, EN 10217-3, EN 10217-5, EN 10217-6

FITTINGS

Hatboru produces parts and flanges such as elbow, tee, reduction/reducer, which are hard to produce under the land conditions and therefore, fabricated as required by most specifications today in accordance with the Project requirements related standards.

ELBOWS

The elbows are cut on automatic machines in range of \varnothing 219 mm and \varnothing 3048 mm and the angles of 11°, 15°, 22°, 30°, 45°, 60°, and 90° or in compliance with the Project requirements and as per TS EN 10224 norms.

TEE-PIPES

Tee-Pipes are produced with bevelled or flanged in range \varnothing 219 mm and \varnothing 3048 mm in dimensions as per TS EN 10224 norms.

Content Information

Product	Weight, kg	Post-consumer Material, weight, %	Biogenic Material, weight % and kg C/1 tonne product
Hot rolled steel	999	0	0
Others	1	0	0
Total	1000	0	0

Packaging Materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/1 tonne product
EUR – Flat Pallet	0.18	0.018	0.08
Plastic Big Bag	0.14	0.014	0.00
Total	0.32	0.032	0.08

No substances that are listed in the “Candidate List of Substances of very high concern for authorization” are contained in the declared unit.

LCA Information

Declared Unit

1 tonne of Spiral Welded Steel Pipe
manufactured in Hatboru San ve Tic A.Ş.

LCA Software and Database used

SimaPro V9.5.0.2. and Ecoinvent 3.9.1

Calculation Method

Life cycle impacts were calculated according to
EN 15804 reference package based on EF 3.1.

Data Time Period and Quality

1 January 2023 – 31 December 2023.

The transport and consumption data used for
A1, A2 and A3 modules were calculated using
the primary data of Hatboru San ve Tic A.Ş.

Cut-off Criteria

The data for elementary flows to and from the
product system, which contribute to at least
99% of the declared environmental impacts,
have been incorporated.



LCA Information

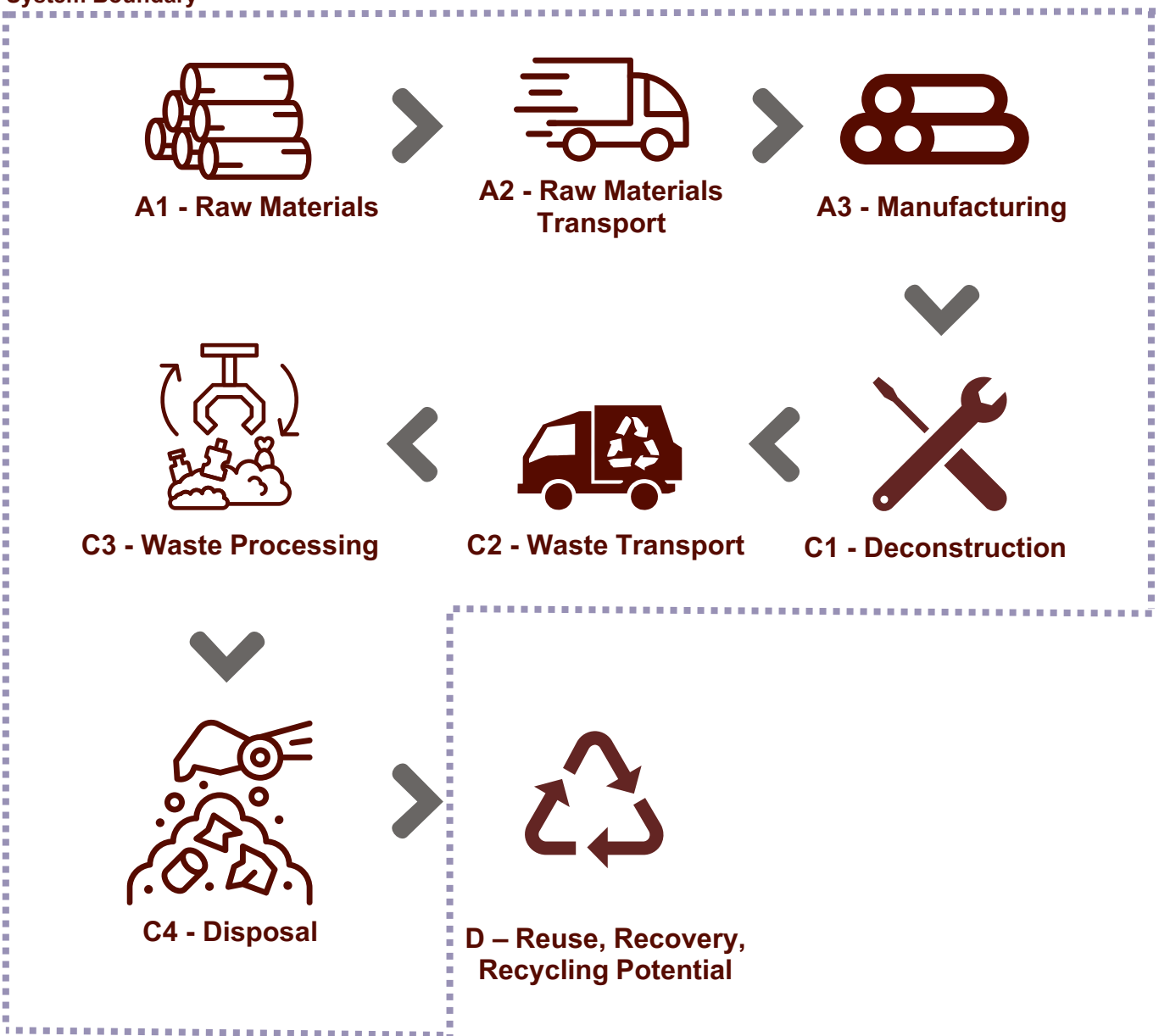
Description of the system boundry

	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X
Geography	GLO	GLO	TR										GLO	GLO	GLO	GLO	GLO
Specific data used	85%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%					-	-	-	-	-	-	-	-	-	-	-	-

X = Included in LCA, MND= Module Not Declared

System Boundary

System Boundary



A1: Raw Material Supply

Raw material extraction and pre-treatments are considered during the raw material supply stage. The primary input in the process is flat steel from BOF technology. Minor additives such as welding wire and powdered steel are not included in the assessment.

A2: Transportation

The rolled coil, which is used as the main raw material in production, comes from the sub-supplier to the production site by EURO 6 >32 metric ton lorry, diesel and container ship. The transport of auxiliary raw materials such as welding wire, welding powder and pallets used for transport could not be included in the calculation.

A3: Manufacturing

Production begins with feeding the raw sheet metal. The material then undergoes cutting and welding processes. After the material takes the shape of a pipe, ultrasonic testing (UT) is performed, and the pipes cut to the required length. If defects are found during the inspection, welding repairs are made. If the product passes inspection, it is sent and subjected to hydraulic testing. Products that pass all quality checks are moved to storage, and orders are prepared for dispatch. The amount of electricity taken from the network in Türkiye consumed during production was used in the study. Electricity Data: Residual mix is calculated from "Electricity, medium voltage {TR} market for electricity, medium voltage | Cut-off, S" by excluding Renewable energy generation. The composition of the residual mix was then 62.7% coal, 36.6% natural gas, and 0.7% oil with an emission factor of 0.79 kg CO₂ per kWh. In addition, the amount of diesel consumed by the forklifts used during production is also included in the calculation.

C1: Deconstruction

Within the system boundaries C1: deconstruction module is included. It is assumed that the same amount of electricity and diesel are required that is used for the manufacturing to deconstruct the product.

C2: Waste Transport

It is assumed that the product goes to the demolition facility by transporting 100 km by EURO 6 >32 metric ton lorry, diesel after the end of its service life.

C3: Waste Processing

It is assumed that 85% of the is recycled according to World Steel and the remaining 15% is landfilled. The impacts due to waste processing is declared in this module.

C4: Disposal

For disposal, it is assumed that 85% of the steel is recycled according to World Steel. Since there is not enough information, it is assumed that the remaining 15% will be sent to landfill. Also, it is assumed that the pallets are sent to landfill.

D: Benefits and Loads Beyond the system Boundary

The net benefits of the recycling potentials have been reported in Module D. In the EoL net scrap approach, it is assumed that 85% of the product goes to recycling facilities and that the recycled steel is used by third parties. The benefit of using recycled steel is a decrease in use of raw steel within the steel industry.

LCA Results

Mandatory impact category indicators according to EN 15804+A2

Environmental Impacts for 1 tonne of product							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP – Total	kg CO2 eq.	2.48E+03	1.78E+01	1.00E+01	5.94E+00	3.12E+01	-2.07E+03
GWP – Fossil	kg CO2 eq.	2.51E+03	1,76E+01	1.00E+01	5.94E+00	1.05E+00	-2.07E+03
GWP – Biogenic	kg CO2 eq.	-3.01E+01	0.00E+00	0.00E+00	0.00E+00	3.01E+01	0.00E+00
GWP - Luluc	kg CO2 eq.	1.62E+00	2.09E-01	4.89E-03	3.54E-03	6.25E-04	-1.16E+00
ODP	kg CFC11 eq	4.55E-05	1.18E-07	2.27E-07	1.67E-07	2.94E-08	-3.74E-05
AP	mol H+ eq	1.10E+01	1.26E-01	2.48E-02	4.37E-02	7.72E-03	-9.08E+00
EP-freshwater	kg P eq	1.15E+00	2.02E-02	7.39E-04	5.43E-04	9.58E-05	-9.51E-01
EP-marine	kg N eq	2.40E+00	2.11E-02	6.75E-03	2.41E-02	4.25E-03	-1.98E+00
EP-terrestrial	mol N eq	2.54E+01	1.89E-01	6.93E-02	1.79E-01	3.16E-02	-2.10E+01
POCP	kg NMVOC eq	1.18E+01	5.53E-02	4.05E-02	6.32E-02	1.11E-02	-9.79E+00
ADP minerals&metals*	kg Sb eq	2.06E-02	1.89E-05	2.80E-05	8.19E-06	1.45E-06	-1.73E-02
ADP fossil*	MJ	2.59E+04	3.65E+02	1.52E+02	1.44E+02	2.54E+01	-2.09E+04
WDP	m3 depriv.	3.39E+02	9.82E+00	7.26E-01	6.33E+00	1.12E+00	-2.74E+02
Acronyms	<p>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</p>						

* 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.

LCA Results

Additional mandatory impact category indicators

Environmental Impacts for 1 tonne of product							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO2 eq	2.52E+03	1.79E+01	1.00E+01	8.40E+00	1.48E+00	-2.07E+03

Resource use indicators

Environmental Impacts for 1 tonne of product							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	3.00E+03	2.31E+00	2.22E+00	1.27E+00	2.25E-01	-2.09E+03
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3.00E+03	2.31E+00	2.22E+00	1.27E+00	2.25E-01	-2.09E+03
PENRE	MJ	2.59E+04	3.65E+02	1.52E+02	1.44E+02	2.54E+01	-2,09E+04
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	2.59E+04	3.65E+02	1.52E+02	1.44E+02	2.54E+01	-2,09E+04
SM	kg	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
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m3	1.27E+01	9.94E+00	7.24E-01	6.33E+00	1.12E+00	-3.35E+02

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

1: The GWP-GHG indicator is identical to GWP-total except that the characterisation factor (CF) for biogenic CO2 is set to zero.

LCA Results

Waste indicators

Environmental Impacts for 1 tonne of product							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardious waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	1.15E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Output flow indicators

Environmental Impacts for 1 tonne of product							
Indicator	Unit	A1-A3	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
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	8.50E+02	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
Exported energy. electricity	MJ	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

References

GPI / General Programme Instructions of the International EPD® System. Version 4.0.

BS EN 10210-1:2006: Hot finished structural hollow sections of non-alloy and fine grain steels - Technical delivery requirements

BS EN 10210-2:2019 - TC: Hot finished steel structural hollow sections - Tolerances, dimensions and sectional properties

ISO 14020: 2000 / Environmental Labels and Declarations - General principles

EN 15804:2012+A2:2019 / AC: 2021 Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products

ISO 14025 / DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations — Principles and procedures

ISO 14040/44 / DIN EN ISO 14040: 2006-10, Environmental management - Life cycle assessment - Principles and framework (ISO14040:2006) and Requirements and guidelines (ISO 14044:2006)

PCR for Construction Products and Construction Services / Prepared by IVL Swedish Environmental Research Institute, Swedish environmental Protection Agency, SP Trä, Swedish Wood Preservation Institute, Swedisol, SCDA, Svenskt Limträ AB, SSAB, The International EPD System, 2019:14 Version 1.3.4.

The International EPD® System / The International EPD® System is a programme for type III environmental declarations, maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025. www.environdec.com

Ecoinvent / Ecoinvent Centre, www.ecoinvent.org

SimaPro / SimaPro LCA Software, Pré Consultants, the Netherlands, www.pre-sustainability.com

Life Cycle Inventory (LCI) Study, World Steel Association, 2021.