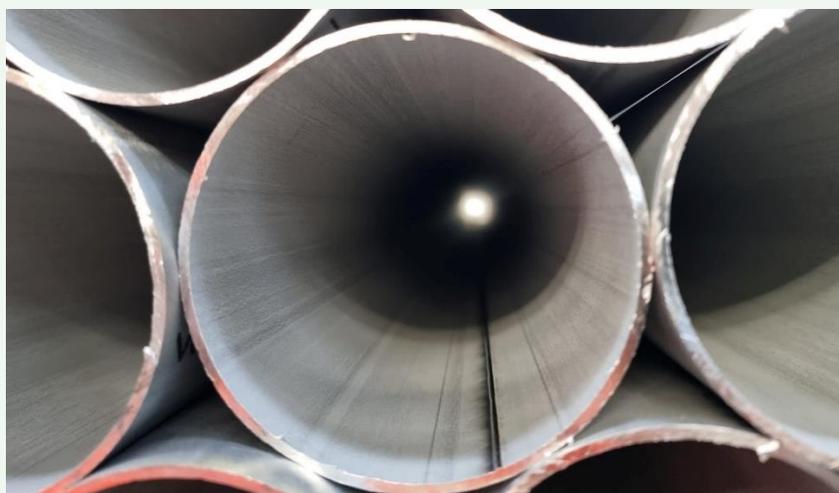


# Environmental Product Declaration



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

## ***Laser stainless steel tube***



of

***Padana Tubi & Profilati Acciaio S.p.A.***

**PADANA TUBI**  
& PROFILATI ACCIAIO S.P.A.

Programme:	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
EPD registration number:	S-P-12205
Publication date:	2024-01-10
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*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](http://www.environdec.com).*

## Programme information

<b>Programme:</b>	The International EPD® System  EPD International AB Box 210 60 SE-100 31 Stockholm Sweden  <a href="http://www.environdec.com">www.environdec.com</a> <a href="mailto:info@environdec.com">info@environdec.com</a>
EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same version number up to the first two digits20) 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.	

<b>Accountabilities for PCR, LCA and independent, third-party verification</b>	
<b>Product Category Rules (PCR)</b>	
CEN standard EN 15804 serve as the core Product Category Rules (PCR).	
Product category rules (PCR): PCR 2019:14 Construction products, version 1.3.2	
PCR review was conducted by: The Technical Committee of the International EPD® System. See <a href="http://www.environdec.com">www.environdec.com</a> for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a> .	
<b>Life Cycle Assessment (LCA)</b>	
LCA accountability: <i>Deloitte &amp; Touche S.p.A., Via Tortona 25 - 20144, Milano, Italy</i>	
<b>Third-party verification</b>	
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:	
<input checked="" type="checkbox"/> EPD verification by accredited certification body	
Third-party verification: <i>Bureau Veritas Italia</i> is an approved certification body accountable for the third-party verification	
The certification body is accredited by: <i>Accredia, certification number 0009VV</i>	
Procedure for follow-up of data during EPD validity involves third-party verifier:	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

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



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## 1. Company Information

### Owner of the EPD

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Padana Tubi & Profilati Acciaio S.p.A, via Porta Murata 8/A - 42016 Guastalla (RE)

### Description of the Organisation

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Padana Tubi & Profilati Acciaio S.p.A. with registered office in via Porta Murata 8/A, Guastalla (RE), is one of the European leaders in the production of welded carbon-steel and stainless-steel pipes for carpentry.

Padana Tubi is a company with 13 plants on a surface of about 400,000 square metres, all located in the territory of the Municipality of Guastalla (RE). These areas are dedicated to the storage and production of raw materials and finished products, respectively, for an average annual volume of about 800/900 thousand tons of steel produced and sold. The company has about 700 qualified employees.

There are 13 Padana Tubi plants, named A to O:

- A – via Portamurata - production of carbon steel tubes
- B – via Roncaglio - production of carbon steel and galvanised tubes
- C – via Dossetti – stainless steel tube warehouse
- D – via De Gasperi - production of stainless steel tubes
- E – via Togliatti – stainless steel satin-finishing
- F – via Ferrari – stainless steel satin-finishing
- G – via Dossetti - production of stainless steel tubes
- H – via Nenni – stainless steel tube warehouse
- I – via Dossetti – carbon steel tube warehouse
- L – via Nenni – stainless steel tube warehouse
- M – via Dossetti - stainless steel tube warehouse
- N – via Portamurata - carbon steel tube warehouse
- O – via Salati – production of carbon steel tubes

As far as its main activities are concerned, Padana Tubi takes care of the reception of raw materials, the sorting of materials in specific warehouses, the fabrication of carbon, stainless and galvanised profiles, their packaging and the disposal of waste, and the transport of finished products internally and externally within the company boundaries.

### Certifications

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Padana Tubi & Profilati Acciaio S.p.A. meets the highest quality standards and has obtained the following certifications:

- UNI EN ISO 9001:2015
- UNI EN ISO 14001:2016

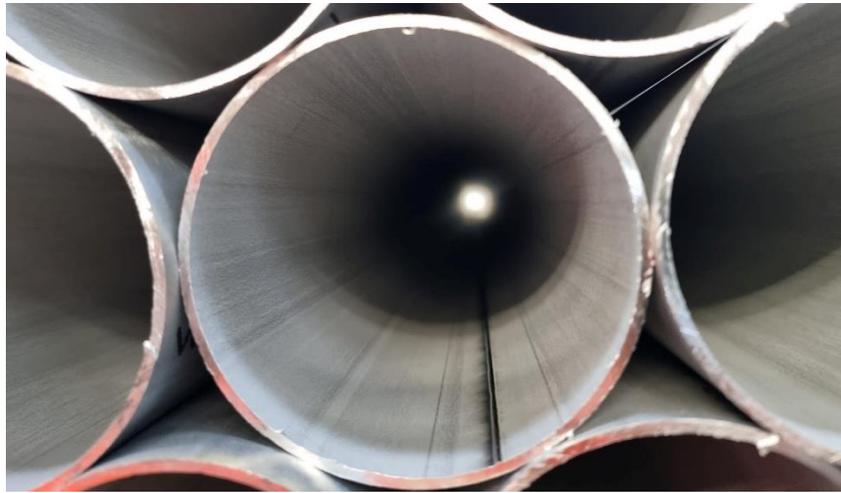
- UNI EN ISO 45001:2018
- CE mark, certifying compliance with applicable European Community standards
- BS EN 10219-1:2006
- TÜV Italia Srl, technical certification following Pressure Equipment Directive 2014/68/UE
- ISO 14064-1: 2018

## 2. Production Information

### Product name

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Laser stainless steel tube.



### Product Identification

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This EPD is based on a single product which can be produced with 2 different ways:

- Round tubes (EN 10217-7)
- Squares/Rectangles

In addition we can have the following surface finishes: Brushed Standard inline, satin and polished.

The product range includes:

- Round tubes with diameters from D 6 to D 323 mm with thicknesses from 1 mm to 6 mm;
- Square tubes from 10×10 to 200×200 mm with thicknesses from 1 mm to 6 mm;
- Rectangular tubes from 20×10 to 300×100 mm with thicknesses from 1 to 6 mm;

The standard production length of the tubes is 6000 mm, although it is possible to agree with the Sales Department for production lengths ranging from 4500 to 12000 mm.

For the production of the stainless steel tubes, austenitic steel is used: 1.4307 (304L), 1.4404 (316L), 1.4571 (316Ti) present in the positive list of the Ministerial Decree 21/3/73 'materials intended to come into contact with food.

In terms of recycled content, the analysed pipe family has the following characteristics:

- Electric arc furnace steel (EAF), with a recycled content of 76.4%;

Pipe family	% of recycled raw material	% EAF	% BOF
Laser stainless steel tubes	76.4%	76.4%	-

## Product Description

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The coils used for pipe production comply with EN 10088-2 and EN 10028-7. The steel used is of the cold-rolled type up to and including 1.6 mm thickness, hot-rolled from 2 mm to 6 mm.

In the production phase, special attention is paid to quality controls, in particular, in continuous are carried out:

- Dimensional checks according to EN 10217-7, EN 10296-2, EN 10219-2;
- Visual checks according to EN 10217-7, EN 10296-2, EN 10219-2;
- Enlargement tests for round tubes according to EN ISO 8495;

Checks on welding, carried out using the HF/LASER method, by means of the induced currents according to UNI EN ISO 10893-2. The checks to determine the conformity of the tubes produced to the reference standards also for the Inox division continue in laboratories.

Below are the tests carried out on tube samples in the laboratories:

- Tensile test UNI EN ISO 6892-1;
- Resilience test UNI EN ISO 148-1;
- Spectrometric checks to determine the chemical composition;
- Macrographic checks of the thermally altered zone.

## UN CPC Code

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4128 – Tubes, pipes and hollow profiles, of steel.

## Geographical Region

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The geographical area covered by this EPD corresponds to the area involved in the distribution and sale of the product, which is worldwide.

## Production Process

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The activity carried out within the company is defined as: 'manufacture of stainless steel profiles, longitudinally welded cut to customer specifications and in compliance with national and international standards'.



The processes and activities performed within Padana Tubi are described in detail below, highlighting the interactions between the Company's specific primary processes.

The production of longitudinally welded tubes takes place according to a few main stages, which are quite similar even with different types of steel:

- Receipt of raw material: the raw material consists of coils (wide coiled steel strips) that are delivered by external suppliers to the different production units and stored in dedicated areas.
- Cutting lines: in this phase the coils are cut longitudinally to obtain strips of different widths according to the diameter of the tubes or profiles to be manufactured. The products thus obtained are placed in the strip warehouse located between the cutting lines and the loading of the profiling lines.
- Production lines: in this phase the actual production of the tube (or profile) takes place. The strip passes through a series of rotating steel rollers that gradually allow the desired profile shape (round, square, etc.) to be obtained. The following work areas can be identified in all production lines main areas: strip loading, end-welding, forming, welding, calibrating, tube inspection, bundling.
- Warehouse: tube 'bundles' are transferred by internal handling to storage areas (tube warehouse), and from there to customers.

The so-called support processes, functional to the primary ones, are:

- Internal movement (cars);
- Emulsion plant;
- Evaporative towers;
- Heating/cooling plant;
- Internal maintenance;
- External maintenance;
- Internal cleaning (office building);
- External cleaning;
- Office activities;
- Fire-fighting equipment;
- Electrical system;
- Biological sewage treatment plant in FA, Imhoff tanks

The main services purchased by the company concern activities and processes related to the machining of stainless steel coils: since it was not possible to find specific consumption data of third party companies that carry out processing on behalf of Padana Tubi, it was assumed that fuel and energy consumption would be estimated starting from the consumption of Padana Tubi itself.



### 3. LCA Information

<b>Functional Unit</b>	1 tonne of product and packaging.
<b>Reference Service Life (RSL)</b>	Not applicable
<b>Temporal Representativeness</b>	The primary data for the plants refer to the period 01/01/2022 - 31/12/2022.
<b>Database and LCA software</b>	Ecoinvent 3.8 – Simapro 9.4
<b>System boundary</b>	From cradle to gate with options, module C1-C4, module D and optional modules.
<b>Excluded lufe cycle phases</b>	Module A5 and B were excluded as optional
<b>Allocation</b>	In accordance with EN 15804, allocations were made on the basis of mass.
<b>Cut-off</b>	In accordance with EN 15804, at least 95% of the total mass and energy flows per module were included.
<b>Electric Mix (A1-A3)</b>	Specific electricity mix demonstrated by GO (hydroelectric), auto-generated photovoltaic energy and 2022 Italian Residual Mix for outsourced processes. Their GWP – GHG are as follow: <ul style="list-style-type: none"> <li>• Hydroelectric: 0,0126 kg CO<sub>2</sub> eq/kWh</li> <li>• Photovoltaic: 0,0716 kg CO<sub>2</sub> eq/kWh</li> <li>• Italian residual mix: 0,613 kg CO<sub>2</sub> eq/kWh</li> </ul>
<b>Exclusions</b>	The construction, maintenance and decommissioning of infrastructures, defined as buildings and machinery, as well as the occupation of industrial land have not been taken into account, as their contribution to the environmental impact related to the functional unit is considered negligible.
<b>Data quality</b>	The Data Quality assessment was performed following the instructions of the standard EN 15804: 2021, evaluating the geographical, technical and temporal representativeness of all data used. The detailed assessment can be found in the LCA supporting study.

Module	Product stage			Constructi on Stage		Use stage							End of life stage				Resour ce recove ry stage
	Raw materials supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction, 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
Module declared	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geograpgh y	GLO	GLO	IT	GLO								GLO	GLO	GLO	GLO	GLO	
Specific data	>90%																
Variation - Products	Not relevant																
Variation - Site	Not relevant																

## A1 – A3 Product stage

### A1 - Procurement of raw materials

transport and production processes of raw materials and semi-finished products and generation of energy from primary sources

### A2 - Transport

Supply of raw materials to Padana Tubi plants;

### A3 - Tube production

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Production of the tube at the relevant factories and relative input and output of materials and energy (consumption of process electricity, withdrawal of water resources, management of waste and processing waste generated), production of auxiliary materials used in production;

## **A4 – A5 Construction stage**

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### **A4 – Distribution**

Distribution of the finished product and its packaging by TIR, ship and train

## **C1 – C4 End of life stage**

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### **C1 - Demolition**

Disassembly and demolition of the product before it is sent to the end of its life;

### **C2 - Transport**

This module includes the transport of the de-installed/demolished product to recovery and/or disposal centres;

### **C3 - Waste Treatment**

This module includes the treatment of end-of-life tubes and distribution packaging, through recycling and/or incineration for energy recovery;

### **C4 - Disposal**

Treatment of waste deriving from end-of-life distribution pipes and packaging, specifically it is related to landfill disposal activities;

## **D Benefits and loads beyond the system boundary**

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Module D accounts for the environmental benefits of Module C waste sent for recycling and energy recovery, which result in a reduction of impacts related to a lower use of resources and virgin raw materials in the subsequent product system.

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## 4. Content Declaration

The only component of the pipes under study is 1 tonne laser stainless steel.

The packaging consists of LDPE.

The weight of the packaging refers to the total amount of plastic film and plastic strapping used to distribute the products during the reference period.

Packaging components	Weight (kg)	Weight (% vs the product)
LDPE	2.364,10	0,007%
Plastic strapping	3.085,98	0,01%

## 5. Environmental Product Performance

### Environmental impact indicators

INDICATORS		UNIT	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D	TOTAL
Global Warming Potential (GWP)	GWP GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	2.87E+03	1.09E+02	5.90E+01	3.04E+03	1.62E+02	4.25E+00	9.59E+00	1.70E-02	7.93E-01	- 1.45E+02	3.07E+03
	TOTAL	kg CO <sub>2</sub> eq.	2.89E+03	1.09E+02	5.89E+01	3.06E+03	1.62E+02	4.26E+00	9.59E+00	1.70E-02	7.93E-01	- 1.45E+02	3.10E+03
	Fossil	kg CO <sub>2</sub> eq.	2.86E+03	1.09E+02	5.87E+01	3.03E+03	1.62E+02	4.24E+00	9.59E+00	1.70E-02	7.91E-01	- 1.45E+02	3.06E+03
	Biogenic	kg CO <sub>2</sub> eq.	2.86E+01	2.02E-01	2.18E-01	2.90E+01	1.97E-01	1.80E-02	2.75E-03	6.23E-07	7.84E-04	4.53E-01	2.97E+01
	Land use and LU change	kg CO <sub>2</sub> eq.	2.84E+00	7.88E-02	1.47E-02	2.93E+00	7.42E-02	9.55E-04	1.05E-03	4.63E-08	7.46E-04	-4.13E-02	2.97E+00
Ozone depletion		kg CFC 11 eq.	1.58E-04	2.17E-05	1.22E-05	1.92E-04	3.66E-05	2.10E-06	2.08E-06	1.31E-11	3.20E-07	-5.81E-06	2.27E-04
Photochemical ozone formation		kg NMVOC eq.	9.50E+00	1.16E+00	5.46E-01	1.12E+01	5.78E-01	4.94E-02	9.42E-02	2.69E-06	8.23E-03	-7.30E-01	1.12E+01
Acidification		kg mol H <sup>+</sup> eq.	1.53E+01	1.49E+00	3.67E-01	1.72E+01	6.07E-01	4.16E-02	6.06E-02	2.06E-06	7.43E-03	-5.28E-01	1.74E+01
Eutrophication	Freshwater	kg P eq.	1.07E+00	1.23E-02	4.44E-03	1.09E+00	1.33E-02	2.42E-04	1.72E-04	1.89E-08	7.23E-05	-5.74E-02	1.04E+00
	Marine	kg N eq.	2.73E+00	3.90E-01	1.43E-01	3.26E+00	1.65E-01	1.57E-02	2.43E-02	1.03E-06	2.61E-03	-1.25E-01	3.34E+00

<sup>1</sup> As stated in the PCR 2019:14 "In addition, a supplementary indicator for climate impact shall be reported: GWP-GHG25. 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<sub>2</sub> is set to zero".



	Terrestrial	mol N eq.	2.89E+01	4.30E+00	1.56E+00	3.48E+01	1.80E+00	1.73E-01	2.67E-01	1.07E-05	2.83E-02	- 1.33E+00	3.57E+01
Water use		m <sup>3</sup> depriv.	1.42E+03	6.16E+00	7.49E+00	1.43E+03	8.29E+00	4.34E-01	1.18E-01	2.92E-05	9.93E-01	- 7.83E+00	1.44E+03
Depletion of Abiotic Resources	Fossil	MJ	3.43E+04	1.55E+03	8.35E+02	3.67E+04	2.45E+03	1.37E+02	1.31E+02	1.18E-03	2.21E+01	- 1.47E+03	3.80E+04
	Non fossil	kg Sb eq.	7.04E-02	3.37E-04	6.10E-05	7.08E-02	5.81E-04	8.28E-06	8.35E-06	4.24E-10	1.80E-06	-1.10E-04	7.13E-02

### Additional Environmental Impact Indicators

INDICATOR	UNIT	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D	TOTAL
Ionising radiation	kBq U-235 eq	3.36E+02	1.01E+01	5.29E+00	3.51E+02	1.36E+01	6.61E-01	5.84E-01	3.44E-06	9.80E-02	- 2.63E+00	3.64E+02
Particulate matter	disease inc.	2.15E-04	7.33E-06	7.80E-06	2.30E-04	1.35E-05	9.22E-07	1.35E-06	1.24E-11	1.50E-07	-9.72E-06	2.36E-04
Human toxicity, non-cancer	CTUh	7.04E-05	1.10E-06	3.36E-07	7.18E-05	1.99E-06	3.60E-08	4.96E-08	1.94E-11	9.17E-09	-2.99E-06	7.10E-05
Human toxicity, cancer	CTUh	7.00E-05	6.42E-08	1.02E-08	7.01E-05	6.81E-08	1.74E-09	1.31E-09	1.34E-12	3.54E-10	-7.77E-07	6.93E-05
Ecotoxicity, freshwater	CTUe	8.22E+04	1.21E+03	4.78E+02	8.39E+04	1.95E+03	7.61E+01	7.31E+01	4.06E-03	1.39E+01	- 4.35E+03	8.16E+04
Land use	Pt	1.54E+04	8.20E+02	1.44E+02	1.64E+04	1.69E+03	3.05E+02	2.28E+01	3.88E-04	4.63E+01	- 2.87E+02	1.81E+04



Resource use

INDICATOR		UNIT	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D	TOTAL
Use of renewable energy resources	Use as an energy carrier	MJ, net calorific value	7.71E+03	4.50E+01	1.59E+01	7.77E+03	4.56E+01	2.80E+00	5.09E-01	4.31E-05	1.88E-01	- 3.04E+01	7.79E+03
	Use as raw material	MJ, net calorific value	0.00E+00	0.00E+00									
	TOTAL	MJ, net calorific value	7.71E+03	4.50E+01	1.59E+01	7.77E+03	4.56E+01	2.80E+00	5.09E-01	4.31E-05	1.88E-01	- 3.04E+01	7.79E+03
Use of non renewable energy resources	Use as an energy carrier	MJ, net calorific value	2.06E+04	1.45E+03	8.07E+02	2.29E+04	2.32E+03	1.34E+02	1.28E+02	9.52E-04	2.11E+01	- 2.52E+02	2.52E+04
	Use as raw material	MJ, net calorific value	0.00E+00	0.00E+00	1.15E+03	1.15E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E+03
	TOTAL	MJ, net calorific value	2.06E+04	1.45E+03	1.96E+03	2.40E+04	2.32E+03	1.34E+02	1.28E+02	5.74E-04	2.11E+01	- 2.52E+02	2.63E+04
Net use of fresh water		m <sup>3</sup>	4.15E+01	2.82E-01	2.26E-01	4.20E+01	3.30E-01	1.65E-01	4.85E-03	3.10E-06	2.36E-02	-2.55E-01	4.23E+01
Use of Secondary material		kg	0.00E+00	0.00E+00									
Use of Renewable secondary fuels		MJ, net calorific value	0.00E+00	0.00E+00									



Use of non-renewable secondary fuels	MJ, net calorific value	0.00E+00										
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### Waste

INDICATOR	UNIT	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D	TOTAL
Hazardous waste disposed	kg	0.00E+00	4.40E-02	0.00E+00	4.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.40E-02
Non-hazardous waste disposed	kg	0.00E+00	2.24E+00	0.00E+00	2.24E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E+02	-8.08E-05	1.52E+02
Radioactive waste disposed	kg	0.00E+00	0.00E+00									

### Output flow

INDICATOR	UNIT	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D	TOTAL
Materials for energy recovery	kg	0.00E+00	1.13E-02	0.00E+00	-8.08E-05	1.12E-02						
Material for recycling	kg	0.00E+00	1.15E+00	0.00E+00	1.15E+00	0.00E+00	0.00E+00	0.00E+00	8.50E+02	0.00E+00	0.00E+00	8.51E+02
Components of reuse	kg	0.00E+00	0.00E+00									
Exported energy, electricity	MJ	0.00E+00	0.00E+00									
Exported energy, thermal	MJ	0.00E+00	0.00E+00									



## 6. Additional Information

Considering the end-of-life of the product, the calculation was made by assuming secondary data from literature, in particular the disposal rates of steel (the company's main product), LDPE and wood (packaging) from PEF.

Since the mass percentage of products disposed of in non-European states is approximately 0.61%, the European PEF recycling, incineration and landfill percentages were assumed to be representative.

The percentages adopted are shown in the table below. The recycling percentages are specific to the material considered, while for the distribution between landfill and incineration of the remaining material a 55% landfill and 45% incineration PEF figure was assumed for municipal solid waste. For steel, the incineration percentage was assumed to be 0%. The recycling percentage for LDPE was assumed to be 70% from the available PEF list, since there is no specific figure for LDPE packaging.

Type of waste	Ricycling	Incineration	Landfill
Steel	85%	0%	15%
LDPE	70%	14%	16%
Wood	30%	32%	38%

The products do not contain hazardous substances from the SVHC Candidate List for Authorization in quantities greater than 0,1%.

## 7. References

- ISO 14040:2006/AMD 1:2020 Environmental management-Life Cycle Assessment - Principles and framework
- ISO 14044:2006/AMD 2:2020 Environmental management-Life Cycle Assessment - Requirements and guidelines
- Regolamento del Programma EPDInternational, “GENERAL PROGRAMME INSTRUCTIONS FOR THE INTERNATIONAL EPD® SYSTEM”, versione 4.0, pubblicato il 29-03-2021
- ISO 14025:2010 Environmental labels and declarations-Type III Environmental Declarations-Principles and procedures
- “General Programme Instructions for the International EPD® System, v. 4.0”
- Product Category Rules dei prodotti da costruzione – PCR 2019:14, Version 1.3.2
- EN 15804:2021 – Sustainability of construction works – Environmental product declaration – Core rules for the product category of construction products
- PEF (<https://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml>)
- LCA supporting study “Padana Tubi\_ReportLCA\_v0”

