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**ENVIRONMENTAL PRODUCT DECLARATION (EPD)**  
**BLACK AND GALVANIZED PROFILES**  
Rev 1 of 14.05.2021



**Profiltubi spa Sole Shareholder**  
Via Grandi 7/9  
42046 Reggiolo [Reggio Emilia - Italy]

PROFILTUBI SPA



**ENVIROMENTAL PRODUCT DECLARATION**

**Product name: HOLLOW CLOSED PROFILES IN CARBON STEEL (BLACK, PICKLED, GALVANIZED)**

**OBTAINED BY COLD FORMING AND WELDING**

**Plant: Viale Grandi, 7/9 – 42046 Reggiolo RE ITALY**

**In compliance with UNI EN ISO 14025:2010 and EN 15084:2012+A1:2013**

Program Operator	EPD italy
Publisher	EPD italy

Declaration Number	EPDPROFILTUBI01
Registration Number	EPDITALY0157

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## GENERAL INFORMATION

EPD Owner	Profiltubi spa Viale Grandi, 7/9 – 42046 Reggiolo (RE) ITALY
EPD certified plants	Viale Grandi, 7/9 – 42046 Reggiolo (RE)
Program Operator	EPDITALY
CPC Code	412
Comparability	Environmental declarations published within the same category as this product's that come from different programmes may not be comparable. Especially, EPD for construction products may not be comparable if not compliant with EN 15804:2012 +A1:2013
Liability	Profiltubi spa releases EPDItaly from whichever non-compliance with environmental legislation self-declared by the manufacturer. The owner of the declaration will be responsible for the data and supporting evidence; EPDItaly declines any liability regarding the manufacturer's information, data and results of the life cycle assessment.
Reference documents	This declaration has been prepared with regard to EPD Italy, following EPD italy 4.0 regulation; further information and the document are available at <a href="http://www.epditaly.it">www.epditaly.it</a> . EPD Document valid for the following geographic areas: Italy and other EU nations in accordance with the market's sale conditions. EN15804:2012+A1:2013 standard is considered key reference for PCR (PCR ICMQ-001/15 – rev2.1).
Technical Support	Gruppo Gelati Srl <a href="http://www.gruppegelati.it/">http://www.gruppegelati.it/</a>
Independent verification of the declaration and data pursuant to UNI EN ISO 14025:2010	Third party
EPD italy website	<a href="https://www.epditaly.it/">https://www.epditaly.it/</a>
Review of the PCR of reference	Daniele Pace (contact: <a href="mailto:info@epditaly.it">info@epditaly.it</a> )
Year of Reference	2020
Find detailed material at	<a href="http://www.profiltubi.it/">http://www.profiltubi.it/</a>



EN15804:2012+A1:2013 standard is used as key reference for PCR (PCR ICMQ-001/15 – rev2.1).	
Independent verification of the declaration and data pursuant to UNI EN ISO 14025:2010	
<input type="checkbox"/> internal	<input checked="" type="checkbox"/> external
Third party inspector	ICMQ S.p.A., via De Castillia 10, 20124 Milan Italy ( <a href="http://www.icmq.it">www.icmq.it</a> ). Accredited by Accredia

## PROFILTUBI SPA COMPANY DESCRIPTION

Profiltubi spa was founded in 1971 by a branch of the Alfieri family of Guastalla, a family of entrepreneurs from Reggio Emilia who in the 1950s were successful in establishing a thriving wood industry (plywood, chipboard and derivatives).

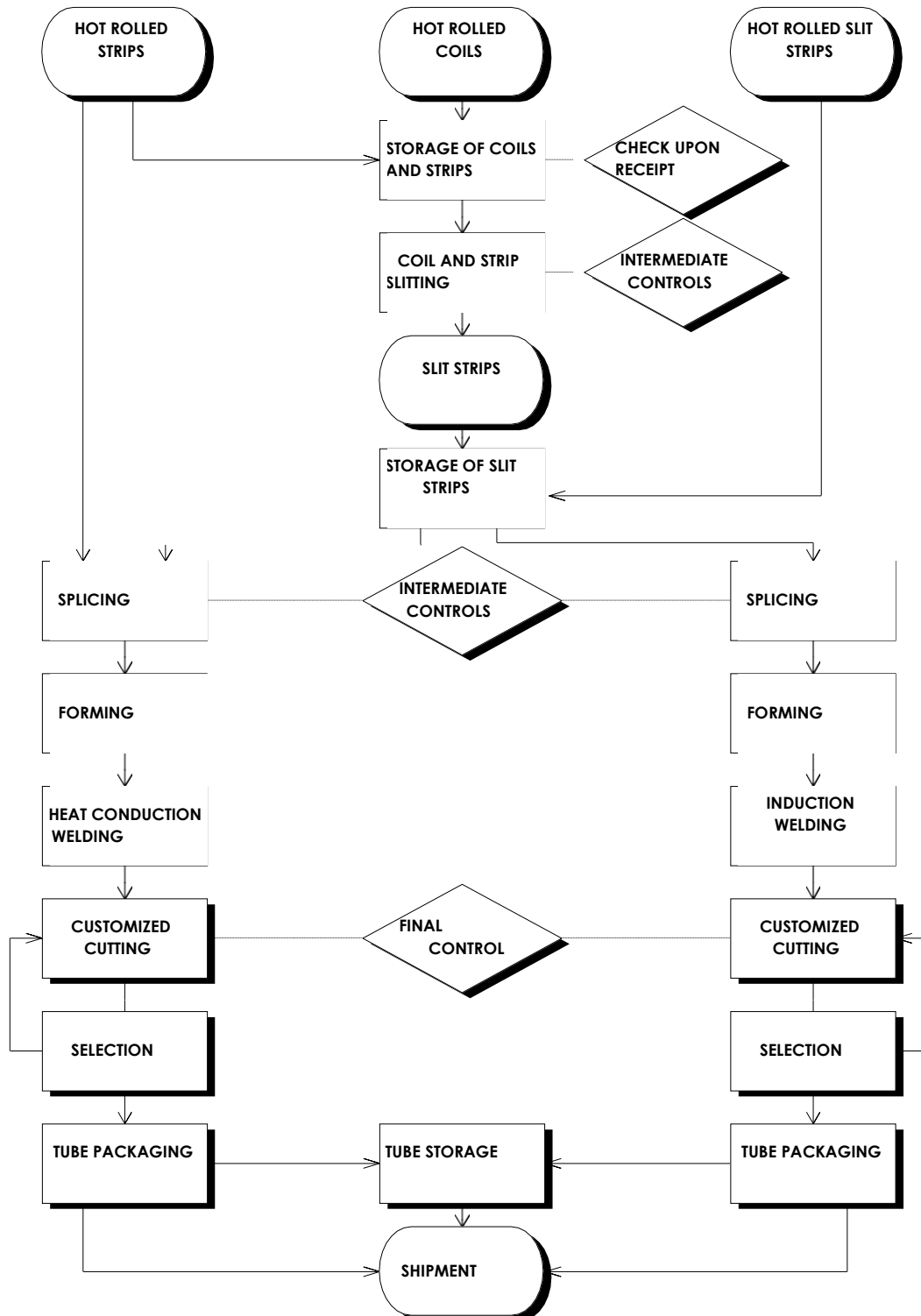
The company was set up in Reggiolo, initially with about 4,000 sq. m. facility on an area of about 100,000 sq. m., and began production of electro-welded, round and shaped tubes, made from "hot-rolled coils." The Alfieris were especially keen on foreign markets, to which they devoted their attention, focusing especially onto Europe. Profiltubi spa experienced increasing development and acquired a stable position on the domestic market.

Constant modernization of the lines for the production of electro-welded steel tubes with the IAF system, of the Lines for strip cutting, the creation of a well-equipped warehouse for raw materials (coils and strips ) and a large stock of finished products, make Profiltubi spa an established robust business. The company registered a definite expansion in the early 1980s, with the establishment of its products on the European Community (especially Germany), the Soviet market and markets of the Mediterranean Basin. From the 30,000 sq. m. roofed area that existed at the threshold of the 1990s, in the last five years Profiltubi spa has grown further. In order to increase the availability of raw materials and finished products of large structural formats, it has carried out major expansions of the plant, which occupies now about 50,000 sq. m. of covered area.

Since the beginning of its activity, Profiltubi spa has adopted modern systems, efficiently modernized, operated according to the most up-to-date practices, enabling a high product quality, certainly in line with the most qualified international production in the sector.

The company currently has a standard monthly production capacity of about 14,000 tons, half of which is for export. Among Profiltubi spa's future goals is further expansion of production capacity with the installation of new tube and strip cutting lines, giving priority to automation.

## PRODUCTION PROCESS



## PRODUCTS

Profiltubi spa produces a wide range of profiles and modular profiles, designed for the construction of modular structures for industrial use and also for artisans.

Tubes and profiles, which in and of themselves are not structural elements, come in a variety of geometric shapes, specifically these 3:

- Tube: round section material.
- Tubing with square section: square or rectangular section material.
- Profile: material with section specific geometry, other than round, square or rectangular.

Profiltubi production:

- hollow closed round profiles
- hollow closed square profiles
- hollow closed rectangular profiles
- hollow closed profiles for doors and windows
- hollow closed oval profiles
- hollow closed profiles other shapes

Production of hollow structural profiles (products subject to regulation) is carried out in compliance with UNI EN 10219-1 and with IGQ regulation (Italian Institute for Quality) for the certification of the factory production control and for the CE markings.

The products made are destined for the following applications:

- Furniture
- Doors and windows
- Metal constructions
- Civil and various home uses

Profiles produced by Profiltubi do not contain substances included in the “Candidate list of substances of very high concern (SVHC)”

The raw materials used are coils and strips from iron ore or recovered iron ore. All shapes produced were considered in the study because energy and raw material consumption do not change according to size.

The trade name of the products is given by their format e.g. 50x50x3mm squares.

The complete list of products can be seen in the annex "Profiltubi Products."

Characteristic	Black Profiles	Galvanized Profiles
Shape	Round section profiles Rectangular or square section profiles Profiles with special geometric shape	
Raw materials	hot rolled carbon steel coils, black and pickled  hot rolled carbon steel strips, black and pickled  slit strips	hot rolled carbon steel coils, galvanized;  hot rolled carbon steel strips, galvanized  galvanized slit strips
Finishing	Black, pickled, shiny	galvanized
Diameter (mm)	17.2≤d≤219	
Thickness (mm)	1.2≤T≤7	
Length (m)	6,12, variable lengths between 4.5 and 13	

Within this EPD certification Profiltubi's products are separated into two categories: black and galvanized. The production process to obtain these two products is practically identical, with the differences being in the use of the coils, strips and different packaging materials. The profiles' shape is irrelevant for the purpose of this study as consumption of energy and raw materials are equivalent. These products are made of steel whose chemical composition (see the table) is classified according to the standards of the destination markets and in compliance with EN 10027.1 regulation they are defined as:

- S235JRH
- S275J0H
- S275J2H
- S355J2H

DESIGNAZIONE		C	Si	Mn	P	S	N
Secondo EN 10027.1	Secondo EN 10027.2	Max	Max	Max	Max	Max	Max
S235JRH	1.0039	0,17		1,40	0,040	0,040	0,009
S275J0H	1.0149	0,20		1,50	0,035	0,035	0,009
S275J2H	1.0138	0,20		1,50	0,030	0,030	
S355J2H	1.0576	0,22	0,55	1,60	0,030	0,030	

DESIGNAZIONE		Carico di snervamento	Resistenza a trazione		Allungamento %	Resilienza	
Secondo EN 10027.1	Secondo EN 10027.2		sp. < 3	sp. ≥ 3		°C	J
S235JRH	1.0039	235	360/510	360/510	24	20	27
S275J0H	1.0149	275	430/580	410/560	20	0	27
S275J2H	1.0138	275	430/580	410/560	20	-20	27
S355J2H	1.0576	355	510/680	470/630	20	-20	27

Composition of black profiles for one ton of product (net of waste generated in the production process) and weight of the packaging used



Material	Quantity
Steel (Coils) from mineral	50%
Steel (Coils) from wrecks	50%
Lifting rings	0.291 kg
Antioxidant protection oil	0.435 l
Strapping	1.019 kg
Seals	0.05874 kg

Composition of galvanized profiles for one ton of product (net of waste generated in the production process) and weight of the packaging used



Material	Quantity
Steel (Coils) from galvanized mineral	50%
Steel (Coils) from galvanized wrecks	50%
Wooden separators	1.76904 kg
Antioxidant protection oil	0.435 l
Strapping	1.019 kg
Seals	0.05874 kg



## PURPOSE AND EPD TYPE

In accordance with PCR ICMQ ICMQ-001/15 rev 2.1, Profiltubi Spa decided to develop a cradle-to-gate EPD product; a product declaration that encompasses the following phases: procurement of raw materials, transport and the product's manufacturing.

X	A1	Raw materials procurement	Production phase
X	A2	Transport	
X	A3	Manufacturing	
MND	A4	Transport	Construction phase
MND	A5	Installation phase	
MND	B1	Use	Usage phase
MND	B2	Maintenance	
MND	B3	Repairs	
MND	B4	Replacement	
MND	B5	Restructuring	
MND	B6	Energy consumption during use	
MND	B7	Water consumption during use	
MND	C1	Decommissioning / demolition	End-of-life phase
MND	C2	Transport	
MND	C3	Waste treatment	
MND	C4	Disposal	
MND	D	Reuse-recover-recycle potentials	Benefits and loads beyond the boundaries of the system

X=form included in the LCA

MNA= form not declared in the LCA

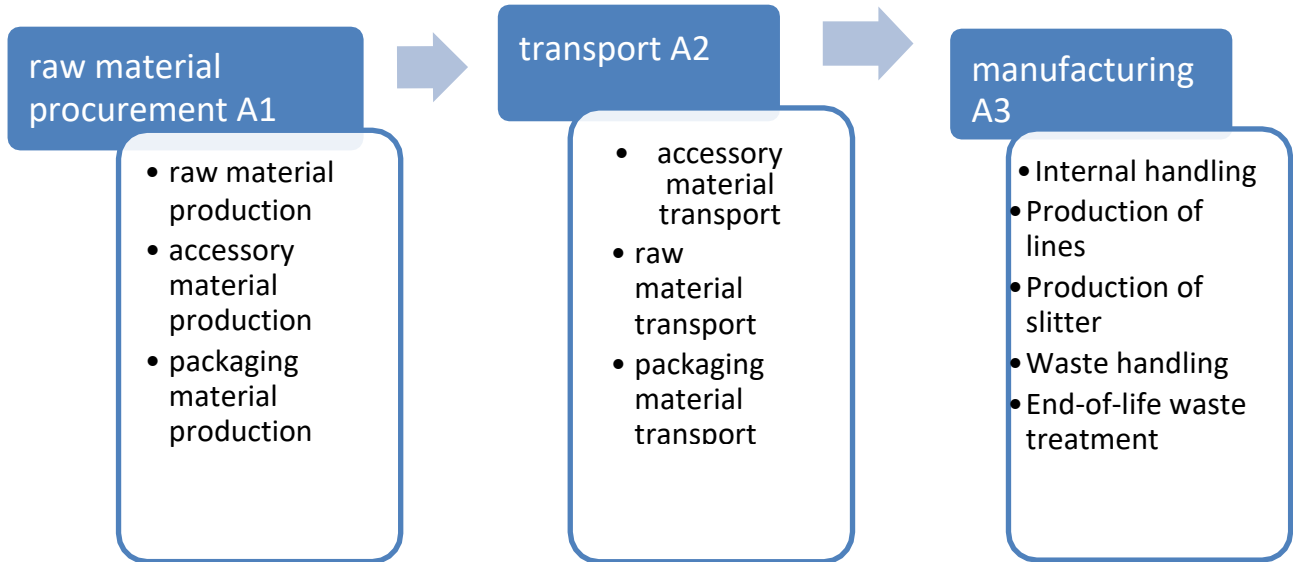
SOFTWARE: OpenLCA 1.10.3

MAIN DATABASE: Ecoinvent v3.7.1.

LCA REPORT: LCA Technical Report production of black and galvanized profiles rev. 2 of 27 April 2021.

GEOGRAPHIC SCOPE OF THE EPD: Europe in accordance with market requests TYPE OF

EPD: specification for steel black and galvanized profiles



## UNIT DECLARED

Declared unit is 1,000 Kg of profiles

## ENVIRONMENTAL PERFORMANCE OF BLACK PROFILES

The environmental assessment carried out (in terms of use of resources, emissions of pollutants and waste generation) is presented for the Upstream (A1) and Core (A2-A3) phases. The resulting values are rounded and might deviate from the total value

Potential Environmental Impact	Unit of measurement	A1	A2	A3	TOTAL
ADPE	Kg Sb equiv.	5.11E-03	8.66E-05	6.90E-05	5.27E-03
ADPF	MJ	1.27E+04	4.27E+02	1.96E+02	1.33E+04
AP	Kg SO <sub>2</sub> equiv.	3.10	0.35	5.63E-02	3.51
ODP	Kg CFC-11 equiv	8.36E-05	5.22E-06	1.81E-06	9.04E-5
GWP	Kg CO <sub>2</sub> equiv.	9.86E+02	3.04E+01	1.50E+01	1032.31
EP	Kg (PO <sub>4</sub> ) <sup>3-</sup>	1.64	5.08E-02	1.52E-02	1.70
POCP	Kg etene equiv.	0.18	0.01	2.77E-03	0.19

GWP Global warming potential, total

ODP Ozone depletion potential

AP Acidification Potential

EP Eutrophication potential

POCP Photochemical ozone creation potential

ADPE Abiotic depletion potential minerals &

metals ADPF Abiotic depletion potential fossil fuels

Resource Consumption	Unit of measurement	A1	A2	A3	TOTAL
PERE	MJ	1417.24	5.01	69.64	1491.85
PERM	MJ	0	0	0	0
PERT	MJ	1417.24	5.01	69.64	1491.85
PENRE	MJ	16825,82	389.36	258.01	17549.43
PENRM	MJ	0	0	0	0
PENRT	MJ	16825.82	389.36	258.01	17549.43
SM	kg	520.56	0	0	520.56
RSF	MJ	0	0	0	0
NRSF	MJ	0	0	0	0
FW	M3	361.72	1.73	11.28	371.93

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 raw materials

RSF Use of renewable secondary fuels

NRSF Use of non-renewable secondary fuels

FW Use of net fresh water

Parameter	Unit shown as functional unit	A1-A3
Hazardous waste disposed (HWD)	Kg	2.21
Non Hazardous waste disposed (NHWD)	Kg	41.12
Radioactive waste disposed (RWD)	Kg	0
Components for reuse (CRU)	Kg	0.77
Materials for recycle (MFR)	Kg	41.12
Materials for energy recovery (MER)	Kg	0
Exported Energy (EE)	MJ per energy vector	0

## ENVIRONMENTAL PERFORMANCE OF GALVANIZED PROFILES

The environmental assessment carried out (in terms of use of resources, emissions of pollutants and waste generation) is presented for the Upstream (A1) and Core (A2-A3) phases. The resulting values are rounded and might deviate from the total value

Potential Environmental Impact	Unit of measurement	A1	A2	A3	TOTAL
ADPE	Kg Sb equiv.	5.40E-03	4.53E-05	6.9E-05	5.56E-03
ADPF	MJ	12720.92	3.59E+02	196.21	1.33E+04
AP	Kg SO <sub>2</sub> equiv.	3.16	5.51E-02	5.63E-02	3.27
ODP	Kg CFC-11 equiv	8.34E-05	4.36E-06	1.81E-06	8.96E-5
GWP	Kg CO <sub>2</sub> equiv.	9.88E+02	2.40E+01	1.50E+01	1028.0
EP	Kg (PO <sub>4</sub> ) <sup>3-</sup>	1.65	1.21E-02	1.52E-02	1.68
POCP	Kg etene equiv.	0.18	2.75E-03	2.77E-03	0.18

GWP Global warming potential, total  
 ODP Ozone depletion potential  
 AP Acidification Potential  
 EP Eutrophication potential  
 POCP Photochemical ozone creation potential  
 ADPE Abiotic depletion potential minerals &  
 metals ADPF Abiotic depletion potential fossil fuels

Resource Consumption	Unit of measurement	A1	A2	A3	TOTAL
PERE	MJ	1440.79	5.01	69.64	1514.77
PERM	MJ	0	0	0	0
PERT	MJ	1440.79	5.01	69.64	284.54
PENRE	MJ	16853.59	389.36	258.01	17497.38
PENRM	MJ	0	0	0	0
PENRT	MJ	16853.59	389.36	258.01	17497.38
SM	kg	520.56	0	0	520.56
RSF	MJ	0	0	0	0
NRSF	MJ	0	0	0	0
FW	M <sup>3</sup>	364.36	1.73	11.28	374.39

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 raw materials

RSF Use of renewable secondary fuels

NRSF Use of non-renewable secondary fuels

FW Use of net fresh water

Parameter	Unit shown per functional unit	A1-A3
Hazardous waste disposed (HWD)	Kg	2.21
Non Hazardous waste disposed (NHWD)	Kg	41.12
Radioactive waste disposed (RWD)	Kg	0
Components for reuse (CRU)	Kg	0.77
Materials for recycle (MFR)	Kg	41.12
Materials for energy recovery (MER)	Kg	0
Exported Energy (EE)	MJ per energy vector	0

## CALCULATION RULES

DECLARED UNIT: 1,000 kg of profiles

ASSUMPTIONS: The system boundaries include the mandatory modules A1, A2, A3 established by Standard EN 15804:2012+ A1:2013 according to a "from-cradle-to-gate" type of application.

It should be noted that the consumption and impacts associated with the construction of the plant are not included and nor are the distribution, use and disposal phases of the product after use. The total quantity of profiles (January-December 2020) is 124,000 tons divided into 6,200 tons of galvanized profiles and 117,800 tons of black ones.

CUT-OFF: The criterion chosen for the initial inclusion of inputs and outputs is based on the definition of a 1 percent cut-off level, both in terms of mass, energy and environmental significance. This means that a process has been neglected if it is responsible for less than 1% of the total mass, primary energy and total impact. However, with the exception of in-house forklift handling, all processes for which data are available were considered, even if they contributed less than 1%.

QUALITY OF DATA: In choosing the data to be used for the LCA research, primary data collected from Profiltubi S.p.A. were favoured.

Data from the Ecoinvent database were used for the production of packaging materials, raw materials, and auxiliary materials.

For the selection of the Euro category of transport vehicles, reference is made to information obtained from ACI, Automobile Club Italia.

No proxy data are present in the study.

ALLOCATION: Allocation was avoided as much as possible by dividing the system into sub-systems. Regarding the factory's consumption and waste, a division by mass was executed. For waste modelling the "Polluter pays principle" was applied.

### FURTHER ENVIRONMENTAL INFORMATION

The company has installed a 1,069,220 KW photovoltaic system of which 812,422 used up and 256,800 sold

Profiltubi is holder of ISO 14001:2015 certification

Prepared by

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## REFERENCES

1. UNI EN ISO 14040: 2021, Environmental management – Life-cycle assessment – Principles and framework of reference.
2. UNI EN ISO 14044: 2021, Environmental management – Life-cycle assessment – Requirements and guidelines.
3. UNI EN ISO 14025:2010, Labels and environmental declarations - Type III Environmental Declarations - Principles and procedures
4. EN 15804:2012+A1:2013, Sustainability of constructions – Product environmental declarations – Development framework rules for product category.
5. PCR ICMQ-001/15 rev 2.1 Products for construction and services for construction, EPD Italy. Date of issue: 02 December 2019.
6. EPDIItaly Regulation revision 4.0 of 03/06/2019
7. <http://www.opv.aci.it/>
8. Annex “Profiltubi Products”