



ENVIRONMENTAL PRODUCT DECLARATION

EN

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

PROFILED WELDED TUBES IN CARBON STEEL

From:
Marcegaglia Poland SP Z O O

Programme:

The International EPD® System
www.environdec.com

Programme operator:
EPD International AB

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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



General information 5

programme information	5	diagram of the production process of production of tube	8
company information	6	block diagram of the tubes production process	10
product information	6		
LCA information	7		

Other informations 11

description of the main activities	11
------------------------------------	----

Environmental information 14

potential environmental impacts	14	hot rolled and pickled profiled tube	17
resource use	14	cold rolled profiled tube	18
waste production	15	profiled tube from galvanized strip	19
output flows	15	profiled tube for refrigeration industry	20
hot rolled profiled tube	16		

Additional information 21

sustainability	21	management system	21
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Difference from previous version 21

References 23





General information

PROGRAMME INFORMATION

Programme:	The International EPD [®] System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

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

Product Category Rules (PCR):
Construction products, 2019:14, version 1.11, UN CPC 54

PCR review was conducted by:
The Technical Committee of the International EPD[®] System. Review chair: Claudia A. Peña
- Contact via the Secretariat www.environdec.com/contact

Independent third-party verification of the declaration and data, according to ISO 14025:2010, via:
 EPD verification by accredited certification body

Third-party verifier: *Bureau Veritas Italia SpA*
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

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.

COMPANY INFORMATION

Owner of the EPD:

Marcegaglia Poland SP Z O O
kluczbork@marcegaglia.com

Contact:

To obtain more information about this product declaration and / or its configurations, the following references are available:

Mail: kluczbork@marcegaglia.com

Phone: +48 . 77 . 45 98 200

Description of the organisation:

Marcegaglia Poland is a company specialized in the transformation and marketing of tubes.

The company, thanks to advanced production technology and the most modern automation systems, enters the market for the creation of any type of finish on components and accessories, allowing it to satisfy the most demanding and personalized requests.

The Marcegaglia manufacturing facility in Kluczbork

is dedicated to the production of carbon steel welded tubes, strips and sheets for a wide range of applications, and serves as a distribution and service center for all of Marcegaglia group's steel products.

Welded tubes from hot and cold rolled steel are developed in specific sizes and tolerances for applications such as heating and ventilation systems, pressure equipment, furniture components and fitness devices.

Product-related or management system-related certifications:

- Quality management system compliant with the requirements of the standard UNI EN ISO 9001:2015 (certificate n° 24734/11/AN issued by RINA Services S.p.A.).

Name and location of production site(s):

- Ligota Dolna - ul. Przemysłowa, 1 • 46-200 Kluczbork, Poland

PRODUCT INFORMATION

Product name:

Profiled steel tubes from hot rolled strip, pickled strip cold rolled strip, galvanized strip and galvanized tube only for refrigeration industry

Product identification:

Profiled steel tubes from hot rolled strip, pickled strip cold rolled strip, galvanized strip and galvanized steel tube only for refrigeration industry

Product description:

A wide range of hot rolled, cold rolled, pickled and galvanized steel tubes are dedicated to mechanical applications, structural works, roller conveyors, automotive and heavy vehicles, agriculture and farming. Others application can be heating and ventilation systems, pressure equipment, furniture components and

fitness devices.

From the company website it is possible to consult the product catalogs within which the technical characteristics of the same are described in detail.

UN CPC CODE:

UN CPC 4128 Tubes, pipes and hollow profiles, of steel.

Geographical scope:

worldwide

Electricity information:

The electricity used in the manufacturing process of module A3 accounts for less than 30% of the GWP-GHG results of modules A1-A3 and the impact of electricity use in the manufactory phases is 0.90 kg CO2 Eq/kWh.

LCA INFORMATION

Functional unit:

The functional unit of the system considered is 1 tonne of tube product.

Reference service life - RSL:

For the products under study it is not possible to quantify the exact useful life as much also depends on their future use. However, it is emphasized that even when the deadline is reached, the product can be recycled and reused again to generate other raw materials.

Time representativeness:

The data used are representative of the year 2024.

Database(s) and LCA software used:

Ecoinvent database v.3.10, March 2024/ Software used SimaPro rel. 9.6.0.1 Analist Multi User.

Description of the system boundaries:

The study is "Cradle to gate with modules C1 – C4 and module D (A1 – A3 + C + D)" (reference: PCR 2019: 14 vers. 1.11).

Modules A1-A3 include material procurement processes (raw and auxiliary materials) as well as manufacturing processes.

Modules C1-C4 consider the uninstallation, transport, sorting and disposal of components deriving from the

end-of-life operations of road barriers. These operations are not directly controllable by the company: in this regard, literature data relating to the construction sector are therefore used. It is considered:

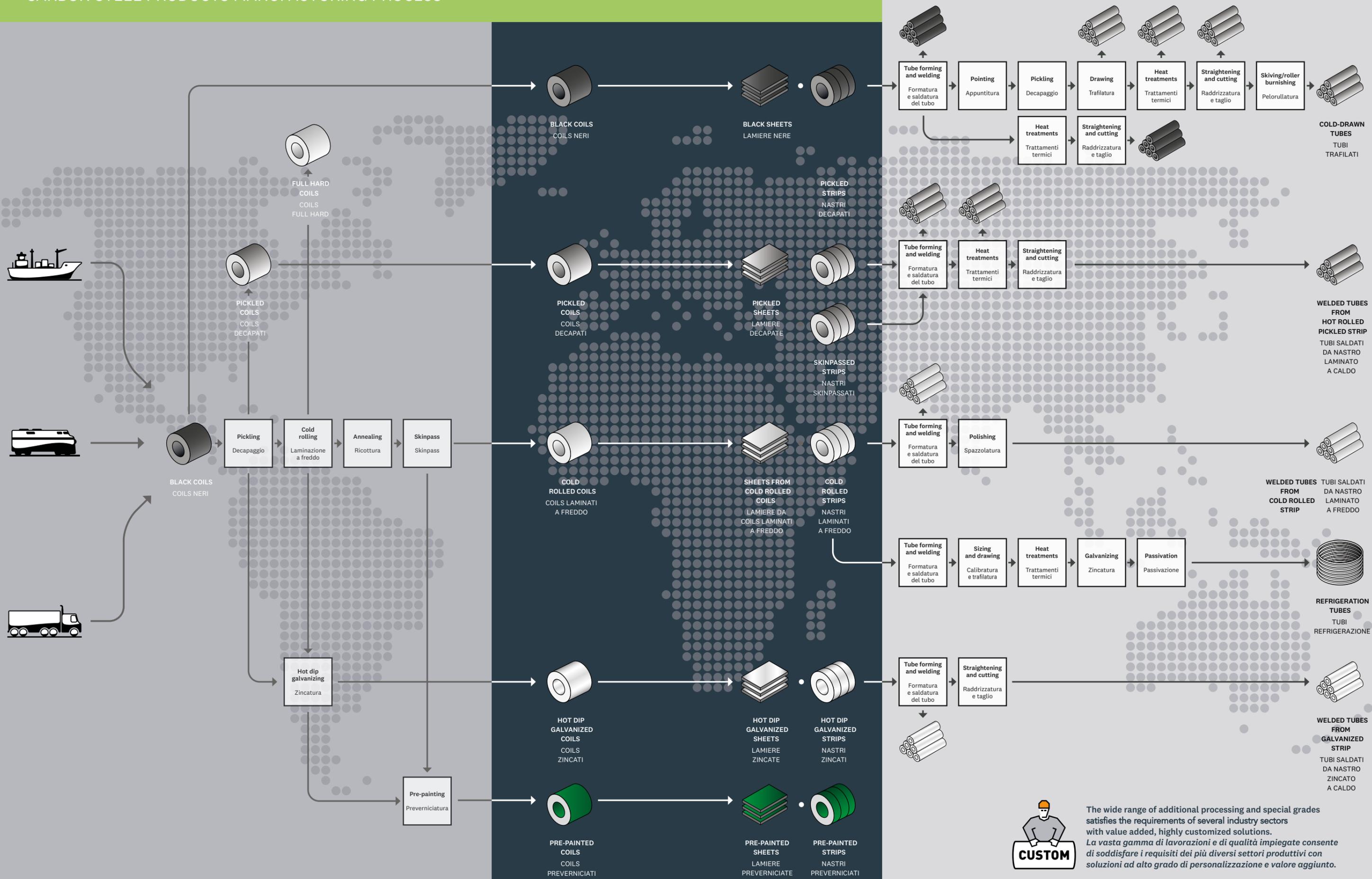
- an average consumption of diesel equivalent to 0.257 MJ for each ton of material demolished;
- an average distance of 80 km to transport the material to the recovery center;
- an average consumption of electricity equal to 0.013 MWh for each ton of material sorted.

Furthermore, it is assumed that 99% of the material delivered to the treatment center is recoverable. The remaining percentage (1%) is destined for landfill.

Module D considers the recovery and recycling potential of steel deriving from end-of-life processes: the calculation of the environmental benefits deriving from the recovery of steel is based on the indications provided by the document "Product Category Rules for Type III environmental product declaration of construction products to EN 15804: 2012 - Par. 6.3.4.6. Benefits and loads beyond the product system boundary, information Module D ". It should be noted that, in line with what is indicated in the "Life Cycle inventory (LCI) study" of the World Steel Association - May 2021, that the quantity of steel destined for recycling is equal to 85%.

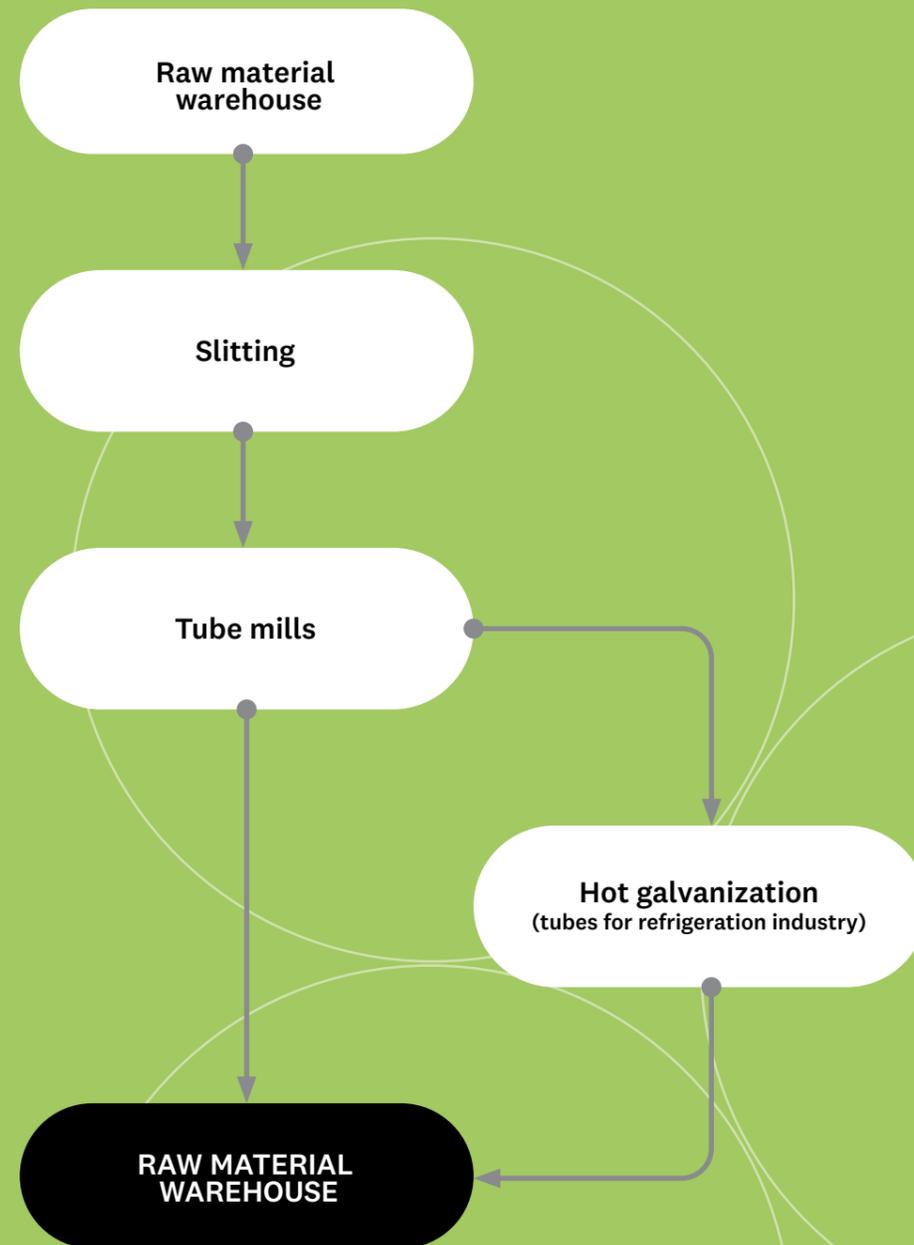
DIAGRAM OF THE PRODUCTION PROCESS OF PRODUCTION OF TUBE

CARBON STEEL PRODUCTS MANUFACTURING PROCESS



The wide range of additional processing and special grades satisfies the requirements of several industry sectors with value added, highly customized solutions. *La vasta gamma di lavorazioni e di qualità impiegate consente di soddisfare i requisiti dei più diversi settori produttivi con soluzioni ad alto grado di personalizzazione e valore aggiunto.*

BLOCK DIAGRAM OF THE TUBES PRODUCTION PROCESS



Other informations

DESCRIPTION OF THE MAIN ACTIVITIES

Starting from the raw material represented by carbon steel coils and strips, the tubes are produced by means of special plants called “pipe factories”, aimed at the production of induction welded profiles. These systems can be schematized in three sections (entrance, central, exit). In particular, the belts, suitably sheared, are processed by profiling machines consisting of operating heads equipped with steel rollers to obtain tubes welded in line.

The main sections of the production lines are listed below
INPUT SECTION: consists of a feeding area and a belt accumulation area;

CENTRAL SECTION: this is the portion of the system dedicated to making the profile. It consists of:

- Forming;
- Finishing;
- Welding;
- Calibration;
- Cut to length;

Allocation rules

An allocation was made on a mass basis for energy consumption, water discharges, atmospheric emissions and waste.

Additional environmental information

Not applicable: the product is a semi-finished product.

OUTPUT SECTION: is the portion of the system dedicated to the evacuation and unloading of the profile.

The production cycle of hot, pickled, cold and galvanized tube mills is substantially the same: the difference consists in the type of rolling of the incoming strip, which may have been hot or cold rolled.

Only for the tubes destined to the refrigeration industry, the raw material input in the tube mills is the cold rolled steel strip, that after the profiling and the welding section are subjected to a heating process and, in necessary, galvanizing process too.



Profiled tubes from hot and cold rolled strip, heat treated and drawn

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

Module	A1-A3 Product stage			A4-A5 Construction process stage		B1-B7 Use stage							C1-C4 End of life stage				D Benefits and loads beyond the system boundary
	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	
Module	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	PL	-	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data	70 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variations-product	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-site	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X = Module considered
ND = Module not declared
GLO = Global
PL = Poland



Environmental information

The environmental performance indicators refer to 1 tonne of tube product.

POTENTIAL ENVIRONMENTAL IMPACTS

Impact category	Abb.	Unit
Climate change - total	GWP - t	kg CO ₂ eq
Ozone depletion	ODP	kg CFC11 eq
Climate change - Fossil	GWP - fossil	kg CO ₂ eq
Climate change - Biogenic	GWP - biogenic	kg CO ₂ eq
Climate change - Land use and LU change	GWP - luluc	kg CO ₂ eq
Climate change - Greenhouse Gases	GWP - GHG	kg CO ₂ eq
Photochemical ozone formation	POCP	kg NMVOC eq
Acidification of land and water	AP	mol H+ eq
Eutrophication	EP - freshwater	kg P eq
	EP - marine	kg N eq
	EP - terrestrial	mol N eq
Water use*	WDP	m ³ depriv.
Resource use, fossils*	ADP - F	MJ
Resource use, minerals and metals*	ADP - MM	kg Sb eq

*The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.

RESOURCE USE

Impact category	Abb.	Unit
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ
Use of renewable primary energy resources used as raw materials	PERM	MJ
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	PERT	MJ
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	PENRT	MJ
Use of secondary material	SM	kg
Use of renewable secondary fuels	RSF	MJ
Use of non-renewable secondary fuels	NRSF	MJ
Use of net fresh water	FW	m ³

WASTE PRODUCTION

Impact category	Abb.	Unit
Hazardous waste disposed	HW	kg
Non-hazardous waste disposed	NHW	kg
Radioactive waste disposed	RW	kg

OUTPUT FLOWS

Impact category	Abb.	Unit
Reuse	REUSE	kg
Materials for recycling	RECYCLE	kg
Materials for energy recovery	EN-REC	kg
Exported energy-electricity	EE-E	MJ
Exported energy-thermal energy	EE-T	MJ



Profiled tubes from hot and cold rolled strip, heat treated and drawn

HOT ROLLED PROFILED TUBE

Abb.	Unit	A1-A3	C1	C2	C3	C4	D
GWP - t	kg CO ₂ eq	2.93E+03	1.25E+01	9.14E+00	1.25E+01	9.94E-01	-1.55E+03
GWP - fossil	kg CO ₂ eq	2.93E+03	1.25E+01	9.13E+00	1.25E+01	9.93E-01	-1.55E+03
GWP - biogenic	kg CO ₂ eq	0.00E+00	-4.47E-02	3.13E-04	-4.47E-02	1.37E-04	-1.36E+00
GWP - luluc	kg CO ₂ eq	1.20E+00	9.15E-04	3.65E-03	9.15E-04	5.11E-04	-7.50E-01
GWP - GHG	kg CO ₂ eq	2.93E+03	1.25E+01	9.14E+00	1.25E+01	9.94E-01	-1.55E+03
ODP	kg CFC-11 eq	1.77E-05	1.34E-07	1.35E-07	1.34E-07	2.87E-08	-7.43E-06
POCP	kg NMVOC eq	1.10E+01	4.87E-02	4.59E-02	4.87E-02	1.05E-02	-5.05E+00
AP	mol H+ eq	1.40E+01	1.19E-01	3.12E-02	1.19E-01	7.04E-03	-6.50E+00
EP - freshwater	kg P eq	1.09E+00	4.77E-03	7.17E-04	4.77E-03	8.25E-05	-6.34E-01
EP - marine	kg N eq	3.08E+00	1.62E-02	1.02E-02	1.62E-02	2.68E-03	-1.47E+00
EP - terrestrial	mol N eq	3.27E+01	1.71E-01	1.11E-01	1.71E-01	2.93E-02	-1.51E+01
WDP	m ³ depriv.	8.27E+02	8.54E-01	6.79E-01	8.54E-01	1.06E+00	-2.92E+02
ADP - F	MJ	3.10E+04	1.32E+02	1.32E+02	1.32E+02	2.44E+01	-1.58E+04
ADP - MM	kg Sb eq	1.65E-02	9.08E-06	2.48E-05	9.08E-06	1.55E-06	-1.04E-02
PERE	MJ	3.19E+03	1.19E+01	2.19E+00	1.19E+01	2.94E-01	-1.76E+03
PERM	MJ	0.00E+00	0.00E+00	1.00E+00	2.00E+00	3.00E+00	0.00E+00
PERT	MJ	3.19E+03	1.19E+01	3.19E+00	1.39E+01	3.29E+00	-1.76E+03
PENRE	MJ	2.66E+04	1.36E+02	1.60E+01	1.36E+02	1.89E+00	-1.48E+04
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	2.66E+04	1.36E+02	1.60E+01	1.36E+02	1.89E+00	-1.48E+04
SM	kg	2.13E+02	1.27E-02	5.32E-02	1.27E-02	5.98E-03	-2.68E+02
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	m ³	3.29E+01	4.52E-02	2.65E-02	4.52E-02	2.56E-02	-1.76E+01
HW	kg	1.55E+02	8.36E+00	7.21E+00	4.29E-01	3.43E-01	-8.51E+01
NHW	kg	4.90E+02	1.20E+01	9.03E+00	8.91E-01	6.25E-01	-2.99E+02
RW	kg	2.54E-01	1.86E-02	1.64E-02	7.75E-04	5.79E-04	-1.18E-01
REUSE	kg	0.00E+00	0.00E+00	1.00E+00	2.00E+00	3.00E+00	0.00E+00
RECYCLE	kg	1.22E+01	1.99E-02	6.09E-02	1.99E-02	9.83E-03	-7.36E+02
EN-REC	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE-E	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE-T	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

HOT ROLLED AND PICKLED PROFILED TUBE

Abb.	Unit	A1-A3	C1	C2	C3	C4	D
GWP - t	kg CO ₂ eq	2.76E+03	1.25E+01	9.14E+00	1.25E+01	9.94E-01	-1.68E+03
GWP - fossil	kg CO ₂ eq	2.76E+03	1.25E+01	9.13E+00	1.25E+01	9.93E-01	-1.68E+03
GWP - biogenic	kg CO ₂ eq	0.00+00	-4.47E-02	3.13E-04	-4.47E-02	1.37E-04	-1.48E+00
GWP - luluc	kg CO ₂ eq	1.13E+00	9.15E-04	3.65E-03	9.15E-04	5.11E-04	-8.14E-01
GWP - GHG	kg CO ₂ eq	2.76E+03	1.25E+01	9.14E+00	1.25E+01	9.94E-01	-1.68E+03
ODP	kg CFC-11 eq	1.63E-05	1.34E-07	1.35E-07	1.34E-07	2.87E-08	-8.06E-06
POCP	kg NMVOC eq	8.91E+00	4.87E-02	4.59E-02	4.87E-02	1.05E-02	-5.48E+00
AP	mol H+ eq	1.10E+01	1.19E-01	3.12E-02	1.19E-01	7.04E-03	-7.05E+00
EP - freshwater	kg P eq	1.02E+00	4.77E-03	7.17E-04	4.77E-03	8.25E-05	-6.88E-01
EP - marine	kg N eq	2.40E+00	1.62E-02	1.02E-02	1.62E-02	2.68E-03	-1.59E+00
EP - terrestrial	mol N eq	2.57E+01	1.71E-01	1.11E-01	1.71E-01	2.93E-02	-1.64E+01
WDP	m ³ depriv.	7.42E+02	8.54E-01	6.79E-01	8.54E-01	1.06E+00	-3.17E+02
ADP - F	MJ	2.93E+04	1.32E+02	1.32E+02	1.32E+02	2.44E+01	-1.72E+04
ADP - MM	kg Sb eq	1.69E-02	9.08E-06	2.48E-05	9.08E-06	1.55E-06	-1.13E-02
PERE	MJ	3.02E+03	1.19E+01	2.19E+00	1.19E+01	2.94E-01	-1.91E+03
PERM	MJ	0.00E+00	0.00E+00	1.00E+00	2.00E+00	3.00E+00	0.00E+00
PERT	MJ	3.02E+03	1.19E+01	3.19E+00	1.39E+01	3.29E+00	-1.91E+03
PENRE	MJ	2.64E+04	1.36E+02	1.60E+01	1.36E+02	1.89E+00	-1.61E+04
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	2.64E+04	1.36E+02	1.60E+01	1.36E+02	1.89E+00	-1.61E+04
SM	kg	2.04E+02	1.27E-02	5.32E-02	1.27E-02	5.98E-03	-2.91E+02
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	m ³	6.58E+01	4.52E-02	2.65E-02	4.52E-02	2.56E-02	-1.91E+01
HW	kg	1.29E+02	6.62E+00	1.66E+00	4.29E-01	3.43E-01	-9.24E+01
NHW	kg	4.21E+02	9.98E+00	3.81E+00	8.91E-01	6.25E-01	-3.25E+02
RW	kg	2.57E-01	1.47E-02	3.10E-03	7.75E-04	5.79E-04	-1.28E-01
REUSE	kg	0.00E+00	0.00E+00	1.00E+00	2.00E+00	3.00E+00	0.00E+00
RECYCLE	kg	1.03E+01	1.99E-02	6.09E-02	1.99E-02	9.83E-03	-7.99E+02
EN-REC	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE-E	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE-T	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

COLD ROLLED PROFILED TUBE

Abb.	Unit	A1-A3	C1	C2	C3	C4	D
GWP - t	kg CO ₂ eq	3.03E+03	1.25E+01	9.14E+00	1.25E+01	9.94E-01	-1.50E+03
GWP - fossil	kg CO ₂ eq	3.03E+03	1.25E+01	9.13E+00	1.25E+01	9.93E-01	-1.49E+03
GWP - biogenic	kg CO ₂ eq	0.00E+00	-4.47E-02	3.13E-04	-4.47E-02	1.37E-04	-1.31E+00
GWP - luluc	kg CO ₂ eq	5.26E-01	9.15E-04	3.65E-03	9.15E-04	5.11E-04	-7.23E-01
GWP - GHG	kg CO ₂ eq	3.03E+03	1.25E+01	9.14E+00	1.25E+01	9.94E-01	-1.50E+03
ODP	kg CFC-11 eq	9.82E-06	1.34E-07	1.35E-07	1.34E-07	2.87E-08	-7.17E-06
POCP	kg NMVOC eq	7.35E+00	4.87E-02	4.59E-02	4.87E-02	1.05E-02	-4.87E+00
AP	mol H+ eq	1.09E+01	1.19E-01	3.12E-02	1.19E-01	7.04E-03	-6.27E+00
EP - freshwater	kg P eq	4.10E-01	4.77E-03	7.17E-04	4.77E-03	8.25E-05	-6.11E-01
EP - marine	kg N eq	2.20E+00	1.62E-02	1.02E-02	1.62E-02	2.68E-03	-1.41E+00
EP - terrestrial	mol N eq	2.40E+01	1.71E-01	1.11E-01	1.71E-01	2.93E-02	-1.46E+01
WDP	m ³ depriv.	2.45E+02	8.54E-01	6.79E-01	8.54E-01	1.06E+00	-2.82E+02
ADP - F	MJ	1.47E+04	1.32E+02	1.32E+02	1.32E+02	2.44E+01	-1.52E+04
ADP - MM	kg Sb eq	6.65E+01	9.08E-06	2.48E-05	9.08E-06	1.55E-06	-1.01E-02
PERE	MJ	1.15E+03	1.19E+01	2.19E+00	1.19E+01	2.94E-01	-1.69E+03
PERM	MJ	0.00E+00	0.00E+00	1.00E+00	2.00E+00	3.00E+00	0.00E+00
PERT	MJ	1.15E+03	1.19E+01	3.19E+00	1.39E+01	3.29E+00	-1.69E+03
PENRE	MJ	1.15E+04	1.36E+02	1.60E+01	1.36E+02	1.89E+00	-1.43E+04
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.15E+04	1.36E+02	1.60E+01	1.36E+02	1.89E+00	-1.43E+04
SM	kg	6.04E+01	1.27E-02	5.32E-02	1.27E-02	5.98E-03	-2.58E+02
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	m ³	2.84E+01	4.52E-02	2.65E-02	4.52E-02	2.56E-02	-1.70E+01
HW	kg	4.07E+01	7.83E+00	1.66E+00	4.29E-01	3.43E-01	-8.21E+01
NHW	kg	1.24E+02	1.18E+01	3.84E+00	8.99E-01	6.31E-01	-2.89E+02
RW	kg	6.91E-02	1.66E-02	3.10E-03	7.75E-04	5.79E-04	-1.14E-01
REUSE	kg	0.00E+00	0.00E+00	1.00E+00	2.00E+00	3.00E+00	0.00E+00
RECYCLE	kg	6.84E+00	1.99E-02	6.09E-02	1.99E-02	9.83E-03	-7.10E+02
EN-REC	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE-E	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE-T	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

PROFILED TUBE FROM GALVANIZED STRIP

Abb.	Unit	A1-A3	C1	C2	C3	C4	D
GWP - t	kg CO ₂ eq	3.14E+03	1.25E+01	9.14E+00	1.25E+01	9.94E-01	-1.49E+03
GWP - fossil	kg CO ₂ eq	3.14E+03	1.25E+01	9.13E+00	1.25E+01	9.93E-01	-1.48E+03
GWP - biogenic	kg CO ₂ eq	0.00E+00	-4.47E-02	3.13E-04	-4.47E-02	1.37E-04	-1.30E+00
GWP - luluc	kg CO ₂ eq	1.71E+00	9.15E-04	3.65E-03	9.15E-04	5.11E-04	-7.18E-01
GWP - GHG	kg CO ₂ eq	3.14E+03	1.25E+01	9.14E+00	1.25E+01	9.94E-01	-1.49E+03
ODP	kg CFC-11 eq	3.41E-05	1.34E-07	1.35E-07	1.34E-07	2.87E-08	-7.12E-06
POCP	kg NMVOC eq	1.30E+01	4.87E-02	4.59E-02	4.87E-02	1.05E-02	-4.84E+00
AP	mol H+ eq	1.43E+01	1.19E-01	3.12E-02	1.19E-01	7.04E-03	-6.23E+00
EP - freshwater	kg P eq	1.04E+00	4.77E-03	7.17E-04	4.77E-03	8.25E-05	-6.07E-01
EP - marine	kg N eq	3.35E+00	1.62E-02	1.02E-02	1.62E-02	2.68E-03	-1.40E+00
EP - terrestrial	mol N eq	3.57E+01	1.71E-01	1.11E-01	1.71E-01	2.93E-02	-1.45E+01
WDP	m ³ depriv.	6.74E+02	8.54E-01	6.79E-01	8.54E-01	1.06E+00	-2.80E+02
ADP - F	MJ	3.40E+04	1.32E+02	1.32E+02	1.32E+02	2.44E+01	-1.51E+04
ADP - MM	kg Sb eq	6.18E-02	9.08E-06	2.48E-05	9.08E-06	1.55E-06	-9.99E-03
PERE	MJ	1.43E+03	1.19E+01	2.19E+00	1.19E+01	2.94E-01	-1.68E+03
PERM	MJ	0.00E+00	0.00E+00	1.00E+00	2.00E+00	3.00E+00	0.00E+00
PERT	MJ	1.43E+03	1.19E+01	3.19E+00	1.39E+01	3.29E+00	-1.68E+03
PENRE	MJ	3.19E+04	1.36E+02	1.60E+01	1.36E+02	1.89E+00	-1.42E+04
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	3.19E+04	1.36E+02	1.60E+01	1.36E+02	1.89E+00	-1.42E+04
SM	kg	7.48E+01	1.27E-02	5.32E-02	1.27E-02	5.98E-03	-2.57E+02
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	m ³	3.88E+02	4.52E-02	2.65E-02	4.52E-02	2.56E-02	-1.69E+01
HW	kg	5.29E+01	1.02E+01	1.66E+00	4.29E-01	3.43E-01	-8.16E+01
NHW	kg	1.64E+02	1.44E+01	3.84E+00	8.99E-01	6.31E-01	-2.87E+02
RW	kg	9.95E-02	2.30E-02	3.10E-03	7.75E-04	5.79E-04	-1.13E-01
REUSE	kg	0.00E+00	0.00E+00	1.00E+00	2.00E+00	3.00E+00	0.00E+00
RECYCLE	kg	6.92E+00	1.99E-02	6.09E-02	1.99E-02	9.83E-03	-7.05E+02
EN-REC	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE-E	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE-T	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

PROFILED TUBE FOR REFRIGERATION INDUSTRY

Abb.	Unit	A1-A3	C1	C2	C3	C4	D
GWP - t	kg CO ₂ eq	4.33E+03	1.48E+01	1.08E+01	1.48E+01	1.18E+00	-1.68E+03
GWP - fossil	kg CO ₂ eq	4.34E+03	1.49E+01	1.08E+01	1.49E+01	1.18E+00	-1.68E+03
GWP - biogenic	kg CO ₂ eq	0.00E+00	-5.31E-02	3.71E-04	-5.31E-02	1.63E-04	-1.48E+00
GWP - luluc	kg CO ₂ eq	7.78E-01	1.09E-03	4.34E-03	1.09E-03	6.07E-04	-8.14E-01
GWP - GHG	kg CO ₂ eq	4.34E+03	1.49E+01	1.09E+01	1.49E+01	1.18E+00	-1.68E+03
ODP	kg CFC-11 eq	1.96E-05	1.59E-07	1.60E-07	1.59E-07	3.41E-08	-8.07E-06
POCP	kg NMVOC eq	1.20E+01	5.78E-02	5.45E-02	5.78E-02	1.25E-02	-5.49E+00
AP	mol H+ eq	2.01E+01	1.41E-01	3.70E-02	1.41E-01	8.36E-03	-7.06E+00
EP - freshwater	kg P eq	7.86E-01	5.67E-03	8.52E-04	5.67E-03	9.79E-05	-6.88E-01
EP - marine	kg N eq	3.68E+00	1.92E-02	1.21E-02	1.92E-02	3.18E-03	-1.59E+00
EP - terrestrial	mol N eq	3.99E+01	2.03E-01	1.32E-01	2.03E-01	3.48E-02	-1.64E+01
WDP	m ³ depriv.	3.77E+02	1.01E+00	8.06E-01	1.01E+00	1.26E+00	-3.17E+02
ADP - F	MJ	2.55E+04	1.57E+02	1.57E+02	1.57E+02	2.89E+01	-1.72E+04
ADP - MM	kg Sb eq	7.90E+01	1.08E-05	2.95E-05	1.08E-05	1.84E-06	-1.13E-02
PERE	MJ	2.36E+03	1.42E+01	2.59E+00	1.42E+01	3.50E-01	-1.91E+03
PERM	MJ	0.00E+00	0.00E+00	1.00E+00	2.00E+00	3.00E+00	0.00E+00
PERT	MJ	2.36E+03	1.42E+01	3.59E+00	1.62E+01	3.35E+00	-1.91E+03
PENRE	MJ	2.16E+04	1.62E+02	1.89E+01	1.62E+02	2.24E+00	-1.61E+04
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	2.16E+04	1.62E+02	1.89E+01	1.62E+02	2.24E+00	-1.61E+04
SM	kg	7.29E+01	1.51E-02	6.32E-02	1.51E-02	7.10E-03	-2.91E+02
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	m ³	3.94E+01	5.37E-02	3.15E-02	5.37E-02	3.04E-02	-1.91E+01
HW	kg	5.62E+01	1.72E+01	9.87E+00	5.09E-01	4.07E-01	-9.25E+01
NHW	kg	1.65E+02	3.26E+01	2.31E+01	1.07E+00	7.49E-01	-3.25E+02
RW	kg	9.87E-02	3.64E-02	2.04E-02	9.21E-04	6.87E-04	-1.29E-01
REUSE	kg	0.00E+00	0.00E+00	1.00E+00	2.00E+00	3.00E+00	0.00E+00
RECYCLE	kg	1.03E+01	2.36E-02	7.23E-02	2.36E-02	1.17E-02	-7.99E+02
EN-REC	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE-E	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE-T	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Additional information

The raw material purchased by Marcegaglia Poland SP Z O O it is characterized by a recycled content of 17.36%: this percentage is calculated as a weighted average of the same value associated with the incoming raw material and deriving both from Type III environmental declarations as well as from self-declarations compliant with the UNI EN ISO standard 14021. The steel comes both from blast furnace (with a recycled content of 18.17%) and from electric arc furnace (with an average recycled content of 10.50%).

The materials used for the packaging of the final products consist of plastic and / or metal straps, wooden saddles and polyester bands. The quantities of these packaging compared to one ton of final product identify a value of less than 5%.

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

Regardless of the type of product considered, the element that most affects the final result is the purchased element which represents the entrance to the various company sites, destined for the subsequent production of the semi-finished product. Among the processes carried out by the company, those that have the greatest impact are the heat treatment of the tube as well as the profiling activity.

The impacts of energy consumption determined by the processes carried out within the company are often marginal compared to the impact associated with the procurement of raw materials. Only for the tubes that finds application in the refrigeration industry, energy consumption has a significant impact determined by heating and galvanizing processes carried out on site.

SUSTAINABILITY

It should be noted that at the end of its useful life, the product is destined for recycling. In particular, the amount of steel destined for recycling is 85% in line with what is indicated in the "Life Cycle inventory (LCI) study" of the World Steel Association - May 2021.

MANAGEMENT SYSTEM

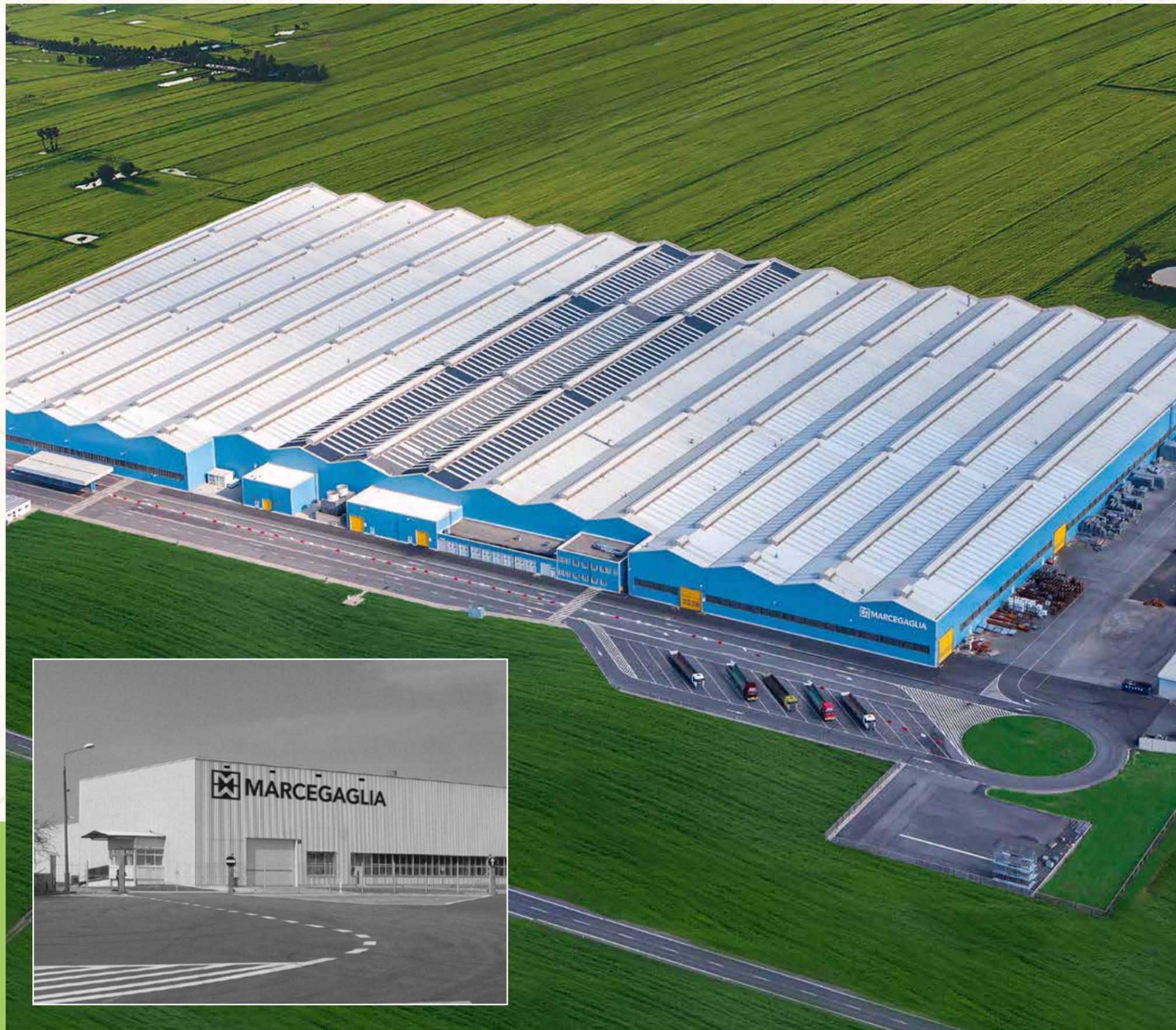
With reference to the management systems used by the company, it is emphasized that the presence of a quality management system (certified pursuant to EN ISO 9001: 2015) ensures that the products are completely traceable throughout the entire production chain, from the original material to chemical and mechanical properties, to guarantee absolute suitability for the specific applications in accordance with the relevant standards.

Difference from previous version

For each product under study, between the year 2022 (the year relating to the data used for the processing and subsequent publication of the EPD Declaration) and the year 2024, there are variations in the EnPI greater than 10%, consequently it will be revised the current EPD Statement with the results deriving from this LCA study.

Compared to the previous version of the EPD Declaration, the main changes made to the data being analyzed are listed below:

- The national energy mix is updated with the 2023 data
- Site-specific data were collected and used (for modules A1, A2 and A3) in relation to all the environmental matrices considered
- More detailed data were collected and used for modules A2
- The Ecoinvent database used is the v.3.10, March 2024;
- Software used is SimaPro rel. 9.6.0.1 Analyst Multi User.



References

General Programme Instructions of the International EPD[®] System. Version 3.01;

PCR 2019:14 - Version 1.11 "CONSTRUCTION PRODUCTS" - Date 2021-02-05;

Product Category Rules for Type III environmental product declaration of construction products to EN 15804:2012;

Ecoinvent database v. .3.10 - March 2024;

UNI EN ISO 14025: 2010 "Environmental labels and declarations - Type III environmental declarations - Principles and procedures";

UNI EN ISO 14040: 2021 "Environmental management - Life cycle assessment - Principles and framework";

UNI EN ISO 14044:2021 "Environmental management - Life cycle assessment - Requirements and guidelines";

UNI EN ISO 15804:2021 "Sustainability of buildings - Environmental product declarations - Development framework rules by product category";

European Residual Mixes 2021 Association of Issuing Bodies "European Residual Mixes - Results of the calculation of Residual Mixes for the calendar year 2021" - version 1.1, 2022-05-31;

CSIRO "Metal recycling: The need for a life cycle approach" - May 2013;

IFEU-Institut and Sineco "Recovery of demolition materials of CaseClima" - September 2012;

World Steel Association "Life Cycle inventory (LCI) study" - May 2021.



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