



Environmental Product Declaration

In compliance with ISO 14025 and EN15804+A2:2019

GMAW WELDING WIRE

Program operator:

EPDITALY

Published by:

EPDITALY

Declaration n.:

EPD_Fili per saldatura

GMAW_PITTARC_2024_Rev.1.0

EPD owner:

S.I.A.T. S.p.A.

EPDITALY registration code :

EPDITALY01470

Published :

15/07/2026

Valid until :

15/07/2031

Production site :

S.I.A.T. S.p.A. – Divisione PITTARC

Via della Cartiera, 3

Osoppo (UD), Italia



The EPD has been independently verified according to ISO 14025 by an accredited third-party verifier. The verification complies with the requirements of EN 15804+A2:2019.

General information

EPD owner:

S.I.A.T. S.p.A
Via Facini, 54
Gemona del Friuli (UD), Italia.

Program operator:

EPDITALY
Via Gaetano de Castillia 10 - Milano (MI), Italia.

Independent evaluation by:

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Plant location:

S.I.A.T. S.p.A. – Divisione PITTARC
Via della Cartiera, 3
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Reference documents: This declaration was drafted following EDPltaly's General Programme Instruction, available on www.epditaly.it.

EPDItaly Regulation rev.7.1 (05/09/2025)

PCR ICMQ-001/15 rev 4 (issued 10/11/2025)

LCA report: "Studio di Life Cycle Assessment di fili ramati e fili per saldatura SAW, GMAW", Rev. 2 del 12/06/2026

CPC CODE: 4124

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INDEPENDENT VERIFICATION OF DECLARATION AND DATA CARRIED OUT ACCORDING TO ISO 14025

☐ EPD Process certification (Internal)

☒ EPD Verification (External)

Company profile

S.I.A.T. S.p.A. operates three production sites:

- S.I.A.T. Industrial Drawn Products Division (S.I.A.T.-Trafilati) – Gemona del Friuli (UD)
- S.I.A.T. PITTARC Division (S.I.A.T.-PITTARC) – Osoppo (UD)
- S.I.A.T. S.I.A.T. 3 Division – San Tomaso di Majano (UD)

S.I.A.T. S.p.A. – Società Italiana Acciai Trafilati is a leading manufacturer of drawn wire, cold-rolled flat steel products made from low- and medium-carbon wire rod, and welding wires for both gas-shielded and submerged arc welding applications.

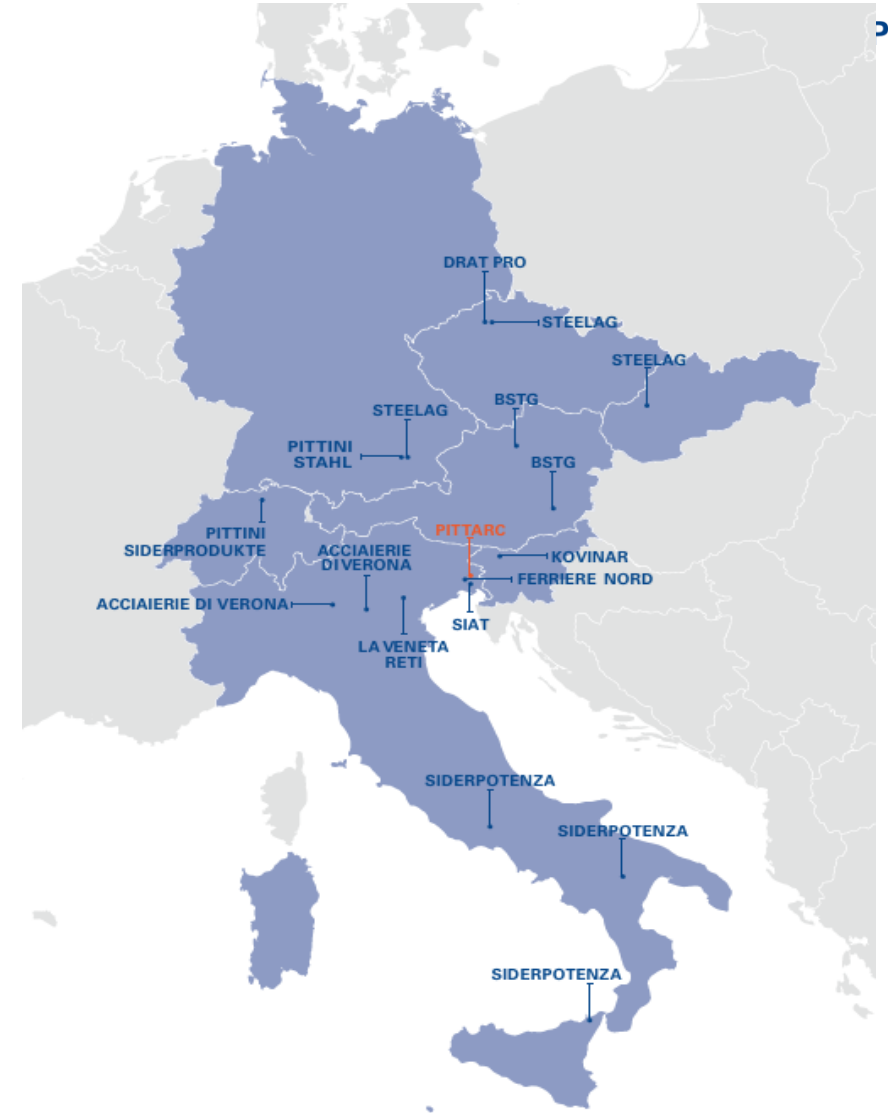
S.I.A.T. S.p.A. began its operations in the early 1970s, establishing itself as a benchmark in the drawn steel products market. In the cold-rolled flat steel sector, S.I.A.T. S.p.A. holds an undisputed international leadership position and ranks among the leading European manufacturers.

In 1972, S.I.A.T. S.p.A. became part of the Pittini Group.

Filarc S.p.A. began production activities in 1974 and was acquired by the Pittini Group in 1982. Following several relocations, it was transferred to S.I.A.T. S.p.A. in 1995 and became S.I.A.T. S.p.A. – PITTARC Division.

PITTARC is the brand name of the welding wires manufactured by S.I.A.T., a company within the Pittini Group. PITTARC welding wires are produced through a carefully controlled manufacturing process at every stage, from wire rod production to the finished product.

A recently incorporated addition to S.I.A.T. S.p.A. is a new production facility located in the Majano industrial area. This facility, formerly the lattice girder division of the Pittini Group, underwent a complete refurbishment during 2023 and is intended to house eight drawn steel production lines as well as the new chemical pickling plant. The addition of this new facility is strategically important for accommodating new investments, increasing drawn wire production capacity (doubling current output), and diversifying the product portfolio to enter new markets.



The product: GMAW welding wire

DECLARED UNIT: 1.000 kg of GMAW (MIG-MAG) welding wire

S.I.A.T. S.p.A., through its PITTARC division, has been operating in the market for over 40 years, manufacturing welding wires for gas-shielded welding and submerged arc welding, marketed under the PITTARC brand.

PITTARC GMAW welding wires are produced using wire rods with low levels of impurities and gases, ensuring welded joints with high mechanical properties and excellent toughness.

Thanks to its extensive experience and specialization in the production of GMAW (MIG/MAG) welding wires, PITTARC is a leading supplier of welding consumables such as solid wires, guaranteeing high quality and outstanding welding performance.

The available product range is designed for joining carbon steels and low-alloy steels and is widely used in medium and heavy steel fabrication for the construction sector, including steel structures for buildings, bridges, industrial halls, and other civil engineering applications.

The product does not contain substances included in the "Candidate list of substances of very high concern (SVHC)".



Scope and EPD type

Modules: The system modules include the compulsory modules A1, A2, A3, C1, C2, C3, C4 and D as per EN 15804 standard, following a “from cradle to gate with modules C1-C4 and D” approach.

EPD type: Specific for the GMAW welding wires produced in Osoppo (UD).

Geographical location: Performances were calculated considering the plant of Osoppo. The reference market is european.

Database: Ecoinvent 3.11 cut-off by classification

Software: SimaPro 10.2.2

Reference year: 2024

Electricity from grid (GWP 100): 0,683 kg CO2e/kWh

PRODUCTION STAGE			CONSTRUCTION PROCESS		USE							END OF LIFE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
Raw material supply	Transport	Manufacturing	Transport	Construction/intallation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-commissioning/Demolition	Transport	Waste processing	Disposal	Reuse/Recovery/Recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
✓	✓	✓	MND	MND	MND	MND	MND	MND	MND	MND	MND	✓	✓	✓	✓	✓

Environmental performance: GMAW welding wire

Data referring to 1.000 kg of GMAW welding wire

 ENVIRONMENTAL IMPACT PARAMETERS	UNIT	A1-A3	A4, A5, B1 ÷ B7	C1	C2	C3	C4	D
GWP - Total	kg CO2 eq	2,25E+3	MND	7,05E+0	1,87E+1	8,50E-1	1,25E+0	-5,07E+2
GWP- Fossil	kg CO2 eq	2,25E+3	MND	7,05E+0	1,87E+1	8,46E-1	1,25E+0	-5,06E+2
GWP - Biogenic	kg CO2 eq	2,94E+0	MND	7,83E-4	3,99E-3	1,72E-3	3,07E-4	-1,34E-1
GWP – LU&T	kg CO2 eq	1,83E+0	MND	7,32E-4	6,34E-3	2,19E-3	4,97E-4	-8,09E-2
Ozone Depletion	kg CFC11 eq	4,58E-7	MND	2,14E-9	9,29E-9	1,98E-9	6,07E-10	-9,01E-7
Acidification	mol H+ eq	4,93E+0	MND	6,30E-2	4,01E-2	5,10E-3	4,20E-3	-2,06E+0
EP - Freshwater	kg P eq	2,51E-2	MND	2,46E-5	1,39E-4	7,45E-5	1,00E-5	-2,83E-2
EP - Marine	kg N eq	1,16E+0	MND	2,93E-2	9,42E-3	8,80E-4	1,31E-3	-4,36E-1
EP - Terrestrial	mol N eq	1,03E+1	MND	3,21E-1	1,04E-1	9,92E-3	1,44E-2	-5,10E+0
Photochemical Ozone Formation	kg NMVOC eq	4,77E+0	MND	9,60E-2	6,36E-2	3,13E-3	6,49E-3	-1,72E+0
ADP - Mineral And Metals ²	kg Sb eq	9,54E-3	MND	2,51E-6	6,41E-5	1,04E-5	3,66E-6	-4,65E-3
ADP – Fossil ²	MJ	1,35E+4	MND	3,57E+0	2,12E+1	1,26E+1	1,52E+0	-3,88E+3
WDP ²	m3 depriv.	6,10E+2	MND	1,96E-1	1,04E+0	1,85E-1	3,86E-1	-5,61E+1

MND=Module Not Declared

² The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

The LCA results are relative expressions and do not predict impacts on category endpoints, exceeding thresholds, safety margins or risks. Module D results are reported separately and shall not be included in the aggregation of life cycle stages.

Environmental performance: GMAW welding wire

Data referring to 1.000 kg of GMAW welding wire

 ENVIRONMENTAL IMPACT PARAMETERS	UNIT	A1-A3	A4, A5, B1 ÷ B7	C1	C2	C3	C4	D
PM	disease inc.	6,10E-5	MND	1,80E-6	1,39E-6	3,59E-8	1,20E-7	-4,55E-5
IRP ¹	kBq U-235 eq	7,07E+1	MND	1,53E-2	1,16E-1	1,47E-1	7,58E-3	4,84E+0
ETP-fw ²	CTUe	4,90E+3	MND	4,97E+0	3,56E+1	2,61E+0	2,33E+0	-3,26E+3
HTP-c ²	CTUh	2,90E-6	MND	7,16E-10	3,12E-9	2,73E-10	2,12E-10	-1,77E-7
HTP-nc ²	CTUh	2,08E-5	MND	1,13E-8	1,67E-7	1,21E-8	9,60E-9	-3,83E-6
SQP ²	Pt	5,69E+3	MND	6,09E+0	1,59E+2	1,83E+1	2,30E+1	-1,60E+3

MND=Module Not Declared

¹ This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible

² The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

The LCA results are relative expressions and do not predict impacts on category endpoints, exceeding thresholds, safety margins or risks. Module D results are reported separately and shall not be included in the aggregation of life cycle stages.

Environmental performance: GMAW welding wire

Data referring to 1.000 kg of GMAW welding wire

 RENEWABLE RESOURCES	UNIT	A1-A3	A4, A5, B1 ÷ B7	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE)	MJ	8,47E+2	MND	4,74E-1	3,43E+0	4,02E+0	2,25E-1	-2,73E+2
Use of renewable primary energy resources used as raw materials (PERM)	MJ	2,86E+2	MND	1,04E-1	9,44E-1	4,74E-1	6,53E-2	-7,86E+1
Total use of renewable primary energy resources (PERT)	MJ	1,13E+3	MND	5,77E-1	4,38E+0	4,49E+0	2,91E-1	-3,51E+2

MND=Module Not Declared

The LCA results are relative expressions and do not predict impacts on category endpoints, exceeding thresholds, safety margins or risks. Module D results are reported separately and shall not be included in the aggregation of life cycle stages.

Environmental performance: GMAW welding wire

Data referring to 1.000 kg of GMAW welding wire

 NON RENEWABLE RESOURCES	UNITÀ	A1-A3	A4, A5, B1 ÷ B7	C1	C2	C3	C4	D
Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials (PENRE)	MJ	1,96E+4	MND	3,57E+0	2,12E+1	1,26E+1	1,52E+0	-3,88E+3
Use of non renewable primary energy resources used as raw materials (PENRM)	MJ	2,45E-2	MND	0,00E+0	0,00E+0	0,00E+0	0,00E+0	0,00E+0
Total use of non renewable primary energy resources (PENRT)	MJ	1,96E+4	MND	3,57E+0	2,12E+1	1,26E+1	1,52E+0	-3,88E+3

MND=Module Not Declared

The LCA results are relative expressions and do not predict impacts on category endpoints, exceeding thresholds, safety margins or risks. Module D results are reported separately and shall not be included in the aggregation of life cycle stages.

Environmental performance: GMAW welding wire

Data referring to 1.000 kg of GMAW welding wire

 USE OF SECONDARY MATERIALS	UNIT	A1-A3	A4, A5, B1 ÷ B7	C1	C2	C3	C4	D
Use of secondary materials (SM)	kg	7,05E+2	MND	0,00E+0	0,00E+0	0,00E+0	0,00E+0	0,00E+0
Use of renewable secondary fuels (RSF)	MJ	0,00E+0	MND	0,00E+0	0,00E+0	0,00E+0	0,00E+0	0,00E+0
Use of non renewable secondary fuels (NRSF)	MJ	0,00E+0	MND	0,00E+0	0,00E+0	0,00E+0	0,00E+0	0,00E+0
 USE OF FRESH WATER								
Net use of fresh water (FW)	m3	8,49E+4	MND	5,73E-3	3,12E-2	1,09E-2	9,45E-3	-2,61E+0

MND=Module Not Declared

The LCA results are relative expressions and do not predict impacts on category endpoints, exceeding thresholds, safety margins or risks. Module D results are reported separately and shall not be included in the aggregation of life cycle stages.

Environmental performance: GMAW welding wire

Data referring to 1.000 kg of GMAW welding wire

 WASTE DISPOSAL	UNIT	A1-A3	A4, A5, B1 ÷ B7	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	5,06E-2	MND	6,39E-4	1,81E-3	5,58E-5	1,39E-4	-5,45E-2
Non-hazardous waste disposed (NHWD)	kg	1,67E+2	MND	6,21E-2	1,29E+1	6,79E-2	5,06E+1	-3,19E+1
Radioactive waste disposed (RWD)	kg	6,64E-1	MND	9,60E-6	7,90E-5	1,20E-4	5,07E-6	4,72E-3
Components for re-use (CRU)	kg	0,00E+0	MND	0,00E+0	0,00E+0	0,00E+0	0,00E+0	0,00E+0
Materials for Recycling (MFR)	kg	0,00E+0	MND	0,00E+0	0,00E+0	9,50E+2	0,00E+0	0,00E+0
Materials for Energy Recovery (MER)	kg	0,00E+0	MND	0,00E+0	0,00E+0	0,00E+0	0,00E+0	0,00E+0
Exported Energy (EE)	MJ	0,00E+0	MND	0,00E+0	0,00E+0	0,00E+0	0,00E+0	0,00E+0
Biogenic carbon content in product	kg C	0,00E+0	MND	0,00E+0	0,00E+0	0,00E+0	0,00E+0	0,00E+0
Biogenic carbon content in packaging	kg C	1,38E+1	MND	0,00E+0	0,00E+0	0,00E+0	0,00E+0	0,00E+0

MND=Module Not Declared

The LCA results are relative expressions and do not predict impacts on category endpoints, exceeding thresholds, safety margins or risks. Module D results are reported separately and shall not be included in the aggregation of life cycle stages.

Scope and EPD type

DESCRIPTION OF THE PROCESSES INCLUDED:

Transport of material from production site to Osoppo has been included.

All **transports of raw materials from suppliers** to the production plant are included in the primary-information model.

Inventory quantity, expressed in kgkm, is defined as the product between the mass of the material and the distance covered.

Transports of waste from production site to the treatment plants are included based of primary data.

Processing of materials entering the plant, the **process of copper-coating of wire** is included.

- A1** RAW MATERIAL SUPPLY
- A2** TRANSPORT
- A3** MANUFACTURING (waste processing, ancillary materials, emissions)

Following the review of the EN 15804 standard, groups C1, C2, C3, C4 and D have been included.

The groups C1-C4 include the impacts associated with the removal of the material from the building in which it is installed, the transport of the waste to the treatment center and the related activities (recycling, treatment ecc.), including the disposal in landfill.

The group D, includes the benefits coming from the outputs of recycling (intended as avoided products) and energy recovery operations.

- C1** DE-CONSTRUCTION/DEMOLITION
- C2** TRANSPORT
- C3** WASTE TREATMENT
- C4** DISPOSAL
- D** REUSE/RECOVERY/RECYCLING POTENTIAL

SCOPE	PROCESSES
Preparation for wire drawing	Wire rod processing (outsourced): annealing (<10% of total incoming wire rod)
Internal transports and machinery used in the plant	Inbound transport with truck
	Internal transport with forklift
	Handling of final product with forklift
	Transport of waste to treatment plants with truck
Wire drawing	Wire rod processing: descaling
	Wire rod processing: chemical pickling
	Wire rod processing: wire rod rinsing
	Wire rod processing: lubrication and reduction of diameter
	Wire rod processing: second wet drawing
	Wire rod processing: copper coating
	Wire rod processing: polishing
	Wire rod processing: packaging
End of life	Demolition, including use of machinery
	Transport to sorting plants and sorting process
	Recovery, recycle, disposal

Scope and type of EPD

After being loaded onto the pay-off stands, the wire rod undergoes a **descaling process** before entering the **in-line electrolytic pickling process**.

Following pickling, the wire rod is subjected to a series of washing stages to completely remove any residual acid from the surface and is then processed through a **first dry drawing operation** to reduce its diameter.

The semi-finished product, in the form of coils, is subsequently fed into a **second drawing stage**, where it undergoes further diameter reduction in a bath containing water and emulsions. The wire is then **copper-coated, washed and polished**.

Finally, the wire is packaged either in **drums** or **coils**, according to customer requirements.

GMAW welding wires are manufactured in diameters ranging from **0.6 mm to 4.0 mm** and are available in a wide range of packaging options:

- 5 kg, 15 kg, 16 kg and 18 kg spools;
- 250 kg, 350 kg, 450 kg and 500 kg drums.

In addition to the standard copper-coated version, GMAW wires are also available in a **copper-free variant**, the copper-free product range marketed under the **GREEN-ARC** brand, or with the **INNOV-ARC** surface treatment.

Calculation rules

DECLARED UNIT: 1.000 kg of GMAW welding wire

Assumptions: System boundaries include the compulsory modules A1, A2, A3, C1, C2, C3, C4 and D as required by EN 15804 Standard, according to a “from cradle to gate with modules C1-C4 and D” approach. It should be noted that **building, maintenance and decommissioning of the infrastructures - intended as buildings - and use of industrial ground, were not taken into consideration**, because their contribution to environmental impact relating to the declared unit is deemed negligible. **Consumption of oils, detergents and other technical materials for machine maintenance, energy consumption for plant lighting, energy consumption for office activities related to the management of the steel mill are included. Moreover, it should be noted that product distribution, use and disposal phases are not included in this study.**

Cut-off rules: The criterion chosen for the initial inclusion of the inbound and outbound elements, takes into account a 1% cut-off level, both in terms of mass, energy and environmental relevance. This means that a process was neglected if responsible of less than 1% of the total amount of mass, primary energy and total impact. However, all processes for which data are available were taken into account, even though with a contribution less than 1%. As a consequence, this threshold value was used in order to avoid collecting unknown data, not with the purpose of neglecting available data.

Data quality: The calculation of data quality has been applied to the most relevant life cycle processes identified, according to EN 15804 (table 2 annex E) requirements. In particular, every relevant process has been assigned a score in a range from 1 to 5 (where 1 means maximum representativity) for the following quality parameters: technological representativity, geographical representativity, time representativity and accuracy. For the product subject of the EPD the final DQR obtained combining weights and scores resulted lower than 2; this corresponds to a quality level of «optimum».

Allocations: allocation was avoided, whenever possible, by dividing the system into sub-systems. Otherwise, physical allocation was applied. As for waste modeling, the "Polluter pays principle" was applied.

Calculation rules – inventory analysis

MODULE	DESCRIPTION
A1	For the characterization of raw materials entering the plant, reference was made to the Ecoinvent 3.11 cut-off by classification datasets, using the dataset considered most representative. The company also provided information on the electricity and natural gas consumption of the entire facility, appropriately allocated to the individual product
A2	The origin of raw materials and the related transport process were specifically modeled for all components. Distances were calculated using web-based tools such as Google Maps and EcoTransIT.
A3	The plant's production process was characterized by considering water consumption, auxiliaries, maintenance oils, and waste management. In addition, the company provided detailed information regarding the packaging used for the finished products
C1	The impacts associated with demolition were not considered, since the dismantling of the steel structures is considered negligible.
C2	At the end of its life, the product is sent to sorting facilities; therefore, a transport distance of 100 km is assumed. The means of transport is represented by the following dataset: Transport, freight lorry, 16–32 t, EURO 6. This scenario is consistent with assumptions made in other EPDs by steel producers.
C3	The product is then subjected to a sorting process.
C4	In accordance with the recycling rates proposed in (European Commission, 2018) for steel, it is assumed that 5% of the steel is sent to landfill after the sorting process. This flow is modeled using the following dataset: Inert waste, for final disposal {Europe without Switzerland} treatment of inert waste, inert material landfill Cut-off, U .
D	Module D is calculated by considering the potential impacts and benefits associated with the recycling activity of the product, using the Circular Footprint Formula.



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 — Amendment 1
- **ISO 14020:2000** Environmental labels and declarations — General principles
- **EN 15804:2012+A2:2019** Sustainability of construction works – Environmental product declarations — Core rules for the product category of construction works
- **PD CEN/TR 16970:2016** Sustainability of construction works — Guidance for the implementation of EN 15804
- **PD CEN/TR 15941:2010** Sustainability of construction works — Environmental Product Declarations — Methodology for selection and use of generic data
- **PCR ICMQ-001/15** rev 4 (10/11/2025)
- **Regulation EPDIItaly** rev.7.1 (05/09/2025)
- **S.I.A.T. S.p.A. – PITTARC division**, "Studio di Life Cycle Assessment di fili ramati e fili per saldatura SAW, GMAW", Rev. 2, 12/06/2026