



Electrolytic Tin Plate



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Manufacturer: ILVA SPA

Address: Viale Certosa n. 249, 20151 Milano, Italy

Phone: +39 02 307001

E-mail of the competent technician: silambiente.taranto@rivagroup.com

1.0 PRODUCT AND COMPANY IDENTIFICATION

1.1 PRODUCT IDENTIFICATION

Designation: Electrolytic tinplate

Standard: EN 10202

1.2 USE OF THE PRODUCT

Main applications: Vessels for food and industry purposes

1.3 COMPANY IDENTIFICATION

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1.4 EMERGENCY TELEPHONE

Emergency phone number: +39 099 4813333

Phone number for information concerning health: +39 099 4812222

Niguarda Hospital, National Poison Control Centre, Milan: +39 02 66101029



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2.0 HAZARDS IDENTIFICATION

Under normal operating conditions the tinplate does not pose any hazard to human health. However, some mechanical processing such as thermal cutting, grinding, welding, may result in release of dust, vapours and fumes.

Inhalating air with particles concentration above the permitted threshold limit may be hazardous to human health.

With specific reference to the coating layer, always and within the operations previously mentioned, the developed tin dusts, beyond certain threshold limits, may cause the so-called "stannosis".

With specific reference to the coating, frequent and prolonged contact with skin can also cause skin irritation.

3.0 COMPOSITION AND INFORMATION ON INGREDIENTS

MAIN ELEMENTS - STEEL SUBSTRATE

Component	Formula	% by mass	CAS No.	EINECS No.	Hazard	R-Phrases
IRON	Fe	96-99.8	7439-89-6	231-096-4	-	-
CARBON	C	<0.12	7440-44-0	231-153-3	-	-
SILICON	Si	<0.03	7440-21-3	231-130-8	-	-
MANGANESE	Mn	<0.50	7439-96-5	231-105-1	-	-
PHOSPHOROUS	P	<0.02	7723-14-0	231-768-7	F	R11,R16, R52-53
SULFUR	S	<0.02	7704-34-9	231-722-6	Xi	R38
COPPER	Cu	<0.08	7440-50-8	231-159-6	-	-
NICKEL	Ni	<0.08	7440-02-0	231-111-4	Carc.Cat.3, T	R40 R48/23,R43
CHROME	Cr	<0.08	7440-47-3	231-157-5	-	-
MOLYBDENUM	Mo	<0.02	7439-98-7	231-107-2	-	-
NIوبيUM	Nb	<0.02	7440-03-1	231-113-5	-	-
VANADIUM	V	<0.02	7440-62-2	231-171-1	-	-
ALUMINUM	Al	<0.08	7429-90-5	231-072-3	-	-
TITANIUM	Ti	<0.02	7440-32-6	231-142-3	-	-
BORON	B	<0.005	7440-42-8	231-151-2	-	-

TIN COATING

The rolled products are coated, by electroplating, on both sides by a layer of tin. The electrolytic bath is constituted by a watery solution of stannous sulphate with some additives that ensure good electric conductivity and that facilitate the uniform deposition of tin as micro-crystals. The anodes are constituted by bars of pure tin.

Component	Formula	Concentration (g/m ²)*	CAS No.	EINECS No.	Hazard	R-Phrases
TIN	Sn	1,4 - 11,2	7440-31-5	231-141-8	-	-

* concentration referred to one side of the rolled product



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FURTHER SURFACE TREATMENTS - PASSIVATION AND / OR OILING

The electrolytic tinplate undergoes, finally, the following surface treatments:

- Passivation by the use of a watery solution of sodium bi-chromate and little amounts of chromic acid.
- Protective electrostatic oiling by sebacic acid esters-based fluids, in order to avoid possible scratches and to increase, at the same time, tinplate resistance to atmospheric corrosion.

Frequent and prolonged contact with the oil layer, when combined with poor personal hygiene, may cause skin redness, contact dermatitis and skin irritation.

4.0 FIRST-AID MEASURES

Eye contact: rinse immediately under running water.

Skin contact: possible irritation phenomena in case of direct contact (without gloves). Wash well with soap and large amounts of water. If irritation persists contact a doctor.

Inhalation: in case of excessive exposure to dust, vapour or fumes, move the affected person to fresh air. If symptoms persist, call a doctor.

Ingestion: not applicable.

5.0 FIRE-FIGHTING MEASURES

The tinplate is not flammable.

6.0 ACCIDENTAL RELEASE MEASURES

Not applicable.

7.0 HANDLING AND STORAGE

7.1 HANDLING

During handling and processing (welding, grinding, cutting) chrome coated steel products, it is recommended to:

Operate as necessary, working in environments with sufficient natural or artificial ventilation;

Limit the spread of dust and fumes;

Follow correct working procedures;

Wear appropriate work clothing;

With specific reference to the surface protection, special precautions should be taken in the course of the processing stages previously described.



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7.2 STORAGE

Product should not be stored with acids and/or other incompatible materials.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 EXPOSURE LIMIT VALUES

During mechanical and / or thermal processing such as cutting, grinding, welding, etc. exposure to dust, vapour or fumes should be kept below the limit values allowed.

Listed below are the occupational exposure limit values, known as TLV-TWA, which determine the weighted average concentration over time on a conventional working day of 8 hours and 40 hours working week, which it is believed that nearly all workers may be repeatedly exposed to, day after day, throughout their working life without adverse effects.

These values have been published by the American Conference of Governmental Industrial Hygienists:

PNOC* dusts	inhalable fraction	TLV-TWA 10 mg/m ³
	respirable fraction	TLV-TWA 3 mg/m ³
Iron	Iron oxide fumes (as Fe) respirable fraction	TLV-TWA 5 mg/m ³
Manganese	Manganese element and inorganic compounds (as Mn)	TLV-TWA 0.2 mg/m ³
Aluminium	Aluminium element and inorganic compounds respirable fraction (as Al)	TLV-TWA 1 mg/m ³
Chrome	Chrome element and inorganic compounds (II), and (III) (not soluble)	TLV-TWA 0.5 mg/m ³
Nickel	Nickel element inhalable fraction	TLV-TWA 1.5 mg/m ³
	Nickel inorganic compounds not soluble inhalable fraction	TLV-TWA 0.2 mg/m ³
	Nickel inorganic compounds soluble inhalable fraction	TLV-TWA 0.1 mg/m ³
Boron	Borate, inorganic compounds	TLV-TWA 2 mg/m ³
Copper	Fumes	TLV-TWA 0.2 mg/m ³
	Dusts and mist (as Cu)	TLV-TWA 1 mg/m ³
Vanadium	Vanadium pentoxide (as V2O5)	TLV-TWA 0.05 mg/m ³
Molybdenum	Molybdenum element and compounds not soluble inhalable fraction	TLV-TWA 10 mg/m ³
	Molybdenum element and compounds not soluble respirable fraction	TLV-TWA 3 mg/m ³
	Molybdenum compounds soluble respirable fraction	TLV-TWA 0.5 mg/m ³
Tin	Tin element	TLV-TWA 2 mg/m ³
	Tin oxides and inorganic compounds	TLV-TWA 2 mg/m ³

CAUTION: Fumes and airborne dust which may contain metals and oxides can be developed when cutting or welding. Some may pose risks to human health. Concentrations should be evaluated and controlled as necessary.

(*) Particles Not Otherwise Classifiable



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8.2 EXPOSURE CONTROLS

8.2.1 OCCUPATIONAL EXPOSURE CONTROLS

Respiratory protection	In case of manufacturing operations exposing to dust and fumes, use appropriate airways protecting device equipped with "P" dust filter or, if it is necessary, filter for organic compounds (choose the appropriate protector according to the detected composition of smoke).
Hand protection	Protective gloves.
Eye protection	Goggles when welding and/or cutting.
Skin protection	Protective fire-resistant clothing (jacket, trousers). When manually cutting with oxygen torch, consider using aluminised protective clothing.

8.2.2 ENVIRONMENTAL EXPOSURE CONTROLS

In case of insufficient ventilation of the workplace, local exhaust ventilation should be provided when processing electrolytic tin plate to prevent excessive exposure to dust, steam and fumes.

Dust levels should be kept below the recommended exposure standard.

9.0 PHYSICAL AND CHEMICAL PROPERTIES

9.1 GENERAL INFORMATION

Physic State	solid
Appearance	metallic grey
Odour	odourless

9.2 IMPORTANT HEALTH, SAFETY AND ENVIRONMENTAL INFORMATION

Steel Density	≈ 7570 Kg/m ³
Tin Layer Density	≈ 7280 Kg/m ³

9.3 OTHER INFORMATION

Steel Melting point	1500-1530 °C
Tin Layer Melting point	232 °C

10.0 STABILITY AND REACTIVITY

10.1 CONDITIONS TO AVOID

Stable in the normal condition.



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10.2 MATERIALS TO AVOID

It reacts with acids and bases.

10.3 HAZARDOUS DECOMPOSITION PRODUCTS

During welding operations, fumes and oxides of various metals (iron, manganese, chrome, nickel, molybdenum, tin, etc.) may be produced.

11.0 TOXICOLOGICAL INFORMATION

Generic health hazards and main exposure routes:

Contact with skin	The dust arising when processing can cause irritation, dermatitis and sensitization phenomena.
Eye contact	Dusts arising out of processing can cause irritation phenomena.
Inhalation	Exposure to dust may lead to breathing difficulties.
Ingestion	Is not a usual way of exposure, due to the shape of the product.

Specific effects on human health in relation to individual components of the product:

ACUTE EFFECTS

The excessive inhalation of fumes and metal dust developed when processing may cause irritation of eyes, nose and throat. This type of exposure may also lead to the occurrence of metal fume fever, nausea, vomit, tiredness.

When the rolled products are surface protected by paraffinic based fluids and/or layers of anti-corrosive passivation coating, a repeated and prolonged contact with skin may cause irritation.

CHRONIC EFFECTS

dusts	pneumoconiosis from accumulation
iron oxides	Siderosis
manganese	manganous parkinsonism, organic psycho syndrome
aluminium	aluminous (benign pneumoconiosis)
chrome	ulcers and perforations of the nasal septum, ulcerative dermatitis, allergic contact dermatitis, bronchial asthma, nasal cavity cancer
phosphorus	polyneuropathy
nickel	allergic contact dermatitis, bronchial asthma, cancer of the lungs and nasal cavity
copper	conjunctivitis, rhinitis, bronchial asthma, dermatitis
vanadium	trachea bronchitis, bronchial asthma, allergic contact dermatitis, conjunctivitis, pulmonary fibrosis
tin	stannosis, contact dermatitis



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12.0 ECOLOGICAL INFORMATION

The material can be recycled as scrap.

12.1 ECOTOXICITY

Not available.

12.2 MOBILITY

Soil and subsoil (underground water) particle migration may be possible. No data is available on this subject.

12.3 PERSISTENCE AND DEGRADABILITY

Not available.

12.4 BIOACCUMULATIVE POTENTIAL

Not available.

12.5 RESULTS OF PBT ASSESSMENT

Not available.

12.6 OTHER ADVERSE EFFECTS

Not available.

13.0 DISPOSAL CONSIDERATIONS

Steel scrap should be recycled whenever possible in accordance to legislation in force.

14.0 TRANSPORT INFORMATION

No special precautions regarding the handling or transport within or outside the company are required for this product.
It is not subject to the ADR provisions.

15.0 REGULATORY INFORMATION

This product and its constituents are subject to the following regulations:
Directive 67/548/EC, Directive 1999/45/EC, EC Regulation n. 1907/06.



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16.0 OTHER INFORMATION

ADDITIONAL INFORMATION

TEXT OF R-PHRASES MENTIONED IN SECTION 3:

R11 Highly flammable
R16 Explosive when mixed with oxidising substances
R38 irritating to skin
R40 limited evidence of a carcinogenic effect
R43 may cause sensitization by skin contact
R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation
R52/53 Harmful to aquatic organisms, may cause long term adverse effects in the aquatic environment

Pursuant to the provisions of REACH Regulation, the products covered by this MSDS are defined as “articles containing substances not intended to be released under normal or foreseeable conditions of use”.

The Safety Data Sheet has been issued using all the information currently available. It will be updated with the new toxicological and eco-toxicological data, made available by the end of the Registration of chemical substances phase, as foreseen by the same Regulation.

Information on classification, hazard and risk phrases for the examined substances, are updated to the XXXI ATP Directive 67/548/EC.

REFERENCE STANDARD:

Directive 67/548/EC, Directive 1999/45/EC
Directive 2004/74/EC (XXIX ATP)
Directive 2008/58/EC of 21.08.08 (XXX ATP)
Directive 2009/2/EC of 15.01.09 (XXXI ATP)
Regulation (EC) No 1907/2006