

**Commercial name: metallic aluminum**

Revision: 08  
date: 30.11.2017

This generic Safety Data Sheet has been provided for information purposes only, since according to present legislation the producer is under no obligation to provide any SDS for this material.

## 1. Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

#### Aluminum metal alloy

Additional trade names: aluminum ingots, aluminum billets, aluminum slabs, aluminum half ball, aluminum pyramids, aluminum wire, granules, offset

Article code: Aluminum metal alloy 1XXX, 2XXX, 3XXX, 4XXX, 5XXX, 6XXX, 7XXX, 8XXX, remelt alloy

**Not applicable for alloys, containing > 0,1% Ni or Co; or > 1% Li**

**REACH Registration No.:** exempted from registration as expressed in art. 2.7 d) of EC Regulation n. 1907/2006

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Industrial use

Metal processing and fabrication

Steel/Iron Deoxidization

### 1.3 Details of the supplier of the safety data sheet

Company: Raffineria Metalli Cusiana S.p.a.  
Address: Via 42 Martiri, 239/B  
Postal Code/City: 28924 / Verbania  
Phone number: 0039 0323 496321  
Fax number: 0039 0323 496474  
email: pl.rocco@cusiana.i

### 1.4 Emergency telephone number

European emergency number: 112

Italian emergency number: 118

Company emergency number: 0039 0323 496321 (office hours)

## 2. Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification under Regulation (EC) No 1272/2008

Not classified

### 2.2 Label elements

#### 2.2.1 Labeling under Regulation (EC) 1272/2008

Not applicable

### 2.3 Other hazards

Dust generated during manufacturing (cutting, grinding, welding) could be incendiary and must be controlled.

Dust in contact with water or air humidity could release flammable gas in dangerous quantity and in some case could trigger of an incendiary mixture (termite) when in contact with iron oxide or other metal oxides.

Liquid aluminum and water react violently and could cause an explosion. Liquid aluminum react violently with rust and other metal oxide or nitrates.

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### 3. Composition/information on ingredients

#### 3.2 Mixtures

Aluminum with content of Al greater of 80% in weight

CAS #	EC #	Components	Concentration %	Classification
7429-90-5	231-072-3	Metallic aluminum	> 85	Not classified
7440-21-3	231-130-8	Silicon	<20	Not classified
7440-66-6	231-175-3	Zinc	<2	Not classified
7440-50-8	231-159-6	Copper	<5	Not classified
734-95-4	231-104-6	Magnesium	<6,2	Not classified
7439-89-6	231-096-4	Iron	<5,4	Not classified
7439-92-1	231-100-4	Lead	<0,1	Not classified
7440-31-5	231-141-8	Tin	<0,2	Not classified
7439-96-5	231-105-1	Manganese	<2	Not classified
7440-47-3	231-157-5	Chrome	<0,1	Not classified
7440-32-6	231-142-3	Titanium	<0,35	Not classified
7440-02-0	231-111-4	Nickel	<0,1	H351, H372, H317

### 4. First aid measures

#### 4.1 Description of first aid measures

First aid personnel: pay attention to self-protection

- **Inhalation:** if dust generated during manufacturing operations is inhaled, move the person to a ventilated area. Loosen tight clothing. Administer oxygen in case of breathing problems. In case of lack of breathing and pulse beat apply cardiopulmonary reanimation therapy. Consult a doctor.
- **Skin contact:** In case of burns caused by contact with hot/liquid metal, wash with plenty of salt water and contact a doctor. In case of liquid metal splashes, remove contaminated clothing.
- **Eye contact:** If particles are in contact with the eyes, could be sought treatment for mechanical irritation or injury. Wash with plenty of water or saline solution. If symptoms persist, consult a doctor.
- **Ingestion:** not applicable in the form in which it is provided.

#### 4.2 Most important symptoms and effects, both acute and delayed

Skin irritation or inhalation by susceptible persons.

Metal fume fever caused by the inhalation of metal oxides released from metal heated above the melting point (chills, cold and muscle aches).

#### 4.3 Indication of any immediate medical attention and special treatment needed

None

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## 5. Firefighting measures

This product does not present a fire or explosion risk in the state in which it is delivered. Small chips, dust and fine materials can be flammable.

### 5.1 Extinguishing media

#### 5.1.1 Suitable fire extinguisher

Use Class D extinction fire extinguisher in the case of powders, fine materials or molten metal.

#### 5.1.2 Unsuitable fire extinguisher

Water, foam, halogenated extinguishing agents. Do not use water in the presence of liquid aluminum.

### 5.2 Special hazards arising from the substance or mixtures

Not in state in which its delivered

Dangerous situations could be generate from:

- Dust may form explosive cloud in contact with air;
  - Dust in contact with water can generate flammable gases;
  - Liquid aluminum in contact with water may have an explosive reaction
- Liquid aluminum in contact with iron oxide (and other metals oxides) can trigger a thermal reaction

### 5.3 Advice for firefighters

The firefighters should wear self-contained breathing apparatus in positive pressure and if requested the total heat protective clothing.

## 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust generation to prevent the formation of explosive atmospheres (see section 5.2).

The aluminum does not change color as the temperature changes: cold aluminum has the same color as hot or even liquid aluminum. Always check metal temperature before touching it.

Pay attention to corners and sharp edges, always use gloves when handling the metal.

### 6.2 Environmental precautions

Collect scrap for reuse or recycling

### 6.3 Methods and materials for containment and cleaning up

If in liquid form use sand to contain and allow it to solidify and cool to room temperature.

### 6.4 Reference to other sections

See section 8 for personal protective equipment, see section 13 for information on disposal (recycling).

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## 7. Handling and storage

### 7.1 Precautions for safe handlings

Store material indoors in a dry place.

Dust can form explosive atmospheres. Avoid dust production. In the case of operations that generate dust such as cutting, crushing or grinding make sure that the workplace has a good ventilation and / or an exhaust system designed to treat explosive dust

Use protective gloves when handling the material, the metal edges can be sharp.

Before loading the material in a furnace check that there is no moisture, ice or snow deposited or trapped in the material. In case of large blocks preheat the material up to about 200 C in a drying oven before introducing it into a liquid bath.

Liquid aluminum in contact with water may release hydrogen in dangerous quantities.

### 7.2 Condition for safe storage, including any incompatibles

Nothing

### 7.3 Specific end uses

Steel/Iron Deoxidization  
Production of articles and semi-finished products

## 8. Exposure controls/personal protection

### 8.1 Control parameters

Occupational exposure limit values

Component of mixture that could be generated	CAS #	Occupational exposure limit values 8 hours	Comments
Metallic aluminium	7429-90-5	10 mg/m <sup>3</sup>	Irritant
Aluminium oxide	1344-28-1	10 mg/m <sup>3</sup>	Irritant, affects the lungs
Silicon	7440-21-3	10 mg/m <sup>3</sup>	Irritant
Zinc	7440-66-6		
Copper	7440-50-8	1 mg/m <sup>3</sup> (dust) 0,2 mg/m <sup>3</sup> (smoke)	Irritant Metal fume fever, affects the lungs and reproductive organs
Magnesium	734-95-4	10 mg/m <sup>3</sup>	
Iron	7439-89-6	10 mg/m <sup>3</sup>	
Lean	7439-92-1	0,05 mg/m <sup>3</sup>	Affects kidneys and reproductive organs
Tin	7440-31-5	2 mg/m <sup>3</sup> (metal)	Pneumoconiosis
Manganese	7439-96-5	0,2 mg/m <sup>3</sup>	Manganism
Chrome	7440-47-3	0,5 mg/m <sup>3</sup>	Irritant, dermatitis
Titanium	7440-32-6	10 mg/m <sup>3</sup>	Affects the lungs
Nickel	7440-02-0	1,5 mg/m <sup>3</sup>	Dermatitis, Pneumoconiosis

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## 8.2 Exposure controls

### 8.2.1 Appropriate engineering controls:

If the manufacturing operation generate dust or fine metal particles then should be used special ventilation or suction systems to remove them. The system used must be designed for the treatment of explosive dust.

### 8.2.2 Individual protection measures, such as personal protective equipment:

Use appropriate PPE when handling hot metal ingots and or working in the vicinity of the liquid metal. Protective clothing (masks, leggings, etc ...) to protect against splashes of liquid material and fire-resistant clothing. Do not wear clothes made of synthetic materials.

Use goggles or masks for eye protection when performing operations that can project material.

If the extraction system is not sufficient or practicable to use respiratory protection to meet the exposure limits.

### 8.2.3 Environmental exposure controls:

Not available.

## 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Aspect:	Solid in typical condition of pressure and temperature (1013 mbar / 20 °C), argent color even when hot
Odor:	Odorless
Odor threshold:	Not applicable
pH:	Not applicable
Melting/freezing point:	circa 660°C
Boiling point and boiling range:	circa 2467°C
Flash point	Not applicable
Evaporation rate:	Not applicable
Flammability (solid, gas):	Not applicable
Vapor pressure:	Not applicable
Vapor density:	Not applicable
Relative density	Not applicable
Solubility::	insoluble
Partition coefficient (n-octanol/water)	Not applicable
Auto-ignition temperature:	Not applicable
Decomposition Temperature:	Not applicable
Viscosity:	Not applicable
Explosive properties::	Dust could generate explosive cloud
Oxidant properties:	Not applicable

### 9.2 Other information

Density at 20°C: 2,7 g/cm<sup>3</sup>

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## 10. Stability and reactivity

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### 10.1 Reactivity

No hazards known.

### 10.2 Chemical stability

The solid metal is stable in normal conditions of use, storage and transport.

### 10.3 Possibility of hazardous reactions

No dangerous polymerization reaction known.

### 10.4 Condition to avoid

Prevent the generation of dust during the manufacturing operations, use certificates aspiration systems.

Avoid water contact with molten aluminum.

### 10.5 Incompatible materials

Piece of small size molten material can react violently with:

- Strong oxidizers. It can generate significant amounts of heat or even have explosive reactions.
- Acids and bases. It reacts generating hydrogen in gaseous form
- halogenated compounds.  
oxides of iron, copper, lead, and other metals. It can trigger a thermal reaction with a considerable formation of heat
- Water. In contact with liquid aluminum may generate hydrogen.

### 10.6 Hazardous decomposition products

Not known.

## 11. Toxicological information

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All figures are relativity to aluminum as the main constituent

### 11.1 Information on toxicological effects

Oral ingestion <0.1%, practically insoluble in the lung fluids. The majority of aluminum absorbed is rapidly eliminated in the urine. The main storage is in the body's bone structure.

### 11.2 Acute effects (acute toxicity, irritant and corrosive effects)

No acute effect

#### 11.2.1 Acute toxicity:

LD50 (oral):	> 5000mg/kg body weight (rats)
LD50 (dermal):	No effect
CL50 (inhalation):	> 2,35 mg/l (rats)

#### 11.2.2 Specific symptoms in animal experiments

After ingestion:	No symptoms
After skin contact:	No symptoms
After inhalation:	No symptoms

#### 11.2.3 Irritant and corrosive effects

Skin irritant:	No effects
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Eye irritant: No effects. Small piece of alluminium could could cause irritation by mechanical abrasion.

## 11.3 Sensitization

After skin contact: No sensitization  
After inhalation: No sensitization

## 11.4 Repeated dose toxicity (subacute, sub-chronic, chronic)

subacute oral toxicity: no toxicity – Calculated DNEL 3,95 mg/kg body weight/day  
subacute inhalation toxicity: no toxicity, see Occupational exposure limit, calculated DNEL for inalation 3,7 mg/m<sup>3</sup>

## 11.5 Carcinogenic, mutagenic and toxic for reproduction

Carcinogenicity: Nothing  
mutagenicity: Nothing  
reproductive toxicity: Nothing  
carcinogenic, mutagenic and toxic for reproduction: Not classified as CMR

## 11.6 Practical experience

Observation relevant for classification: Nothing  
Other observation: Nothing

## 12. Ecological information

All figures are relativity to aluminum as the main constituent

### 12.1 Toxicity

Component	test	Species	Results
Aluminum	EC50	Crustacean (Daphnia magna)	0,68 mg/l, 21 days
	LC50	Crustaceans (Asellus aquaticus)	4,37 mg/l, 96 hours
Chrome	EC50	Crustaceans (Daphnia magna)	0,6 mg/l, 21 days
	LC50	Crustaceans (Daphnia magna)	0,022 mg/l 48 hours
Iron	EC50	Crustaceans (Daphnia magna)	5,2 mg/l, 21 days
	LC50	Crustaceans (Daphnia magna)	5,9 mg/l, 21 days
Manganese	EC50	Seaweed (Selenastrum capricornutum)	3,1 mg/l, semicronic
	LC50	Fishes (Salmo gairdneri)	2,91 mg/l, 28 days
Nickel	EC50	Crustaceans (Daphnia magna)	7,5 mg/l, 48 hours
	LC50	Crustaceans (Daphnia pulicaria)	0,697 – 1,034 mg/l, 48 hours
Lead	EC50	Crustaceans (Daphnia magna)	0,1 mg/l, 21 days
	LC50	Crustaceans (Daphnia magna)	0,3 mg/l, 21 days
Copper	EC50	Crustaceans (Daphnia magna)	0,007 mg/l, 48 hours
	LC50	Crustaceans (Daphnia magna)	0,026 mg/l, 48 hours
Zinc	EC50	Seaweed (Chlorella saccharophila)	7,1 mg/l, 96 hours
	LC50	Seaweed (Chlorella saccharophila)	10 mg/l, 96 hours

### 12.2 Persistence and degradability

Persistence: Not relevant  
Biological degradability: not degradable

### 12.3 Bioaccumulative potential

Not bioaccumulating

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## 12.4 Mobility in soil

Not mobile in normal environmental condition, could be washed away in low or high ph environment (pH < 5.5 or pH > 8.5).

## 12.5 Results of PBT and vPvB assessments

Do not contain Persistent, Bioaccumulative and Toxic substances (PBT) or very Persistent, very Bioaccumulative substances (vPvB) included in Annex XIII of Regulation (EC) 1907/2006

## 12.6 Other adverse effects

Not known.

## 13. Disposal considerations

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### 13.1 Waste treatment methods

Dispose of waste in authorized plant following local regulation.

## 14. Transport information

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### 14.1 UN Number

Not applicable

### 14.2 UN proper shipping name

Not applicable

### 14.3 Transport hazards class

Not applicable

### 14.4 Packing group

Not applicable

### 14.5 Environmental hazards

Not applicable

### 14.6 Special precautions for user

Not applicable

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

## 15. Regulatory information

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### 15.1 Safety, health and environmental/legislation specific for the substance or mixture

Not applicable

### 15.2 Chemical safety assessment

Not available.



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## 16. Other information

In dealing with chemicals must be observed and applied the national laws and regulations.

This information is based on our current knowledge. However, this is not a guarantee of the specific characteristics of the product and is not a legally valid contractual relationship.

Recommendations for manufacturer use: Intended for industrial use.

### Hazard statements

Nickel:

- H351 Suspected of causing cancer (inhalation)
- H372 Causes damage to organs(lungs) through prolonged or repeated exposure (inhalation)
- H317 May cause an allergic skin reaction

### Revision

Rev 7 - 30 May 2015: Update to Regulamentation (CE) n. 1907/2006

### Other information

- *Guide to Occupational Exposure Values*, American Conference of Governmental Industrial Hygienists (ACGIH)
- *NIOSH Pocket Guide to Chemical Hazards*, U.S. Department of Health and Human Services, 3° ed., 2007 [2005].
- *Data bank of Environmental Properties of Chemicals (EnviChem)*, Finnish Safety and Chemicals Agency

### Abbreviations and acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
OSHA	Occupational Safety and Health Administration (US)
ADR:	Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID:	Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations concerning the International Transport of Dangerous Goods by Rail)
IMDG:	International Maritime Code for Dangerous Goods
IATA:	International Air Transport Association
IATA-DGR:	Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO:	International Civil Aviation Organization
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS:	Globally Harmonized System of Classification and Labelling of Chemicals
EINECS:	European Inventory of Existing Commercial Chemical Substances
CAS:	Chemical Abstracts Service (division of the American Chemical Society)
PNEC	Potential No Effect Concentration
DNEL	Derived No Effect Level
DOC	Dissolved Organic Compounds