

SAFETY DATA SHEET

(in accordance with Regulation (EU) 2015/830)



FERROTITANIUM

Version: 3
Revision date: 19/06/2017

Page 1 of 8
Print date: 19/06/2017

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING.

1.1 Product identifier.

Product Name: FERROTITANIUM
Chemical Name: Ferrotitanium
CAS No: 12719-90-3
EC No:
Registration No:

1.2 Relevant identified uses of the substance and uses advised against.

Pirotechnic

Uses advised against:

Uses other than those recommended.

1.3 Details of the supplier of the safety data sheet.

Company: **ALDEBARÁN SISTEMAS SL**
Address: C/Jerónimo Zurita, 10, entlo izda, 50001
City: Zaragoza
Province: Zaragoza
Telephone: 0034976796134
E-mail: aldebaran@aldebaransistemas.com

1.4 Emergency telephone number: 0034915620420 (Available 24 hours)

SECTION 2: HAZARDS IDENTIFICATION.

2.1 Classification of the substance.

The product is not classified as hazardous within the meaning of Regulation (EU) No 1272/2008.

2.2 Label elements.

Contains:
ferrotitanium

2.3 Other hazards.

In normal use conditions and in its original form, the product itself does not involve any other risk for health and the environment.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS.

3.1 Substances.

Chemical Name: ferrotitanium
CAS No: 12719-90-3
EC No:
Registration No:

3.2 Mixtures.

Not Applicable.

SAFETY DATA SHEET

(in accordance with Regulation (EU) 2015/830)



FERROTITANIUM

Version: 3
Revision date: 19/06/2017

Page 2 of 8
Print date: 19/06/2017

SECTION 4: FIRST AID MEASURES.

4.1 Description of first aid measures.

Due to the composition and type of the substances present in the product, no particular warnings are necessary.

Inhalation.

Take the victim into open air; keep them warm and calm. If breathing is irregular or stops, perform artificial respiration. Do not administer anything orally. If unconscious, place them in a suitable position and seek medical assistance.

Eye contact.

If wearing contact lenses, remove them. Wash eyes with plenty of clean and cool water for at least 10 minutes while pulling eyelids up, and seek medical assistance.

Skin contact.

Remove contaminated clothing. Wash skin vigorously with water and soap or a suitable skin cleaner. **NEVER** use solvents or thinners.

Ingestion.

If accidentally ingested, seek immediate medical attention. Keep calm. **NEVER** induce vomiting.

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

No known acute or delayed effects from exposure to the product.

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

In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

SECTION 5: FIREFIGHTING MEASURES.

The necessary prevention measures should be taken in order to avoid risks, In case of fire, the following measures are recommended:

5.1 Extinguishing media.

Recommended extinguishing methods.

Dry powder or sand

5.2 Special hazards arising from the substance.

Not use water

Special risks.

The dry titanium burns slowly while releasing a large amount of heat. Water applied to bend a titanium fire can cause an explosion. This stacked product chips can burn vigorously. When the product is heated to decomposition, it emits dangerous fumes of metallic oxides such as iron and titanium oxides.

5.3 Advice for firefighters.

Use water to cool tanks, cisterns, or containers close to the heat source or fire. Take wind direction into account. Prevent the products used to fight the fire from going into drains, sewers, or waterways.

Fire protection equipment.

According to the size of the fire, it may be necessary to use protective suits against the heat, individual breathing equipment, gloves, protective goggles or facemasks, and gloves.

-Continued on next page.-

SAFETY DATA SHEET

(in accordance with Regulation (EU) 2015/830)



FERROTITANIUM

Version: 3
Revision date: 19/06/2017

Page 3 of 8
Print date: 19/06/2017

SECTION 6: ACCIDENTAL RELEASE MEASURES.

6.1 Personal precautions, protective equipment and emergency procedures.

Avoid generation of dust during handling. Avoid inhalation of dust and its contact with eyes and skin. Clean up spills in a way that prevents dust generation, such as by industrial vacuum cleaner with a suitable filter to prevent the emission of dust in suspension. If dust is produced in suspension use an approved dust mask. In general wear protective equipment as described in section 8. Avoid inhalation of dust and contact with eyes. If accumulated dust exists, avoid sources of ignition or sparks. If necessary, use tools that can not produce sparks.

6.2 Environmental precautions.

Product not classified as hazardous for the environment, avoid spillage as much as possible.

6.3 Methods and material for containment and cleaning up.

DO NOT use compressed air to clean the dust. Do not squeeze the dust of this product by dragging it for long distances, it is better to make small piles separated from each other and then deposit them in static anti-static containers. The use of plastic bags is not advisable to put this necessitate due to the potential accumulation of static charges in its interior.

6.4 Reference to other sections.

For exposure control and individual protection measures, see section 8.
For later elimination of waste, follow the recommendations under section 13.

SECTION 7: HANDLING AND STORAGE.

7.1 Precautions for safe handling.

The product does not require special handling measures, the following general measures are recommended:
For personal protection, see section 8. Never use pressure to empty the containers. They are not pressure-resistant containers. In the application area, smoking, eating, and drinking must be prohibited.
Follow legislation on occupational health and safety.
Keep the product in containers made of a material identical to the original.

7.2 Conditions for safe storage, including any incompatibilities.

The product does not require special storage measures.
As general storage measures, sources of heat, radiation, electricity and contact with food should be avoided.
Keep away from oxidising agents and from highly acidic or alkaline materials.
Store the containers between 5 and 35° C, in a dry and well-ventilated place.
Store according to local legislation. Observe indications on the label.

7.3 Specific end use(s).

Not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION.

8.1 Control parameters.

The product does NOT contain substances with Professional Exposure Environmental Limit Values. The product does NOT contain substances with Biological Limit Values.

8.2 Exposure controls.

Measures of a technical nature:

Provide adequate ventilation, which can be achieved by using good local exhaust-ventilation and a good general exhaust system.

SAFETY DATA SHEET

(in accordance with Regulation (EU) 2015/830)



FERROTITANIUM

Version: 3
Revision date: 19/06/2017

Page 4 of 8
Print date: 19/06/2017

Concentration:	100 %		
Uses:	Pirotechnic		
Breathing protection:			
PPE:	Particle filter mask		
Characteristics:	«CE» marking, category III. Made of filtering material, it covers nose, mouth and chin.		
CEN standards:	EN 149		
Maintenance:	Check for any tears, defects, etc. before use. Since it is disposable individual protection equipment, it should be replaced after use.		
Observations:	Does not protect worker unless properly adjusted. Follow the manufacturer's instructions regarding suitable use of the equipment.		
Filter Type needed:	P2		
Hand protection:			
PPE:	Work gloves.		
Characteristics:	«CE» marking, category I.		
CEN standards:	EN 374-1, En 374-2, EN 374-3, EN 420		
Maintenance:	Keep in a dry place, away from any sources of heat, and avoid exposure to sunlight as much as possible. Do not make any changes to the gloves that may alter their resistance, or apply paints, solvents or adhesives.		
Observations:	Gloves should be of the appropriate size and fit the user's hand well, not being too loose or too tight. Always use with clean, dry hands.		
Material:	PVC (polyvinyl chloride)	Breakthrough time (min.):	> 480
		Material thickness (mm):	0,35
Eye protection:			
PPE:	Protective goggles against particle impacts.		
Characteristics:	«CE» marking, category II. Eye protector against dust and smoke.		
CEN standards:	EN 165, EN 166, EN 167, EN 168		
Maintenance:	Visibility through lenses should be ideal. Therefore, these parts should be cleaned daily. Protectors should be disinfected periodically following the manufacturer's instructions.		
Observations:	Some signs of wear and tear include: yellow colouring of the lenses, superficial scratching of the lenses, scraping etc.		
Skin protection:			
PPE:	Anti-static protective clothing.		
Characteristics:	«CE» marking, category II. Protective clothing should not be too tight or loose in order not to obstruct the user's movements.		
CEN standards:	EN 340, EN 1149-1, EN 1149-2, EN 1149-3, EN 1149-5		
Maintenance:	In order to guarantee uniform protection, follow the washing and maintenance instructions provided by the manufacturer.		
Observations:	The protective clothing should offer a level of comfort in line with the level of protection provided in terms of the hazard against which it protects, bearing in mind environmental conditions, the user's level of activity and the expected time of use.		
PPE:	Anti-static safety footwear.		
Characteristics:	«CE» marking, category II.		
CEN standards:	EN ISO 13287, EN ISO 20344, EN ISO 20346		
Maintenance:	The footwear should be checked regularly		
Observations:	The level of comfort during use and acceptability are factors that are assessed very differently depending on the user. Therefore, it is advisable to try on different footwear models and, if possible, different widths.		

-Continued on next page.-

SAFETY DATA SHEET

(in accordance with Regulation (EU) 2015/830)



FERROTITANIUM

Version: 3
Revision date: 19/06/2017

Page 5 of 8
Print date: 19/06/2017

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.

9.1 Information on basic physical and chemical properties.

Appearance: Solid metal .
Colour: Metallic grey
Odour: Unodour
Odour threshold: N.A./N.A.
pH: 5,0-8,0
Melting point: 592 °C
Boiling Point: 3262 °C
Flash point: N.A./N.A.
Evaporation rate: N.A./N.A.
Inflammability (solid, gas): N.A./N.A.
Lower Explosive Limit: N.A./N.A.
Upper Explosive Limit: N.A./N.A.
Vapour pressure: N.A./N.A.
Vapour density: N.A./N.A.
Relative density: N.A./N.A.
Solubility: 90 G/L AT 20 °
Liposolubility: N.A./N.A.
Hydrosolubility: N.A./N.A.
Partition coefficient (n-octanol/water): N.A./N.A.
Auto-ignition temperature: N.A./N.A.
Decomposition temperature: >600°C
Viscosity: N.A./N.A.
Explosive properties: N.A./N.A.
Oxidizing properties: N.A./N.A.
N.A./N.A.= Not Available/Not Applicable due to the nature of the product

9.2 Other information.

Pour point: N.A./N.A.
Blink: N.A./N.A.
Kinematic viscosity: N.A./N.A.
N.A./N.A.= Not Available/Not Applicable due to the nature of the product

SECTION 10: STABILITY AND REACTIVITY.

10.1 Reactivity.

Titanium is highly reactive with sulfur, oxygen and nitrogen, so that ferrotitanium is sometimes used as an agent to reduce the content of material in these elements

10.2 Chemical stability.

Stable under the recommended handling and storage conditions (see section 7).

10.3 Possibility of hazardous reactions.

The product does not present possibility of hazardous reactions.

10.4 Conditions to avoid.

Avoid generation of dust. Alloys are not combustible under normal conditions. However, in the case of machining, a cooling fluid must be used as the drill bit as the product chips may ignite.

10.5 Incompatible materials.

Keep away from oxidising agents and from highly alkaline or acidic materials in order to prevent exothermic reactions.

-Continued on next page.-

SAFETY DATA SHEET

(in accordance with Regulation (EU) 2015/830)



FERROTITANIUM

Version: 3
Revision date: 19/06/2017

Page 6 of 8
Print date: 19/06/2017

10.6 Hazardous decomposition products.

Water added on hot titanium may cause the generation of hydrogen

SECTION 11: TOXICOLOGICAL INFORMATION.

11.1 Information on toxicological effects.

There are no tested data available on the product.

Repeated or prolonged contact with the product can cause the elimination of oil from the skin, giving rise to non-allergic contact dermatitis and absorption of the product through the skin.

Splatters in the eyes can cause irritation and reversible damage.

a) acute toxicity;

Not conclusive data for classification.

b) skin corrosion/irritation;

Based on available data, the classification criteria are not met.

c) serious eye damage/irritation;

Based on available data, the classification criteria are not met.

d) respiratory or skin sensitisation;

Prolonged inhalation may cause mild irritation of the lungs and respiratory tract) germ cell mutagenicity;

f) carcinogenicity;

Not conclusive data for classification.

g) reproductive toxicity;

Not conclusive data for classification.

h) STOT-single exposure;

Based on available data, the classification criteria are not met.

i) STOT-repeated exposure;

Not conclusive data for classification.

j) aspiration hazard;

Not conclusive data for classification.

SECTION 12: ECOLOGICAL INFORMATION.

12.1 Toxicity.

No information is available regarding the ecotoxicity.

12.2 Persistence and degradability.

No information is available about persistence and degradability of the product.

12.3 Bioaccumulative potential.

No information is available regarding the bioaccumulation.

12.4 Mobility in soil.

No information is available about the mobility in soil.

The product must not be allowed to go into sewers or waterways.

Prevent penetration into the ground.

SAFETY DATA SHEET

(in accordance with Regulation (EU) 2015/830)



FERROTITANIUM

Version: 3
Revision date: 19/06/2017

Page 7 of 8
Print date: 19/06/2017

12.5 Results of PBT and vPvB assessment.

No information is available about the results of PBT and vPvB assessment of the product.

12.6 Other adverse effects.

No information is available about other adverse effects for the environment.

SECTION 13 DISPOSAL CONSIDERATIONS.

13.1 Waste treatment methods.

Do not dump into sewers or waterways. Waste and empty containers must be handled and eliminated according to current, local/national legislation.

Follow the provisions of Directive 2008/98/EC regarding waste management.

SECTION 14: TRANSPORT INFORMATION.

Transportation is not dangerous. In case of road accident causing the product's spillage, proceed in accordance with point 6.

14.1 UN number.

Transportation is not dangerous.

14.2 UN proper shipping name.

Description:

ADR: Transportation is not dangerous.

IMDG: Transportation is not dangerous.

ICAO: Transportation is not dangerous.

14.3 Transport hazard class(es).

Transportation is not dangerous.

14.4 Packing group.

Transportation is not dangerous.

14.5 Environmental hazards.

Transportation is not dangerous.

14.6 Special precautions for user.

Transportation is not dangerous.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code.

Transportation is not dangerous.

SECTION 15: REGULATORY INFORMATION.

15.1 Safety, health and environmental regulations/legislation specific for the substance.

The product is not affected by the Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer.

The product is not affected by Directive 2012/18/EU (SEVESO III).

The product is not affected by Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products.

The product is not affected by the procedure established Regulation (EU) No 649/2012, concerning the export and import of dangerous chemicals.

-Continued on next page.-

SAFETY DATA SHEET

(in accordance with Regulation (EU) 2015/830)



FERROTITANIUM

Version: 3
Revision date: 19/06/2017

Page 8 of 8
Print date: 19/06/2017

15.2 Chemical safety assessment.

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: OTHER INFORMATION.

Classification codes:

Eye Irrit. 2 : Eye irritation, Category 2
Flam. Sol. 1 : Flammable solid, Category 1
Flam. Sol. 2 : Flammable solid, Category 2
Pyr. Liq. 1 : Pyrophoric liquid, Category 1
STOT SE 3 : Specific target organ toxicity following a single exposure, Category 3
Skin Irrit. 2 : Skin irritant, Category 2
Water-react. 1 : Substances and mixtures, which in contact with water, emit flammable gases, Category 1

Sections changed compared with the previous version:

1,2,3,5,6,7,8,9,10,11,14,16

It is recommended that the product only be employed for the purposes advised.

Abbreviations and acronyms used:

CEN: European Committee for Standardization.
PPE: Personal protection equipment.

Key literature references and sources for data:

<http://eur-lex.europa.eu/homepage.html>

<http://echa.europa.eu/>

Regulation (EU) 2015/830.

Regulation (EC) No 1907/2006.

Regulation (EU) No 1272/2008.

The information given in this Safety Data Sheet has been drafted in accordance with COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

The information in this Safety Data Sheet on the Preparation is based on current knowledge and on current EC and national laws, as far as the working conditions of the users is beyond our knowledge and control. The product must not be used for purposes other than those that are specified without first having written instructions on how to handle. It is always the responsibility of the user to take the appropriate measures in order to comply with the requirements established by current legislation. The information contained in this Safety Sheet only states a description of the safety requirements for the preparation, and it must not be considered as a guarantee of its properties.