

SAFETY DATA SHEET

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



MANGANESE BIOXIDE

Version: 4
Revision date: 08/11/2017

Page 1 of 9
Print date: 08/11/2017

1.1 Product identifier.

Product Name:	MANGANESE BIOXIDE
Chemical Name:	Dióxido de manganeso
Index No:	025-001-00-3
CAS No:	1313-13-9
EC No:	215-202-6
Registration No:	01-2119452801-43-XXXX

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

Industrial use
Pyrotechnical compositions

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.

In accordance with Regulation (EU) No 1272/2008:
Acute Tox. 4 : Harmful if inhaled.
Acute Tox. 4 : Harmful if swallowed or if inhaled.

2.2 Label elements.

Labelling in accordance with Regulation (EU) No 1272/2008:

Pictograms:



Signal Word:

Warning

H statements:

H302+H332 Harmful if swallowed or if inhaled.

P statements:

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

SAFETY DATA SHEET

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



MANGANESE BIOXIDE

Version: 4
Revision date: 08/11/2017

Page 2 of 9
Print date: 08/11/2017

P264	Wash ... thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/... if you feel unwell.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER/doctor/... if you feel unwell.
P330	Rinse mouth.
P501	Dispose of contents/container to local/national normative

Contains:
manganese dioxide

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. Mono-constituent.

Chemical Name: [1] Dióxido de manganeso
Index No: 025-001-00-3
CAS No: 1313-13-9
EC No: 215-202-6
Registration No: 01-2119452801-43-XXXX

* See Regulation (EC) No. 1272/2008, Annex VI, section 1.2.

[1] Substance with a Community workplace exposure limit (see section 8.1).

3.2 Mixtures.

Not Applicable.

SECTION 4: FIRST AID MEASURES.

4.1 Description of first aid measures.

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

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.

Harmful Product, prolonged exposure due to inhalation may cause anaesthetic effects and the need for immediate medical assistance.

-Continued on next page.-

SAFETY DATA SHEET

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



MANGANESE BIOXIDE

Version: 4
Revision date: 08/11/2017

Page 3 of 9
Print date: 08/11/2017

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 product does not present any particular risk in case of fire.

5.1 Extinguishing media.

Recommended extinguishing methods.

Non-flammable product under normal conditions of storage, handling and use. In case of ignition as a result of handling, storage or improper use, preferably use polyvalent dust extinguishers (ABC powder) in accordance with the Fire Protection Regulations (R.D. 1942/1993 and subsequent amendments). It is not recommended to use the water jet as an extinguishing agent

5.2 Special hazards arising from the substance.

Special risks.

As a result of combustion or thermal decomposition, reaction by-products are generated which can be highly toxic and therefore pose a high risk to health

5.3 Advice for firefighters.

Depending on the magnitude of the fire, a full protective clothing and self-contained breathing apparatus may be required. Have a minimum of emergency facilities or action items (fireproof blankets, portable medicine chest, etc.) in accordance with R.D486 / 1997 and subsequent modifications

Additional Provisions

Act in accordance with the Internal Emergency Plan and the Information Sheets on accidents and other emergencies. Remove any sources of ignition. In case of fire, cool containers and storage tanks for products susceptible to ignition, explosion or BLEVE as a result of high temperatures. Avoid discharge of the products used to extinguish the fire in the aquatic environment.

SECTION 6: ACCIDENTAL RELEASE MEASURES.

6.1 Personal precautions, protective equipment and emergency procedures.

For exposure control and individual protection measures, see section 8.

6.2 Environmental precautions.

Prevent the contamination of drains, surface or subterranean waters, and the ground.

6.3 Methods and material for containment and cleaning up.

The contaminated area should be immediately cleaned with an appropriate de-contaminator. Pour the decontaminator on the remains in an opened container and let it act various days until no further reaction is produced.

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.

A.- General precautions

Comply with current legislation on the prevention of occupational hazards. Keep containers tightly closed. Control spills and residues, eliminating them with safe methods (section 6). Avoid free discharge from the container. Maintain order and cleanliness

-Continued on next page.-

SAFETY DATA SHEET

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



MANGANESE BIOXIDE

Version: 4
Revision date: 08/11/2017

Page 4 of 9
Print date: 08/11/2017

where hazardous products are handled.

B.- Technical recommendations for the prevention of fires and explosions.

Due to its flammability characteristics, the product presents no risk of fire under normal conditions of storage, handling and use.

C.- Technical recommendations to prevent ergonomic and toxicological risks.

For exposure control consult section 8. Do not eat, drink or smoke in work areas; Wash your hands after each use, and remove contaminated clothing and protective equipment before entering the eating areas.

D.- Technical recommendations to prevent environmental risks

It is recommended to have absorbent material in the vicinity of the product

7.2 Conditions for safe storage, including any incompatibilities.

A.-Technical storage measures:

ITC (R.D.379 / 2001): Not relevant

Casification: Not relevant

Minimum: 5°C

T maximum: 30°C

Maximum time: 6 months

B.-General storage conditions:

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see section 10.5

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

7.3 Specific end use(s).

Not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION.

8.1 Control parameters.

Work exposure limit for:

Name	CAS No.	Country	Limit value	ppm	mg/m ³
manganese dioxide	1313-13-9	European Union [1]	Eight hours		0,2 (as manganese, inhalable fraction) 0,05 (as manganese, respirable fraction)
			Short term		

[1] According both Binding Occupational Exposure Limits (BOELVs) and Indicative Occupational Exposure Limits (IOELVs) adopted by Scientific Committee for Occupational Exposure Limits to Chemical Agents (SCOEL).

The product does NOT contain substances with Biological Limit Values.

Concentration levels DNEL/DMEL:

Name	DNEL/DMEL	Type	Value
manganese dioxide CAS No: 1313-13-9 EC No: 215-202-6	DNEL (Workers)	Inhalation, Long-term, Systemic effects	0,2 (mg/m ³)

DNEL: Derived No Effect Level, level of exposure to the substance below which adverse effects are not anticipated.

DMEL: Derived Minimal Effect Level, exposure level corresponding to a low risk, that risk should be considered a tolerable minimum.

SAFETY DATA SHEET

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



MANGANESE BIOXIDE

Version: 4
Revision date: 08/11/2017

Page 5 of 9
Print date: 08/11/2017

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.

Concentration:	100 %				
Uses:	Industrial use Pyrotechnical compositions				
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:	Protective gloves against chemicals.				
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:	Protective clothing.				
Characteristics:	«CE» marking, category I and category II. Protective clothing should not be too tight or loose in order not to obstruct the user's movements.				
CEN standards:	EN 340				
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:	Work footwear.				
Characteristics:	«CE» marking, category II.				
CEN standards:	EN ISO 13287, EN 20347				
Maintenance:	This product adapts to the first user's foot shape. That is why, as well as for hygienic reasons, it should not be used by other people.				
Observations:	Work footwear for professional use includes protection elements aimed at protecting users against any injury resulting from an accident				

-Continued on next page.-

SAFETY DATA SHEET

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



MANGANESE BIOXIDE

Version: 4
Revision date: 08/11/2017

Page 6 of 9
Print date: 08/11/2017

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.

9.1 Information on basic physical and chemical properties.

Appearance: Powder
Colour: N.A./N.A.
Odour: N.A./N.A.
Odour threshold: N.A./N.A.
pH: N.A./N.A.
Melting point: N.A./N.A.
Boiling Point: N.A./N.A.
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: 5,21 g/cm³
Solubility: N.A./N.A.
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: N.A./N.A.
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.

NO dangerous reactions are expected if the chemical storage instructions are met

10.2 Chemical stability.

Stable under the recommended handling and storage conditions.

10.3 Possibility of hazardous reactions.

Under the conditions indicated, no dangerous reactions are expected that can produce excessive pressure or temperatures

10.4 Conditions to avoid.

Applicable to handling and storage at room temperature.

Shock and friction	Contact with the air	Heating	Sunlight	Humidity
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

10.5 Incompatible materials.

Acids	Water	Oxidizing materials	Combustible materials	Others
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

-Continued on next page.-

SAFETY DATA SHEET

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



MANGANESE BIOXIDE

Version: 4
Revision date: 08/11/2017

Page 7 of 9
Print date: 08/11/2017

10.6 Hazardous decomposition products.

See section 10.3, 10.4 and 10.5 for specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released as a consequence: carbon dioxide, carbon monoxide and other organic compounds.

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;

Product classified:

Acute toxicity (Inhalation), Category 4: Harmful if inhaled.

Acute toxicity (Oral), Category 4: Harmful if swallowed.

Acute Toxicity Estimate (ATE):

Substances:

ATE (Inhalation) = 2 mg/l/4 h (Dust or mist)

ATE (Oral) = 500 mg/kg

b) skin corrosion/irritation;

Not conclusive data for classification.

c) serious eye damage/irritation;

Not conclusive data for classification.

d) respiratory or skin sensitisation;

Not conclusive data for classification.

e) germ cell mutagenicity;

Not conclusive data for classification.

f) carcinogenicity;

Not conclusive data for classification.

g) reproductive toxicity;

Not conclusive data for classification.

h) STOT-single exposure;

Not conclusive data for classification.

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.

SAFETY DATA SHEET

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



MANGANESE BIOXIDE

Version: 4
Revision date: 08/11/2017

Page 8 of 9
Print date: 08/11/2017

12.2 Persistence and degradability.

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

12.3 Bioaccumulative potencial.

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.

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.

SAFETY DATA SHEET

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



MANGANESE BIOXIDE

Version: 4
Revision date: 08/11/2017

Page 9 of 9
Print date: 08/11/2017

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.

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:

Acute Tox. 4 : Acute toxicity (Inhalation), Category 4

Acute Tox. 4 : Acute toxicity (Oral), Category 4

Sections changed compared with the previous version:

1,2,3,11,16

It is advisable to carry out basic training with regard to health and safety at work in order to handle this product correctly.

Abbreviations and acronyms used:

CEN: European Committee for Standardization.

DMEL: Derived Minimal Effect Level, exposure level corresponding to a low risk, that risk should be considered a tolerable minimum.

DNEL: Derived No Effect Level, level of exposure to the substance below which adverse effects are not anticipated.

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.