

SAFETY DATA SHEET

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



GRAPHITE

Version: 4
Revision date: 20/05/2019

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

1.1 Product identifier.

Product Name: GRAPHITE
Chemical Name: Grafito
CAS No: 999999-99-4
EC No: 310-127-6

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

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.

It is not dangerous for health or the environment. (Directive 67/548 / EEC (DSD) and 1999/45 / EC (DPD) (EC) No.1272 / 2008 (CLP)

2.2 Label elements.

It is not subject to a specific labeling.

2.3 Other hazards.

Slight irritation in inhalation, contact with the skin and eyes.

2.1 Classification of the substance.

2.4 Additional information on dangers for humans and the environment:

2.4.1 Potential negative physical-chemical effects:

Due to the macrocrystalline form it can form combustible mixtures.

2.4.2 Potential adverse effects in humans and possible symptoms:

Slight irritation of the skin and mucosa due to mechanical effect.

2.4.3 Potential adverse effects on the environment:

Unknown

2.4.4 Other potential hazards:

Unknown

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS.

3.1 Substances. Mono-constituent.

| Chemical name | EC No. | CAS No. | CONTENTS% | EC Classification |
|---------------------------------|-----------|-------------|-----------|-------------------|
| NATURAL SUBSTANCE (GRAPHITE) | 310-127-6 | 999999-99-4 | 100 aprox | NOT CLASSIFIED |

SECTION 4: FIRST AID MEASURES.

4.1 Description of first aid measures.

Remove contaminated clothing. In danger of unconsciousness, place the victim in a stable position for transfer. When there are symptoms or moles, consult the doctor.

Inhalation.

Once protected by yourself, remove the victim from the danger zone to fresh air, knock the victim to rest. Seek medical advice

Eye contact.

In case of wearing contact lenses, remove them. Wash eyes thoroughly with clean, fresh water for at least 10 minutes, pulling the eyelids up and seek medical attention.

Skin contact.

Wash with clean water for 15 minutes with the open pads, protect the affected eye, previously the lenses have been removed. Consult the ophthalmologist.

Ingestion.

Rinse the mouth, spit the liquid. Drink a lot of water.

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

See chapter 11

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

Decontamination, symptomatic treatment. Non-toxic, irritant, without known allergic reactions.

SECTION 5: FIREFIGHTING MEASURES.

5.1 Extinguishing media.

Recommended extinguishing methods.

CO₂. Chemical product in foam and powder, water spray.

5.2 Special hazards arising from the substance.

Special risks.

Dangerous products can form: carbon monoxide, carbon dioxide.

5.3 Advice for firefighters.

Use a pressurized air respirator when there is poor ventilation and in enclosed spaces. Chemical protection equipment may be necessary in extreme conditions.

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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.

Not necessary

6.3 Methods and material for containment and cleaning up.

Pick up sweeping or vacuuming

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.

Avoid breathing in dusty places, contact with eyes, skin and clothing in long periods or repeated exposures.

Aspiration of the workplace if dust is formed. Good ventilation in work areas, chemical resistant floors and washing facilities in work areas, emergency showers in large-scale activities.

Only have the necessary quantities in the work places. Do not leave containers open, use suitable closures to avoid decanting. Do not transport with compressed air, avoid the formation of dust, preferably handle with unbreakable containers or use suitable protective containers for the transport of unbreakable containers.

The substance is flammable. Extinction elements must be available

7.2 Conditions for safe storage, including any incompatibilities.

There are no temperature restrictions on its storage. Keep in a dry place.

The resistance of the containers must be tested before use.

Storage is not allowed in exits, corridors, stairs, rooms open to the public, roofs, attics and work areas. Do not use food containers because it can lead to confusion. Mark with clear and durable labels on the containers. Keep preferably in its original and closed container.

Storage classification 11 (flammable solids). It can not be stored together with materials that are not of similar properties.

Cumulative storage with the following substances is prohibited:

- Medicines, food and food items including additives.
- Radioactive and explosive substances.
- Gases condensed, liquefied, and dissolved under pressure.
- Auto ignition substances
- Preparations containing ammonium nitrate according TRGS 511
- Substances that emit flammable gases on contact with water.
- Organic peroxides
- Substances oxidantes of group 1 of agreement TRGS 515
- Flammable solid substances classification 4.1 and 4.2 B.
- Fireproof toxic substances and very toxic substances.
- Flammable substances such as paper, cardboard, wood and plastic sheets.
- Oxidizing substances of group 2 and 3 according to TRGS 515.

The substance should not be stored with substances where chemical reactions are possible.

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7.3 Specific end use(s).
Pyrotechnical mixtures

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION.

8.1 Control parameters.

| PARAMETERS | NºEC | NºCAS | Limit value type | Long term exposure limit 8-h TWA | Short term exposure limit 15-min period. |
|------------------------------|-----------|-------------|---|--|--|
| Natural substance (Graphite) | 310-127-6 | 999999-99-4 | Occupational exposure limit WEL (uk eh40) | 4 mg/m ³ respirable powder 10 mg/m ³ Inhalable powder | Any |

Measurement methods: MDHS 14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust.

| | | | |
|---------------------|-----------------|------------|---------------------------------------|
| DNEL Employees | Exp.lengo term | Inhalation | Local effects 1.2 mg / m ³ |
| DNEL Final consumer | Exp. Long term | Oral | Site effects 813 mg / kg / d |
| DNEL Final consumer | Exp.length term | Inhalation | Local effects 0.3 mg / m ³ |

DNEL: DERIVED EFFECT no effect level (DERIVED NO EFFECT LEVEL).

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: | Pyrotechnical compositions | | | | |
| Breathing protection: | | | | | |
| Required in dust formation: Use half mask EN 140 or complete EN136 equipped with filter 143-P1. Remember time limits of use. In concentrations higher than the limitations of filters or higher oxygen contents over 17% or under ambiguous conditions use protective elements (caps) | | | | | |
| Hand protection: | | | | | |
| Do not reuse normal protective gloves, permanent contact with the skin is sufficient with gloves for mechanics. The protective gloves used must comply with the European directive 89/686 / EEC and EN 374 | | | | | |
| Material | Gum Butyl | Thickness | ≥0,4 mm | Time of penetration | ≥30 min |
| Eye protection: | | | | | |
| For mechanical handling with dust, wear goggles closed by EN 166. | | | | | |
| Skin protection: | | | | | |
| 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 | | | | |
| Hygiene: | | | | | |
| Avoid dust aspiration. Change contaminated garments and do not reuse until they are clean. | | | | | |

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.

9.1 Information on basic physical and chemical properties.

Appearance: Powder
Colour: Black
Odour: N.A./N.A.
Odour threshold: N.A./N.A.
pH: Neutral
Melting point: 3550 °C
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: 2,26 g/cm³
Solubility: Insoluble
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.

It is not reactive under the indicated conditions of use and storage

10.2 Chemical stability.

Chemically stable under the indicated conditions of use and storage

10.3 Possibility of hazardous reactions.

Very high temperatures

10.4 Conditions to avoid.

Powerful oxidizing agents

10.5 Incompatible materials.

Carbon monoxide and carbon dioxide when heating the air.

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10.6 Hazardous decomposition products.

Dangerous combustions. Formation of combustible gases or fumes with chlorine or fluorine trifluoride.

SECTION 11: TOXICOLOGICAL INFORMATION.

11.1 Information on toxicological effects.

Small amounts of suspended material injected into the anterior space of rabbits are mainly absorbed by leukocytes and cornea-endothelial cells.

Acute toxicity;

| Parameter | Value | Species | Method |
|-----------------|----------------------------|---------|------------|
| LD50 oral | >2000 mg/kg | Rat | OECD 401 |
| LD50 Inhalation | >2000 mg/m ³ 4h | Rat | OECD 403 |
| Parameter | Value | Species | Method |
| LD50 i.v | 440 mg/kg | Mouse | |
| LD50 oral | >15 g/kg | Human | Valoration |

Skin corrosion/irritation;

| | Result | Species | Method |
|------|--------------------|---------|----------|
| Skin | Without irritation | Rabbit | OECD 404 |
| Eyes | Without irritation | Rabbit | OECD 405 |

Respiratory or skin sensitisation;

None in mice during the test (OECD 429)

Germ cell mutagenicity;

| Parameter | Value | Species | Method | REMARKS |
|---------------------------------|----------|-------------------------------------|----------|--|
| Reverse bacterial mutation test | Negative | Salmonella typhimurium | OECD 473 | Con/sin activación metabólica de hígado de la rata S9. |
| Cormosomal aberration test | Negative | Lung fibroplasty in Chinese hamster | OECD 473 | Con/sin activación metabólica de hígado de rata S9 |

Carcinogenicity;

Classification of the National Institute of Health of U.S. (NIH) in the National Toxicological Program (NTP) for natural graphite containing quartz: suspicion of carcinogenic effects in humans.

Reproductive toxicity;

| Parameter | Value | Species | Method |
|------------|-----------|---------|----------|
| NOEAL Oral | 813 mg/kg | Rat | OECD 422 |

NOEAL: No observed Adverse Effect Level (No observados niveles de efectos adverso)

Practical experience

The permanent inhalation of high concentrations of natural graphite powder can cause dysphonia. Chronic prolonged exposure to natural graphite may promote silicosis (pneumoconiosis).

General information

According to our experience and with the current information, the product does not cause any harmful effect to health, with proper handling and use

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SECTION 12: ECOLOGICAL INFORMATION.

12.1 Toxicity.

Aquatic toxicity: Not known

Effects on disposal plants: No inconveniences with proper use

Harmful in water of pure graphite

| | | | |
|---------------------|------|----------|---------------|
| Crustacean toxicity | EC5 | OECD 203 | >100 mg/l/48h |
| Fish toxicity | LC50 | OECD 202 | >100 mg/l/96h |
| Algae toxicity | IC50 | OECD 201 | 100 mg/l/72h |

12.2 Persistence and degradability.

Biological degradation: no information available

Abiotic degradation: no information available

12.3 Bioaccumulative potencial.

Bioaccumulation is not expected

12.4 Mobility in soil.

No information available

12.5 Results of PBT and vPvB assessment.

There is no information available on the PBT and vPvB assessment of the product.

12.6 Other adverse effects.

There is no known potential for ozone degradation or greenhouse effect.

12.7 Classification of agreement VVWS (Directive concerning hazardous substances for water:

Nwg - not classified as dangerous for water (classification according to Annex 1 - No.801 - carbon)

12.8 Additional information

Natural monocrystalline graphite is chemically inert and non-polluting.

SECTION 13 DISPOSAL CONSIDERATIONS.

13.1 Waste treatment methods.

Waste and waste can be recycled, contaminated waste can be incinerated

European waste inventory 01 04 99 No more specifications

13.2 Disposal of contaminated packaging

Contaminated packaging can be taken for use or disposal or by official suppliers of disposal services

European waste inventory 15 01 06 Mixed packaging

13.3 Elimination of completely empty containers

Empty plastic containers can be reused

European waste inventory 15 01 02 Plastic packaging

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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.

15.1.1 Chemical safety assessment according to EU Regulation No. 1907/2006

A chemical safety assessment (CSA) according to Art 14 par. 1 Regulation (EC) No.1907 / 2006 (REACH) of graphite is not yet available

15.1.2 Classification and labeling in accordance with European Directives 67/548 / EEC (DSD) and 1999/45 / EC (DPD)

The substance does not have to be labeled

15.1.3 Determinant hazardous components for labeling

None

15.1.4 Classification and labeling according to regulation (EC) No.1272 / 2008 (CLP):

The product does not need labeling

15.1.5 Specific labeling for designated preparations:

None

15.1.6 Authorizations and restrictions of use

None

15.1.7 Additional European forecasts

Any

15.1.8 Information of the European directive 1999/12 / EC (VOC directive) on VOC emission limitations

Any

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15.2 National Regulations (U.K).

15.2.1 Qualification and labeling

The product does not need to be labeled in any way according to the U.K.

15.2.2 Other regulations and U.K. guidelines

Health and Safety at Work Act 1974

Directorate of health and safety at work regulation 1992.

L5 Control of substances dangerous to health. Control of substances dangerous to health, Regulations 2002. Approved codes of practice and guidance.

Guide EH40 - Occupational exposure limits.

BS EN ISO 10882: 2001-health and safety in welding and other processes-sample of air and gases in the breathing zone of the worker-part 1: samples of air particles.

SECTION 16: OTHER INFORMATION.

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

Sections modified with respect to the previous versión: 2,3,4,5,6,7,8,9,10,11,12,13,15

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.