

MATERIAL SAFETY DATA SHEET

EXPANDED GRAPHITE

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product Details

| | |
|------------------|--|
| Name | Expanded Graphite |
| REACH NO. | A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration. |

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

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|--|
| Identified Uses: |
| Additive material for energy, coating, electronics, composites, etc. For professional use only. For R&D and industrial use only. |

SECTION 2: Hazards Identification 2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008. Substance properties have been derived from graphite (bulk substance); the properties of the single/few-layer nanomaterial is under evaluation and to some extent not known.

2.2 Label elements

No label required.

2.3 Other hazards

Exposure may aggravate pre-existing, eye, skin, or respiratory conditions.

SECTION 3: Composition/Information on Ingredients 3.1 Substances

| Name | Product Identifier | % | GHS-US Classification |
|------------------|---------------------|-------|-----------------------|
| Carbon | (CAS-No.) 7440-44-0 | >97.0 | Comb. Dust |
| Oxygen | (CAS-No.) 7782-44-7 | >1.5 | Not classified |
| Synonyms: | Expanded Graphite | | |
| CAS-No.: | 7782-42-5 | | |

SECTION 4: First Aid Measures

4.1 Description of first aid measures General Measures

Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

After Inhalation

Using proper respiratory protection, move the exposed person to fresh air at once. Encourage exposed person to cough, spit out, and blow nose to remove dust. Immediately call a poison center, physician or emergency medical service.

Drench affected area with water for at least 5 minutes. Remove contaminated **After skin contact** clothing. Obtain medical attention if irritation develops or persists.

After eye contact

Rinse cautiously with water for at least 5 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

After Ingestion

Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: Not expected to present a significant hazard under anticipated conditions of normal use. Dust may cause mechanical irritation to eyes, nose, throat and lungs.

Symptoms/Injuries After Inhalation: Dust may be harmful or cause irritation

Symptoms/Injuries After Skin Contact: Prolonged exposure may cause skin irritation

Symptoms/Injuries After Eye Contact: May cause slight irritation to eyes

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

4.3 Indication of any immediate medical attention and special treatment needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: Firefighting 5.1 Extinguishing media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2 Special hazards arising from the substance of mixture

Fire Hazard: Combustible Dust

Explosion Hazard: Dust explosion hazard in air

Reactivity: Hazardous reactions will not occur under normal conditions

5.3 Advice for firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂)

Other Information: Risk of dust explosion

SECTION 6: Accidental Release Measures 6.1 Personal precautions, protective equipment and emergency procedures

General Measures: Avoid prolonged contact with eyes, skin and clothing. Avoid breathing dust. Avoid generating dust. Remove ignition sources. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.

6.1.1 For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE) **Emergency Procedure:** Evacuate unnecessary personnel

6.1.2 For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection

Emergency Procedure: Ventilation area. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2 Environmental Precautions

Prevent entry to sewers and public waters

6.3 Methods and materials for containment and cleaning up

For Containment: Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. Avoid generation of dust during clean-up of spills.

Methods for Clean Up: Clean up spills immediately and dispose of waste safely. Use explosion proof vacuum during cleanup, with appropriate filter. Do not mix with other materials. Vacuum clean-up is preferred. If sweeping is required use a dust suppressant. Use only non-sparking tools. Contact competent authorities after a spill.

SECTION 7: Handling and Storage 7.1 Precautions for safe handling

Additional Hazards when Processed: Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion. Keep dust levels to a minimum and follow applicable regulations

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid

prolonged contact with eyes, skin and clothing. Avoid breathing dust. Avoid creating or spreading dust. Keep away from heat, sparks, open flames, hot surfaces - No smoking

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures

7.2 Conditions for safe storage, including any incompatibilities

Technical Measures: Comply with applicable regulations. Avoid creating or spreading dust. Use explosion-proof electrical, ventilating, lighting equipment. Proper grounding procedures to avoid static electricity should be followed. **Storage**

Conditions: Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Incompatible Materials: Strong acids, strong bases, strong oxidizers.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control parameters

For substances listed in Section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL) or OSHA (PEL).

8.2 Exposure controls

Appropriate Engineering Controls

Suitable eye/body wash equipment should be available in the vicinity of any potential exposure. Ensure adequate ventilation especially in confined areas. Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits. Power equipment should be equipped with proper dust collection devices. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling if this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Ensure all national/local regulation are observed. **Personal protective equipment**



Eyes: Wear safety glasses with side-shields conforming to appropriate government standards such as NOISH (US) or EN166 (EU).

Skin: Handle with appropriate gloves and use proper glove removal technique to avoid skin contact. Dispose of gloves in accordance with applicable laws.

Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Clothing: Wear complete suit protecting against chemicals; the type of equipment should be appropriate for the concentration and amount of dangerous substance used.

Respirators: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

SECTION 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

| | |
|-------------------------------|--------------------------|
| Appearance | Black-grey Powder/Flakes |
| Odour | Odourless |
| Odour threshold | No data available |
| pH | Neutral |
| Melting/freezing point | >3650 °C |
| Boiling point/range | >3930 °C |
| Flash point | No data available |
| Evaporation rate | No data available |
| Flammability | No data available |
| Explosive limits | No data available |
| Vapour pressure | No data available |
| Vapour density | No data available |

| | |
|--|--------------------------------|
| Density | 2.1-2.3 g/ml (at 25°C) |
| Vapor Solubility | Very Low (solubility standard) |
| Partition coefficient: <i>n</i>-octanol/water | No data available |
| Autoignition temperature | No data available |
| Decomposition temperature | No data available |
| Viscosity | No data available |
| Explosive properties | No data available |
| Oxidizing properties | No data available |

9.2 Other safety information

No data available.

SECTION 10: Stability and Reactivity 10.1 Reactivity

Hazardous reactions will not occur under normal conditions.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4 Conditions to avoid

Direct sunlight, extremely high or low temperatures, and incompatible materials. Sparks, heat, open flame and other sources of ignition. Dust accumulation (to minimize explosion hazard).

10.5 Incompatible materials

Strong acids, strong bases, strong oxidizers.

10.6 Hazardous decomposition products

None expected under normal conditions of use.

SECTION 11: Toxicological information 11.1 Information on toxicological effects

Acute toxicity

Not classified

Skin corrosion/irritation

Not classified pH

Neutral

Serious eye damage/eye irritation

Not classified

Respiratory or skin sensitization

Not classified

Germ cell mutagenicity

Not classified

Carcinogenicity

Not classified

Reproductive Toxicity

Not classified

Specific Target Organ Toxicity (Single Exposure):

Not classified

Specific Target Organ Toxicity (Repeated Exposure):

Not classified

Aspiration hazard Not classified

Symptoms/Injuries After Inhalation:

Dust may be harmful or cause irritation **Symptoms/**

Injuries After Skin Contact:

Prolonged exposure may cause skin

irritation **Symptoms/Injuries After Eye**

Contact: May cause slight irritation to eyes

Symptoms/Injuries After Ingestion:

Ingestion may cause adverse effects.

Chronic Symptoms:

None expected under normal conditions of use.

SECTION 12: Ecological Information 12.1 Toxicity

Not classified

12.2 Persistence and degradability

No data available.

12.3 Bio accumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Other adverse effects

Avoid release to the environment.

SECTION 13: Disposal Conditions

13.1 Waste treatment methods

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: Transport Information

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

In Accordance with DOT: Not regulated for transport

In Accordance with IMDG: Not regulated for transport

In Accordance with IATA: Not regulated for transport

SECTION 15: Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006, the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

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

No data available.

Warranty SECTION 16: Other Information

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