Material Safety Data Sheet

According to Regulation (EC) No. 1907/2006
Revision Date 08.06.2023

1. Identification of the Substance of the Company

Product Details/ Name	Graphite powder GS
Use of Substance	Additive in coatings, composites, polymers, electronics, lithium batteries and supercapacitors. Biotechnology related applications are restricted to research purpose only.
Supplier Details	Graphene Star Ltd 5 North Court, Clevedon Road, Twickenham TW1 2HS, UK Email: support@graphene-star.com

2. Hazards Identification

Emergency Overview	• May cause eye irritation • May cause respiratory tract irritation
Main Hazards	• Ultrafine carbon powder and dust is electrically conductive and may result in accumulation of electrostatic charges. These charges may cause damages to electrical and electronic components. • Ultrafine carbon powder and dust can cause irritation to eyes and respiratory system.
Potential Health Hazards	Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Prolonged or repeated contact may remove oils from the skin and may dry skin and cause irritation, redness, and rash. Direct contact of dust with skin and eyes may cause irritation. Overexposure to dust may cause respiratory tract irritation.
Physical Hazards	• Medical conditions aggravated by exposure: allergies • Potential environmental effects: May cause adverse long-term effects.

3. First Aid Measures

After Eye Contact	Immediately rinse (flush) eyes with water for at least 15 min holding the eyelid open. Remove contact lenses. If irritation persists, seek medical attention.
After Skin Contact	Wash immediately the exposed area with soap and water, rinsing thoroughly and remove contaminated clothing. Seek medical attention if irritation persists.
After Ingestion	If swallowed rinse mouth with water immediately. Seek medical attention.
After Inhalation	Move the exposed person to fresh air. If not breathing give artificial respiration and seek medical attention.

4. Composition/Information on Ingredients

Material	Carbon, Graphite

5. Fire Fighting Measures

Suitable extinguishing media	Dry chemical, alcohol-resistant foam, carbon dioxide or water spray. Consult with local fire authorities before attempting large scale fire fighting operations. Do not allow water runoff to enter sewers or drains.
Fire Hazards	Burning produces irritation. May combust to toxic fumes with CO content in oxygen deficient conditions.
Fire Fighting Instructions	Wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Firefighting equipment should be thoroughly decontaminated after use. • Special hazards caused by the material, its products of combustion or resulting gases: In the event of a fire, the following may be released: Carbon dioxide, Carbon monoxide or other toxic gases. • Protective equipment: Wear self-contained breathing apparatus for firefighting if necessary. In general, graphite is difficult to combust. Standard care should be taken to avoid dust explosion risk through high concentrations of dust or finely suspended airborne particle. However, graphite dust is not normally considered an explosion hazard.

6. Accidental Release Measures

Person Related Safety Precautions	Wear suitable protective equipment. Wear suitable respiratory equipment according to Health and Safety Executive guidelines for use of nanomaterials at work. Ensure appropriate ventilation in the working area and avoid raising dust. If the operator gets in contact with the materials, it is recommended to seek a full body shower as soon as possible where skin and hair can be washed with water and soap.
Environmental Precautions	Do not let product enter drains.
Methods for Cleaning and Collecting	Contain and clean up spill if safe to do so using an electrically protected vacuum cleaner or by wet-brushing. Dispose of dry waste in closed container for proper disposal according to local regulations.

7. Handling and Storage

Handling	Avoid formation of dust and aerosols. Provide exhaust ventilation in places where dust is formed. Avoid ultrasonication treatment in an open container. Avoid contact with eyes, skin and reduce aeration of dust wherever inhalation of dust is possible. Handling in nanoparticle should be performed in a nanoparticle filter cabinet.
Storage	Keep away from oxidizing agents, ignition sources and heat. Avoid contact with acids. Keep in a cool, dry and well-ventilated area. Keep containers tightly closed and store in correctly labelled containers.

8. Exposure Controls and Personal Protection

Exposure Guidelines	Not yet established. Keep exposure as low as it is technically feasible. For information, levels for graphite are: Graphite (CAS no. 7782-42-5) TWA: ACGIH (TLV): 2.0 mg/m3 respirable OSHA (PEL): 15 mL/m3 respirable.
Storage	Keep away from oxidizing agents, ignition sources and heat. Avoid contact with acids. Keep in a cool, dry and well-ventilated area. Keep containers tightly closed and store in correctly labelled containers.
Engineering Measures	Local Exhaust Ventilation should be used, ducted fume cabinets or nanoparticle filter cabinets with a H14 HEPA filter is recommended. If this is not practical respiratory protection must be worn.
Respiratory Protection	Suitable full face protection with P3 (EN143) / N100 filter or other respiratory protection that meets applicable OHSA requirements should be maintained in the workplace.
Skin Protection	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.
Environmental Exposure	Environmental exposure should be minimized using the engineering measures identified above. Solid waste should be packaged as above and disposed of as hazardous waste.
Eye Protection	Wear safety glasses with side-shields conforming to appropriate government standards such as NOISH (US) or EN166 (EU).

9. Physical and Chemical Properties

Appearance	The gray black powder.
Odour	Odourless.
Flash Point	Not applicable.
Boiling Point	No data available
Vapour Density	Not applicable.
Bulk Density	Not determined .
Solubility in Water	Not soluble.
Evaporation Rate	Not applicable.
Ignition Temperature	Dispersed dust cloud: >600oC, deposited dust: >365oC.

10. Stability and Reactivity

Reactivity	No data available
Stability	Stable under normal temperatures and pressures under recommended storage conditions.
Materials to Avoid	Avoid contact with strong oxidizing agents, halogens, alkali metals and acids.
Conditions to Avoid	Heat and open flames
Hazardous Decomposition products	There is not known hazardous decomposition products.

11. Toxicological Information

Serious eye damage/eye irritation	Eyes - Rabbit Result: No eye irritation (OECD Test Guideline 405)
Acute Toxicity	LD50 Oral - Rat - female - > 2,000 mg/kg (OECD Test Guideline 423) LC50 Inhalation - Rat - male and female - 4 h - 2,000 mg/m3 (OECD Test Guideline 403)
Carcinogenicity	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity	No data available

12. Ecological Information

Eco-toxicity	No data are available on this product.
Mobility	Is expected to be limited due to poor water solubility.
Degradation	No data are available on this product.
Bioaccumulation	No data are available on this product.
Further Information	No environmental risk is expected if the product is handled under the described conditions.

13. Disposal Considerations

General Information	Do not allow product to enter drains. Do not flush into surface water.
Disposal Methods	Dispose of this product and all contaminated materials in compliance with all local and national regulations. In the European Union, waste carbon nanotubes material should be classified and coded as hazardous waste. Based on current information, high temperature incineration in a hazardous waste incinerator is the preferred disposal method. Heating above 550°C will oxidize CNTs completely.

14. Transport Information

Further Information	Non-hazardous for road, air and sea transport. Clearly label packaging and keep an MSDS on the outside off all packaging.
Other	There is no CAS code currently assigned to this specific material, related CAS codes and descriptions include; (Fullerene CAS# 99685-96-8) (Synthetic Graphite CAS# 7782-42-5).

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture	This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
Chemical safety assessment	For this product a chemical safety assessment was not carried out

16. Other information

Further information
The information supplied in this safety data sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates to the specific material designated and may not be valid for such materials used in combination with any other materials or in any other process.

NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN.
This information should only be used as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.