Conforms to ANSI Z400.1-2004 Standard

Material Safety Data Sheet

Poco Graphite Synthetic Graphite - Copper Impregnated Semiconductor Grade DFP1C

1. Product and company identification

Product name : Poco Graphite Synthetic Graphite - Copper Impregnated Semiconductor Grade DFP1C

Material uses : Not available.

Supplier/Manufacturer : POCO Graphite, Inc.
An Entegris Company
300 Old Greenwood Road
Decatur, Texas 76234
800-433-5547, EXT-4202 (8am - 4pm CT, Mon - Fri)

MSDS authored by : KMK Regulatory Services Inc.

In case of emergency : Toll free: CHEMTREC, U.S. : 1-800-424-9300 International: +1-703-527-3887

2. Hazards identification

Emergency overview

Physical state : Solid.

Color : Gray to black.

Odor : Odorless.

Signal word : WARNING!

Hazard statements : MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR DURING PROCESSING ACTIVITIES (INCLUDING; BUT NOT LIMITED TO: CUTTING, SANDING, DRILLING, MACHINING, DUST CONTROL EQUIPMENT, OTHER DUST GENERATING ACTIVITIES). USERS OF THIS MATERIAL SHOULD PERFORM COMBUSTIBILITY TESTING, PRIOR TO USE, SPECIFIC TO THEIR USE CONDITIONS IF DUST IS TO BE GENERATED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Skin : No known significant effects or critical hazards.

Eyes : No known significant effects or critical hazards.

Potential chronic health effects

Chronic effects : Contains material that may cause target organ damage, based on animal data.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Target organs : Contains material which may cause damage to the following organs: kidneys, liver, gastrointestinal tract, cardiovascular system, upper respiratory tract, skin, eyes.

Over-exposure signs/symptoms

Inhalation : No specific data.

Ingestion : No specific data.

Skin : No specific data.

Eyes : No specific data.

2. Hazards identification

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

United States

Name	CAS number	%
Graphite, synthetic Copper	7440-44-0 7440-50-8	40 - 60 40 - 60

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

Eye contact : Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 20 minutes.

Inhalation : Move exposed person to fresh air.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Notes to physician : No specific treatment. Treat symptomatically.

5. Fire-fighting measures

Flammability of the product : Not flammable.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire. This material is toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Not suitable : None known.

Special exposure hazards : Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Fine dust clouds may form explosive mixtures with air.

Special remarks on explosion hazards : Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

6. Accidental release measures

Personal precautions : Provide adequate ventilation. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Non-sparking tools should be used when working with dust. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Water polluting material. May be harmful to the environment if released in large quantities. Hazardous to aquatic environment May cause long-term adverse effects in the aquatic environment. Prevent leaking substances from running into the aquatic environment or the sewage system.

6. Accidental release measures

Methods for cleaning up

Small spill : Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Avoid generating dust as the product may form flammable dust/air mixtures. Dust levels must be kept within prescribed limits. Spilled product should be cleaned up and a high standard of housekeeping maintained. Transfer product using proper grounding and bonding procedures to avoid static accumulation. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Empty containers retain product residue and can be hazardous.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

United States

Ingredient	Exposure limits
Graphite, synthetic Copper	**ACGIH (United States).** TWA: 10 mg/m³ 8 hour(s). Form: Nuisance particulates. **OSHA PEL (United States, 6/2010).** TWA: 1 mg/m³ 8 hour(s). Form: Dusts and mists TWA: 0.1 mg/m³ 8 hour(s). Form: Fume **NIOSH REL (United States, 6/2009).** TWA: 1 mg/m³ 10 hour(s). Form: Dusts and mists **ACGIH TLV (United States, 2/2010).** TWA: 0.2 mg/m³ 8 hour(s). Form: Fume TWA: 1 mg/m³, (Cu) 8 hour(s).

Recommended monitoring procedures : Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Ensure dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.

Engineering measures : It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling dusts generated from this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Hygiene measures : Ensure that eyewash stations and safety showers are close to the workstation location. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Personal protection

Respiratory : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

8. Exposure controls/personal protection

Hands : Use gloves appropriate for work or task being performed. Recommended: Chemical resistant gloves.

Eyes : Safety eyewear should be used when there is a likelihood of exposure. Recommended: Safety glasses with side shields.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Lab coat.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

9. Physical and chemical properties

Physical state : Solid.

Color : Gray to black.

Odor : Odorless.

Melting point : Graphite: Sublimation temperature: 3648.9°C (6600°F).
Copper: Melting point:1083°C (1980°F).

Relative density : 2.36

Solubility : Insoluble in water.

10. Stability and reactivity

Chemical stability : The product is stable.

Conditions to avoid : Minimize dust generation and accumulation.

Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials and acids.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

Acute toxicity : No specific data.

IDLH : Not available.

Synergistic products : Not available.

12. Ecological information

Ecotoxicity : Water polluting material. May be harmful to the environment if released in large quantities.

Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues.

13. Disposal considerations

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

International transport regulations

DOT / IMDG / IATA : Not regulated.

15. Regulatory information

HCS Classification : Target organ effects

U.S. Federal regulations : **TSCA 8(a) IUR Exempt/Partial exemption**: Not determined
United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Graphite, synthetic; Copper
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Graphite, synthetic: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; Copper: Immediate (acute) health hazard

Clean Water Act (CWA) 307: Copper

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	Copper	7440-50-8	40 - 50
Supplier notification	Copper	7440-50-8	40 - 50

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: Copper

New York : The following components are listed: Copper

New Jersey : The following components are listed: Copper

Pennsylvania : The following components are listed: Copper

California Prop. 65

No products were found.

International regulations

15. Regulatory information

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: Not determined.
Korea inventory: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.

16. Other information

Label requirements : MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR DURING PROCESSING ACTIVITIES (INCLUDING; BUT NOT LIMITED TO: CUTTING, SANDING, DRILLING, MACHINING, DUST CONTROL EQUIPMENT, OTHER DUST GENERATING ACTIVITIES). USERS OF THIS MATERIAL SHOULD PERFORM COMBUSTIBILITY TESTING, PRIOR TO USE, SPECIFIC TO THEIR USE CONDITIONS IF DUST IS TO BE GENERATED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) : **Health :** 1 * **Flammability :** 0 **Physical hazards :** 0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) : **Health :** 1 **Flammability :** 0 **Instability :** 0

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Additional information : Refer to NFPA 654, *Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.*

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