

SECTION 1: Identification of the substance/mixture and of the company/undertaking**Product identifier****Material Name**

Pyrolytic Carbon Coated Graphite

Product Use

Semiconductor and industrial applications

Restrictions on Use

None known.

Details of the supplier of the safety data sheet

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SECTION 2: Hazards identification**GHS Classification**

None needed according to classification criteria.

Label elements**Hazard symbols**

None needed according to classification criteria.

Signal word

None needed according to classification criteria

Hazard statements

None needed according to classification criteria.

Precautionary statements**Prevention**

None needed according to classification criteria.

Response

None needed according to classification criteria.

Storage

None needed according to classification criteria.

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Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Other Hazards Which Do Not Result in Classification

None known.

SECTION 3: Composition / information on ingredients

CAS	Component Name	Hazardous ingredients (% of the content)
7782-42-5	Graphite	99.5-100

Impurities and stabilizing additives contributing to the GHS Classification

None

SECTION 4: First aid measures**Description of Necessary Measures****Inhalation**

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

Skin contact

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Eye contact

Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion

If swallowed, get medical attention.

Most Important Symptoms/Effects**Symptoms: Immediate**

No information on significant adverse effects.

Symptoms: Delayed

No information on significant adverse effects.

Protection of first-aiders

Wear suitable protective clothing. Perform first aid measures in a safe area.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically and supportively.

SECTION 5: Firefighting measures**Suitable extinguishing media**

Use extinguishing agents appropriate for surrounding fire.

Unsuitable Extinguishing Media

None known.

Specific hazards arising from the chemical

Negligible fire hazard.

Protective Equipment and Precautions for Firefighters

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Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Dike for later disposal.

Hazardous combustion products

Oxides of carbon

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear personal protective clothing and equipment. Minimize dust generation and accumulation. Keep unnecessary people away, isolate hazard area and deny entry. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Environmental precautions

Avoid release to the environment.

Methods for Containment

Keep unnecessary people away, isolate hazard area and deny entry. If sweeping of a contaminated area is necessary, use a dust suppressant agent. Collect spill using a vacuum cleaner with a HEPA filter or wet and scoop up dry spills. Avoid sweeping spilled dry material. Eliminate ignition sources including sources of electrical, static or frictional sparks. Keep out of water supplies and sewers. Prevent entry into waterways, sewers, basements, or confined areas. Avoid accumulation of airborne dusts. Small spills: Move containers away from spill to a safe area. Vacuum or sweep up material and place in a designated, labeled waste container. Large spills: If emergency personnel are unavailable vacuum or carefully scoop up spilled materials and place in an appropriate container for disposal. Avoid creating dusty conditions and prevent wind dispersal.

SECTION 7: Handling and storage

Precautions for safe handling

Avoid breathing dust. Wash thoroughly after handling. Avoid contact with eyes, skin and clothing.

Conditions for safe storage, including any incompatibilities

None needed according to classification criteria.

Store and handle in accordance with all current regulations and standards. Store in a well-ventilated area.

Keep container tightly closed. Keep separated from incompatible substances. Maintain graphite blocks in stable position. Any machine generated dust should be maintained in closed container. Maintain blocks as shipped, no specific handling or storage identified. Dust or powder from machining process should be kept in closed container.

Incompatible Materials

oxidizing materials

SECTION 8: Exposure controls/personal protection

Exposure Guidelines

Component Exposure Limits

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Graphite	7782-42-5
ACGIH:	2 mg/m ³ TWA (all forms except graphite fibers) respirable particulate matter

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

There are no biological limit values for any of this product's components.

Appropriate engineering controls

Provide local exhaust ventilation system. Ensure that 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). Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eye/face protection

Wear safety glasses.

Skin and Body Protection

Wear suitable protective clothing.

Hand protection

Wear appropriate chemical resistant gloves.

Respiratory Protection

SCBA with full face piece should be available in case of emergency.

Hygiene Measures

Use in accordance with good industrial hygiene practices.

SECTION 9: Physical and chemical properties

Appearance	gray to black solid	Physical State	solid
Odor	odorless	Color	gray to black
Odor Threshold	Not available	pH	Not available
Melting Point	3150 °C	Boiling Point	Not available
Boiling Point Range	Not available	Freezing point	Not available
Evaporation Rate	Not available	Flammability (solid, gas)	Not flammable
Autoignition Temperature	Not available	Flash Point	(Not flammable)
Lower Explosive Limit	Not available	Decomposition temperature	Not available
Upper Explosive Limit	Not available	Vapor Pressure	Not available
Vapor Density (air=1)	Not available	Specific Gravity (water=1)	Not available
Water Solubility	(Insoluble)	Partition coefficient: n-octanol/water	Not available
Viscosity	Not available	Kinematic viscosity	Not available
Solubility (Other)	Not available	Density	1.4 - 2 g/cc

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Physical Form

solid

Molecular Weight

Not available

SECTION 10: Stability and reactivity**Reactivity**

No reactivity hazard is expected.

Chemical stability

Stable at normal temperatures and pressure.

Possibility of hazardous reactions

Will not polymerize.

Conditions to avoid

Avoid accumulation of airborne dusts. Avoid contact with incompatible materials.

Materials to Avoid (Incompatibilities)

oxidizing materials

Hazardous decomposition products**Thermal decomposition products**

Oxides of carbon

SECTION 11: Toxicological information**Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and no selected endpoints have been identified.

Acute Toxicity Estimate

No data available.

Inhalation

No information on significant adverse effects.

Ingestion

No information on significant adverse effects.

Skin Contact

No information on significant adverse effects.

Eye Contact

No information on significant adverse effects.

Immediate Effects

No information on significant adverse effects.

Delayed Effects

No information on significant adverse effects.

Irritation/Corrosivity Data

No data available.

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Carcinogenicity**Component Carcinogenicity**

None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA.

Mutagenic Data

No data available.

Reproductive Effects Data

No data available.

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Tumorigenic Data

No data available.

Specific Target Organ Toxicity - Single Exposure

No data available.

Specific Target Organ Toxicity - Repeated Exposure

No data available.

Aspiration hazard

No data available.

Medical Conditions Aggravated by Exposure

No data available.

SECTION 12: Ecological information**Component Analysis - Aquatic Toxicity**

No LOLI ecotoxicity data are available for this product's components.

Persistence and Degradability

No data available.

Bioaccumulative potential

No data available.

Mobility in Environmental Media

No data available.

Other Ecological Information

None

SECTION 13: Disposal considerations**Disposal Methods**

Dispose in accordance with all applicable regulations.

SECTION 14: Transport information**IATA Information:**

UN#: Not regulated

ICAO Information:

UN#: Not regulated

IMDG Information:

UN#: Not regulated

International Bulk Chemical Code

This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Special precautions

None

SECTION 15: Regulatory information**Taiwan Regulations****Toxic Chemical Substances Control Act**

No component(s) of this product are identified in the Toxic Chemical Substances Control Act.

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Surface Water Body Classification and Water Quality Standards

No components of this material are listed.

Effluent Discharge Standards

No component(s) of this product are identified in the Effluent Discharge Standards.

Waste Disposal Act - TCLP Leaching Standards

No component(s) of this product are identified in the Waste Disposal Act.

Agro-pesticide Management Act

None of this product's components are on the list.

Hazard Prevention Standard for Specified Chemical Substances

No component(s) of this product are identified in the Hazard Prevention Standard for Specified Chemical Substances.

Ozone Depleting Substances

No component(s) of this product are identified on the Ozone Depleting Substances list.

Component Analysis - Inventory

Graphite (7782-42-5)

US	CA	EU	AU	PH	JP - ENC S	JP - ISH L	KR KECI - Anne x 1	KR KECI - Anne x 2	KR - REAC H CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes

SECTION 16: Other information

NFPA Ratings

Health: 0 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes

11/29/2017 - Update to Section(s) 3. Section 3 update: Replaced CAS #7440-44-0 with CAS #7782-42-5.

Issue date

05/02/2016

Organization that prepared SDS

Entegris

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Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; F - Background (for Venezuela Biological Exposure Indices); IARC - International Agency for

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Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; Ne-Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; quantitative; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL – Non-Domestic Substance List (Canada); NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; Sc - Semi-quantitative; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information

Disclaimer:

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