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

Material Name
Pyrolytic Carbon Coated Graphite
Details of the supplier of the safety data sheet
Entegris, Inc.

129 Concord Road
Building 2
Billerica, MA 01821
USA

Telephone Number: +1-952-556-4181
Telephone Number: +1-800-394-4083 (toll free within North America)

日本インテグリス株式会社
〒108-0073 東京都港区三田1-4-28 三田国際ビルヂング
電話番号: 03-5442-9718

緊急連絡先： 03-4520-9637(CHEMTREC)
電子メール: Product.stewardship@entegris.com

Recommended Use
Semiconductor and industrial applications
Restrictions on Use
None known.

SECTION 2: Hazards identification

GHS Classification
None needed according to classification criteria
GHS Label Elements
Symbol(s)
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.
Disposal
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
Potential Environmental Effects
No data available.

Other Hazards Which Do Not Result in Classification

None known.

SECTION 3: Composition / information on ingredients

CAS	Component Name	Percent	Japan ENCS Inventory #	Japan ISHL Inventory #
7782-42-5	Graphite	99.5-100	--	--

SECTION 4: First aid measures

Inhalation

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

Skin

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.

Eyes

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.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically and supportively.

Symptoms: Immediate

No information on significant adverse effects.

Symptoms: Delayed

No information on significant adverse effects.

Self-protection of the first aider

Wear appropriate personal protective equipment. Perform first aid measures in a safe area.

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.

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.

Combustion

Oxides of carbon

Special Protective Equipment and Precautions for Firefighters

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

SECTION 6: Accidental release measures

Personal precautions

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 and Materials for Containment and Cleaning Up

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

Handling Procedures

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

Storage Procedures

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.

Incompatibilities

oxidizing materials

SECTION 8: Exposure controls/personal protection

Component Exposure Limits

Graphite	**7782-42-5**
JSOH:	2 mg/m3 OEL (Class 1 Dust) total dust ; 0.5 mg/m3 OEL (Class 1 Dust) respirable dust
ACGIH:	2 mg/m3 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.

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.

Eye protection

Wear safety glasses.

Body protection

Wear appropriate chemical resistant clothing.

Hand protection

Wear appropriate chemical resistant gloves.

Respiratory Protection

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

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
Physical Form	solid	**Molecular Weight**	Not available

SECTION 10: Stability and reactivity

Reactivity

No reactivity hazard is expected.

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.

Incompatible materials

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.

Immediate Effects

No information on significant adverse effects.

Delayed Effects

No information on significant adverse effects.

Skin Corrosivity/Irritation Data

No data available.

Serious Eye Damage/Eye Irritation

No data available.

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Germ Cell Mutagenic Data

No data available.

Component Carcinogenicity

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

Reproductive Effects Data

No data available.

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 soil

No data available.

Other adverse effects

No data available.

SECTION 13: Disposal considerations

Waste residues

Wastes should be treated and disposed by professionals certified by the governor of the local government, and hazards of the waste must be communicated sufficiently.

Disposal of Contaminated Packaging

Dispose in accordance with all applicable local regulations. When containers are empty, make sure all residues must be cleaned before disposal.

SECTION 14: Transport information

International Regulations

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.

Domestic Regulations

Land transportation

The product shall be packaged and shipped in accordance with Fire Service Act, Poisonous and/or Deleterious Substances Control Law.

Water transportation

Not regulated

Air transportation

Not regulated

SECTION 15: Regulatory information

Japan Regulations

Industrial Safety and Health Law

No component(s) are recognized as harmful according to the Enforcement Order of Industrial Safety and Health as administered by the Industrial Safety and Health Department in the Labor Standards Bureau of the ministry of Health, Labour and Welfare of Japan.

Japan Designated Chemical Substances (PRTR Law)

No components are subject to reporting requirements as specified by the "Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their

Management" and are not included in the "Pollutant Release and Transfer Register (PRTR)" of designated chemicals.

Poisonous and Deleterious Substances Control Law

This product is classified in accordance with the Poisonous and Deleterious Substances Control Law. None of the components of this product are regulated as a poisonous or deleterious substance.

Fire Service Law - Product

Not applicable

Civil Aeronautics Act

Not regulated

Ship Safety Act

Not regulated

Noxious Liquid Substances. - Cat. Y:

Act on Port Regulations

Not regulated

Component Analysis - Inventory

Graphite (7782-42-5)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH 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.

Preparation Date

05/04/2016

Revision date

11/29/2017

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 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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