

## Chemical Safety Data Sheet MSDS / SDS

## Graphite

Revision Date:2025-05-03 Revision Number:1

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

## Product identifier

Product name : Graphite  
CBnumber : CB9369364  
CAS : 7782-42-5  
EINECS Number : 231-955-3  
Synonyms : graphite, GRAPHITE POWDER

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

## Classification of the substance or mixture

Not classified.

## Label elements

## Pictogram(s)

Signal word Danger

## Hazard statement(s)

H228 Flammable solid  
H319 Causes serious eye irritation  
H335 May cause respiratory irritation

## Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P405 Store locked up.

#### Prevention

none

#### Response

none

#### Storage

none

#### Disposal

none

#### Other hazards

no data available

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## SECTION 3: Composition/information on ingredients

### Substance

Product name	: Graphite
Synonyms	: graphite, GRAPHITE POWDER
CAS	: 7782-42-5
EC number	: 231-955-3
MF	: C24X12
MW	: 288.26

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## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

Fresh air, rest.

#### Following skin contact

Rinse and then wash skin with water and soap.

#### Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

#### Following ingestion

Rinse mouth. Rest.

### Most important symptoms and effects, both acute and delayed

Excerpt from ERG Guide 133 [Flammable Solids]: Fire may produce irritating and/or toxic gases. Contact may cause burns to skin and eyes.

Contact with molten substance may cause severe burns to skin and eyes. Runoff from fire control may cause pollution. (ERG, 2016)

No significant symptoms (USCG, 1999)

Exposure Routes: inhalation, skin and/or eye contact Symptoms: Cough, dyspnea (breathing difficulty), black sputum, decreased pulmonary  
Chemical Book

function, lung fibrosis Target Organs: respiratory system, cardiovascular system (NIOSH, 2016)

### Indication of any immediate medical attention and special treatment needed

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Flammable Solids

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## SECTION 5: Firefighting measures

### Extinguishing media

If material on fire or involved in fire: Use water in flooding quantities as fog. Solid streams of water may spread fire. Use foam, dry chemical, or carbon dioxide. When fire is out, cover all suspected material with dry sand or earth to prevent re-ignition until material can be permanently disposed of.

### Specific Hazards Arising from the Chemical

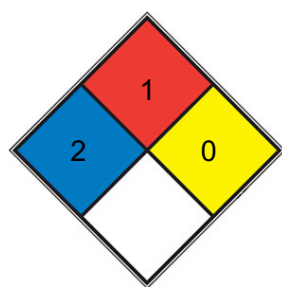
Excerpt from ERG Guide 133 [Flammable Solids]: Flammable/combustible material. May be ignited by friction, heat, sparks or flames. Some may burn rapidly with flare-burning effect. Powders, dusts, shavings, borings, turnings or cuttings may explode or burn with explosive violence. Substance may be transported in a molten form at a temperature that may be above its flash point. May re-ignite after fire is extinguished. (ERG, 2016)

Special Hazards of Combustion Products: Incomplete combustion forms toxic carbon monoxide. (USCG, 1999)

### Advice for firefighters

Use water spray, powder, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

### NFPA 704



■ HEALTH 2 Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. [diethyl ether](#), ammonium phosphate, iodine)

■ FIRE 1 Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. [mineral oil](#), ammonia)

■ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N2](#))

□ SPEC.  
□ HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Then wash away with plenty of water.

### Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Store and dispose of according to local regulations.

### Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## SECTION 7: Handling and storage

### Precautions for safe handling

NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants.

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Occupational Exposure limit values

TLV: (respirable fraction): 2 mg/m<sup>3</sup>, as TWA.MAK: (inhalable fraction): 4 mg/m<sup>3</sup>.MAK: (respirable fraction): 1.5 mg/m<sup>3</sup>.MAK: pregnancy risk group: C

#### Biological limit values

no data available

### Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### Individual protection measures

#### Eye/face protection

Wear safety spectacles or eye protection in combination with breathing protection if powder.

**Skin protection**

Protective gloves.

**Respiratory protection**

Use ventilation, local exhaust or breathing protection.

**Thermal hazards**

no data available

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## SECTION 9: Physical and chemical properties

**Information on basic physicochemical properties**

Physical state	rod
Colour	black
Odour	Odorless.
Melting point/freezing point	> 600 °C. Atm. press.:1 013 hPa.
Boiling point or initial boiling point and boiling range	Very high (USCG, 1999)
Flammability	Combustible Solid
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	Activated carbon showed an auto-ignition temperature in flowing air of 452-518 deg C. Presence of 5% of the base ('triethylenediamine') adsorbed on the carbon reduced the auto-ignition temperature to 230-260 deg C.
Decomposition temperature	no data available
pH	5-6 (50g/l, H <sub>2</sub> O, 20°C)(slurry)
Kinematic viscosity	no data available
Solubility	Insoluble (NIOSH, 2016)
Partition coefficient n-octanol/water	no data available
Vapour pressure	0 mm Hg (approx) (NIOSH, 2016)
Density and/or relative density	2.25
Relative vapour density	2.25
Particle characteristics	no data available

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## SECTION 10: Stability and reactivity

**Reactivity**

The substance may ignite spontaneously on contact with air. On combustion, forms toxic carbon monoxide if ventilation is insufficient. The substance is a strong reducing agent. It reacts violently with oxidants such as bromates, chlorates and nitrates.

The substance is a strong reducing agent. It reacts violently with oxidants.

**Chemical stability**

no data available

### **Possibility of hazardous reactions**

Activated carbon exposed to air is a potential fire hazard because of its very high surface area and adsorptive capacity. Freshly prepared material may heat spontaneously in air, and presence of water accelerates this. Dust explosion possible if in powder or granular form, mixed with air. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc., Dust explosion possible if in powder or granular form, mixed with air. Incompatible with air, metals, unsaturated oils. [Lewis]. Incompatible with very strong oxidizing agents such as fluorine, ammonium perchlorate, bromine pentafluoride, bromine trifluoride, chlorine trifluoride, dichlorine oxide, chlorine trifluoride, potassium peroxide, etc.

### **Conditions to avoid**

no data available

### **Incompatible materials**

Dust is explosive when exposed to heat or flame or oxides, peroxides, oxosalts, halogens, interhalogens, ammonium nitrate + heat, ammonium tetrachloride at 240 deg C, bromates,  $\text{Ca}(\text{OCl})_2$ , chlorates,  $\text{Cl}_2$ , ( $\text{Cl}_2 + \text{Cr}(\text{OCl})_2$ ),  $\text{ClO}$ ,  $\text{F}_2$ , iodates,  $\text{IO}_5$ ,  $(\text{Pb}(\text{NO}_3)_2, \text{HgNO}_3, \text{HNO}_3, (\text{oils} + \text{air}), (\text{potassium} + \text{air}), \text{Na}_2\text{S}, \text{Zn}(\text{NO}_3)_2$ .

### **Hazardous decomposition products**

no data available

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## **SECTION 11: Toxicological information**

### **Acute toxicity**

- Oral: LD50 - rat (female) - > 2 000 mg/kg bw.
- Inhalation: no data available
- Dermal: no data available

### **Skin corrosion/irritation**

no data available

### **Serious eye damage/irritation**

no data available

### **Respiratory or skin sensitization**

no data available

### **Germ cell mutagenicity**

no data available

### **Carcinogenicity**

no data available

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

no data available

### **STOT-repeated exposure**

Repeated or prolonged inhalation of dusts may cause effects on the lungs. This may result in graphite pneumoconiosis.

### **Aspiration hazard**

A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

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## **SECTION 12: Ecological information**

### **Toxicity**

Toxicity to fish: LC50 - Danio rerio (previous name: Brachydanio rerio) - > 100 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - > 100 mg/L - 48 h. Remarks:Swimming.

Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - > 100 mg/L - 72 h.

Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - > 1 012.5 mg/L - 3 h. Remarks:Respiration rate.

### **Persistence and degradability**

no data available

### **Bioaccumulative potential**

no data available

### **Mobility in soil**

no data available

### **Other adverse effects**

no data available

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## **SECTION 13: Disposal considerations**

### **Disposal methods**

#### **Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### **Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

## SECTION 14: Transport information

### UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

### Special precautions for user

no data available

### Transport in bulk according to IMO instruments

no data available

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## SECTION 15: Regulatory information

### Safety, health and environmental regulations specific for the product in question

#### European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

#### EC Inventory

Listed.

#### United States Toxic Substances Control Act (TSCA) Inventory

Listed.

#### China Catalog of Hazardous chemicals 2015



Not Listed.

#### **New Zealand Inventory of Chemicals (NZIoC)**

Listed.

#### **PICCS**

Listed.

#### **Vietnam National Chemical Inventory**

Listed.

#### **IECSC**

Listed.

#### **Korea Existing Chemicals List (KECL)**

Listed.

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## SECTION 16: Other information

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### **References**

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### **Other Information**

Synthetic and natural graphite may be mixed and many graphite products contain deliberate additives such as cristobalite, clay, coal, and petroleum products.

#### **Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of Chemical Book

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