



MSDS Number: CC001-2
Effective Date: September 9th, 2013

Material Safety Data Sheet

Natural Flake Graphite

Section 1 – Chemical Product and Company Identification

Product Name: Natural Flake Graphite – various grades in particle size and purity
Synonyms: Black lead, crystallized carbon, plumbago, mineral carbon, C.I. 77265
Chemical Family: Carbon
Chemical Name: Graphite
Formula: C

Company Identification: Canada Carbon Inc.
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Section 2 – Hazards Identification

EMERGENCY OVERVIEW

Graphite is not a hazardous or toxic material. However, it may contain trace amounts of silica.

HMIS Hazard Rating: Health – 1, Flammability – 0, Physical Hazards – 0

Appearance: Fine steel grey to black odourless flakes with metallic lustre
Primary Route(s) of Entry: Inhalation into lungs

Potential Health Effects

Eye Contact: May cause mild irritation and reddening.

Skin Contact: May cause mild irritation and redness. No evidence of long term health effects.

Ingestion: Ingestion of large amounts may cause gastrointestinal irritation.

Inhalation: May irritate respiratory tract. Symptoms may include coughing, shortness of breath and black sputum. Chronic exposure to graphite is associated with the development of pneumoconiosis, a disease of the lungs. Trace amounts of silica may lead to lung disease, silicosis or cancer.

Section 3 – Composition, Information on Ingredients

CAS#	Chemical Name and Formula	Percent	EINECS/ELINCS
7782-42-5	Graphite (C)	94-99	231-955-3
14808-60-7	Silica (SiO ₂)	<3	238-878-4

Section 4 – First Aid Measures

Eyes: Immediately flush eyes adequately with water, occasionally lifting the upper and lower eyelids. Get medical attention if irritation persists.

Skin: Immediately flush skin with soap and plenty of water. Remove contaminated clothing and shoes. Wash clothing and clean shoes before reusing. Get medical aid if irritation develops or persists.

Ingestion: Graphite flake is typically inert but and little information is available. However, if victim has swallowed a large amount and is conscious and alert, rinse mouth thoroughly with water followed by more water to drink. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Chronic exposure to graphite is associated with the development of pneumoconiosis, a disease of the lungs. Even though crystalline silica may be present in very small amounts, prolonged inhalation exposure may produce silicosis and other lung diseases including lung cancer.

Section 5 – Fire Fighting Measures

Graphite flake does not burn or support combustion under normal conditions. However, if the flake is ground to very fine micron and sub-micron size, it can ignite spontaneously in the presence of oxygen.

Flash Point: N/A

Flammability: N/A

Explosion: Not considered to be an explosion hazard

Extinguishing Media: Spray water, or any means suitable to extinguish surrounding fire.

Special Information: In the event of a fire, wear full protective clothing and NIOSH approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode as graphite, when heated, can react with oxygen to produce CO and CO₂.

Section 6 – Accidental Release Measures

Ventilate area of leak or spill. Wear protective equipment to avoid eye irritation and contact with skin. Sweep and/or shovel avoiding or minimizing dust generation and containerize for reclamation or disposal. If vacuum equipment is used, ensure it is properly grounded to avoid static charges.

Section 7 – Handling and Storage

Handling: Avoid contact with eyes, skin and clothing by wearing appropriate gear. Do not breathe dust. If dust is generated, wear appropriate protection as described in Section 8.

Storage: Keep in a cool ventilated area in a tightly closed container keeping the product dry. Avoid contact with strong oxidizing agents. Protect container against physical damage and dispose of safely when emptied due to possible contained dust.

Section 8 – Exposure Controls/Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with eyewash stations and emergency showers. Use adequate ventilation equipment to keep airborne particulate within acceptable exposure limits.

Personal Protection: Safety glasses or goggles should be worn. Wear appropriate protective gloves, clothing and shoes to minimize contact with the skin. Ambient airborne concentrations should be monitored and if the recommended exposure limit is exceeded, wear a NIOSH/MSHA approved dust respirator.

Exposure Limits: This product should be treated as a nuisance dust.

Graphite: CAS# 7782-42-5 EC# 231-955-3
ACGIH: TWA 2mg/m³ (respirable fraction)
NIOSH REL: TWA 2.5mg/m³
OSHA PEL: TWA 15ml/m³

Silica: CAS# 14808-60-7 EC# 238-878-4
ACGIH: TWA 0.025mg/m³ (respirable fraction)
NIOSH REL: TWA 0.05 mg/m³
OSHA PEL: TWA 30mg/m³ (%SiO₂+2), total dust
TWA 10mg/m³ (%SiO₂+2), respirable fraction

Where %SiO₂ is the percentage of crystalline silica determined by airborne samples as defined by 29 CFR 1910.1000, Z-3.

Section 9 – Physical and Chemical Properties

Physical State: Solid

Appearance: Steel grey to black flakes with metallic lustre.

Odour: Odourless

Taste: Tasteless

Molecular Formula: C

Molecular Weight: 12.01

Moh's Hardness: 1-2

Specific Gravity: 2.2-2.3

Melting Point: 3652°C (sublimes)

Boiling Point: N/A

Solubility in Water: Insoluble.

pH: N/A

Viscosity: N/A

Vapour Pressure: Negligible.

Vapour Density: Not available.

Evaporation Rate: Not available.

Section 10 – Stability and Reactivity

Chemical Stability: Graphite and silica are stable and relatively inert under normal conditions of use and storage.

Reactivity: Graphite will react with oxygen at higher temperatures to produce carbon monoxide and/or carbon dioxide. The finer the flake, the more reactive it will be due to larger surface area. Graphite reacts vigorously with liquid potassium, potassium peroxide and will ignite with chlorine trifluoride and fluorine. If graphite contacts liquid potassium, sodium, rubidium or caesium at 300°C, intercalation compounds may be formed. These compounds ignite in air and may react explosively with water.

Hazardous Polymerization: None.

Hazardous Decomposition Products: None. Graphite, being a form of elemental carbon, cannot break down but can produce hazardous products with other elements and compounds as indicated above.

Incompatibilities: Strong oxidizing agents, fluorine, halogenated solvents, potassium and potassium oxides.

Section 11 – Toxicological Information

RTECS# (Graphite): MD9659600

RTECS# (Crystalline Silica): VV7330000

Routes of Exposure: Inhalation, ingestion, eye and skin contact.

LD50/LC50: No data available.

Inhalation Toxicity: Graphite alone may cause irritation of the respiratory tract but is not listed as a carcinogen. However, it may contain impurities of crystalline silica which is listed as a carcinogen. Inhalation of dust over prolonged periods of time may cause pneumoconiosis.

Oral Toxicity: May cause GI Tract irritation but is not considered toxic.

Eye Contact: Dust may cause slight irritation. OECD 405

Skin Contact: Non-irritant. OECD 404

Carcinogenicity: CAS# 7782-42-5 (Graphite) is not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 14808-60-7 (Crystalline Silica) – ACGIH: A2 – Suspected Human Carcinogen

– IARC: Group 1 – Carcinogen

– NTP: Known carcinogen

Section 12 – Ecological Information

Ecotoxicity: Not available.

Products of Biodegradation: Graphite itself is not toxic and has no products of biodegradation.

Section 13 – Disposal Considerations

Waste Disposal: This material is determined not to be a hazardous waste as per the U.S. EPA RCRA standards. However, waste must be disposed of in accordance with federal, state or provincial and local environmental control regulations.

Section 14 – Transport Information

Canada: Graphite is not defined as a hazardous material for shipping under the Transport Dangerous Goods (DTG) Directorate.

Other: Graphite is not defined as a controlled hazardous material under the US DOT, ICAO, IATA, IMDG or GGVSee.

Section 15 – Regulatory Information

US FEDERAL

TSCA: CAS# 7782-42-5 (graphite) is listed on the TSCA inventory.

CAS# 14808-60-7 (crystalline silica) is listed on the TSCA inventory.

Significant New Use Rule: None of the chemicals in this product have a SNUR under TSCA.

Section 12b: None of the chemicals in this product are listed under Section 12b.

CERCLA: Hazardous Substances and corresponding RQs – None of the chemicals in this product have an RQ.

SARA: Section 302 Extremely Hazardous Substances – none have a TPQ

Section 311/312 Hazardous Categories – none

Section 313 Toxic Chemicals – none

Codes – CAS# 14808-60-7: chronic

Health & Safety Reporting List: None of the chemicals in this product are listed.

Chemical Test Rules: None of the chemicals in this product are under a Chemical Test Rule.

Clean Air Act: This product does not contain any hazardous air pollutants.

This product does not contain any Class 1 Ozone depletors.

This product does not contain any Class 2 Ozone depletors.

Clean Water Act: None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA: None of the chemicals in this product are considered highly hazardous by OSHA.

STATE: CAS# 7782-42-5 can be found on the following state right to know lists: California, Pennsylvania, Minnesota, Massachusetts.

CAS# 14808-60-7 can be found on the following state right to know lists: New Jersey, Pennsylvania, Minnesota, Massachusetts.

CA Prop 65: Warning: This product contains quartz, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: None of the chemicals in this product are listed.

Canada - DSL/NDL: CAS# 7782-42-5 is listed on Canada's DSL List.

CAS# 14808-60-7 is listed on Canada's DSL List.

Canada – WHMIS: This product has a WHMIS classification of D2A.

Canadian Ingredient Disclosure List: CAS# 14808-60-7 is listed on the Canadian Ingredient Disclosure List.

Section 16 – Other Information

Abbreviations:

ACGIH – American Conference of Governmental Industrial Hygienics

CA Prop 65 – California Proposition 65

CAS – Chemical Abstracts Service

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act

CFR – Code of Federal Regulations

CWA – Clean Water Act

DSL/NDL – Domestic Substance List/Non-Domestic Substance List

EC – European Community

EINECS – European Inventory of Existing Commercial chemical Substances

ELINCS – European List of Notified Chemical Substances

GGVSee – Gefahrgutverordnung See (German Regulation on Maritime Dangerous Goods)

HMIS – Hazardous Materials Identification System

IARC – International Agency for Research on Cancer

IATA – International Air Transport Association

ICAO – International Civil Aviation Organization

IMDG – International Maritime Dangerous Goods

LD – Lethal Dose

LC – Lethal Concentration

NIOSH – National Institute for Occupational Safety and Health

NTP – National Toxicology Program

OECD – Organization for Economic Co-operation and Development

OSHA – Occupational Safety and Health Administration

PEL – Permissible Exposure Limit

REL – Recommended Exposure Limit

RQ – Reportable Quantity

RTECS – Registry of Toxic Effects of Chemical Substances

SNUR – Significant New Use Rule

TPQ – Threshold Planning Quantity

TSCA – Toxic Substances Control Act

TWA – Time-Weighted Average

US DOT – United States Department of Transportation

WHMIS – Workplace Hazardous Materials Information System

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