Safety Data Sheet

SDS 110 -- Copper Graphite

1. Product and Company Information

Product Name	Copper Graphite
MSDS Number	110
Recommended Product Use	Solid electrical blocks and brushes
Restrictions on Product Use	None
Manufacturer	Helwig Carbon Products, Inc. 8900 W. Tower Ave. Milwaukee, WI 53224 info@helwigcarbon.com
Print Date	17-Aug-2017
Emergency Phone number	1-414-354-2411 1-800-962-4851

2. Hazards Identification

This material is not considered hazardous in its solid form , but may create hazardous dust concentrations in air during shipping, handling and use.

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)	Acute aquatic Toxicity (Category 1) Chronic aquatic toxicity (Category 1) Eye irritation (Category 2), H319 STOT - single exposure (Category 3), Respiratory system, H335

GHS Label Elements

Pictogram

Signal Word Warning

Hazard Statements

H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Precautionary Statements

P264	Wash skin thoroughly after handling.

P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/ attention.
P261	Avoid breathing dust
P271	Use only outdoors or in a well-ventilated area.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER or a doctor/physician if you feel unwell.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P273	Avoid release to the environment.
P391	Collect spillage. Hazardous to the aquatic environment.
P501	Dispose of contents/ container to an approved waste disposal plant.
Hazards not otherwise classified	Dust generated during shipping, handling, or use may form combustible dust concentrations in air. Prevent dust accumulations. Copper graphite dust is electrically conductive and dust accumulations on electrical equipment can cause short circuits. Dust from this product contains graphite and may create slippery conditions. Maintain good housekeeping.

3. Composition/Information on ingredients

Ingredient Name	CAS number	Concentration % (w/w)	Classification
Graphite	7782-42-5	0-95%	H319 -- Eye Irrit. 2 H335 -- STOT SE 3 -- Resp Tract
Copper	7440-50-8	0-95%	H400 -- Aqu. Tox 1 H412 -- Harm. To aqu life

4. First Aid Measures

General	First aid may be required if exposed to large quantities of dust generated from material. Never give anything by mouth to an unconscious person. If exposed or concerned: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Skin contact	Remove contaminated clothing. Wash with soap and water. Wash contaminated clothing before reuse.
Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. When symptoms occur: go into open air and ventilate suspected area

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.
Protection of first aid personnel	No action shall be taken involving any personal risk or without suitable training. If it is suspected that dust is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

5. Fire-fighting measures

Extinguishing media

Suitable	Use suitable extinguisher for surrounding fire.
Not suitable	Do not use water jet when dust is present
Special exposure hazards	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Hazardous combustion products	Combustion products may include the following materials: carbon monoxide, carbon dioxide.
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 Hazards	Graphite dusts with particles sizes from 4 to 40 µm are able to explode in a wide range of concentrations. The minimum ignition energy is 1kJ for the finest dust. The dusts tested were ranked as St.1 class. Denkevits, A. (2003)

6. Accidental release measures

Minimize airborne dust and eliminate all sources of fire/ignition. Do not use air hoses for cleaning. Minimize dry sweeping to avoid generation of dust clouds. Vacuum dust accumulations. Vacuums with explosion proof motor should be used.

Personal precautions, protective equipment and emergency procedures

Personal precautions	No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid generating dust clouds. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Large spill	Move containers from spill area. Avoid creating dusty conditions or wind dispersal. Vacuum or sweep material into labeled waste containers. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Small spill Move containers from spill area. Vacuum or sweep material into labeled waste containers. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

Precautions for safe handling

Advice on general occupational hygiene 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. Dust levels must be kept within prescribed limits. 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. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Protective measures Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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.

Conditions for safe storage, including any incompatibilities Store solid block material in a safe manner. Store any dust generated in a closed container.

8. Exposure controls/personal protection

Component	CAS number	Value	Control parameters	Basis
Graphite	7782-42-5	8 hr TWA TLV	2 mg/m³ respirable	ACGIH® 2015
		8 hr TWA	15 mg/m³ total dust 5 mg/m³ respirable fraction	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
Copper	7440-50-8	8 hr TWA TLV	1 mg/m³	ACGIH® 2015
		8 hr TWA	1 mg/m³ as dust	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures This product contains ingredients with exposure limits, 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.

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	Wash hands, forearms and face thoroughly after handling product, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.
Respiratory	Use NIOSH-approved respiratory protective equipment if exposures exceed established limits.
Hands	Wear gloves appropriate for task being performed.
Eyes	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary. Safety glasses with side shields recommended.
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.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Form	Solid
Appearance	Copper to Black Solid
Odor	None
Odor threshold	No data available
pH	Not applicable
Melting point	Copper: 1083°C (1980°F)
Boiling point	Graphite: 3650°C (6602°F) sublimes
Flash Point	No data available
Evaporation rate	No data available
Flammable limits	
Lower:	Not Applicable
Upper:	Not Applicable
Vapor pressure	No data available
Vapor density	Not Applicable
Relative density	1.7-8.2 g/cm³
Solubility	Insoluble in water
Partition coefficient: n-octanol/water	No data available
Partition coefficient	

Auto-ignition temperature	No data available
Decomposition Temperature	No data available
Viscosity	Not Applicable

10. Stability and reactivity

Stability	The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	Minimize airborne dust generation
Materials to avoid	Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Acute toxicity: There is 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
Teratogenicity:	No data available
Carcinogenicity:	No data available
Specific Target Organ Toxicity (Repeated Exposure):	No data available
Reproductive Toxicity:	No data available
Specific Target Organ Toxicity (Single Exposure):	No data available
Aspiration Hazard:	No data available
Potential Adverse Human Health Effects and Symptoms:	No known significant effects or critical hazards.
Symptoms/Injuries After Inhalation:	No known significant effects or critical hazards.
Symptoms/Injuries After Skin Contact:	No known significant effects or critical hazards.
Symptoms/Injuries After Eye Contact:	No known significant effects or critical hazards.
Symptoms/Injuries After Ingestion:	No known significant effects or critical hazards.
Chronic Symptoms:	No known significant effects or critical hazards.

12. Ecological information

Environmental effects

Toxicity:

Ingredient	Exposure	Result	Species
Copper	4 days	Acute EC50 1100 µg/l Fresh water	Aquatic plants - Lemna minor
		Acute EC50 2.1 µg/l Fresh water	
	48 hours	Acute IC50 13 µg/l Fresh water	Daphnia - Daphnia longispina - Juvenile
		Acute IC50 5.4 mg/L Marine	(Fledgling, Hatchling, Weanling)
	72 hours	water	Algae - Pseudokirchneriella subcapitata -Exponential
		Acute LC50 0.072 µg/l Marine	growth phase
	72 hours	water	Aquatic plants - Plantae - Exponential growth phase
		Acute LC50 7.56 µg/l Marine	Crustaceans - Amphipoda - Adult
	48 hours	water	
		Chronic NOEC 2.5 µg/l Marine	Fish - Periophthalmus waltoni - Adult
	96 hours	water	
		Chronic NOEC 7 mg/L Fresh	Algae - Nitzschia closterium - Exponential growth
	72 hours	water	phase
		Chronic NOEC 0.02 mg/L Fresh	Aquatic plants - Ceratophyllum demersum
	3 days	water	
		Chronic NOEC 2 µg/l Fresh water	Crustaceans - Cambarus bartonii - Mature
	21 days	Chronic NOEC 0.8 µg/l Fresh	
		water	Daphnia - Daphnia magna
	21 days		
			Fish - Oreochromis niloticus - Juvenile (Fledgling,
	6 weeks		Hatchling, Weanling)

Persistence and degradability No data available

Bioaccumulative Potential No data available

Mobility in soil

Soil/water partition coefficient No data available

Other adverse affects The material is inert and is not expected to pose a threat to the environment.

13. Disposal considerations

Waste disposal The generation of waste should be avoided or minimized wherever possible. Disposal of this product 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport information

14.1 In Accordance with DOT

Identification Number :	3077
Hazard Class :	9
Packing Group :	III
Proper Shipping Name :	Environmentally hazardous substances, solid, n.o.s. (Copper)
Label Codes :	
ERG Number :	

14.2 In Accordance with IMDG

Identification Number :	3077
Hazard Class :	9
Packing Group :	III
Label Codes :	Environmentally hazardous substances, solid, n.o.s. (Copper)
Proper Shipping Name :	

14.3 In Accordance with IATA

Identification Number :	3077
Hazard Class :	9
Packing Group :	III
Proper Shipping Name :	Environmentally hazardous substances, solid, n.o.s. (Copper)
Label Codes :	
ERG Code (IATA) :	

15. Regulatory information

Toxic Substances Control Act (TSCA)	Graphite (CAS 7782-42-5): Listed Copper (CAS 7440-50-8): Listed
SARA 302 Extremely Hazardous Substances	Not Listed
SARA 311/312 Classification	Copper (CAS# 7440-50-8)
SARA 313 - Supplier Notification	Copper (CAS# 7440-50-8)
Massachusetts Right To Know Components	Copper (CAS# 7440-50-8)
Pennsylvania Right To Know Components	Copper (CAS# 7440-50-8)
New Jersey Right To Know Components	Copper (CAS# 7440-50-8)
California Prop. 65 Components	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. Other information

Full Test of H phrases in section 2 & 3	STOT	Specific target organ toxicity
	Eye Irrit.	Eye irritation
	Resp Tract	Respatory tract

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

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

NFPA Rating	Health hazard: 1
	Fire Hazard: 0
	Reactivity Hazard: 0

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Notice to Reader
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.