SRM Number: 112 (Renewals)
MSDS Number: 112
SRM Name: Silicon Carbide
Issued: May, 1991

MATERIAL SAFETY DATA SHEET

National Institute of Standards and Technology
Standard Reference Materials Program
Gaithersburg, Maryland 20899
(301) 975-2019

SECTION I. MATERIAL IDENTIFICATION

Material Name: Silicon Carbide

Description/Other Designations: Crystolon Black Silicon Carbide Grit

Chemical Formula: SiC

CAS Reg. No.: 409-21-2

DOT Classification: Not hazardous.

Manufacturer/Supplier: Available from a number of suppliers.

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Components	Nominal Concentration (%)	Limits and Toxicity Data
Silicon Carbide	97	OSHA ACGIH-TLV: 10 mg/m^3 OSHA PEL: 10 mg/m^3
Aluminum	<1	N/A*
Iron	<1	N/A*
Calcium	<1	N/A*

*These materials are present in concentrations of less than 1% and do not require individual MSDS information under current regulations (paragraph (g) 1910.1200 of title 20 of the Code of Federal Regulations). For the actual certified concentrations, refer to the corresponding Certificate of Analysis.

SECTION III. PHYSICAL/ CHEMICAL CHARACTERISTICS

Silicon Carbide

Appearance and Odor: Exceedingly hard, green to bluish-black, iridescent sharp, crystals.
Molecular Weight: 40.10
Density: 3.23
Boiling Point: 2350 °C
sublimes: > 2000 °C
decomposes: 2210 °C
Melting Point: 2600 °C
Mohs Hardness: 9.5
Dielectric Constant: 7.0
Electron Mobility: > 100 cm^2/ volt-sec
Solubility in Water (vol/vol at 0 °C): Insoluble.
Solubility in Other Compounds: Soluble in fused alkalies and molten iron.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A

(Method Used): N/A

Autoignition Temperature: N/A

Flammability Limits in Air (Volume %): **UPPER:** N/A
LOWER: N/A

Extinguishing Media: This material is non-combustible. Use extinguishing media that is appropriate for the surrounding fire.

Special Fire Procedures: Firefighters should wear self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Submicron materials can ignite.

SECTION V. REACTIVITY DATA

Stability: __X__ **Stable** _____ **Unstable**

Conditions to Avoid: None reported.

Incompatibility (Materials to Avoid): None reported; this material is inert.

Hazardous Decomposition or Byproducts: None.

Hazardous Polymerization: _____ **Will Occur** __X__ **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: __X__ **Inhalation** __X__ **Skin** __X__ **Ingestion**

Health Hazards (Acute and Chronic): This material is a mild irritant to the upper respiratory tract and the eyes. It is abrasive to the skin. Prolonged inhalation may affect breathing capacity.

Signs and Symptoms of Exposure: Skin irritation, eye irritation, coughing, and shortness of breath are indicative of over exposure.

Medical Conditions Generally Aggravated by Exposure: N/A

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	___	X
In the International Agency for Research (IARC) Monographs	___	X
By the Occupational Safety and Health Administration (OSHA)	___	X

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Contact medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Contact medical assistance if necessary.

Inhalation: If inhaled, remove the victim to fresh air. If breathing is difficult, give oxygen; if victim is not breathing, give artificial respiration. Contact medical assistance if necessary.

Ingestion: If ingested, wash out mouth with water. Contact medical assistance if necessary.

TARGET ORGAN(S) OF ATTACK: Skin, eyes and URT.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in Case Material is Released or Spilled: Contact safety personnel of major leaks and spills. Provide adequate ventilation. Cleanup personnel need protection against eye contact and dust inhalation. Place waste in closable containers.

Waste Disposal: Contact a licensed contractor for detailed recommendations. Follow all Federal, state and local regulations.

Handling and Storage: Persons handling the material should wear appropriate protective clothing such as safety glasses or goggles, gloves and aprons. When dust is generated, use appropriate dust respirators or keep dust levels below the recommended TLV-PEL. Launder soiled clothing before wearing. Practice good personal hygiene.

Note: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the lab.

Store material in closed containers in a well ventilated area. Never eat, drink or smoke in work areas.

SECTION VIII. SOURCE DATA/ OTHER COMMENTS

Sources: Morton Company, Material Safety Data Sheet *Silicon Carbide*, May 1990.
Dangerous Properties of Industrial Materials, 5th ed., 1979.
The Merk Index, 11th ed., 1989.

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Note: Physical and chemical data contained in this MSDS are provided for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references, however NIST does not certify the data on the MSDS. The certified values for this material are given only on the NIST Certificate of Analysis.