

# SAFETY DATA SHEET

Date Prepared : 01/25/2018  
SDS No : XMKSC20

SC20

## 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** SC20  
**GENERAL USE:** Investment casting

## 2. HAZARDS IDENTIFICATION

### GHS CLASSIFICATIONS

**Health:**

Target Organ Toxicity (Repeated exposure), Category 1

### GHS LABEL



Health  
hazard

**SIGNAL WORD:** DANGER

### HAZARD STATEMENTS

H372: Causes damage to organs ( state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).

### PRECAUTIONARY STATEMENTS

**Prevention:**

- P260: Do not breathe dust/fume/gas/mist/vapours/spray.
- P285: In case of inadequate ventilation wear respiratory protection.
- P501: Dispose of contents/container to ...

### EMERGENCY OVERVIEW

**IMMEDIATE CONCERNS:** NA = Not Applicable

### POTENTIAL HEALTH EFFECTS

**EYES:** Causes eye irritation.

**SKIN:** May cause skin irritation.

**INGESTION:** Not a likely route of entry.

**INHALATION:** Do not breathe dust as it may cause permanent lung injury (Silicosis). The IARC has classified crystalline silica inhaled in the form of quartz or cristobalite carcinogenic to humans (Group I).

### CARCINOGENICITY:



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## DANGER

Carcinogen, Category 1  
H350: May Cause Cancer (Inhalation)

**MEDICAL CONDITIONS AGGRAVATED:** The condition of individuals with lung disease (e.g., bronchitis, emphysema, chronic obstructive pulmonary disease) can be aggravated by exposure.

**ROUTES OF ENTRY:** Inhalation

**TARGET ORGAN STATEMENT:** Respiratory system, skin

## COMMENTS:

Crystalline silica exists in several forms, the most common of which is quartz. If crystalline silica (quartz) is heated to more than 870°C (1600°F) it can change to a form of crystalline silica known as tridymite, and if crystalline silica (quartz) is heated to more than 1470°C (2680°F), it can change to a form of crystalline silica known as cristobalite. Crystalline silica as tridymite and cristobalite are more fibrogenic than crystalline silica as quartz.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt. %	CAS
Calcium Sulfate	20 - 40	26499-65-0
Silica, Crystalline quartz (non- respirable)	20 - 30	14808-60-7
Silica, Cristobalite (non- respirable)	20 - 30	14464-46-1
Silica, Crystalline quartz (respirable fraction)	10 - 20	14808-60-7
Silica, Cristobalite (Respirable fraction)	10 - 20	14464-46-1

## 4. FIRST AID MEASURES

**EYES:** Immediately flush eyes with plenty of water. Get medical attention, if irritation persists.

**SKIN:** Wash with soap and water. Get medical attention if irritation develops or persists.

**INGESTION:** Drink plenty of water. Consult a physician.

**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

### SIGNS AND SYMPTOMS OF OVEREXPOSURE

**EYES:** Irritation, burning, redness, pain.

**SKIN:** Contact causes skin irritation.

**INGESTION:** Not a likely route of entry.

**INHALATION:** May include shortness of breath, wheezing, coughing, and sputum production.

**ACUTE EFFECTS:** Overexposure to dust may aggravate respiratory conditions.

**CHRONIC EFFECTS:** Prolonged or repeated overexposure may cause lung damage.

**NOTES TO PHYSICIAN:** Not Applicable

## 5. FIRE FIGHTING MEASURES

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**GENERAL HAZARD:** This product is noncombustible and will not ignite or contribute to the intensity of a fire.

**EXTINGUISHING MEDIA:** As appropriate for surrounding fire.

**FIRE FIGHTING PROCEDURES:** As appropriate for surrounding fire.

**FIRE FIGHTING EQUIPMENT:** As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

**SMALL SPILL:** Vacuum or sweep up material and place in a disposal container could reach any surface waters. The toll free number for the US Coast Guard is (800) 424-8802.

**LARGE SPILL:** Clean up using methods which avoid dust generation. Compressed air should not be used to clean up spills. Wear appropriate personal protective equipment. Collect material in a compatible and appropriately labeled container. Dispose of material from processing, installation, maintenance, or tear-out operations in accordance with applicable regulations.

### ENVIRONMENTAL PRECAUTIONS

**WATER SPILL:** Dusts of as-manufactured refractory product have a low order of aquatic toxicity, are insoluble, and are not very mobile. Based upon this information, it is not believed to be a significant threat to the environment if accidentally released into water.

**LAND SPILL:** Dusts of as-manufactured refractory product are not believed to be a significant threat to the environment if accidentally released on land. Dust and material generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals, alkaline materials). Evaluation of dust and material from specific processes should be performed to determine if an environmental threat exists in the case of a release.

**AIR SPILL:** Exhaust ventilation is recommended to maintain airborne dust concentrations below regulatory exposure levels. Consult individual operating permits for allowable air emissions.

**GENERAL PROCEDURES:** NA = Not Applicable

**SPECIAL PROTECTIVE EQUIPMENT:** Personal Protective Equipment should be worn as indicated in Section 8.

## 7. HANDLING AND STORAGE

**GENERAL PROCEDURES:** Keep dry and avoid exposure to moisture prior to use.

**HANDLING:** Use proper procedures for installation and operation. Contact manufacturer for proper procedures. Practice good housekeeping to minimize dust generation. Respirators should be worn during installation and removal of product if dust could be generated. Consult Section 8 for respirator selection information.

**STORAGE:** Store in a dry area.

**STORAGE TEMPERATURE:** NA = Not Applicable

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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## EXPOSURE GUIDELINES

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)				
Chemical Name	EXPOSURE LIMITS			
	Type		ppm	mg/m <sup>3</sup>
Silica, Crystalline quartz (non- respirable)	OSHA PEL	TWA	[1]	0.1 [1]
	ACGIH TLV	TWA	[2]	0.025 [2]
	Supplier OEL	TWA		NA
Silica, Cristobalite (non- respirable)	OSHA PEL	TWA		0.05
	ACGIH TLV	TWA	[2]	0.025 [2]
	Supplier OEL	TWA		NA

**Footnotes:**

1. OSHA has issued a proposed silica standard lowering the PEL to 0.05 mg/m<sup>3</sup> for silica, crystalline quartz - respirable fraction. The proposed standard maintains the PEL for cristobalite at 0.05 mg/m<sup>3</sup>.
2. Silica exposure limits listed are for respirable fractions.

**ENGINEERING CONTROLS:** Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product.

## PERSONAL PROTECTIVE EQUIPMENT

**EYES AND FACE:** Wear safety glasses with side shields (or goggles) and a face shield.

**SKIN:** Wash thoroughly after handling.

**RESPIRATORY:** If it is not possible to reduce airborne exposure levels to below the exposure limits with ventilation, use the table below to assist you in selecting respirators that will reduce personal exposures to below the exposure limits.

The assigned protection factor (APF) is the minimum anticipated level of protection provided by each type of respirator worn in accordance with an adequate respiratory protection program. For example, an APF of 10 means that the respirator should reduce the airborne concentration of a particulate by a factor of 10, so that if the workplace concentration of a particulate was 150 ug/m<sup>3</sup>, then a respirator with an APF of 10 should reduce the concentration of particulate to 15 ug/m<sup>3</sup>.

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Assigned Protection Factor	Type of Respirator
10	Any air-purifying elastomeric half-mask respirator equipped with appropriate type of particulate filter. Appropriate filtering facepiece respirator. Any air-purifying full facepiece respirator equipped with appropriate type of particulate filter. Any negative pressure (demand) supplied-air respirator equipped with a half-mask.
25	Any powered air-purifying respirator equipped with a hood or helmet and a high efficiency (HEPA) filter. Any continuous flow supplied-air respirator equipped with a hood or helmet.
50	Any air-purifying full facepiece respirator equipped with N-100, R-100, or P-100 filter(s). Any powered air-purifying respirator equipped with a tight-fitting facepiece (half or full facepiece) and a high-efficiency filter. Any negative pressure (demand) supplied-air respirator equipped with a full facepiece. Any continuous flow supplied-air respirator equipped with a tight-fitting facepiece (half or full facepiece). Any negative pressure (demand) self-contained respirator equipped with a full facepiece.
1000	Any pressure-demand supplied-air respirator equipped with a half-mask.

**PROTECTIVE CLOTHING:** Wear clothing which minimizes skin contact or exposure.

**WORK HYGIENIC PRACTICES:** Use good personal hygiene when handling this product. Wash hands after use, before smoking, or before using the toilet.

**OTHER USE PRECAUTIONS:** Recommend chest X-rays and yearly vital capacity tests for employees regularly exposed to silica for early detection of silicosis. Comply with all guidelines for crystalline silica exposure.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL STATE:** Granular solid

**ODOR:** No Odor

**APPEARANCE:** Granular to fine material.

**pH:** NA = Not Applicable

**PERCENT VOLATILE:** NA = Not Applicable

**FLASH POINT AND METHOD:** NA = Not Applicable

**FLAMMABLE LIMITS:** NA = Not Applicable

**VAPOR PRESSURE:** NA = Not Applicable

**VAPOR DENSITY:** NA = Not Applicable

**BOILING POINT:** NA = Not Applicable

**FREEZING POINT:** NA = Not Applicable

**MELTING POINT:** Reference product literature.

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**SOLUBILITY IN WATER:** < 3%

**EVAPORATION RATE:** NA = Not Applicable

**SPECIFIC GRAVITY:** 2 to 3.000 g/cc

## 10. STABILITY AND REACTIVITY

**HAZARDOUS POLYMERIZATION:** Will not occur.

**STABILITY:** Stable.

**CONDITIONS TO AVOID:** NA = Not Applicable

**HAZARDOUS DECOMPOSITION PRODUCTS:** Not Applicable

**INCOMPATIBLE MATERIALS:** Strong acids, bases, oxidizing agents.

## 11. TOXICOLOGICAL INFORMATION

### ACUTE TOXICITY

**NOTES:** Acute silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period.

### CARCINOGENICITY

**IARC:** The International Agency for Research on Cancer ("IARC") concluded that there was "sufficient evidence in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "sufficient evidence in experimental animals for the carcinogenicity of quartz and cristobalite". The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group I)". The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstance studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs". For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates..." (1997). (Emphasis added).

**NTP:** Crystalline Silica (respirable) - NTP reports may reasonably be anticipated to be a carcinogen.

**OSHA:** Crystalline silica (quartz) is not regulated by the U.S. Occupational Safety and Health Administration as a carcinogen. There is substantial literature on the issues of the carcinogenicity of crystalline silica, which the reader should consult for additional information. A summary of the literature is set forth in "Exposure to crystalline silica and risk of lung cancer; the epidemiological evidence", *Thorax*, Volume 51, pp. 97-102 (1996). The official statement of the American Thoracic Society on the issue of silica carcinogenicity was published in "Adverse Effects of Crystalline Silica Exposure", *American Journal of Respiratory and Critical Care Medicine*, Volume 155, pp. 761-765 (1997). The official statement concluded that "The available data support the conclusion that silicosis produces increased risk for bronchogenic carcinoma. The cancer risk may also be increased by smoking and other carcinogens in the workplace. Epidemiologic studies provide convincing evidence for increased cancer risk among tobacco smokers with silicosis. For workers with silicosis, the risks for lung cancer are relatively high and consistent among various countries and investigators. Silicosis should be considered a condition that predisposes workers to an increased risk of lung cancer". *Id.* at 763.

**STOT-SINGLE EXPOSURE:** SILICOSIS- caused by the inhalation and retention of respirable crystalline silica dust. Silicosis can exist in several forms, chronic (or ordinary), and accelerated (or acute). Chronic or Ordinary Silicosis is the most common form of silicosis, and can occur after many years of exposure to relatively low levels of airborne respirable

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crystalline silica dust. It is further defined as either simple or complicated silicosis. Simple Silicosis is characterized by lung lesions (shown as radiographic opacities) less than 1 centimeter in diameter, primarily in the upper lung zones. Often, simple silicosis is not associated with symptoms, detectable changes in lung function, or disability. Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF). Complicated Silicosis or PMF is characterized by lung lesions (shown as radiographic opacities) greater than 1 centimeter in diameter. Although there may be no symptoms associated with complicated silicosis or PMF, the symptoms, if present, are shortness of breath, wheezing, cough, and sputum production.

## 12. ECOLOGICAL INFORMATION

**ECOTOXICOLOGICAL INFORMATION:** None Known

**BIOACCUMULATION/ACCUMULATION:** Not Applicable

**DISTRIBUTION:** Not Applicable

**CHEMICAL FATE INFORMATION:** NA = Not Applicable

**GENERAL COMMENTS:** Dusts of as-manufactured refractory product have a low order of aquatic toxicity, are insoluble, and are not very mobile. Based upon this information, it is not believed to be a significant threat to the environment if accidentally released on land or into water. However, dust and material generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals, respirable crystalline silica, alkaline materials). Evaluation of dust and material from specific processes should be performed to determine if an environmental threat exists in the case of release.

## 13. DISPOSAL CONSIDERATIONS

### PRODUCT DISPOSAL:

The as-manufactured refractory product or refractory dust is not considered a hazardous waste. Dust and material generated during use, maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals, alkaline materials) from a particular application. Additionally, the spent refractory could contain reaction products not originally present in the supplied refractory material. Contaminants or reaction products have the potential to cause the refractory waste to exhibit hazardous waste characteristics. It is the responsibility of the user to consult applicable regulations prior to disposal of any industrial product to ensure waste disposal compliance. Waste analysis and characterization may be necessary to determine proper waste disposal. Waste Management: Dusts could contain respiratory hazards. To prevent waste materials becoming airborne during waste generation, storage, transportation, and disposal, proper dust control measures are recommended.

## 14. TRANSPORT INFORMATION

### DOT (DEPARTMENT OF TRANSPORTATION)

**PROPER SHIPPING NAME:** Not Regulated

### ROAD AND RAIL (ADR/RID)

**PROPER SHIPPING NAME:** Not Regulated for Transport

**UN NUMBER:** N/A

**PACKING GROUP:** N/A

**SPECIAL PROVISIONS:** NA = Not Applicable

### AIR (ICAO/IATA)

**SHIPPING NAME:** Not Regulated

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**PRIMARY HAZARD CLASS/DIVISION:** Not Applicable

**VESSEL (IMO/IMDG)**

**SHIPPING NAME:** Not Regulated

**MARINE POLLUTANT #1:** NA = Not Applicable

## 15. REGULATORY INFORMATION

### UNITED STATES

**TSCA (TOXIC SUBSTANCE CONTROL ACT)**

**TSCA STATUS:** All ingredients in this mixture are in compliance with TSCA.

**CALIFORNIA PROPOSITION 65:** WARNING: This product contains crystalline silica, a chemical known to the State of California to cause cancer.

**RCRA STATUS:** Not regulated

### CANADA

**WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):** This product is a WHMIS controlled substance.

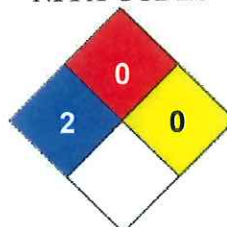
## 16. OTHER INFORMATION

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### HMIS RATING

HEALTH	*	2
FLAMMABILITY		0
PHYSICAL HAZARD		0
PERSONAL PROTECTION		

### NFPA CODES



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