



Silica fume

Material Safety Data Sheet

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name: Silica Fume

Synonym: Microsilica, amorphoussilica

Company Identification: RMI INC

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For information, call: 1-800-720-6880

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	%
69012-64-2	Silica fume	100
14808-60-7	Quartz (Crystalline Silica)	<0.5

SECTION 3 - HAZARDS IDENTIFICATION

Physical State:

Condensed powder

Odour: odourless

Color: grey

Emergency overview:

Hazard Statement: **IT CONTAINS MATERIAL WHICH CAN CAUSE CANCER.MAY BE HARMFUL IF INHALED.**

Can cause moderate irritation due to abrasive action.

Keep container tightly closed.

Avoid inhalation of dusts.

Avoid ingestion.

Avoid contact with the skin, eyes and clothing.

Wash thoroughly after handling.

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Primary routes of exposure:

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation.

Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Potential health effects:

Eye contact: May cause mechanical irritation.

Skin contact: May cause mechanical irritation.

Inhalation: May cause mechanical irritation.

Ingestion: May cause gastric distress, nausea and vomiting if ingested.

Carcinogenicity and chronic toxicity:

Carcinogenicity: Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

See SECTION 11-Toxicological Information.

SECTION 4 - FIRST AID MEASURES

General advice:

First aid personnel should pay attention to their own safety. Immediately remove contaminated clothing.

If inhaled:

After inhalation of dust, keep patient calm, remove to fresh air and seek medical attention.

If on skin:

After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Rinse mouth immediately and then drink plenty of water, seek medical attention. Do not induce vomiting unless told to by a poison control center or doctor.

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5 - FIRE FIGHTING MEASURES

Flash point: Non-flammable.

Flammability: does not ignite

Suitable extinguishing media: Foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons: water jet

Hazards during fire-fighting: carbon dioxide, carbon monoxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Protective equipment for fire-fighting: Wear a self-contained breathing apparatus.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. If exposed to fire, keep containers cool by spraying with water. Collect contaminated extinguishing water separately; do not allow reaching sewage or effluent systems. Contaminated extinguishing water must be disposed of in accordance with official regulations.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions:

Do not breathe vapour/aerosol/spray mists. Wear eye/face protection. If exposed to high vapour concentration, leave area immediately. Use personal protective clothing. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:

Avoid raising dust.

For small amounts: Pick up with suitable appliance and dispose of. Dispose of contaminated material as prescribed.

For large amounts: Pick up with suitable appliance and dispose of. Dispose of absorbed material in accordance with regulations.

SECTION 7 - HANDLING AND STORAGE

Handling

General advice:

Avoid dust formation. Wear suitable protective clothing and eye/face protection. Avoid inhalation of dusts/mists/vapours. Breathing must be protected when large quantities are decanted without local exhaust ventilation.

Protection against fire and explosion:

Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy. Keep away from sources of ignition - No smoking. Dust can form an explosive mixture with air.

Storage

General advice:

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect from direct sunlight.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with occupational exposure limits:

- crystalline silica

OSHA:

TWA value 2.4 millions of particles per cubic foot of air. Respirable
The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.

TWA value 0.1 mg/m. Respirable
The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.

TWA value 0.3 mg/m³. Total dust
The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.

- Silica fume

ACGIH: TWA value 0.025 mg/m³ Respirable fraction

OSHA:

TWA value 20 millions of particles per cubic foot of air

TWA value 0.8 mg/m³;
The exposure limit is calculated from the equation, $80 / (\%SiO_2)$, using a value of 100% SiO₂. Lower percentages of SiO₂ will yield higher exposure limits.

Recommended monitoring procedures:

If 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:

If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection:

Respiratory:

Use a properly fitted, air-purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Wear a NIOSH approved (or equivalent) particulate respirator if ventilation is inadequate to control dust.

Hands:

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

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, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder

Color: Grey

Odor: Odourless

PH: Not available

Vapor pressure: Not applicable

Viscosity: Not applicable

Boiling point: Not applicable

Freezing/Melting point: 1,580 C

Auto-ignition temperature: Not applicable

Flash point: Not applicable

Explosion limits: Lower/Upper: Not available

Decomposition temperature: Not available

Solubility in water: Insoluble

Specific gravity/Density: 2100-2300 kg/m³

Bulk density: 150-750 kg/m³

Molecular formula: SiO₂

SECTION 10 - STABILITY AND REACTIVITY

Chemical stability: The product is stable.

Conditions to avoid: No specific data.

Incompatible materials: Reactive or incompatible with the following materials: oxidizing materials, acids and alkalis. Reactive with Hydrofluoric acid (HF) and Nitric acid (HNO₃).

Hazardous decomposition products:

A reaction with hydrofluoric acid (HF) or nitric acid (HNO₃) leads to the formation of toxic gases such as silicon tetrafluoride (SiF₄) or nitrous gases (NO_x). In the presence of water, there may be release of hydrogen. Heating above 1000°C can result in the formation of crystalline (SiO₂) – modifications as cristobalite/tridymite which may cause pulmonary fibrosis (silicosis).

Possibility of hazardous reactions: Care must be used in presence of oxidants and acids like hydrofluoric acid.

SECTION 11 - TOXICOLOGICAL INFORMATION

Routes of exposure: Eyes, skin contact and inhalation

Target organs and medical conditions aggravated by overexposure: Eyes, skin and respiratory system.

Product toxicological information: Long term inhalation can cause irritation, inflammation and/or permanent injury to the lungs. Illness such as pneumoconiosis, pulmonary fibrosis, chronic bronchitis, emphysema, bronchial asthma and silicosis may develop.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: No known significant effects or critical hazards.

Aquatic ecotoxicity: There is no data available.

Persistence/degradability: There is no data available.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste disposal:

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

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. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14 - TRANSPORT INFORMATION

Land transport (USDOT, TDG):

Not classified as a dangerous good under transport regulations

Sea transport (IMDG):

Not classified as a dangerous good under transport regulations

Air transport (IATA/ICAO):

Not classified as a dangerous good under transport regulations

SECTION 15 –REGULATORY INFORMATION

Canada

WHMIS (Canada): Class D-2A: Material causing other toxic effects (Very toxic).

Canadian NPRI: None of the components are listed.

CEPA Toxic substances: None of the components are listed.

Canada inventory: All components are listed or exempted

United States

HCS Classification: Carcinogen. Target organ effects

U.S. Federal regulations:

TSCA 8(a) IUR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

State regulations:

Massachusetts: The following components are listed: Silica, fume

New York: None of the components are listed.

New Jersey: The following components are listed: Silica, fume; Quartz (Crystalline silica)

Pennsylvania: The following components are listed: Quartz (Crystalline silica)

California Prop. 65: This product contains a chemical known to the State of California to cause cancer.

SECTION 16 – OTHER INFORMATION

HMIS III rating

Health: 1x Flammability: 1 Physical hazard: 0

Notice to the reader:

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.