

1. IDENTIFICATION

Product Name	Silica Fume
Other Names	Amorphous Silica Fume; Densified/Undensified Silica Fume; FUMES, SILICA; Microsilica, Densified
Uses	Used as concrete additive, refractory applications, strengthening agent.
Chemical Family	No Data Available
Chemical Formula	Unspecified
Chemical Name	Silica Fume
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details


For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Not scheduled

Globally Harmonised System

Hazard Classification	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)		
Hazard Categories	Carcinogenicity - Category 1A		
Pictograms			
Signal Word	Danger		
Hazard Statements	H350	May cause cancer.	
Precautionary Statements	Prevention	P201	Obtain special instructions before use.
		P202	Do not handle until all safety precautions have been read and understood.
		P281	Use personal protective equipment as required.
	Response	P308 + P313	IF exposed or concerned: Get medical advice/ attention.
	Storage	P405	Store locked up.
	Disposal	P501	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Silica, Amorphous - Fume	No Data Available	69012-64-2	>90.0 %
Carbon	No Data Available		<10.0 %
Quartz (Silica Crystalline)	No Data Available	14808-60-7	<1.4 %
Cristobalite	No Data Available	14464-46-1	<1.0 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	Rinse mouth with water. Give water to drink. Do NOT induce vomiting. If symptoms develop, seek medical attention.
Eye	If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
Skin	If skin or hair contact occurs, remove any contaminated clothing and flush skin and hair with running water. If irritation occurs, seek medical advice.
Inhaled	Remove victim from exposure to fresh air. If not breathing, apply artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient.
Medical Conditions Aggravated by Exposure	Over exposure to amorphous silica does not cause silicosis, however there is a risk of pulmonary fibrosis associated with the crystalline silica contaminant. Crystalline silica is classified as carcinogenic to humans (IARC Group 1). Due to the low levels present, adverse health

effects may be reduced.

HEALTH EFFECTS FROM EXPOSURE: It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. It is anticipated that users will assess the risks and apply control methods where appropriate.

5. FIRE FIGHTING MEASURES

Flammability Conditions	Product is a non-flammable solid.
Extinguishing Media	In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions. Use waterfog to cool intact containers and nearby storage areas.
Hazardous Products of Combustion	Non-combustible solid. Incompatible with hydrofluoric acid and sources of ignition. Contact with hydrofluoric acid will produce toxic silicon tetrafluoride gas. Heating this product above 500°C may result in the formation of crystalline silica (cristobalite/tridymite), which can cause silicosis and is a known carcinogen (IARC Group 1). Not expected to evolve hazardous decomposition products.
Personal Protective Equipment	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves). Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Personnel involved in the clean up should wear full protective clothing as listed in section 8. Evacuate all unnecessary personnel. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Stop leak if safe to do so. Isolate the danger area. Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management. Avoid generation of airborne dust. Moisten with water to prevent a dust hazard and place in sealable containers for disposal.
Clean Up Procedures	Contain and sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Transfer to a suitable, labelled container and dispose of promptly. Wash area down with excess water.

7. HANDLING AND STORAGE

Handling	Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid handling which leads to dust formation. Avoid contact with eyes, skin and clothing. Do not inhale product dust/fumes.
Storage	Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Store away from acids and foodstuffs. Bulk material should be stored in a manner that minimises dust generation. This product is not classified dangerous for transport according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.
Container	Container type/packaging must comply with all applicable local legislation. Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	<p>The following exposure standard has been established by The Australian Safety and Compensation Council (ASCC); QUARTZ [SILICA CRYSTALLINE] CAS 14808-60-7: TWA = 0.1mg/m³ SILICA, CRYSTALLINE [CRISTOBALITE] CAS 14464-46-1: TWA = 0.1mg/m³ CARBON (CAS NUMBER NOT AVAILABLE): TWA = 10mg/m³ (Inspirable dust) NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals.</p>
Exposure Limits	No Data Available
Biological Limits	No information available on biological limit values for this product.
Engineering Measures	<p>A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Adequate ventilation should be provided so that exposure limits are not exceeded.</p>
Personal Protection Equipment	<p>RESPIRATOR: Wear a Class P2 particulate respirator when handling this product (AS1715/1716). EYES: Safety glasses with side shields (AS1336/1337). HANDS: Wear protective gloves (AS2161). CLOTHING: Long-sleeved protective clothing and safety footwear (AS3765/2210).</p>
Work Hygienic Practices	No Data Available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Fine Powder
Odour	Odourless
Colour	White to Dark Grey
pH	6 - 7
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	1550 - 1700
Freezing Point	1550 - 1700 °C
Solubility	Insoluble 25°C
Specific Gravity	2.2 - 2.3
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	0.5 micron
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available

Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No Data Available
Potential for Dust Explosion	No Data Available
Fast or Intensely Burning Characteristics	No Data Available
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	No Data Available
Release of Invisible Flammable Vapours and Gases	No Data Available

10. STABILITY AND REACTIVITY

Chemical Stability	Product is stable under directed conditions of use, storage and temperature.
Conditions to Avoid	Avoid heat, sparks, open flames, and other ignition sources.
Materials to Avoid	Incompatible with hydrofluoric acid and sources of ignition.
Hazardous Decomposition Products	Not expected to elvolve hazardous decomposition products, however Contact with hydrofluoric acid will produce toxic silicon tetrafluoride gas. Heating this product above 500°C may result in the formation of crystalline silica (cristobalite/tridymtie), which can cause silicosis and is a known human carcinogen (IARC Group 1).
Hazardous Polymerisation	Hazardous polymerisation will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	QUARTZ (SILICA CRYSTALLINE) (14808-60-7): LCLo (Inhalation): 300ug/m3/10 years (human) LDLo (Intratracheal): 200mg/Kg (Rat) LDLo (Intravenous): 20mg/Kg (dog) TCLo (Inhalation): 16 000 000 particles/ft3/8 hours/17.9 years (Human-fibrosis) CRISTOBALITE (14464-46-1) Carcinogenicity: Confirmed human carcinogen (IARC Group 1) TCLo (inhalation): 16 mppcf/8 hours/17.9 years (human-fibrosis)
EyeIrritant	Irritant. Contact may result in irritation, lacrymation, pain and redness.
Ingestion	Irritating to the gastrointestinal tract.
Inhalation	High Chronic Toxicity - irritant. Over exposure to dust may result in mucous membrane irritation of the respiratory tract. Chronic exposure to crystalline silica may result in silicosis (lung fibrosis). Crystalline silica is classified as carcinogenic to humans (IARC Group 1). Test results indicate that the concentration of <20um crystalline silica in the raw silica fume was between 1.0% and 1.4% by weight. Since there is no data available on the proportion in the respirable range (<10um), it is recomended treating the fine crystalline silica content as potentially respirable.
SkinIrritant	Irritant. Contact may result in irritation, redness, pain and rash.
Carcinogen Category	No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity	The main components of this product are not anticipated to cause any adverse effects to plants or animals.
Persistence/Degradability	No information available on persistence/degradability for this product.
Mobility	No information available on mobility for this product. Insoluble in water.

Environmental Fate	Avoid contaminating waterways, drains and sewers.
Bioaccumulation Potential	No information available on bioaccumulation for this product.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with local, state and Federal regulations or recycled/reconditioned at an approved facility. Reuse where possible.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice. This should be done in accordance with 'The Hazardous Waste Act'.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name	SILICA FUME
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Land Transport (Malaysia)

ADR

Proper Shipping Name	SILICA FUME
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	SILICA FUME
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available

Special Provision No Data Available

Land Transport (United States of America)

US DOT

Proper Shipping Name SILICA FUME
Class No Data Available
Subsidiary Risk(s) No Data Available
No Data Available
UN Number No Data Available
Hazchem No Data Available
Pack Group No Data Available
Special Provision No Data Available

Sea Transport

IMDG Code

Proper Shipping Name SILICA FUME
Class No Data Available
Subsidiary Risk(s) No Data Available
UN Number No Data Available
Hazchem No Data Available
Pack Group No Data Available
Special Provision No Data Available
EMS No Data Available
Marine Pollutant No

Air Transport

IATA DGR

Proper Shipping Name SILICA FUME
Class No Data Available
Subsidiary Risk(s) No Data Available
UN Number No Data Available
Hazchem No Data Available
Pack Group No Data Available
Special Provision No Data Available

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15. REGULATORY INFORMATION

General Information No Data Available

Poisons Schedule (Aust) Not scheduled

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code Not Assessed

National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Not Determined
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes	SIFUME1000, SIFUME1001, SIFUME1002, SIFUME1003, SIFUME1100, SIFUME1200, SIFUME1201, SIFUME1202, SIFUME1205, SIFUME1600, SIFUME2000, SIFUME2001, SIFUME3000, SIFUME3010, SIFUME3011, SIFUME7000, SIFUME8000, SIFUME8500, SIFUME9000, SIFUME9001, SIFUME9002, SIFUME9200, SIFUME9500
Revision	2
Revision Date	12 Oct 2015
Key/Legend	< Less Than > Greater Than AICS Australian Inventory of Chemical Substances atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm² Square Centimetres CO₂ Carbon Dioxide COD Chemical Oxygen Demand deg C (°C) Degrees Celcius EPA (New Zealand) Environmental Protection Authority of New Zealand deg F (°F) Degrees Farenheit g Grams g/cm³ Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluable in each other. inHg Inch of Mercury inH₂O Inch of Water

K Kelvin
kg Kilogram
kg/m³ Kilograms per Cubic Metre
lb Pound
LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or **L** Litre
m³ Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m³ Milligrams per Cubic Metre
Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH₂O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Health and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight