

1 Identification

GHS Product Identifier

RS-SILBOND POWDER, PART 1

Other means of identification

Silica Low Expansion Adhesive.

Recommended use of the chemical and restriction on use

Used primarily for bonding Silica Refractories to one another and filling cracks.

Supplier's details

ZIRCAR Refractory Composites, Inc.

P.O. Box 489

Florida, NY 10921

1-845-651-2200 (Monday - Friday 8:00 a.m. - 4:30 p.m. EST)

For additional SDSs, visit our web page, <http://www.zrci.com> or email at sales@zrci.com

Emergency phone number

CHEMTREC will provide assistance for chemical emergencies. Call **1-800-424-9300**

2 Hazard(s) identification

Classification of the substance or mixture

Classification according to Directive 67/548/EEC or Directive 1999/45/EC



Harmful

Harmful by inhalation, in contact with skin and if swallowed. Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.



Irritant

Irritating to eyes and respiratory system.

Information concerning particular hazards for human and environment:

The product has to be labeled due to the calculation procedure of international guidelines.

Classification system:

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

Label elements

Labeling according to EU guidelines:

The product has been classified and marked in accordance with directives on hazardous materials.

Code letter and hazard designation of product:



Harmful

GHS label elements



Causes mild skin irritation

May cause cancer

May cause damage to organs through prolonged or repeated exposure

Harmful if swallowed

Harmful if inhaled

Causes eye irritation

Use personal protective equipment as required.

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Other hazards which do not result in classification

Risk phrases:

Harmful by inhalation, in contact with skin and if swallowed.

Irritating to eyes and respiratory system.

Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.

Safety phrases:

Keep away from food, drink and animal feedingstuffs.

When using do not eat or drink. Avoid contact with skin and eyes.

Wear suitable protective clothing, gloves and eye/face protection.

In case of insufficient ventilation, wear suitable respiratory equipment.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. In case of accident by inhalation: remove casualty to fresh air and keep at rest.

After contact with skin, wash immediately with plenty of water

Keep container tightly closed.

Precautionary statements

Do not handle until all safety instructions have been read and understood.
Use respiratory protection as required; see section 8 of the Safety Data Sheet.

If concerned about exposure, get medical advice.
Store in a manner to minimize airborne dust.
Dispose of waste in accordance with local, state and federal regulations.

Supplementary Information

May cause temporary mechanical irritation to exposed eyes, skin or respiratory tract.
Minimize exposure to airborne dust.

Describe any hazards not otherwise classified that have been identified during the classification process

Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure. effects are usually temporary.

3 Composition/information on ingredients

Description	CAS Number	EINECS Number	%	Note
Amorphous silica	7631-86-9	262-373-8	98 - 99	
alkali fluorosilicates	16919-19-0	240-968-3	0.01 - 1	
Crystobalite	14464-46-1	238-878-4	0.1 - 1	

4 First-aid measures

Description of necessary first-aid measures

SKIN

Handling of this material may generate mild mechanical temporary skin irritation. If this occurs, rinse affected areas with water and wash gently. Do not rub or scratch exposed skin.

EYE

In case of eye contact flush abundantly with water; have eye bath available. Do not rub eyes.

NOSE AND THROAT

If these become irritated move to a dust free area, drink water and blow nose.
If symptoms persist, seek medical advice.

Gastrointestinal

If gastrointestinal tract irritation develops, move the person to a dust free environment.

Most important symptoms/effects, acute and delayed

Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure.
These effects are usually temporary.

Indication of immediate medical attention and special treatment needed, if necessary

NOTES TO PHYSICIANS Skin and respiratory effects are the result of temporary, mild mechanical irritation; exposure does not result in allergic manifestations.

5 Fire-fighting measures

Suitable extinguishing media

Non-combustible products, class of reaction to fire is zero.

Packaging and surrounding materials may be combustible.
Use extinguishing agent suitable for surrounding combustible materials.

Specific hazards arising from the chemical

None.

Special protective actions for fire-fighters

NFPA Codes: Flammability: 0 Health: 1 Reactivity: 0 Special: 0

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Minimize airborne dust. Compressed air or dry sweeping should not be used for cleaning. See Section 8 "Exposure Controls / Personal Protection" for exposure guidelines.

Environmental precautions

None.

Methods and materials for containment and cleaning up

Frequently clean the work area with HEPA filtered vacuum or wet sweeping to minimize the accumulation of debris.

Do not use compressed air for clean-up.

7 Handling and storage

Precautions for safe handling

Handle fiber carefully to minimize airborne dust. Limit use of power tools unless in conjunction with local exhaust ventilation. Use hand tools whenever possible. (See section 8)

Service significantly above the product design temperature may increase friability and the possibility of generating airborne fibers or particulates. not considered problematic during use, airborne fibers may complicate removal activities. is recommended that product use be carefully matched to design parameters.

After Service: AS MANUFACTURED THIS PRODUCT IS COMPRISED OF SILICA WHICH MAY TRANSFORM UPON HEATING (TEMPERATURES GREATER THAN 1100°C FOR EXTENDED PERIODS OF TIME) TO CRISTOBALITE (CAS # 14464-46-1), A FORM OF CRYSTALLINE SILICA. THIS PRODUCT AFTER USE MY GENERATE DUSTS. REPEATED INHALATION OF RESPIRABLE FREE CRYSTALLINE SILICA DUST MAY CAUSE DELAYED LUNG INJURY (SILICOSIS). THE IARC WORKING GROUP CONCLUDED THAT CRYSTALLINE SILICA, IN THE FORM OF QUARTZ OR CRISTOBALITE, FROM OCCUPATIONAL SOURCES POSED A CARCINOGENIC RISK TO HUMANS (CATEGORY 1). THERE IS SUFFICIENT EVIDENCE OF CARCINOGENICITY IN ANIMALS, BUT LIMITED EVIDENCE IN HUMANS'S FINAL RULE LIMIT AND ACGIH'S TLV FOR RESPIRABLE CRISTOBALITE IS 0.05 MG/M³. VENTILATION AND RESPIRATORY PROTECTION SHOULD BE PROVIDED IN COMPLIANCE WITH OSHA STANDARDS. ADHERENCE TO RECOMMENDED SAFE WORK PRACTICES IS ADVISED. PRODUCT REMOVAL MUST CONSIDER THE POSSIBILITY OF USAGE ABOVE DESIGN TEMPERATURES.

Product removal must consider the possibility of usage above design temperatures. See section 8 for appropriate respiratory protection during removal.

Conditions for safe storage, including any incompatibilities

Store in a manner to minimize airborne dust.

EMPTY CONTAINERS

Product packaging may contain residue. Do not reuse.

8 Exposure controls/personal protection

Control parameters

OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available
Component

As with most industrial materials, it is prudent to minimize unnecessary exposure to respirable dusts. Note that Industrial hygiene standards and occupational exposure limits differ between countries and local jurisdictions. Check with your employer to identify any "respirable dust", "total dust" or "fiber" exposure standards to follow in your area. If no regulatory dust or fiber control standard apply, a qualified industrial hygiene professional can assist with a specific evaluation of workplace conditions and the identification of appropriate respiratory protection practices. In the absence of other guidance, the supplier has found that it is generally feasible to control occupational fiber exposure to 0.5 f/cc or less.

The evaluation of occupational exposure limits and determining their relative applicability to the workplace is best performed, on a case-by-case basis, by a qualified Industrial Hygienist.

Control parameters

Components with limit values that require monitoring at the workplace:	
60676-86-0 Silica, fused	
PEL	see Quartz listing
TLV	TLV withdrawn
16893-85-9 Alkali fluorosilicates	
PEL	Long-term value: 2.5 mg/m ³ as F
Ingredients with biological limit values:	
16893-85-9 Alkali fluorosilicates	
BEI	2 mg/L urine prior to shift Fluoride (background, nonspecific)
	3 mg/L urine end of shift Fluoride (background, nonspecific)

Appropriate engineering controls

Use engineering controls such as local exhaust ventilation, point of generation dust collection, down draft work stations, emission controlling tool designs, and materials handling equipment designed to minimize airborne fiber emissions.

Individual protection measures

Skin Protection

Wear gloves, head coverings and full body clothing as necessary to prevent skin irritation. Washable or disposable clothing may be used. If possible, do not take unwashed clothing home. If soiled work clothing must be taken home, employers should ensure employees are thoroughly trained on the best practices to minimize non-work dust exposure (e.g., vacuum clothes before leaving the work area, wash work clothing separately, rinse washer before washing other household clothes, etc.).

Eye Protection

As necessary, wear goggles or safety glasses with side shields.

Respiratory Protection

When engineering and/or administrative controls are insufficient to maintain workplace concentrations below the applicable level, the use of appropriate respiratory protection, pursuant to the requirements of OSHA Standards 29 CFR 1910.134 and 29 CFR 1926.103, is recommended. A NIOSH certified respirator with a filter efficiency of at least 95% should be used. The 95% filter efficiency recommendation is based on NIOSH respirator selection logic sequence for exposure to particulates. Selection of filter efficiency (i.e. 95%, 99% or 99.97%) depends on how much filter leakage can be accepted and the concentration of airborne contaminants. Other factors to consider are the NIOSH filter series N, R or P. (N)Not resistant to oil, (R)Resistant to oil and (P) oilProof. These recommendations are not designed to limit informed choices, provided that respiratory protection decisions comply with 29 CFR 1910.134.

The evaluation of workplace hazards and the identification of appropriate respiratory protection is best performed, on a case by case basis, by a qualified Industrial Hygienist.

9 Physical and chemical properties

Physical and chemical properties

(a) Appearance	White, fibrous wool
(b) Odor	Odorless
(c) Odor threshold	Not applicable
(d) pH Not applicable	Not applicable
(e) Melting point	1760° C (3200° F)
(f) Initial boiling point and boiling range	Not applicable
(g) Flash point	Not applicable
(h) Evaporation rate	Not applicable
(i) Flammability	Not applicable
(j) Upper/lower flammability or explosive limits	Not applicable
(k) Vapor pressure	Not applicable
(l) Vapor density	Not applicable
(m) Relative density	2.50 – 2.75
(n) Solubility	Insoluble
(o) Partition coefficient: n-octanol/water	Not applicable
(p) Auto-ignition temperature	Not applicable
(q) Decomposition temperature	Not applicable
(r) Viscosity	Not applicable

10 Stability and reactivity

Reactivity

Non-reactive.

Chemical stability

Stable and Inert.

Possibility of hazardous reactions

None.

Conditions to avoid

Please refer to handling and storage advice in Section 7.

Incompatible materials

Powerful oxidizers; fluorine, chlorine trifluoride, manganese trioxide; oxygen difluoride, etc.

Hazardous decomposition products

None.

11 Toxicological information

Toxicological (health) effects

- Information on toxicological effects
- Acute toxicity:

· LD/LC50 values that are relevant for classification:

16893-85-9 Alkali fluorosilicates

Oral	LD50	125 mg/kg (Rat)
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- Primary irritant effect:

· On the skin:

Mild, 500 mg, rabbit (Sodium Silicofluoride)

Irritating to skin.

· On the eye:

Irritating effect.

Severe, 100 mg, rabbit (Sodium Silicofluoride)

- Sensitization: No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Irritant

- Carcinogenic categories

· IARC (International Agency for Research on Cancer)

60676-86-0	Silica, fused	3
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16893-85-9	Alkali fluorosilicates	3
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14808-60-7	Quartz (SiO ₂)	1
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14464-46-1	Cristobalite	1
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· NTP (National Toxicology Program)

14808-60-7	Quartz (SiO ₂)	K
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14464-46-1	Cristobalite	K
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Numerical measures of toxicity (such as acute toxicity estimates)

Not Applicable.

Interactive effects

Not Applicable.

Where specific chemical data are not available

Not Applicable.

Mixtures

Not Applicable.

Mixture versus ingredient information

Not Applicable.

Information on the likely routes of exposure

Not Applicable.

Symptoms related to the physical, chemical and toxicological characteristics

Not Applicable.

Delayed and immediate effects and also chronic effects from short and long term exposure

Not Applicable.

12 Ecological information

Toxicity

Highly toxic to Foliage.

Persistence and degradability

These products are insoluble materials that remain stable over time and are chemically identical to inorganic compounds found in the soil and sediment; they remain inert in the natural environment.

Bioaccumulative potential

No bioaccumulative potential.

Mobility in soil

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system. Danger to drinking water if even small quantities leak into the ground.

Other adverse effects

No adverse effects of this material on the environment are anticipated.

13 Disposal considerations

Disposal methods

WASTE MANAGEMENT

To prevent waste materials from becoming airborne during waste storage, transportation and disposal, a covered container or plastic bagging is recommended.

DISPOSAL

This product, as manufactured, is not classified as a hazardous waste according to Federal regulations (40 CFR 261). Any processing, use, alteration or chemical additions to the product, as purchased, may alter the disposal requirements. Under Federal regulations, it is the waste generator's responsibility to properly characterize a waste material, to determine if it is a "hazardous" waste. Check local, regional, state or provincial regulations to identify all applicable disposal requirements.

14 Transport information

UN Number

Not Applicable.

UN Proper Shipping Name

Not Applicable.

Transport hazard class(es)

Not Applicable.

Packing group, if applicable

Not Applicable.

Environmental hazards

Not a marine pollutant.

Special precautions for user

Not Applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Canadian TDG Hazard Class & PIN: Not regulated

Not classified as dangerous goods under ADR (road), RID (train) or IMDG (ship).

15 Regulatory information

Safety, health and environmental regulations specific for the product in question

· Chemicals known to cause reproductive toxicity for males:	
14808-60-7	Quartz (SiO ₂)
· Chemicals known to cause developmental toxicity:	
14808-60-7	Quartz (SiO ₂)
· Pennsylvania Right To Know Components	
60676-86-0	Silica, fused
16893-85-9	Alkali fluorosilicates
14808-60-7	Quartz (SiO ₂)
14464-46-1	Cristobalite
· Massachusetts Right To Know Components	
60676-86-0	Silica, fused
16893-85-9	Alkali fluorosilicates
14808-60-7	Quartz (SiO ₂)
14464-46-1	Cristobalite

· New Jersey Right To Know Components	
60676-86-0	Silica, fused
16893-85-9	Alkali fluorosilicates
14808-60-7	Quartz (SiO ₂)
14464-46-1	Cristobalite
· Rhode Island Right To Know Components	
None of the ingredients are listed	
· Minnesota Right To Know Components	
None of the ingredients are listed	
· Florida Right To Know Components	
None of the ingredients are listed	

· EPA (Environmental Protection Agency)		
None of the ingredients are listed		
· TLV (Threshold Limit Value established by ACGIH)		
16893-85-9	Alkali fluorosilicates	A4
14808-60-7	Quartz (SiO ₂)	A2
14464-46-1	Cristobalite	A2
· NIOSH-Ca (National Institute for Occupational Safety and Health)		
60676-86-0	Silica, fused	
14808-60-7	Quartz (SiO ₂)	
14464-46-1	Cristobalite	

· Product related hazard informations:
The product has been classified and marked in accordance with directives on hazardous materials.

· Hazard symbols:



Harmful

· Risk phrases:
Harmful by inhalation, in contact with skin and if swallowed.
Irritating to eyes and respiratory system.
Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.

· Safety phrases:
Keep away from food, drink and animal feedingstuffs.
When using do not eat or drink. Avoid contact with skin and eyes.
Wear suitable protective clothing, gloves and eye/face protection.
In case of insufficient ventilation, wear suitable respiratory equipment.
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. In case of accident by inhalation: remove casualty to fresh air and keep at rest.
After contact with skin, wash immediately with plenty of water
Keep container tightly closed.

16 Other information

Other information

The HTIW Coalition and the U.S. Occupational Safety and Health Administration (OSHA) are partners in PSP HTW, a comprehensive, multi-faceted risk management program designed to control and reduce workplace exposures to high temperature insulation wools (HTIW). For more information regarding PSP HTW, please visit <http://www.htiwcoalition.org>

DEFINITIONS

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: Carriage of Dangerous Goods by Road (International Regulation)

CAA: Clean Air Act

CAS: Chemical Abstracts Service

CERCLA: Comprehensive Environmental Response, Compensation and Liability Act

DSL: Domestic Substances List

EPA: Environmental Protection Agency

EU: European Union

f/cc: Fibers per cubic centimeter

HEPA: High Efficiency Particulate Air

HMIS: Hazardous Materials Identification System

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association

IMDG: International Maritime Dangerous Goods Code

mg/m³: Milligrams per cubic meter of air

mmpcf: Million particles per cubic meter

NFPA: National Fire Protection Association

NIOSH: National Institute for Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

29 CFR 1910.134 & 1926.103: OSHA Respiratory Protection Standards

29 CFR 1910.1200 & 1926.59: OSHA Hazard Communication Standards

PEL: Permissible Exposure Limit (OSHA)

PIN: Product Identification Number

PNOC: Particulates Not Otherwise Classified

PNOR: Particulates Not Otherwise Regulated

PSP: Product Stewardship Program

RCRA: Resource Conservation and Recovery Act

REL: Recommended Exposure Limit (NIOSH)

RID: Carriage of Dangerous Goods by Rail (International Regulations)

SARA: Superfund Amendments and Reauthorization Act

SARA Title III: Emergency Planning and Community Right to Know Act

SARA Section 302: Extremely Hazardous Substances

SARA Section 304: Emergency Release

SARASection 311: MSDS/List of Chemicals and Hazardous Inventory

SARASection 312: Emergency and Hazardous Inventory

SARA Section 313: Toxic Chemicals and Release Reporting

STEL: Short Term Exposure Limit`

SVF: Synthetic Vitreous Fiber

TDG: Transportation of Dangerous Goods

TLV: Threshold Limit Value (ACGIH)

TSCA: Toxic Substances Control Act

TWA: Time Weighted Average

WHMIS: Workplace Hazardous Materials Information System (Canada)

Revision Summary:Updated SDS to align with OSHA HCS 2012. Replaces all previous MSDS.

Revision Date: 4-10-17

SDS Prepared By: ZIRCAR Refractory Composites, Inc.

DISCLAIMER

The information presented herein is presented in good faith and believed to be accurate as of the effective date of this Safety Data Sheet. Employers may use this SDS to supplement other information gathered by them in their efforts to assure the health and safety of their employees and the proper use of the product. This summary of the relevant data reflects professional judgment; employers should note that information perceived to be less relevant has not been included in this SDS. Therefore, given the summary nature of this document, ZIRCAR

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