



## 1 Identification

### GHS Product Identifier

**RS-B**

### Other means of identification

Low Density Glass Reinforced Alumina Composites.

### Recommended use of the chemical and restriction on use

Used primarily in industrial high temperature insulating applications. Examples include heat shields, Induction equipment, heat containment, industrial furnaces, ovens, kilns, boilers and other process equipment and applications, pipe wrap.

### 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)**

Homepage, <http://www.zrci.com> or email [sales@zrci.com](mailto: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

While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Not classified as to its carcinogenicity by the **International Agency for Research on Cancer (IARC)**.

### GHS label elements

Causes mild skin irritation

### Other hazards which do not result in classification

#### 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 when machining.

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
Aluminium Oxide	1344-28-1	215-691-6	33	
Glass filament	65997-17-3	266-046-0	87	

### 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

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.

#### 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 ALUMINA AND SILICA WHICH MAY TRANSFORM UPON HEATING (TEMPERATURES GREATER THAN 1000°C FOR EXTENDED PERIODS OF TIME) TO NON-HAZARDOUS MULLITE AND CRISTOBALITE (CAS # 14464-46-1), A FORM OF CRYSTALLINE SILICA. OF THIS PRODUCT AFTER USE MY GENERATE DUSTS. OR 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). 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/M<sup>3</sup>. 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. 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.**

COMPONENT	OSHA PEL	ACGIH TLV	MANUFACTURER
Aluminum Oxide	5 mg/m <sup>3</sup> (Respirable Fraction) 15 mg/m <sup>3</sup> (Total Dust)	1 mg/m <sup>3</sup> (respirable fraction)	None Established
Glass, Oxide	TWA: 15 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> Form: Respirable TWA: 15 mg/m <sup>3</sup> Form: Total dust	TWA: 1 f/cc Form: Continuous filament glass fibers TWA: 5 mg/m <sup>3</sup> , (Inhalable) Form: Continuous filament glass fibers TWA: 3 mg/m <sup>3</sup> Form: Respirable TWA: 10 mg/m <sup>3</sup> Form: Total dust. <b>ACGIH TLV (United States, 6/2013).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Inhalable fraction TWA: 1 f/cc 8 hours. Form: Respirable fibers: length greater than 5 uM; aspect ratio equal to or greater than 3:1 as determined by the membrane filter method at 400-450X magnification (4-mm objective) phase contrast illumination.	None Established

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.

#### 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 to tan
(b) Odor	Odorless
(c) Odor threshold	Not applicable
(d) pH	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	1.9 to 2.3
(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**

There are no known health effects from the long term use or contact with nonrespirable continuous filament fibers reinforcement.

Nonrespirable fibers cannot reach the deep lung because they have a diameter of greater than 3.5 micrometers. Fibers of this diameter cannot penetrate the narrow, bending passages of the human respiratory tract to reach the lower regions of the lung and thus, have no possibility of causing serious pulmonary damage. Instead, they deposit on the surfaces of the upper respiratory tract, nose, or pharynx. These fibers are then cleared through normal physiological mechanisms.

Animal Study: In 2000, the Institute of Occupational Medicine (IOM) in Scotland published the results of a long term inhalation study in animals exposed to fibers that were manufactured to be RESPIRABLE. Animals were exposed to a very high concentration of these RESPIRABLE fibers (1022 fibers/cc for 5 hours/day, 7 days/week for 52 weeks). Exposure to these microfibers resulted in the development of fibrosis, lung cancer and mesothelioma as a result of the fibers being able to reach the lower regions of the lung.

Chopped, crushed or severely mechanically processed fiberglass may contain a very small amount of respirable fibers that could reach the deep lung. The measured airborne concentration of these respirable fibers in areas where severe processing of fiberglass occurred has been shown to be extremely low and well below the TLV.

Repeated or prolonged exposure to respirable glass fibers may cause fibrosis, lung cancer and mesothelioma. fiberglass, in the form supplied, does not contain respirable fibers.

Epidemiology Studies: Two major studies in the US (performed by the University of Pittsburgh) and Europe (performed by the International Agency for Research on Cancer) showed no increase in lung cancer or respiratory disease among people working in production facilities producing NONRESPIRABLE continuous filament fiberglass. An additional smaller study performed in Canada also did not.

### **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.

**Other information**

Not classified by OSHA.

**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**

No known aquatic toxicity.

**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**

No mobility in soil.

**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****EPA:**

**Superfund Amendments and Reauthorization Act (SARA) Title III-** This product does not contain toxic chemicals reportable under Section 313 (40 CFR 372). Sections 311 and 312 (40 CFR 370) apply (delayed hazard).

**Toxic Substances Control Act (TSCA)-** Not required to be listed on the TSCA inventory

**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)the Clean Air Act (CAA)-** This product contains fibers with an average diameter greater than one micron and thus is not considered a hazardous air pollutant.

**OSHA:**

Comply with **Hazard Communication Standards** CFR 1910.1200 and 29 CFR 1926.59 and the **Respiratory Protection Standards** CFR 1910.134 and 29 CFR 1926.103.

**California:**

Product is NOT listed in **Proposition 65, The Safe Drinking Water and Toxic Enforcement Act of 1986a** chemical known to the State of California to cause cancer.

**Other States:**

These products are not known to be regulated by states other than New Jersey; however, state and local OSHA and EPA regulations may apply to these products. If in doubt, contact your local regulatory agency.

**New Jersey Right to Know Act:**

Aluminum oxide (CAS No. 1344-28-1) and Silica (amorphous) (CAS No. 60676-86-0), are found on the New Jersey Hazardous Substance list and are subject to reporting under SARA and the New Jersey Worker and Community Right to Know Act.

**Canada:**



**Canadian Workplace Hazardous Materials Information System (WHMIS)**– Aluminum oxide (CAS No. 1344-28-1), Silica (amorphous) (CAS No. 60676-86-0), and Calcium Oxide (CAS No. 1305-78-8) are subject to disclosure under the Hazardous Products Act.

**Canadian Environmental Protection Act (CEPA)**- All substances in this product are listed, as required, on the Domestic Substance List (DSL)

**Europe:**

The assessment of all available toxicological test data during the REACH registration process resulted in a “no classification” conclusion.

**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/m<sup>3</sup>:** 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 Refractory Composites, Inc. does not extend any warranty (expressed or implied), assume any responsibility, or make any representation regarding the completeness of this information or its suitability for the purposes envisioned by the user.