

1 Identification

GHS Product Identifier

RS-PUTTY, MOLD MIX 6

Other means of identification

RS-Putty and MOLD MIX 6 are high alumina Putty/coating with a strong reinforcement fibers. It is ideal for use up 1550°(2822°F) and above. It comes as a creamy paste similar to cold cream. When blended or agitated it become much more liquid and is pourable. Within a few minute it will regain its creamy non-flowing state. It can be applied with a trowel, brush or sponge. It is also available in a standard Caulk gun tube for forced placement.

It will air dry within a few hour at room temperature or can be force dried with heat. When dried and fired to temperatures above 300°C(572°F), it is extremely strong and resilient.

Recomended use of the chemical and restriction on use

It is also ideal for furnace repair applications, such as filling cracks and reinforcing ware areas. RS-Putty can also be used as a strong potting agent for fixturing high temperature components.

It can be used with RS-Tape and RS-Cloth to make rigid refractory structures such as cylinders for induction furnace protection components and liners.

MOLD MIX 6 is used as a mold making material for glass and bronze sculpture production.

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

Not classified as to its carcinogenicity by the **International Agency for Research on Cancer (IARC)** and is **not listed by OSHA.**

GHS label elements



Causes mild skin irritation

Use personal protective equipment as required.

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

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

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 |
|--------------------------------|------------|---------------|----|------|
| Aluminium Oxide | 1344-28-1 | 215-691-6 | 99 | |
| Silica (amorphous) | 60676-86-0 | 231-545-4 | 1 | |
| water not present after drying | | | 0 | |

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.

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. 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/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

COMPONENT Alumina Oxide

| | |
|--------------------------|--|
| OSHA PEL as 8 hr TWA | 15/5 mg/m ³ Total dust/Respirable Fraction |
| ACGIH PEL as 8 hr TWA | 10 mg/m ³ Inhalable particulate with no asbestos and <1% crystalline silica |
| Canadian PEL as TWA | 5 mg/m ³ |
| Carcinogenicity by ACGIH | Group A4, Not classifiable as a human carcinogen |
| MANUFACTURER | None Established |

COMPONENT Silica (amorphous)

| | |
|--------------------------|--|
| OSHA PEL as 8 hr TWA | 20 mppcfa, 80 mg/m ³ |
| NIOSH PEL as 8 hr TWA | 6 mg/m ³ |
| Canadian PEL as TWA | 2/5 mg/m ³ Total mass/Respirable Mass |
| ILDH Level by SCPC | 3000 mg/m ³ |
| Carcinogenicity by ACGIH | Group 3 |
| Manufacturer | 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, Putty |
| (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 | Non Flammable |
| (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**

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.

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.

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****UNITED STATES REGULATIONS**

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) and 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** 29 CFR 1910.1200 and 29 CFR 1926.59 and the **Respiratory Protection Standards** 29 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 1986** as a chemical known to the State of California to cause cancer.

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.

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.

INTERNATIONAL REGULATIONS

Canada: Canadian Workplace Hazardous Materials Information System (WHMIS) - Aluminum oxide (CAS No. 1344-28-1) and Silica (amorphous) (CAS No. 60676-86-0) 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/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 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.