SECTION 1: Identification

1.1. Identification
Product form: Mixture
Product name: R-Max Z PC QT
CAS-No.: Mixture
Product code: 8924
Other means of identification: Alumina-Silicate Cement Bonded Castable

1.2. Recommended use and restrictions on use
Use of the substance/mixture: Refractory
Recommended use: Industrial use

1.3. Supplier
Resco Products, Inc.
One Robinson Plaza, Suite 300
6600 Steubenville Pike
Pittsburgh, PA 15205 - United States
412-494-4491
SDS@RescoProducts.com - WWW.RescoProducts.com

1.4. Emergency telephone number
Emergency number: EMERGENCY ONLY (CHEMTREC) USA & Canada 1-800-424-9300
Outside USA & Canada +1 703-741-5970

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS US classification
- Skin corrosion/irritation Category 2 - H315: Causes skin irritation
- Serious eye damage/eye irritation Category 2B - H320: Causes eye irritation
- Carcinogenicity Category 1A - H350: May cause cancer (Inhalation)

Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements
GHS US labeling
- Hazard pictograms (GHS US): ! | ☠
- Signal word (GHS US): Danger
- Hazard statements (GHS US): H315 - Causes skin irritation
  H320 - Causes eye irritation
  H350 - May cause cancer (Inhalation)
- Precautionary statements (GHS US): P280 - Wear eye protection, Dust respirator, protective gloves.
  P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P332+P313 - If skin irritation occurs: Get medical advice/attention.
  P337+P313 - If eye irritation persists: Get medical advice/attention.
  P260 - Do not breathe dust.

2.3. Other hazards which do not result in classification
Other hazards not contributing to the classification: Radioactivity: In common with many naturally occurring mineral products, zircon contains very low levels of naturally occurring radioactive elements - principally uranium, thorium, and radium. The principal radiation hazard is due to inhalation of any dust, while a secondary lesser external hazard exists through gamma radiation. Zircon typically exhibits a total specific activity of 90-110 pCi/g.

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>aluminum oxide, non-fibrous</td>
<td>(CAS-No.) 1344-28-1</td>
<td>50 – 75</td>
<td>Not classified</td>
</tr>
<tr>
<td>Calcium Aluminate Cement</td>
<td>(CAS-No.) 65997-16-2</td>
<td>5 – 10</td>
<td>Skin Irrit. 2, H315 Eye Irrit. 2B, H320</td>
</tr>
<tr>
<td>zircon</td>
<td>(CAS-No.) 14940-68-2</td>
<td>5 – 10</td>
<td>Not classified</td>
</tr>
<tr>
<td>quartz</td>
<td>(CAS-No.) 14808-60-7</td>
<td>1 – 5</td>
<td>Carc. 1A, H350</td>
</tr>
<tr>
<td>cristobalite</td>
<td>(CAS-No.) 14464-46-1</td>
<td>0.5 – 1</td>
<td>Carc. 1A, H350</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16
**SECTION 4: First-aid measures**

4.1. **Description of first aid measures**

<table>
<thead>
<tr>
<th>First-aid measures general</th>
<th>Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-aid measures after inhalation</td>
<td>Allow affected person to breathe fresh air. Allow the victim to rest.</td>
</tr>
<tr>
<td>First-aid measures after skin contact</td>
<td>Wash with plenty of soap and water. Wash contaminated clothing before reuse.</td>
</tr>
<tr>
<td>First-aid measures after eye contact</td>
<td>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</td>
</tr>
<tr>
<td>First-aid measures after ingestion</td>
<td>Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.</td>
</tr>
</tbody>
</table>

4.2. **Most important symptoms and effects (acute and delayed)**

<table>
<thead>
<tr>
<th>Potential Adverse human health effects and symptoms</th>
<th>Based on available data, the classification criteria are not met.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms/effects after inhalation</td>
<td>May cause cancer by inhalation. Danger of serious damage to health by prolonged exposure through inhalation.</td>
</tr>
<tr>
<td>Symptoms/effects after skin contact</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Symptoms/effects after eye contact</td>
<td>Causes eye irritation.</td>
</tr>
</tbody>
</table>

4.3. **Immediate medical attention and special treatment, if necessary**

No additional information available

**SECTION 5: Fire-fighting measures**

5.1. **Suitable (and unsuitable) extinguishing media**

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
<th>Use extinguishing media appropriate for surrounding fire.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuitable extinguishing media</td>
<td>In case of fire, all extinguishing media allowed.</td>
</tr>
</tbody>
</table>

5.2. **Specific hazards arising from the chemical**

| Fire hazard | Not flammable. |

5.3. **Special protective equipment and precautions for fire-fighters**

| Firefighting instructions | Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. |
| Protection during firefighting | Do not enter fire area without proper protective equipment, including respiratory protection. |

**SECTION 6: Accidental release measures**

6.1. **Personal precautions, protective equipment and emergency procedures**

| Emergency procedures | Do not breathe dust. |

6.1.1. **For non-emergency personnel**

| Protective equipment | Equip cleanup crew with proper protection. |
| Emergency procedures | Ventilate area. |

6.2. **Environmental precautions**

Prevent entry to sewers and public waters.

6.3. **Methods and material for containment and cleaning up**

| Methods for cleaning up | On land, sweep or shovel into suitable containers. Minimize generation of dust. |

6.4. **Reference to other sections**

See Heading 8. Exposure controls and personal protection.

**SECTION 7: Handling and storage**

7.1. **Precautions for safe handling**

| Precautions for safe handling | Do not handle until all safety precautions have been read and understood. Avoid raising dust. Avoid contact with skin and eyes. Do not breathe dust. |
| Hygiene measures | Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. |

7.2. **Conditions for safe storage, including any incompatibilities**

| Storage conditions | Store this product in a dry location where it can be protected from the elements. |
| Incompatible products | Strong bases. Strong acids. |

**SECTION 8: Exposure controls/personal protection**

8.1. **Control parameters**

| R-Max Z PC QT (Mixture) | No additional information available |
| Calcium Aluminate Cement (65997-16-2) | No additional information available |
| cristobalite (14464-46-1) |  |
| USA - ACGIH - Occupational Exposure Limits |  |
| ACGIH TWA (mg/m³) | 0.025 mg/m³ respirable dust |
| USA - OSHA - Occupational Exposure Limits |  |
| OSHA PEL (TWA) (mg/m³) | 0.05 mg/m³ respirable dust |
aluminium oxide, non-fibrous (1344-28-1)

USA - ACGIH - Occupational Exposure Limits
ACGIH TWA (mg/m³) 1 mg/m³ respirable dust

zircon (14940-68-2)

USA - ACGIH - Occupational Exposure Limits
ACGIH TWA (mg/m³) 5 mg/m³ As Zr

quartz (14808-60-7)

USA - ACGIH - Occupational Exposure Limits
ACGIH TWA (mg/m³) 0.025 mg/m³ (Silica-Crystalline Quartz; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value; Respirable fraction)

USA - OSHA - Occupational Exposure Limits
Local name Silica, crystalline quartz, respirable dust
OSHA PEL (TWA) (mg/m³) 0.05 mg/m³ respirable dust
Remark (OSHA) (3) See Table Z-3.

8.2. Appropriate engineering controls
Appropriate engineering controls: Provide adequate ventilation to minimize dust concentrations.

8.3. Individual protection measures: Personal protective equipment
Personal protective equipment:
Avoid all unnecessary exposure.

Hand protection:
Wear protective gloves.

Eye protection:
Chemical goggles or safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Wear appropriate mask

Other information:
Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Solid
Appearance: Granular mixture.
Color: Light gray
Odor: earthy
Odor threshold: Not applicable
pH: No data available
Melting point: > 2000 °F
Freezing point: Not applicable
Boiling point: Not applicable
Critical temperature: Not applicable
Flash point: Not applicable
Relative evaporation rate (butyl acetate=1): Not applicable
Relative evaporation rate (ether=1): Not applicable
Flammability (solid, gas): Non flammable.
Vapor pressure: No data available
Vapor pressure at 50 °C: Not Applicable
Relative vapor density at 20 °C: No data available
Relative density: No data available
Solubility: Slightly soluble.
Partition coefficient n-octanol/water (Log Pow): No data available
Auto-ignition temperature: Not applicable
Decomposition temperature: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
R-Max Z PC QT
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Explosion limits : Not applicable
Explosive properties : No data available
Oxidizing properties : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
Hydraulic setting.

10.2. Chemical stability
Stable under normal conditions of use.

10.3. Possibility of hazardous reactions
Not established.

10.4. Conditions to avoid
Avoid dust formation.

10.5. Incompatible materials
Strong acids. Strong bases.

10.6. Hazardous decomposition products
No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

aluminium oxide, non-fibrous (1344-28-1)
LD50 oral rat > 15900 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral)
LC50 Inhalation - Rat 7.6 mg/l air (Equivalent or similar to OECD 403, 1 h, Rat, Male, Experimental value, Inhalation (aerosol))

Skin corrosion/irritation: Causes skin irritation.
Serious eye damage/irritation: Causes eye irritation.
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: May cause cancer (Inhalation).

quartz (14808-60-7)
IARC group 1 - Carcinogenic to humans

Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified
Viscosity, kinematic : No data available
Potential Adverse human health effects and symptoms: Based on available data, the classification criteria are not met.
Symptoms/effects after inhalation: May cause cancer by inhalation. Danger of serious damage to health by prolonged exposure through inhalation.
Symptoms/effects after skin contact: Causes skin irritation.
Symptoms/effects after eye contact: Causes eye irritation.

SECTION 12: Ecological information

12.1. Toxicity
No additional information available

12.2. Persistence and degradability
R-Max Z PC QT (Mixture)
Persistence and degradability : Not established.

cristobalite (14464-46-1)
Persistence and degradability : Mineral. Not applicable.
Chemical oxygen demand (COD) : Not applicable
ThOD : Not applicable
BOD (% of ThOD) : Not applicable

aluminium oxide, non-fibrous (1344-28-1)
Persistence and degradability : Not applicable.
Chemical oxygen demand (COD) : Not applicable
ThOD : Not applicable
12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Substance</th>
<th>Bioaccumulative potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-Max Z PC QT (Mixture)</td>
<td>Not established.</td>
</tr>
<tr>
<td>cristobalite (14464-46-1)</td>
<td>No data available.</td>
</tr>
<tr>
<td>aluminium oxide, non-fibrous (1344-28-1)</td>
<td>No data available.</td>
</tr>
<tr>
<td>zircon (14940-68-2)</td>
<td>No data available.</td>
</tr>
<tr>
<td>quartz (14808-60-7)</td>
<td>Not established.</td>
</tr>
<tr>
<td>aluminium oxide, non-fibrous (1344-28-1)</td>
<td>No data available.</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

<table>
<thead>
<tr>
<th>Substance</th>
<th>Ecology - soil</th>
</tr>
</thead>
<tbody>
<tr>
<td>cristobalite (14464-46-1)</td>
<td>No data available.</td>
</tr>
<tr>
<td>aluminium oxide, non-fibrous (1344-28-1)</td>
<td>No data available.</td>
</tr>
</tbody>
</table>

12.5. Other adverse effects

| Effect on the global warming | None known |

SECTION 13: Disposal considerations

13.1. Disposal methods

<table>
<thead>
<tr>
<th>Product/Packaging disposal recommendations</th>
<th>Dispose in a safe manner in accordance with local/national regulations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - waste materials</td>
<td>Avoid release to the environment.</td>
</tr>
</tbody>
</table>

SECTION 14: Transport information

<table>
<thead>
<tr>
<th>Department of Transportation (DOT)</th>
<th>Not regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation of Dangerous Goods</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Transport by sea</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Air transport</td>
<td>Not regulated</td>
</tr>
</tbody>
</table>

SECTION 15: Regulatory information

15.1. US Federal regulations

<table>
<thead>
<tr>
<th>R-Max Z PC QT (Mixture)</th>
<th>All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>aluminium oxide, non-fibrous (1344-28-1)</td>
<td>Not subject to reporting requirements of the United States SARA Section 313</td>
</tr>
</tbody>
</table>

Note: The section 313 chemical list contains "CAS # 1344-28-1 Aluminum Oxide (Fibrous forms)"; the Aluminum oxide contained in this product is non-fibrous, and thus is not a section 313 material. Only manufacturing, processing, or otherwise use of aluminum oxide in the fibrous form triggers reporting.

15.2. International regulations

<table>
<thead>
<tr>
<th>CANADA</th>
<th>Calcium Aluminate Cement (65997-16-2) Listed on the Canadian DSL (Domestic Substances List)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>cristobalite (14464-46-1) Listed on the Canadian DSL (Domestic Substances List)</td>
</tr>
</tbody>
</table>
**EU-Regulations**

No additional information available

**National regulations**

- **quartz (14808-60-7)**
  - Listed on IARC (International Agency for Research on Cancer)

**15. US State regulations**

**R-Max Z PC QT (Mixture)**

<table>
<thead>
<tr>
<th>Component</th>
<th>U.S. - California - Proposition 65</th>
<th>U.S. - California - Proposition 65</th>
<th>U.S. - California - Proposition 65</th>
<th>U.S. - California - Proposition 65</th>
<th>No significant risk level</th>
<th>Maximum allowable dose level</th>
</tr>
</thead>
<tbody>
<tr>
<td>aluminium oxide, non-fibrous (1344-28-1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>zircon (14940-68-2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Section 16: Other information**

- **Revision date**: 10/04/2021
- **Other information**: Report language name. English. In the event of any conflict between English and other language versions, the English version shall prevail.

Full text of H-phrases:

- **H315**: Causes skin irritation
- **H320**: Causes eye irritation
- **H350**: May cause cancer

**SDS US (GHS HazCom 2012)**

This information and recommendations set forth herein are taken from sources believed to be accurate as of the date herein, however, Resco Products, Inc. makes no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assumes no liability to any user thereof.