SECTION 1: Identification

1.1. Identification

Product form: Mixture
Product name: EZ Cubed AZS
CAS-No.: 7326
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)

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 which do not result in classification: Radioactivity: In common with many naturally occurring mineral products zirconia 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.

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>Zirconia</td>
<td>CAS-No.: 1314-23-4</td>
<td>10 – 20</td>
<td>Not classified</td>
</tr>
<tr>
<td>aluminium oxide, non-fibrous</td>
<td>CAS-No.: 1344-28-1</td>
<td>10 – 20</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation: Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact: Wash with plenty of soap and water. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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

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.

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

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media: In case of fire, all extinguishing media allowed.

5.2. Specific hazards arising from the chemical

Fire hazard: Not flammable.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions: Fight fire with normal precautions from a reasonable distance.

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

6.1.1. For non-emergency personnel

Emergency procedures: Do not breathe dust.

6.1.2. For emergency responders

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. 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
EZ Cubed AZS
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

**EZ Cubed AZS (Mixture)**
No additional information available

**Calcium Aluminate Cement (65997-16-2)**
No additional information available

**silicon carbide (409-21-2)**
USA - ACGIH - Occupational Exposure Limits
ACGIH OEL TWA 3 mg/m³ (Silicon carbide, nonfibrous; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value; Respirable fraction. The value is for particulate matter containing no asbestos and < 1% crystalline silica.)

**aluminium oxide, non-fibrous (1344-28-1)**
USA - ACGIH - Occupational Exposure Limits
ACGIH OEL TWA 1 mg/m³ respirable dust

**Zirconia (1314-23-4)**
USA - ACGIH - Occupational Exposure Limits
ACGIH OEL TWA 5 mg/m³ As Zr

**cristobalite (14464-46-1)**
USA - ACGIH - Occupational Exposure Limits
ACGIH OEL TWA 0.025 mg/m³ respirable dust
USA - OSHA - Occupational Exposure Limits
OSHA PEL (TWA) [1] 0.05 mg/m³ respirable dust

### 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
<table>
<thead>
<tr>
<th>Physical state</th>
<th>Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Granular mixture.</td>
</tr>
<tr>
<td>Color</td>
<td>Light gray</td>
</tr>
<tr>
<td>Odor</td>
<td>earthy</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>&gt; 2500 °F</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
</tbody>
</table>
### Boiling point
- No data available

### Flash point
- No data available

### Relative evaporation rate (butyl acetate=1)
- No data available

### Flammability (solid, gas)
- Non flammable.

### Vapor pressure
- No data available

### Relative vapor density at 20 °C
- No data available

### Relative density
- ≈ 3

### Solubility
- Slightly soluble.

### Partition coefficient n-octanol/water (Log Pow)
- No data available

### Auto-ignition temperature
- No data available

### Decomposition temperature
- No data available

### Viscosity, kinematic
- Not applicable

### Viscosity, dynamic
- No data available

### Explosion limits
- No data available

### Explosive properties
- No data available

### Oxidizing properties
- No data available

### 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

**silicon carbide (409-21-2)**
- LD50 oral rat: > 2000 mg/kg body weight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 14 day(s))
- LD50 dermal rat: > 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal)

**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, 14 day(s))
- LC50 Inhalation - Rat: > 2.3 mg/l air (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (aerosol), 14 day(s))

Skin corrosion/iritation: Causes skin irritation.

### Calcium Aluminate Cement (65997-16-2)
- pH: ≤ 13

### silicon carbide (409-21-2)
- pH: Not applicable (non-soluble in water), CIPAC MT 75: Determination of pH

### aluminium oxide, non-fibrous (1344-28-1)
- pH: 9 – 10.5 (aqueous suspension, 33 %)
**EZ Cubed AZS**

**Safety Data Sheet**

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

---

**cristobalite (14464-46-1)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6 – 7</td>
</tr>
</tbody>
</table>

**Serious eye damage/irritation**: Causes eye irritation.

**Calcium Aluminate Cement (65997-16-2)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>≤ 13</td>
</tr>
</tbody>
</table>

**silicon carbide (409-21-2)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>Not applicable (non-soluble in water), CIPAC MT 75: Determination of pH</td>
</tr>
</tbody>
</table>

**aluminium oxide, non-fibrous (1344-28-1)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>9 – 10.5 (aqueous suspension, 33 %)</td>
</tr>
</tbody>
</table>

**cristobalite (14464-46-1)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6 – 7</td>
</tr>
</tbody>
</table>

**Respiratory or skin sensitization**: Not classified

**Germ cell mutagenicity**: Not classified

**Carcinogenicity**: May cause cancer (Inhalation).

**silicon carbide (409-21-2)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC group</td>
<td>2A - Probably carcinogenic to humans</td>
</tr>
</tbody>
</table>

**Reproductive toxicity**: Not classified

**STOT-single exposure**: Not classified

**STOT-repeated exposure**: Not classified

**Aspiration hazard**: Not classified

**Viscosity, kinematic**: Not Applicable

**aluminium oxide, non-fibrous (1344-28-1)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity, kinematic</td>
<td>Not applicable (solid)</td>
</tr>
</tbody>
</table>

**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

**silicon carbide (409-21-2)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ErC50 algae</td>
<td>&gt; 100 mg/l (OECD 201: Alga, Growth Inhibition Test, 48 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, GLP)</td>
</tr>
</tbody>
</table>

**aluminium oxide, non-fibrous (1344-28-1)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 - Fish [1]</td>
<td>&gt; 100 mg/l (96 h, Salmo trutta, Literature study)</td>
</tr>
<tr>
<td>EC50 - Crustacea [1]</td>
<td>&gt; 100 mg/l (48 h, Daphnia magna, Literature study)</td>
</tr>
</tbody>
</table>

#### 12.2. Persistence and degradability

**EZ Cubed AZS (Mixture)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>Not established.</td>
</tr>
</tbody>
</table>

**silicon carbide (409-21-2)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>Biodegradability: not applicable.</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>Not applicable (inorganic)</td>
</tr>
<tr>
<td>ThOD</td>
<td>Not applicable (inorganic)</td>
</tr>
</tbody>
</table>
## 12.3. Bioaccumulative potential

### EZ Cubed AZS (Mixture)
- **Bioaccumulative potential**: Not established.

### Silicon carbide (409-21-2)
- **Bioaccumulative potential**: Not bioaccumulative.

### Aluminium oxide, non-fibrous (1344-28-1)
- **Bioaccumulative potential**: No data available.

### Cristobalite (14464-46-1)
- **Bioaccumulative potential**: No data available.

## 12.4. Mobility in soil

### Silicon carbide (409-21-2)
- **Surface tension**: No data available in the literature
- **Ecology - soil**: Low potential for adsorption in soil.

### Aluminium oxide, non-fibrous (1344-28-1)
- **Surface tension**: No data available in the literature
- **Ecology - soil**: No data available.

### Cristobalite (14464-46-1)
- **Ecology - soil**: No data available.

## 12.5. Other adverse effects

### Effect on the global warming
- None known

### Other information
- No other effects known.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

#### Product/Packaging disposal recommendations
- Dispose in a safe manner in accordance with local/national regulations.

#### Ecology - waste materials
- Avoid release to the environment.

## SECTION 14: Transport information

### In accordance with DOT / TDG / IMDG / IATA
- **Department of Transportation (DOT)**
  - Not regulated
  - Transportation of Dangerous Goods
  - Not regulated
  - Transport by sea
  - Not regulated
  - Air transport
  - Not regulated

## SECTION 15: Regulatory information

### 15.1. US Federal regulations
- All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

### Aluminium oxide, non-fibrous (1344-28-1)
- Not subject to reporting requirements of the United States SARA Section 313

#### 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

#### Canada
- **Calcium Aluminate Cement (65997-16-2)**
  - Listed on the Canadian DSL (Domestic Substances List)
**EZ Cubed AZS**  
**Safety Data Sheet**

**silicon carbide (409-21-2)**  
Listed on the Canadian DSL (Domestic Substances List)

**aluminium oxide, non-fibrous (1344-28-1)**  
Listed on the Canadian DSL (Domestic Substances List)

**Zirconia (1314-23-4)**  
Listed on the Canadian DSL (Domestic Substances List)

**cristobalite (14464-46-1)**  
Listed on the Canadian DSL (Domestic Substances List)

**EU-Regulations**  
No additional information available

**National regulations**

**silicon carbide (409-21-2)**  
Listed on IARC (International Agency for Research on Cancer)

### 15.3. US State regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>State or local regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>silicon carbide (409-21-2)</td>
<td>U.S. - New Jersey - Right to Know Hazardous Substance List</td>
</tr>
<tr>
<td>aluminium oxide, non-fibrous (1344-28-1)</td>
<td>U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
<tr>
<td>Cristobalite (14464-46-1)</td>
<td>U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
</tbody>
</table>

### SECTION 16: Other information

**This product contains crystalline silica, a chemical known to the state of California to cause cancer. For more information go to WWW.P65Warnings.ca.gov**

**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