**SECTION 1: Identification**

1.1. **Identification**
- **Product form**: Mixture
- **Product name**: Vibrocast 60PC
- **CAS-No.**: Mixture
- **Product code**: 0395
- **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**
  - **Signal word (GHS US)**: Danger
  - **Hazard pictograms (GHS US)**: ![Exclamation Mark]  ![Eye Protection]

- **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**
- No additional information available

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>5 – 10</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</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2B, H320</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>0.1 – 0.5</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**
- **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).
Vibrocast 60PC
Safety Data Sheet

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.
First-aid measures after eye contact: 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: 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
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.

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
Vibrocast 60PC (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
Vibrocast 60PC
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>quartz (14808-60-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USA - ACGIH - Occupational Exposure Limits</strong></td>
</tr>
<tr>
<td>ACGIH TWA (mg/m³)</td>
</tr>
<tr>
<td><strong>USA - OSHA - Occupational Exposure Limits</strong></td>
</tr>
<tr>
<td>Local name</td>
</tr>
<tr>
<td>OSHA PEL (TWA) (mg/m³)</td>
</tr>
<tr>
<td>Remark (OSHA)</td>
</tr>
</tbody>
</table>

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>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<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>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>&gt; 3000 °F</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Critical temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative evaporation rate (ether=1)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non flammable.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure at 50 °C</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>≈ 2.6</td>
</tr>
<tr>
<td>Solubility</td>
<td>Slightly soluble. in water.</td>
</tr>
<tr>
<td>Partition coefficient n-octanol/water (Log Pow)</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

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, 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/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**

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

| LC50 fish 1 | > 100 mg/l (96 h, Salmo trutta, Literature study) |
| EC50 Daphnia 1 | > 100 mg/l (48 h, Daphnia magna, Literature study) |

12.2. **Persistence and degradability**

**Vibrocast 60PC (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 |

**quartz (14808-60-7)**

| Persistence and degradability | Not applicable. |
| Biochemical oxygen demand (BOD) | Not applicable |
| Chemical oxygen demand (COD) | Not applicable |
| ThOD | Not applicable |
12.3. Bioaccumulative potential

Vibrocast 60PC (Mixture)

Bioaccumulative potential Not established.

cristobalite (14464-46-1)

Bioaccumulative potential No data available.

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

Bioaccumulative potential No data available.

quartz (14808-60-7)

Bioaccumulative potential No data available.

12.4. Mobility in soil

Ecology - soil

cristobalite (14464-46-1)

No data available.

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

No data available in the literature

12.5. Other adverse effects

Effect on the global warming None 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

Department of Transportation (DOT)

In accordance with 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

Vibrocast 60PC (Mixture)

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)

cristobalite (14464-46-1)

Listed on the Canadian DSL (Domestic Substances List)

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

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

quartz (14808-60-7)

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>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>
<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>Quartz (14808-60-7)</td>
<td>U.S. - New Jersey - Right to Know Hazardous Substance List</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H-Phrase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H320</td>
<td>Causes eye irritation</td>
</tr>
<tr>
<td>H350</td>
<td>May cause cancer</td>
</tr>
</tbody>
</table>

SDS US (GHS HazCom 2012)

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