SECTION 1: Identification

Product identifier

Product name: Ceria Stabilized Zirconia Powder (RTP)
Substance name: Ceria Stabilized Zirconia
Other names / synonyms: Ceria Stabilized Zirconia Powder RTP, CSZ

Recommended use of the chemical and restrictions on use
For forming pressed compacts and fired ceramic components.

Supplier’s details

Name: Superior Technical Ceramics
Address: 600 Industrial Park Road
St. Albans, Vermont 05478
USA
Telephone: 802-527-7726
Fax: 802-527-1181
Emergency phone number(s)
802-527-7726

SECTION 2: Hazard identification

Classification of the substance or mixture
Not a hazardous substance or mixture

GHS label elements, including precautionary statements
Not a hazardous substance or mixture

Other hazards which do not result in classification
Not a hazardous substance or mixture

SECTION 3: Composition/information on ingredients

Components

1. Zirconium oxide
   Concentration: 79 - 97 %
   Other names / synonyms: Zirconium oxide
   CAS no.: 1314-23-4

2. Cerium oxide
Safety Data Sheet
Ceria Stabilized Zirconia Powder “Ready to Press” (RTP)

Concentration 0 – 10 %
Other names / synonyms Cerium Oxide
CAS no.

3. Hafnium Oxide
Concentration 0 - 1 %
Other names / synonyms Hafnium Oxide
CAS no. 12055-23-1

4. Organic Binders
Concentration 3 - 10 %
Other names / synonyms Organic Binders

SECTION 4: First-aid measures

Description of necessary first-aid measures

If inhaled Move to fresh air and consult with local medical personnel if discomfort persists.
In case of skin contact Wash affected area with soap and water and consult with local medical personnel if irritation persists.
In case of eye contact Flush with tepid water for a minimum of 15 minutes and consult with local medical personnel if discomfort persists.
If swallowed Administer water to dilute, but not if person is unconscious. Consult with local medical personnel if discomfort persists.

SECTION 5: Fire-fighting measures

Suitable extinguishing media
Use any means suitable for extinguishing surrounding fire.

Specific hazards arising from the chemical
Possible Class A fire hazard – combustible vapors can develop in the headspace over the product. Flash point is 220ºC (428ºF).

Special protective actions for fire-fighters
Use protective clothing and breathing equipment appropriate for the surrounding fire and to protect against the dust that may be dispersed in the air.

Further information
Releases CO and CO2 in a fire and at temperatures >220ºC (428ºF).

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Sweep up any spills and place in containers for disposal or reclaim. Vacuuming or wet sweeping may be used to avoid excessive dust.

**Methods and materials for containment and cleaning up**
Any dust from machining should be wet mopped or dry vacuumed.

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### SECTION 7: Handling and storage

**Precautions for safe handling**
Store in a cool dry place. Any dust should be wet mopped.

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### SECTION 8: Exposure controls/personal protection

**Control parameters**

1. **Inert or Nuisance Dust, Total dust***
   PEL (Inhalation): 15 mg/m³ (OSHA)
   OSHA Annotated Table Z-3, [www.osha.gov](http://www.osha.gov)

2. **Inert or Nuisance Dust, Respirable fraction***
   PEL (Inhalation): 5 mg/m³ (OSHA)
   OSHA Annotated Table Z-3, [www.osha.gov](http://www.osha.gov)

*All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z1

**Appropriate engineering controls**
Local or general exhaust ventilation recommended.

**Individual protection measures, such as personal protective equipment (PPE)**

**Eye/face protection**
Safety goggles in the presence of airborne dust.

**Skin protection**
Polymer gloves for prolonged dust exposure.

**Respiratory protection**
NIOSH/MSHA approved respirator for dust when exposure limit is exceeded.

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### SECTION 9: Physical and chemical properties

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance/form</td>
<td>White, Flowable Powder</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>N/A</td>
</tr>
<tr>
<td>pH</td>
<td>N/A</td>
</tr>
<tr>
<td>Melting point</td>
<td>N/A</td>
</tr>
<tr>
<td>Initial boiling point</td>
<td>N/A</td>
</tr>
<tr>
<td>Boiling range</td>
<td>N/A</td>
</tr>
<tr>
<td>Flash point</td>
<td>N/A</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>N/A</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Safety Data Sheet
Ceria Stabilized Zirconia Powder “Ready to Press” (RTP)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper/lower flammability limits</td>
<td>N/A</td>
</tr>
<tr>
<td>Upper/lower explosive limits</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor density</td>
<td>N/A</td>
</tr>
<tr>
<td>Relative density</td>
<td>&gt;1.2 g/cc</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Organic Portion Soluble in Water</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>N/A</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>N/A</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>N/A</td>
</tr>
<tr>
<td>Viscosity</td>
<td>N/A</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>N/A</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

Chemical stability
Stable

Hazardous decomposition products
CO and CO2 in a fire and at temperatures >220ºC (428ºF).

SECTION 11: Toxicological information
No Applicable Information Found

SECTION 12: Ecological information
No Applicable Information Found

SECTION 13: Disposal considerations

Disposal of the product
This material is not hazardous per 40 CFR 261. Consultation with federal, state and local officials is recommended before disposal.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

US FEDERAL
TSCA
CAS# 1314-23-4 Zirconium Oxide is listed on the TSCA inventory.  
CAS# 1306-38-3 Cerium Oxide is listed on the TSCA inventory.  
CAS# 12055-23-1 Hafnium Oxide is listed on the TSCA inventory

**SARA Section 302 Extremely Hazardous Substances**  
Substance Not Listed.

**Section 313**  
Substance Not Listed.

**OSHA:**  
None of the chemicals in this product are considered highly hazardous by OSHA.

**US STATE**

**No Applicable Information Found**

**California Prop 65**  
No components on list.

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**SECTION 16: Other information**

**Further information/disclaimer**  
Although reasonable care has been taken to provide accurate and current information in preparation of this document, Superior Technical Ceramics extends no warranties, makes no representation and assumes no responsibility for any loss, damage, or injury of any kind which may result from reliance of information provided in this document by any person.

**Preparation Information**  
Prepared by: Superior Technical Ceramics  
1-802-527-7726  
lab@ceramics.net

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Last Revision: --