



## Safety Data Sheet Dense Zirconia Toughened Alumina Ceramic

---

### SECTION 1: Identification

#### Product identifier

Product name Dense Zirconia Toughened Alumina Ceramic  
Substance name Zirconia Toughened Alumina  
 $X(\text{ZrO}_2) \bullet Y(\text{Al}_2\text{O}_3)$   
Other names / synonyms Zirconia Toughened Alumina, ZTA; (ZTA-02, ZTA-14, ZTA-20)

#### Recommended use of the chemical and restrictions on use

Technical 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

This product is considered an article and does not pose any health hazard under normal use. The health effects listed below may be relevant when dust is generated during machining or other processing conditions.

#### 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. Aluminum oxide

Concentration 60 - 98 %

Other names / synonyms activated Alumina; alpha-Alumina; Alumina; Aluminum oxide; Aluminum oxide (fibrous forms); Aluminum oxide (Powder or Fiber); ALUMINUMOXIDE

CAS no. 1344-28-1

# Safety Data Sheet

## Dense Zirconia Toughened Alumina Ceramic

### 2. Zirconium oxide

Concentration 2 - 40 %

Other names / synonyms

Zirconium oxide

CAS no.

1314-23-4

---

## SECTION 4: First-aid measures

### Description of necessary first-aid measures

General advice	Production poses dust or machining swarf that may cause irritation to eyes, nose, throat, and/or skin.
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.

### 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.

---

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Any dust from machining should be wet mopped or dry vacuumed.

### Methods and materials for containment and cleaning up

Any dust from machining should be wet mopped or dry vacuumed.

---

## SECTION 7: Handling and storage

### Precautions for safe handling

Any dust from machining should be wet mopped or dry vacuumed.

---

## SECTION 8: Exposure controls/personal protection

# Safety Data Sheet

## Dense Zirconia Toughened Alumina Ceramic

### Control parameters

#### 1. alpha-Alumina (CAS: 1344-28-1)

PEL (Inhalation): see PNOR (Cal/OSHA)  
OSHA Annotated Table Z-1, [www.osha.gov](http://www.osha.gov)

#### 2. alpha-Alumina (CAS: 1344-28-1)

REL (Inhalation): See Appendix D (NIOSH)  
OSHA Annotated Table Z-1, [www.osha.gov](http://www.osha.gov)

#### 3. alpha-Alumina, Total dust (CAS: 1344-28-1)

PEL (Inhalation): 15 mg/m<sup>3</sup> (OSHA)  
OSHA Annotated Table Z-1, [www.osha.gov](http://www.osha.gov)

#### 4. alpha-Alumina, Total dust (CAS: 1344-28-1)

PEL (Inhalation): 10 mg/m<sup>3</sup> (Cal/OSHA)  
OSHA Annotated Table Z-1, [www.osha.gov](http://www.osha.gov)

#### 5. alpha-Alumina, Respirable fraction (CAS: 1344-28-1)

PEL (Inhalation): 5 mg/m<sup>3</sup> (OSHA)  
OSHA Annotated Table Z-1, [www.osha.gov](http://www.osha.gov)

#### 6. alpha-Alumina, Respirable fraction (CAS: 1344-28-1)

PEL (Inhalation): 5 mg/m<sup>3</sup> (Cal/OSHA)  
OSHA Annotated Table Z-1, [www.osha.gov](http://www.osha.gov)

### 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.

---

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

Appearance/form	White or Cream Solid
Odor	Odorless
Odor threshold	N/A
pH	N/A
Melting point	2054°C (3729°F)
Initial boiling point and boiling range	N/A
Flash point	N/A
Evaporation rate	N/A
Flammability (solid, gas)	N/A
Upper/lower flammability limits	N/A
Upper/lower explosive limits	N/A
Vapor pressure	N/A
Vapor density	N/A
Relative density	>3.9 g/cc

# Safety Data Sheet

## Dense Zirconia Toughened Alumina Ceramic

Solubility(ies)	Insoluble in Water
Partition coefficient: n-octanol/water	N/A
Auto-ignition temperature	N/A
Decomposition temperature	N/A
Viscosity	N/A
Explosive properties	N/A
Oxidizing properties	N/A

---

### SECTION 10: Stability and reactivity

**Chemical stability**  
Stable

---

### 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# 1344-28-1 is listed on the TSCA inventory.

CAS# 1314-23-4 is listed on the TSCA inventory.

**SARA Section 302 Extremely Hazardous Substances**

None of the chemicals in this product have a TPQ.

**Section 313**

CAS# 1344-28-1 is reported under Section 313.

**OSHA:**

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

# Safety Data Sheet

## Dense Zirconia Toughened Alumina Ceramic

### US STATE

**CAS# 1344-28-1** can be found on the following state right to know lists:  
Illinois, Minnesota, Massachusetts, New Jersey, Pennsylvania, Texas.  
Consult your state and local resources for further information.

**California Prop 65**  
Substance Not Listed

---

### 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

Prepared on: June 1, 2015  
Last Revision: --