

## 1. Identification

### 1.1 Product Identifier

**Description** Ceramic shapes and parts manufactured from Yttria Stabilized Zirconium Oxide.  
**Contains** Zirconium oxide (CAS 1314-23-4)  
**Synonyms** Z105, Z15, Z28

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Recommended use** Consult the supplier  
**Uses advised against** Users are recommended to seek further advice

### 1.3 Supplier's details

**McDanel Advanced Ceramic Technologies**  
510 Ninth Avenue  
Beaver Falls, Pa 15010-0560

### 1.4 Emergency phone number

**McDanel** +1-724-843-8300

## 2. Hazards identification

### 2.1 Classification of the substance or mixture

#### **GHS Classification**

Not classified as hazardous

#### **REGULATION (EC) No 1272/2008**

Not classified

#### **Classification according to Directive 67/548/EEC or 1999/45/EC**

Not classified

### 2.2 Label elements

#### **Symbol(s)**

Not applicable

#### **Signal word**

None

#### **Hazard Statements**

None

#### **Precautionary statements**

In circumstances where dust may be generated from machining or disposal:

P261 – Avoid breathing dust/fume/gas/mist/vapors/spray

P280 – Wear eye protection/face protection

P285 – In case of inadequate ventilation wear respiratory protection

P305 + P351 + P338 – If in eyes, rinse cautiously with water for several minutes

P302 + P352 – If on skin, wash with plenty of soap and water

### 2.3 Other information

This product is an article, a monolithic material.

### 3. Composition/information on ingredients

#### 3.1 Substances

This product is a monolithic material.

### 4. First aid measures

#### 4.1 Description of first aid measures

In circumstances where dust may be generated from machining or disposal:

<b>Eye Contact</b>	Rinse cautiously with water for several minutes. Remove contact lenses if present, and easy to do. Continue rinsing.
<b>Skin Contact</b>	Wash skin with soap and water.
<b>Ingestion</b>	Rinse mouth.
<b>Inhalation</b>	Move to fresh air.
<b>General Advise</b>	If symptoms persist, call a physician. Show this safety data sheet to doctor in attendance.

#### 4.2 Most important symptoms and effects, both acute and delayed

No information available

#### 4.3 Indication of any immediate medical attention and special treatment needed

#### Notes to physician

Treat symptomatically

### 5. Fire-fighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media

The product itself does not burn. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

##### Extinguishing media which must not be used for safety reasons

None known

#### 5.2 Special hazards arising from the substance or mixture

##### Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases

Not applicable

### 6. Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Wear personal protective equipment when machining.

#### 6.2 Environmental precautions

No special environmental precautions required.

6.3 Methods and material for containment and cleaning up  
Recover product. Place into appropriate container for disposal.

## 7. Handling and storage

### 7.1 Precautions for Safe Handling

In circumstances where dust may be generated from machining or disposal:

#### **Handling**

Provide appropriate exhaust ventilation at places where dust is formed.

#### **General Hygiene Considerations**

Handle in accordance with good industrial hygiene and safety practice.

#### **Exposure scenario**

No information available

### 7.2 Conditions for safe storage, including any incompatibilities

Keep in a dry place.

### 7.3 Specific end use(s)

No information available

## 8. Exposure controls/personal protection

### 8.1 Control parameters

#### **Exposure limits**

Applies to circumstances where dust may be generated from machining or disposal.

Country/Region	Occupational exposure limit (mg/m <sup>3</sup> )*	
	TWA – 8 hour	STEL – 15 min
United States (PEL)	5	10
United States (ACGIH)	5	10
United Kingdom	5	10
Switzerland	5	10
Spain	5	10
Portugal	5	10
Poland	5	10
Norway	5	10
Mexico	5	10
Ireland	5	10
Finland	1	-
Denmark	5	-
Canada	5	10
Austria	5	-

\* Milligrams of substance per cubic meter of air

**TWA (Time Weighted Average):** The average level of exposure over a specified time period.

**STEL (Short Term Exposure Level):** The maximum exposure level permitted during a short period of time.

## 8.2 Exposure controls

### **Engineering controls**

Ensure adequate ventilation in circumstances where dust may be generated from machining or disposal, especially in confined areas.

### **Personal protective equipment**

In circumstances where dust may be generated from machining or disposal:

<b>Eye Protection</b>	Safety glasses with side-shields.
<b>Skin Protection</b>	No special protective equipment required.
<b>Hand Protection</b>	No special protective equipment required.
<b>Respiratory Protection</b>	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

### **Environmental exposure controls**

Avoid dust formation

## **9. Physical and chemical properties**

### 9.1 Information on basic physical and chemical properties

<b>Physical state</b>	Solid
<b>Color</b>	White
<b>Odor</b>	Not applicable
<b>Odor threshold</b>	Not applicable
<b>pH</b>	Not applicable
<b>Melting point</b>	2500°C
<b>Freezing point</b>	Not applicable
<b>Initial boiling point</b>	Not applicable
<b>Boiling range</b>	Not applicable
<b>Flash point</b>	Not applicable
<b>Evaporation rate</b>	Not applicable
<b>Flammability</b>	Not applicable
<b>Upper explosive limit</b>	Not applicable
<b>Lower explosive limit</b>	Not applicable
<b>Vapor pressure</b>	Not applicable
<b>Vapor density</b>	Not applicable
<b>Relative density</b>	5.75 to 5.95 g/cm <sup>3</sup>
<b>Solubility</b>	Not applicable
<b>Partition coefficient</b>	Not applicable
<b>Auto-ignition temperature</b>	Not applicable
<b>Decomposition temperature</b>	Not applicable

**10. Stability and reactivity**

10.1 Reactivity

None under normal processing

10.2 Chemical Stability

Stable under normal conditions

10.3 Possibility of Hazardous Reactions

None under normal processing

10.4 Conditions to Avoid

No known conditions to avoid

10.5 Incompatible materials

No incompatible materials known

10.6 Hazardous Decomposition Products

None under normal processing

**11. Toxicological information**

11.1 Information on toxicological effects

**Note:** The information provided solely pertains to dust exposure.

**Acute toxicity**

<b>Acute oral toxicity</b>	Conclusive but not sufficient for classification
<b>Acute dermal toxicity</b>	Conclusive but not sufficient for classification
<b>Acute inhalation toxicity</b>	Conclusive but not sufficient for classification

**Chronic toxicity**

<b>Irritation</b>	Conclusive but not sufficient for classification
<b>Corrosivity</b>	Conclusive but not sufficient for classification
<b>Sensitization</b>	Conclusive but not sufficient for classification
<b>Mutagenic effects</b>	Conclusive but not sufficient for classification
<b>Carcinogenic effects</b>	This substance has no evidence of carcinogenic properties
<b>Reproductive effects</b>	Conclusive but not sufficient for classification
<b>Developmental effects</b>	Conclusive but not sufficient for classification
<b>Aspiration hazard</b>	Conclusive but not sufficient for classification

**12. Ecological information**

12.1 Toxicity

Not water endangering.

12.2 Persistence and degradability

The product is not readily biodegradable.

12.3 Bioaccumulative potential

The product is not bioaccumulating.

12.4 Mobility in soil

Not applicable, due to the form of the product.

12.5 Results of PBT and vPvB assessment

This product does not contain any PBT or vPvB substances.

12.6 Other adverse effects

None known

**13. Disposal considerations**

13.1 Waste treatment methods

**Waste from residue/unused products**

Disposal should be in accordance with applicable regional, national and local laws and regulations. Avoid dust formation.

**Contaminated packaging**

Empty containers should be taken to an approved waste handling site for recycling or disposal.

**14. Transport information**

**Note:** Not classified as dangerous according to transport regulations.

<b>DOT (US)</b>	Not regulated
<b>IMDG/IMO</b>	Not regulated
<b>RID</b>	Not regulated
<b>ADR</b>	Not regulated
<b>ICAO</b>	Not regulated
<b>IATA</b>	Not regulated

**15. Regulatory information**

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**Note:** Regulations apply to dust.

**United States Federal Regulations**

<b>OSHA</b>	Non-hazardous
<b>TSCA</b>	Listed
<b>CERCLA Reportable Quantity</b>	No
<b>SARA Title III</b>	Section 311/312 Hazardous Categories: Immediate (acute) Section 313 Toxic Categories: None

**United States - State Regulations**

<b>Massachusetts Right To Know List</b>	Listed
<b>Rhode Island Right To Know List</b>	Listed

**International Regulations**

<b>TSCA</b>	Listed
<b>EINECS/ELINCS</b>	Listed on EINECS
<b>DSL/NDSL</b>	Listed on DSL
<b>PICCS</b>	Listed
<b>ENCS</b>	Listed
<b>IECSC</b>	Listed
<b>AICS</b>	Listed
<b>KECL</b>	Listed

**16. Other information including information on preparation and revision of the SDS**

**Prepared by** Allura Jiles  
**Revision date** 5/20/2015

**Key**

*Occupational Exposure Limits*

**PEL** Permissible exposure limit  
**ACGIH** American Conference of Governmental industrial Hygienists

*Transportation Regulations*

**IMDG** International Maritime Dangerous Goods (UN)  
**IMO** International Maritime Organization (UN)  
**RID** European Agreement Concerning the International Carriage of Dangerous Goods by Rail  
**ADR** European Agreement Concerning the International Carriage of Dangerous Goods by Road  
**ICAO** International Civil Aviation Organization  
**IATA** International Air Transport Association

*Chemical Regulations*

**EINECS** European Inventory of Existing Chemical Substances  
**ELINCS** European List of Notified Chemical Substances  
**DSL** Canadian Domestic Substances List  
**NDSL** Canadian Non-Domestic Substances List  
**PICCS** Philippines Inventory of Chemicals and Chemical Substances  
**ENCS** Japan Existing and New Chemical Substances  
**IECSC** China Inventory of Existing Chemical Substances  
**AICS** Australian Inventory of Chemical Substances  
**KECL** Korean Existing and Evaluated Chemical Substances  
**TSCA** United States Toxic Substances Control Act Section 8(b) Inventory

**Updates**

The most current version of this Safety Data Sheet is available at this URL:  
[http://www.mcdanelceramics.com/pdf/MSDS\\_McD\\_Zirconia.pdf](http://www.mcdanelceramics.com/pdf/MSDS_McD_Zirconia.pdf)

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