

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:

Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses if present, and easy to do. Continue rinsing.
Skin Contact	Wash skin with soap and water.
Ingestion	Rinse mouth.
Inhalation	Move to fresh air.
General Advise	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 ³)*	
	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:

Eye Protection	Safety glasses with side-shields.
Skin Protection	No special protective equipment required.
Hand Protection	No special protective equipment required.
Respiratory Protection	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

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

Acute oral toxicity	Conclusive but not sufficient for classification
Acute dermal toxicity	Conclusive but not sufficient for classification
Acute inhalation toxicity	Conclusive but not sufficient for classification

Chronic toxicity

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

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

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

United States - State Regulations

Massachusetts Right To Know List	Listed
Rhode Island Right To Know List	Listed

International Regulations

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

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

Prepared by Allura Jiles
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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.mcdanielceramics.com/pdf/MSDS_McD_Zirconia.pdf

Disclaimer

The information contained in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe



Safety Data Sheet

ZIRCONIA

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