



## Material Safety Data Sheet

### Zirconium Oxide

MSDS# 25635

#### Section 1 - Chemical Product and Company Identification

MSDS Name: Zirconium Oxide  
Catalog Numbers: Z83-500  
Synonyms: None.  
Company Identification: Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
For information in the US, call: 201-796-7100  
Emergency Number US: 201-796-7100  
CHEMTREC Phone Number, US: 800-424-9300

#### Section 2 - Composition, Information on Ingredients

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CAS#: 1314-23-4  
Chemical Name: Zirconium oxide  
%: 100  
EINECS#: 215-227-2  
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Hazard Symbols: None listed

Risk Phrases: None listed

#### Section 3 - Hazards Identification

##### EMERGENCY OVERVIEW

Caution! The toxicological properties of this material have not been fully investigated. May cause eye, skin, and respiratory tract irritation. Target Organs: No data found.

##### Potential Health Effects

Eye: Dust may cause mechanical irritation.

Skin: Dust may cause mechanical irritation.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. The toxicological properties of this substance have not been fully investigated.

Inhalation: Dust is irritating to the respiratory tract. The toxicological properties of this substance have not been fully investigated.

Chronic: Repeated inhalation may cause chronic bronchitis. Chronic inhalation may cause pulmonary fibrosis.

#### Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

Notes to  
Physician:

#### Section 5 - Fire Fighting Measures

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved

General Information: or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Extinguishing Media: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Autoignition Temperature: Not available.

Flash Point: Not available

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: health: 1; flammability: 0; instability: 0;

#### Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

#### Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

#### Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Zirconium oxide	5 mg/m3 TWA (as Zr) (listed under Zirconium compounds, n.o.s.).10 mg/m3 STEL (as Zr) (listed under Zirconium compounds, n.o.s.).	5 mg/m3 TWA (as Zr, except Zirconium tetrachloride) (listed under Zirconium compounds, n.o.s.).50 mg/m3 IDLH (as Zr, except Zirconium tetrachloride) (listed under Zirconium compounds,	5 mg/m3 TWA (as Zr) (listed under Zirconium compounds, n.o.s.).

OSHA Vacated PELs: Zirconium oxide: 5 mg/m3 TWA (as Zr) (listed under Zirconium compounds, n.o.s.)

#### Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

#### Exposure Limits

#### Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

#### Section 9 - Physical and Chemical Properties

Physical State: Solid

Color: white

Odor: Not available

pH: Not available

Vapor Pressure: Not available

Vapor Density: Not available

Evaporation Rate: Not available

Viscosity: Not available

Boiling Point: Not available

Freezing/Melting Point: > 2500 deg C (> 4,532.00°F)

Decomposition Temperature: Not available

Solubility in water: Insoluble in water.

Specific Gravity/Density:

Molecular Formula: ZrO2

Molecular Weight: 123.2188

#### Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, dust generation.

Incompatibilities with Other Materials: Not available

Hazardous Decomposition Products: Dust generation.

Hazardous Polymerization: Has not been reported.

#### Section 11 - Toxicological Information

RTECS#: CAS# 1314-23-4: ZH8800000

LD50/LC50: RTECS: Not available.

Carcinogenicity: Zirconium oxide - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

#### Section 12 - Ecological Information

Not available

#### Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

#### Section 14 - Transport Information

US DOT

Shipping Name: Not regulated as a hazardous material

Hazard Class:

UN Number:

Packing Group:

Canada TDG

Shipping Name: Not available

Hazard Class:

UN Number:

Packing Group:

#### Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: Not available

Risk Phrases:

Safety Phrases:

S 28A After contact with skin, wash immediately with plenty of water.

S 37 Wear suitable gloves.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 1314-23-4: 0

Canada

CAS# 1314-23-4 is listed on Canada's DSL List

Canadian WHMIS Classifications: D2B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 1314-23-4 is not listed on Canada's Ingredient Disclosure List.

US Federal

TSCA

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

#### Section 16 - Other Information

MSDS Creation Date: 9/02/1997

Revision #8 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

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