Material Safety Data Sheet
Zirconium Dioxide

Section 1: Chemical Product and Company Identification

Product Name: Zirconium Dioxide
Chemical Name: Zirconium Oxide
Customs Tariff No: 28256000
Synonym Name: Zironium Dioxide
Chemical Formula: ZrO2

Company Information:
Chemtrade International
Rm. 201, Unit 3, Building 8, Shijia Garden, No. 93, Xiangjiang Road, Qingdao Development Zone, Qingdao, Shandong, China 266555
Tel: 0086-532-86893005
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Section 2: Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS No.</th>
<th>EINECS No.</th>
<th>% by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zirconium Dioxide</td>
<td>1314-23-4</td>
<td></td>
<td>100</td>
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</tbody>
</table>

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to upper respiratory tract.
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data
Flammability of the Product: Non-flammable.
Auto-Ignition Temperature: Not applicable.
Flash Points: Not applicable.
Flammable Limits: Not applicable.
Products of Combustion: Not available.
Fire Hazards in Presence of Various Substances: Not applicable.
Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions: Not applicable.
Special Remarks on Fire Hazards: Not available.
Special Remarks on Explosion Hazards: Not available.

### Section 6: Accidental Release Measures

**Small Spill:**
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:**
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

### Section 7: Handling and Storage

**Precautions:** Do not breathe dust. Keep away from incompatibles such as oxidizing agents.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

### Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:** Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent.

**Gloves.**

**Personal Protection in Case of a Large Spill:**
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**
TWA: 5 CEIL: 10 from ACGIH (TLV) [United States]
Consult local authorities for acceptable exposure limits.

### Section 9: Physical and Chemical Properties
### Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible substances, dust generation

**Incompatibility with various substances:** Reactive with oxidizing agents.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

### Section 11: Toxicological Information

** Routes of Entry:** Inhalation. Ingestion.

**Toxicity to Animals:**
LD50: Not available.
LC50: Not available.

**Chronic Effects on Humans:** May cause damage to the following organs: upper respiratory tract.

**Other Toxic Effects on Humans:** Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:**

**Acute Potential Health Effects:**
Skin: Dust may cause mechanical irritation.
Eyes: Dust may cause mechanical irritation.
Inhalation: Dust irritating to the respiratory tract.

**Ingestion:** May cause gastrointestinal tract irritation with nausea, vomiting, and diarrhea.

**Chronic Potential Health Effects:**

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

### Section 13: Disposal Considerations

**Waste Disposal:**
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

### Section 14: Transport Information

**DOT Classification:** Not a DOT controlled material (United States).
**Identification:** Not applicable.
**Special Provisions for Transport:** Not applicable.

### Section 15: Other Regulatory Information

**Federal and State Regulations:**
Massachusetts RTK: Zirconium Oxide
TSCA 8(b) inventory: Zirconium Oxide

**Other Regulations:**
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**
WHMIS (Canada): Not controlled under WHMIS (Canada).

**DSCL (EEC):**
This product is not classified according to the EU regulations.

**S24/25** - Avoid contact with skin and eyes.

**S28** - After contact with skin, wash immediately with plenty of water.

**S36/37/39** - Wear suitable protective clothing, gloves and eye/face protection.

**HMIS (U.S.A.):**
Health Hazard: 1
Fire Hazard: 0
Reactivity: 0

**Protective Equipment:**
Gloves.
Lab coat.
Dust respirator. Be sure to use an approved/certified respirator or equivalent.
Safety glasses.

### Section 16: Other Information

**MSDS Creation Date:** 6/16/2000
**Revision #4 Date:** 3/15/2007

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