

SOUTHERN IONICS INCORPORATED
MATERIAL SAFETY DATA SHEET

MSDS. NO. 057
Issue Date: October 11, 2001
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PRODUCT NAME: ZIRCONIUM OXYCHLORIDE CRYSTALS

Transportation Emergencies, Call (800) 424-9300 (CHEMTREC)
Health Emergencies, contact Your Local Poison Center
Caution: Causes irritation. Avoid contact with skin, eyes or clothing.

I. PRODUCT INFORMATION

Product Name: Zirconium Oxychloride Crystals **Formula:** See Below
Chemical Name: Zirconium Oxychloride (Zirconyl Chloride)
CAS Number: 7699-43-6

II. COMPONENT DATA

Typical Composition	CAS #'s	%
Zirconium Oxychloride Crystals	7699-43-6	>99

Exposure Standard: The ACGIH has established a TLV for hydrochloric acid of 7 mg/m³ ad HCl. OSHA has established a STEL of 10mg/m³ and TWA of 5 mg/m³ for zirconium. The ACGIH has established a TLV for hafnium of 0.5 mg/m³. OSHA has established a PEL of 0.5 mg/m³ for hafnium oxide.

NOTE: Hafnium is naturally occurring in zirconium ores. Commercial grade zirconium contains from 1 to 3% hafnium. Inventories of this product in excess of the Threshold Planning Quantity (TPQ) must be reported under SARA Title III, Sections 311 & 312.

Hazard Ratings: Health = 2 Flammability = 0 Reactivity = 0
0 = Least; 1 = Slight; 2 = Moderate; 3 = High; 4 = Extreme;

III. PHYSICAL DATA

Appearance and Odor: White crystalline solid with a slight hydrochloric acid odor.

Boiling Point: N/A – Decompose to ZrO₂ at approximately 200°C

Melting Point: N/A – Loses water on heating.

Vapor Density (air = 1): N/A

Vapor Pressure: N/A

Solubility in water: Complete

Specific Gravity (H₂O =1): Approximately 1.5

pH: Approximately 1.0 or less (50g zirconium oxychloride/50g H₂O)

Other (i.e. wt. per gallon): Bulk density = 30 – 40 lb/ft³

IV. FIRE PROTECTION INFORMATION

Flash Point: Non-noncombustible

Flammable Limits: N/A

Extinguishing Media: N/A

Special Firefighting Procedures: None

Unusual Fire & Explosion Hazards: Material stored in an area where a fire occurs will generate hydrogen chloride fumes only if significant heating occurs.

V. REACTIVITY DATA

Stability: Stable

Conditions To Avoid: Heat – Zirconium oxychloride will first lose water on heating. Further heating will result in evolution of hydrogen chloride fumes.

Incompatibility: None

Hazardous Decomposition Products: Hydrogen chloride fumes if heated.

Hazardous Polymerization: Will not occur.

VI. PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Ventilation: Local exhaust ventilation to minimize dust exposure below PEL/TLV exposure limits.

Eye: Wear safety glasses with side shields, face shield, or goggles as appropriate for the processing situation.

Skin: Rubber gloves. Wear impervious apron if appropriate to avoid getting solution onto clothing.

Respiratory: None for handling small quantities. This material is not dusty. Use appropriate NIOSH approved respirator if hydrogen chloride or zirconium exposure limit might be exceeded.

Other: Use a fume hood if breathing or reacting with other material.

VII. HEALTH & FIRST AID

PHYSIOLOGICAL & HEALTH EFFECTS

Routes of Entry:

Eyes:	Yes
Skin:	Yes (hydrogen chloride)
Inhalation:	Yes (dust)
Ingestion:	Yes
Toxicity:	Toxicity of this compound is primarily due to its acidic behavior. Data: Inhalation - Rat LC _{Lo} : 500 mg/m ³ for 30 min. Oral - Rat - LD ₅₀ : 3500 mg/kg Intraperitoneal - Rat - LD ₅₀ : 400 mg/kg

EMERGENCY & FIRST AID PROCEDURES

Eyes:	Flush eyes with large quantities of running water for at least 15 minutes. Hold the eyelids apart during the irrigation to insure flushing the entire surface of the eye and lids. Call a physician for further instructions.
Skin:	Wash skin immediately with plenty of water. Get medical attention if irritation persists.
Inhalation:	Remove to fresh air. Get medical attention.
Ingestion:	Do not induce vomiting. Give large quantities of water. Never attempt to give anything by mouth to an unconscious person. Get medical attention immediately.

NOTE TO PHYSICIAN (Including Antidotes): Treat as significant hydrochloric acid exposure

VIII. SPILL AND LEAK PROCEDURES

Precaution if Spilled or Released:	None. Sweep up spilled material and dispose.
Neutralizing Chemicals:	Limestone, soda ash, lime.
Waste Disposal Methods:	This material cannot be direct disposed of in a landfill. First, dissolve in water, then neutralize slowly with limestone, lime slurry, soda ash or dilute caustic solution. Neutralized slurry can be dewatered and the resulting solids may be disposed of in an approved landfill.

Reportable

Quantities: When contacted with water it forms: characteristics of corrosivity, 100 lbs. Reportable quantity: CAS 77647-01-1, Hydrochloric Acid, 22% by weight, 5000 lbs.

IX. TRANSPORTATION REQUIREMENTS

DOT Proper Shipping Name: Corrosive Solids, Acidic, Inorganic, n.o.s.
(Zirconium Oxychloride)

DOT Classification: 8

UN/NA Identification:
Number: UN3260

Packing Group: II

Other Labels: Corrosive

X. SPECIAL PRECAUTIONS

Handling and Storage

Precautions: Package in sealed plastic or plastic-lined containers. Store upright in a cool, dry, well-ventilated area. Avoid contact with water. Keep containers closed at all times when not in use. Avoid contamination. Use normal precautions for lifting/transporting heavy loads.

SALES OFFICE

For Product Information: Post Office Drawer 1217
TEL: 662-494-3055 West Point, MS 39773
FAX: 662-494-2828

To Place An Order:
TEL: 800-953-3585
FAX: 800-953-3588

IMPORTANT

The information on this Material Safety Data Sheet is believed to be accurate but is not warranted to be so. Protective equipment, health effects, and other related safety measures are based on intended and anticipated product use. Recipients are advised to confirm in advance of need that the information is applicable and suitable to their circumstances.