

PRODUCT NAME: ZIRCONIUM OXYCHLORIDE SOLUTION (17% - 20%)

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
Chemical Name: Zirconium Oxychloride
CAS Number: 7699-43-6
Formula: $ZrOCl_2 \cdot 8H_2O$ in aqueous solution

Typical Composition	CAS #'s	%
$ZrOCl_2 \cdot 8H_2O$	7699-43-6	52%
Water	7732-18-5	48%

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.

Exposure Standard: The ACGIH has established a TLV for zirconium of 5 mg/m^3 . OSHA has established a PEL of 5 mg/m^3 for zirconium. The STEL is 10 mg/m^3 . The ACGIH has established a TLV for hafnium of 0.5 mg/m^3 . OSHA has established a PEL of 0.5 mg/m^3 for hafnium oxide.

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

II. PERSONAL PROTECTION INFORMATION

Ventilation: Use with local exhaust ventilation sufficient to minimize vapor exposure below PEL/TLV exposure limits.

Eye: Chemical goggles and face shield.

Skin: Rubber or neoprene gloves

Respiratory: Use NIOSH approved "PAPRD/SA:CF" or better respirator for concentrations at or above PEL and TLV. For concentrations below PEL and TLV, NIOSH approved "DM" or better dust mask are recommended.

Other: Long sleeve shirt and long pants to cover entire body where exposure will be prolonged or repeated.

Work/Hygienic Practices:

Do not use unless eye bath and safety shower are available in the work area. Wash hands before eating, drinking, smoking, or using restroom. Use good housekeeping practices.

III. HEALTH INFORMATION**PHYSIOLOGICAL & HEALTH EFFECTS****Routes of Entry:**

- Eyes:** Corrosive to eyes
- Skin:** Causes irritation, local swelling and redness
- Inhalation:** Long term inhalation to vapor exposure is irritating and harmful.
- Ingestion:** Corrosive to digestive tract
- Carcinogenicity:** Ingredients not listed on NTP.
Ingredients not listed in IARC monographs.

EMERGENCY & FIRST AID PROCEDURES

- Eyes:** Immediately flush eyes in clear running water for at least 15 minutes lifting upper and lower lids periodically. Get medical attention immediately.
- Skin:** Flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. If irritation results, seek medical attention. Wash clothing before reuse.
- Inhalation:** Remove victim to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, administer artificial respiration or cardiopulmonary resuscitation. If breathing does not return to normal within a few minutes, get medical attention immediately.
- Ingestion:** Do not induce vomiting. Give limewater or milk of magnesia. If these are not available, give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

SYMPTOMS OF OVEREXPOSURE

- Eyes:** Solutions are corrosive to eye tissue and cause severe pain.
- Skin:** Irritating and painful
- Inhalation:** Repeated and prolonged exposure may result in respiratory irritation, pulmonary injury or disease. NOTE: The risk of chronic pulmonary injury or disease is increased for individuals who smoke.
- Ingestion:** Causes severe irritation of the mouth and throat, abdominal pain, vomiting and diarrhea.

IV. REACTIVITY DATA

- Stability:** Heating will liberate HCl gas.

Conditions To Avoid: Exposure to heat

Incompatibility: Avoid contact with combustible materials, carbides, chlorates, nitrates, fulminates, picrates, metallic powders, sulfides, strong reducing agents, or strong alkalies.

Hazardous Decomposition

Products: HCl gas

Hazardous

Polymerization: Will not occur

V. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and

Odor: Pale yellow to colorless solution

Boiling Point: >100°C

Freezing Point: 5°F

Melting Point: N/A

Vapor Density

(air = 1): Heavier than air

Vapor Pressure

(mmHg & Temp): Less than 450 mm Hg at 30°C

Solubility: Soluble in water.

Specific Gravity

(H₂O =1): 1.30 –1.37

Molecular Weight: 322.12 a.w.u.

pH: <1.0 as a 17.0% - 20.0% ZrO₂ solution

VI. SPECIAL PRECAUTIONS

Handling and Storage

Precautions: Store upright in a cool, dry, well ventilated area. Keep containers closed at all times when not in use. Avoid contamination. See section on incompatibility data.

VII. FIRE PROTECTION INFORMATION

Flash Point: None

Flammable Limits: Not flammable

Extinguishing Media: Use extinguishing media to surrounding fire.

Special Firefighting**Procedures:**

This material releases hydrogen chloride gas when heated above 410°C. Solutions are acidic and corrosive to skin, eyes, mucous membranes. Fire fighters should wear self-contained breathing apparatus and full protective clothing when fighting fires in the area of this material.

Unusual Fire and**Explosion Hazards:**

This product is not flammable but when strongly heated it will emit corrosive and irritating fumes. Solutions of product are corrosive. Cool containers with water spray. Avoid contact with and avoid breathing fumes, mists, or solutions.

VIII. TRANSPORTATION REQUIREMENTS

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

DOT Classification: 8

UN/NA Identification Number: UN3264

Packing Group: II

Other Labels: Corrosive

IX. SPILL AND LEAK PROCEDURES**Precaution if**

Spilled or Released: Contain released material by diking and neutralize with soda ash.

Neutralizing

Chemicals: Soda Ash or Slaked Lime

Waste Disposal

Methods: Consult state or federal regulating agencies for disposal procedure.

Reportable

Quantities: 5,000 lbs

SALES OFFICE

For Product Information:
TEL: 662-494-3055
FAX: 662-494-2828

Post Office Drawer 1217
West Point, MS 39773

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.