1. CORRECTIVE RESPONSE ACTIONS

- Dilute and disperse
- Stop discharge
- Keep people away. Avoid contact with solid and dust.
- Notify local health and pollution control agencies. Protect water intakes.
- Notify operators of nearby water intakes.

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed
- 2.2 Formula: ZrOCl₂·8H₂O
- 2.3 IMON Designation: Not listed
- 2.4 DOT ID No.: Not listed
- 2.5 CAS Registry No.: 7699-43-6
- 2.6 NARGO Guide No.: Not listed
- 2.7 Standard Industrial Trade Classification: 52329

3. HEALTH HAZARDS

- 3.1 Personal Protective Equipment: Safety glasses or face shield, protective gloves, dust mask
- 3.2 Symptoms From Inhaling: Has only a mild pharmacological action. Inhalation of dust may irritate nose and throat. Contact with eyes or skin causes irritation.
- 3.3 Treatment of Exposure: INHALATION: move to fresh air. INGESTION: give large amount of water. EYES or SKIN: flush with water.
- 3.4 TLV-TWA: 1 mg/m³ (as zirconium)
- 3.5 TLV-STEL: 10 mg/m³ (as zirconium)
- 3.6 TLV-Ceiling: Not listed
- 3.7 Toxicity by Ingestion: Grade 2; oral LD₅₀ = 3.5 g/kg (rat)
- 3.8 Toxicity by Inhalation: Currently not available
- 3.9 Chronic Toxicity: Currently not available
- 3.10 Vapor (Gas) Irritant Characteristics: Currently not available
- 3.11 Liquid or Solid Characteristics: Currently not available
- 3.12 Odor Threshold: Currently not available
- 3.13 IDLH Value: 50 mg/m³ (as zirconium)
- 3.14 OSHA PEL-TWA: 5 mg/m³ (as zirconium)
- 3.15 OSHA PEL-STEL: Not listed
- 3.16 OSHA PEL-Ceiling: Not listed
- 3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

- 4.1 Flash Point: Not flammable
- 4.2 Flammable Limits in Air: Not flammable
- 4.3 Fire Extinguishing Agents: Not pertinent
- 4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
- 4.5 Special Hazards of Combustion: None
- 4.6 Behavior in Fire: Currently not available
- 4.7 Auto Ignition Temperature: Not pertinent
- 4.8 Electrical Hazards: Not pertinent
- 4.9 Buring Rate: Not pertinent
- 4.10 Abandoned Flame Temperature: Currently not available
- 4.11 Stoichiometric Air to Fuel Ratio: Not pertinent
- 4.12 Flame Temperature: Currently not available
- 4.13 Combustion Molar Ratio (Reactant to Product): Not pertinent
- 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

- 5.1 Reactivity with Water: No reaction
- 5.2 Reactivity with Common Materials: Currently not available
- 5.3 Stability During Transport: Stable
- 5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
- 5.5 Polymerization: Not pertinent
- 5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

- 6.1 Aquatic Toxicity:
  - 6.1.1 240 ppm/96 hr fathead minnow/TL=hard water
  - 18 ppm/96 hr fathead minnow/TL=soft water
- 6.2 Waterfowl Toxicity: Currently not available
- 6.3 Biological Oxygen Demand (BOD): None
- 6.4 Food Chain Concentration Potential: Currently not available
- 6.5 GESAMP Hazard Profile: Not listed

7. SHIPPING INFORMATION

- 7.1 Grades of Purity: Technical; Pure
- 7.2 Storage Temperature: Ambient
- 7.3 Inert Atmosphere: No requirement
- 7.4 Venting: Open
- 7.5 IMO Pollution Category: Currently not available
- 7.6 Ship Type: Currently not available
- 7.7 Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

- 8.1 49 CFR Category: Not listed
- 8.2 49 CFR Class: Not pertinent
- 8.3 49 CFR Package Group: Not listed
- 8.4 Marine Pollutant: No
- 8.5 NFPA Hazard Classification: Not listed
- 8.6 EPA Reportable Quantity: Not listed
- 8.7 EPA Pollution Category: Not listed
- 8.8 RCRA Waste Number: Not listed
- 8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 Physical State at 15°C and 1 atm: Solid
- 9.2 Molecular Weight: 322.3
- 9.3 Boiling Point at 1 atm: Not pertinent (decomposes)
- 9.4 Freezing Point: Not pertinent
- 9.5 Critical Temperature: Not pertinent
- 9.6 Critical Pressure: Not pertinent
- 9.7 Specific Gravity: >1 at 20°C (solid)
- 9.8 Liquid Surface Tension: Not pertinent
- 9.9 Liquid Water Interfacial Tension: Not pertinent
- 9.10 Vapor (Gas) Specific Gravity: Not pertinent
- 9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
- 9.12 Latent Heat of Vaporization: Not pertinent
- 9.13 Heat of Combustion: Not pertinent
- 9.14 Heat of Decomposition: Not pertinent
- 9.15 Heat of Solution: Not pertinent
- 9.16 Heat of Polymerization: Not pertinent
- 9.17 Heat of Fusion: Currently not available
- 9.18 Limiting Value: Currently not available
- 9.19 Reid Vapor Pressure: Currently not available

NOTES
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<th>Pounds per cubic foot</th>
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<th>Temperature (degrees F)</th>
<th>British thermal unit inch per hour-square foot-F</th>
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