



LTS Research Laboratories, Inc.
Safety Data Sheet
Zirconium (IV) Oxynitrate Hydrate

1. Product and Company Identification

Trade Name: Zirconium (IV) Oxynitrate Hydrate
Chemical Formula: $ZrO(NO_3)_2 \cdot xH_2O$
Recommended Use: Scientific research and development

Manufacturer/Supplier: LTS Research Laboratories, Inc.
Street: 37 Ramland Road
City: Orangeburg
State: New York
Zip Code: 10962
Country: USA
Tel #: 855-587-2436 / 855-lts-chem

24-Hour Emergency Contact: 800-424-9300 (US & Canada)
+1-703-527-3887 (International)

2. Hazards Identification

Signal Word:

Danger



Hazard Statements:

H272: May intensify fire; oxidizer
H314: Causes severe skin burns and eye damage

Precautionary Statements:

P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
P220: Keep/Store away from clothing/combustible materials
P221: Take any precaution to avoid mixing with combustibles
P260: Do not breathe dust/fume/gas/mist/vapors/spray
P264: Wash face, hands and any exposed skin thoroughly after handling
P280: Wear protective gloves/protective clothing/eye protection/face protection
P301+330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340+P310: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician
P305+P351+P338+310: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician
P363: Wash contaminated clothing before reuse
P370+P378: In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon for extinction
P405: Store locked up
P501: Dispose of contents/container in accordance with local/regional/national/international regulations

HMIS Health Ratings (0-4):

Health:	3
Flammability:	1
Physical:	1

3. Composition

Chemical Family:	Inorganic Material
Additional Names:	Zirconium dinitrate oxide hydrate, Zirconyl nitrate hydrate

Zirconium(IV) Oxynitrate Hydrate ($ZrO(NO_3)_2 \cdot xH_2O$):

Percentage:	100 wt%
CAS #:	14985-18-3
EC #:	237-529-3

4. First Aid Procedures

General Treatment:	Seek medical attention if symptoms persist.
Special Treatment:	None
Important Symptoms:	None

Inhalation:	Remove victim to fresh air. Supply oxygen if breathing is difficult.
Ingestion:	Give one to two glasses of water. Never induce vomiting or give anything by mouth to an unconscious person.
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

5. Firefighting Measures

Flammability:	Flammable
Extinguishing Media:	Use alcohol-resistant foam, dry chemical or carbon dioxide.
Spec. Fire Fighting Procedure:	Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

6. Accidental Release Measures

If Material Is Released/Spilled:	Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.
Environmental Precautions:	Isolate runoff to prevent environmental pollution.

7. Handling and Storage

Handling Conditions:	Wash thoroughly after handling.
Storage Conditions:	Store in a cool dry place in a tightly sealed container. Store apart from materials and conditions listed in section 10.
Work/Hygienic Maintenance:	Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.
Ventilation:	Provide sufficient ventilation to maintain concentration at or below threshold limit.

8. Exposure Controls and Personal Protection

Permissible Exposure Limits:	5 mg/m ³ as ZrO(NO ₃) ₂ · xH ₂ O, long-term value
Threshold Limit Value:	5 mg/m ³ as ZrO(NO ₃) ₂ · xH ₂ O, long-term value
Special Equipment:	None
Respiratory Protection:	Dust Respirator
Protective Gloves:	Rubber gloves
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

9. Physical and Chemical Characteristics

Color	White
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	Odorless
Water Solubility:	Soluble
Boiling Point:	N/A
Melting Point:	N/A
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	N/A
Molecular weight:	231.23 g/mol

10. Reactivity

Stability:	Hygroscopic. Oxidizer: Contact with combustible/organic material may cause fire. Stable under recommended storage conditions
Reacts With:	Strong acids, Strong reducing agents, Combustible material
Incompatible Conditions:	Incompatible products. Exposure to moist air or water. Excess heat. Combustible material.
Hazardous Decomposition Products:	Nitrogen oxides, Zirconium oxides

11. Toxicological Information

Potential Health Effects:	
Eyes:	Causes eye damage
Skin:	Causes severe skin burns
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	N/A
Signs & Symptoms:	Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Cough, Shortness of breath, Headache, Nausea
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	N/A
Carcinogen:	N/A

12. Ecological Information

Aquatic Toxicity: N/A
Persistent Bioaccumulation Toxicity: N/A
Very Persistent, Very Bioaccumulative: N/A
Notes: N/A

13. Disposal Considerations

Dispose of in accordance with local, state, national, and international regulations.

14. Transportation Data

Hazardous: Hazardous for transportation



Hazard Class: 5.1: Oxidizing Substances
Packing Group: III
UN Number: UN3085
Proper Shipping Name: Oxidizing solid, corrosive, n.o.s. (Zirconium dinitrate oxide hydrate)

15. Regulatory Information

Sec 302 Extremely Hazardous:
Sec 304 Reportable Quantities:
Sec 313 Toxic Chemicals:

No
N/A
No



16. Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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