



1. Product and Company Identification

Trade Name: Tungsten doped Lithium Lanthanum Zirconium Oxide
Chemical Formula: LLZO-W
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:

- H228: Flammable solid powder
- H314: Causes severe skin burns and eye damage
- H315: Causes skin irritation
- H319: Causes serious eye irritation
- H335: May cause respiratory irritation

Precautionary Statements:

- P210: Keep away from heat/sparks/flame. No smoking
- P240: Ground/bond container and receiving equipment
- P241: Use explosion-proof electrical/ventilating/lighting/equipment
- P260: Do not breathe dust/fume/gas/mist/vapours/spray
- P264: Wash skin thoroughly after handling
- P280: Wear protective gloves/protective clothing/eye protection/face protection
- P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce Vomiting
- P302+P352: IF ON SKIN: Wash with soap and water
- P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower several minutes.
- P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
- P332+P313: If skin irritation occurs: get medical advice/attention
- P337+P313: If eye irritation persists: get medical advice/attention
- P362: Take off contaminated clothing and wash before reuse
- P370+P378: In case of fire, use CO₂ or dry powder for metal fires for extinction
- P405: Store locked up

P501: Dispose of contents

HMIS Health Ratings (0-4):

Health:	3
Flammability:	3
Physical:	1

3. Composition

Chemical Family:	Inorganic compound
Additional Names:	LLZO-W

Tungsten-doped Lithium Lanthanum Zirconium Oxide (LLZO-W):

Percentage:	0-100 wt%
CAS #:	N/A
EC #:	N/A

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 and induce vomiting. 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:	Non-flammable, except as powder
Extinguishing Media:	Do not use water for metal fires – use CO ₂ , sand, extinguishing powder.
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:	Handle under dry protective gas. 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. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Keep away from sources of ignition
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 Zr, long-term value 5 mg/m ³ as W, time weighted value
Threshold Limit Value:	10 mg/m ³ as Zr, short-term value 5 mg/m ³ as Zr, long-term value 5 mg/m ³ as W, 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	N/A
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	N/A
Water Solubility:	N/A
Boiling Point:	N/A
Melting Point:	N/A
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	N/A
Molecular weight:	N/A

10. Reactivity

Stability:	Stable under recommended storage conditions
Reacts With:	Oxidizing agents
Incompatible Conditions:	Mineral acids, Acids, Water, Strong oxidizers, Bromide pentafluoride, Bromine, Chlorine, Trifluoride, Potassium perchlorate, Potassium dichromate, Nitryl fluoride, Oxygen difluoride, Iodine pentafluoride, Hydrogen sulfide, Sodium peroxide, Lead (IV) oxide, Air, Heat, Flame, Sparks
Hazardous Decomposition Products:	Metal oxide fume, Lithium oxide

11. Toxicological Information

Potential Health Effects:

Eyes:	Causes severe eye damage
Skin:	Causes severe skin burns
Ingestion:	May cause irritation
Inhalation:	May cause respiratory irritation
Chronic:	N/A

Signs & Symptoms: N/A

Aggravated Medical Conditions: N/A

Median Lethal Dose: 2000 mg/kg for rat by intraperitoneal injection

Carcinogen: N/A

12. Ecological Information

Aquatic Toxicity: Low

Persistent Bioaccumulation Toxicity: No

Very Persistent, Very Bioaccumulative: No

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: 8 Corrosive substances
4.1 Flammable solids

Packing Group: II

UN Number: UN2921

Proper Shipping Name: Corrosive solids, flammable, n.o.s. (Tungsten-doped Lithium Lanthanum Zirconium Oxide)

15. Regulatory Information

Sec 302 Extremely Hazardous: No

Sec 304 Reportable Quantities: N/A

Sec 313 Toxic Chemicals: 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.

Document Last Revised:

08/10/2022

