

ALB Materials Inc
Safety Data Sheet
Lithium Lanthanum Zirconium Oxide

1. Product and Company Identification

Trade Name: Lithium lanthanum zirconium oxide
Chemical Formula: $\text{Li}_7\text{La}_3\text{Zr}_{12}\text{O}_{12}$
Recommended Use: Scientific research and development

Manufacturer/Supplier: ALB Materials Inc
Street: 2360 Corporate Circle, Suite 400
City: Henderson
State: Nevada
Zip Code: 89074
Country: USA
Tel #: +1-702-983-3769

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

2. Hazards Identification

Signal Word: Danger



Hazard Statements: H314: Causes severe skin burns and eye damage
H335: May cause respiratory irritation

Precautionary Statements: P260: Do not breathe dust/fume/gas/mist/vapours/spray
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
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: 0
Physical: 1

| 3. Composition | |
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| Chemical Family: | Ceramic |
| Additional Names: | None |
| Lithium lanthanum zirconium oxide ($\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$): | |
| Percentage: | 100 wt% |
| CAS #: | NIL |
| EC #: | NIL |
| 4. First Aid Procedures | |
| General Treatment: | Seek immediate medical attention. |
| Special Treatment: | None |
| Important Symptoms: | None |
| Inhalation: | Remove victim to fresh air. Supply oxygen if breathing is difficult. |
| Ingestion: | Seek immediate medical attention. |
| 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 |
| Extinguishing Media: | No special restrictions – use suitable extinguishing agent for surrounding material and type of fire. |
| 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 under dry inert gas. 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

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| Permissible Exposure Limits: | 5 mg/m ³ as Zr, long-term value |
| Threshold Limit Value: | 10 mg/m ³ as Zr, short-term value 5 mg/m ³ as Zr, long-term value |
| Special Equipment: | None |
| Respiratory Protection: | Use a respirator with type P100 (USA) or P3 (EN143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards. |
| Protective Gloves: | Nitrile rubber, NBR |
| Penetration time of glove material: | N/A |
| Eye Protection: | Safety glasses or goggles, Full face protection |
| Body Protection: | Protective work clothing. Wear close-toed shoes and long sleeves/pants. |

9. Physical and Chemical Characteristics

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| Color | Light Grey |
| Form: | Powder, Granules, Pellets, Sputtering target, Custom parts |
| Odor: | Odorless |
| 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: | 839.74 g/mol |

10. Reactivity

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| Stability: | Stable under recommended storage conditions |
| Reacts With: | Mineral acids, Acids, Water, Oxidizing agents |
| Incompatible Conditions: | Air, Water/moisture |
| Hazardous Decomposition Products: | Lithium oxide, Metal oxide fume |

11. Toxicological Information

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| Potential Health Effects: | |
| Eyes: | Causes serious eye damage |
| Skin: | Causes irritation |
| Ingestion: | May cause irritation |
| Inhalation: | May cause irritation |
| Chronic: | N/A |
| Signs & Symptoms: | N/A |
| Aggravated Medical Conditions: | N/A |
| Median Lethal Dose: | >8500 mg/kg for rat by mouth |
| Carcinogen: | N/A |

12. Ecological Information

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| 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

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| Hazardous: | Hazardous for transportation. |
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| Hazard Class: | 8 Corrosive substances |
| Packing Group: | III |
| UN Number: | UN3262 |
| Proper Shipping Name: | Corrosive solid, basic, inorganic, n.o.s. (Lithium lanthanum zirconium oxide) |

15. Regulatory Information

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| 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.

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| Document Last Revised: | 06/30/2022 |
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