



LTS Research Laboratories, Inc.
Safety Data Sheet

Zinc Molybdenum Gallium oxide

1. Product and Company Identification

Trade Name: Zinc Molybdenum Gallium oxide
Chemical Formula: ZnO-MoO₃-Ga₂O₃
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: H301: Toxic if swallowed.
H319: Causes serious eye irritation
H351 Suspected of causing cancer
H335: May cause respiratory irritation
H401: Toxic to aquatic life

Precautionary Statements: P201: Obtain special instructions before use
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear eye protection/ face protection.
P281 Use personal protective equipment as required.
CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313: IF exposed or concerned: Get medical advice/attention
P405 Store locked up.
P403+P233: Store in a well ventilated place. Keep container tightly closed
P501 Dispose of contents/ container to an approved waste disposal plant.

HMIS Health Ratings (0-4):
Health: 2
Flammability: 0
Physical: 1

3. Composition

Chemical Family:	Ceramic
Additional Names:	None
Zinc oxide (ZnO):	
Percentage:	0-100 wt%
CAS #:	1314-13-2
EC #:	215-222-5
Molybdenum oxide (MoO ₃):	
Percentage:	0-100 wt%
CAS #:	1313-27-5
EC #:	215-204-7
Gallium oxide (Ga ₂ O ₃):	
Percentage:	0-100 wt%
CAS #:	12024-21-4
EC #:	234-691-7

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. Keep patient warm. Seek medical advice.
Ingestion:	Give one to two glasses of water and induce vomiting. Never induce vomiting or give anything by mouth to an unconscious person. Seek medical treatment
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing. Seek medical advice
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Consult doctor

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:	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 ZnO respirable fraction 0.5 mg/m ³ as Mo total dust, long-term value
Threshold Limit Value:	2 mg/m ³ as ZnO long-term respirable 10 mg/m ³ as Mo inhalable, long-term value 3 mg/m ³ as Mo respirable
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 0.11mm thick. Check gloves prior to each use
Penetration time of glove material:	480 minutes
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:	Odorless
Water Solubility:	Insoluble
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:	Acids, Oxidizing agents
Incompatible Conditions:	None
Hazardous Decomposition Products:	Metal oxide fume

11. Toxicological Information

Potential Health Effects:

Eyes:	Causes serious eye irritation
Skin:	May cause irritation
Ingestion:	Toxic if swallowed
Inhalation:	May cause irritation
Chronic:	N/A

Signs & Symptoms: N/A

Aggravated Medical Conditions: N/A

Median Lethal Dose: 188 mg/kg for rat by mouth (MoO₃)
10,000 mg/kg for rat by mouth (Ga₂O₃)

Carcinogen: Suspected of causing cancer by RTECS (MoO₃)

12. Ecological Information

Aquatic Toxicity:	Low
Persistent Bioaccumulation Toxicity:	N/A
Very Persistent, Very Bioaccumulative:	N/A
Notes:	Danger to drinking water, even in small does. Poisonous to fish and aquatic life.

13. Disposal Considerations

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

14. Transportation Data

Hazardous: Hazardous as powder only.



Hazard Class: 6.1, Toxic substances
Packing Group: III
UN Number: UN3288
Proper Shipping Name: Toxic solid, inorganic, n.o.s. (Zinc Oxide/Molybdenum(VI) Oxide/Gallium Oxide)

15. Regulatory Information

Sec 302 Extremely Hazardous: No
Sec 304 Reportable Quantities: N/A
Sec 313 Toxic Chemicals: Yes

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:

07/09/2020

