



LTS Research Laboratories, Inc.
Safety Data Sheet
Molybdenum (V) chloride

1. Product and Company Identification

Trade Name: Molybdenum (V) chloride
Chemical Formula: MoCl₅
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: H314: Causes severe skin burns and eye damage
H351: Suspected of causing cancer

Precautionary Statements: P260: Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264: Wash skin thoroughly after handling
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
P281: Use personal protective equipment as required
P301+P330+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: 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
P310: Immediately call a POISON CENTER or doctor/physician
P363: Wash contaminated clothing before reuse.
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: 2

3. Composition

Chemical Family: Salt
Additional Names: Molybdenum pentachloride

Molybdenum (V) chloride (MoCl₅):
Percentage: 100 wt%
CAS #: 10241-05-1
EC #: 233-575-3

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. Keep patient warm. Seek immediate medical attention.
Ingestion: Seek immediate medical attention.
Skin: Immediately wash affected area with mild soap and water. Remove any contaminated clothing. Seek immediate medical attention.
Eyes: Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek immediate medical attention.

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. Keep unprotected persons away. Isolate spill area and provide ventilation. Use neutralizing agent. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Do not flush with water or aqueous cleansing agents. 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. Avoid contact with skin and eyes. Wash thoroughly after handling.
Storage Conditions: Store in a cool dry place in a tightly sealed container. Store away from water/moisture, oxidizing agents, strong bases. Store under inert gas. This product is moisture and air sensitive. Protect from humidity and water. 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:	N/A
Threshold Limit Value:	3 mg/m ³ as Mo, long-term value, respirable fraction
Special Equipment:	Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Respiratory Protection:	Dust Respirator
Protective Gloves:	Nitrile rubber gloves with minimum thickness of 0.11 mm
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	Dark blue
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	Pungent
Water Solubility:	N/A
Boiling Point:	268°C
Melting Point:	194°C
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	2.928 g/cc
Molecular weight:	273.21 g/mol

10. Reactivity

Stability:	Stable under recommended storage conditions
Reacts With:	Oxidizing agents, bases. Contact with water or acids releases toxic gas
Incompatible Conditions:	Water/moisture, air
Hazardous Decomposition Products:	Metal oxide fume, hydrogen chloride, molybdenum oxides

11. Toxicological Information

Potential Health Effects:	
Eyes:	Causes serious eye damage
Skin:	Causes severe skin burns
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	N/A
Signs & Symptoms:	Cough, Shortness of breath, Headache, Nausea, Vomiting
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	N/A
Carcinogen:	Suspected of causing cancer. ACGIH A3 Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes of exposure.

12. Ecological Information

Aquatic Toxicity: N/A
Persistent Bioaccumulation Toxicity: N/A
Very Persistent, Very Bioaccumulative: N/A
Notes: Do not allow material to be released to the environment without proper governmental permits.
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.
Avoid transfer into the environment.

13. Disposal Considerations

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

14. Transportation Data

Hazardous: Hazardous as powder only.



Hazard Class: 8 Corrosive substances
Packing Group: III
UN Number: UN2508
Proper Shipping Name: Molybdenum pentachloride

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: 08/21/2019