

Material Safety Data Sheet

BEMOL™ Molybdenum Disulfide Powder

SECTION 1 IDENTIFICATION

Substance: Molybdenum Disulfide
Trade Names/Synonyms: moly powder, molybdenum disulphide, moly sulfide, MIL/AMS-M-7866 (technical grade); applies to Technical, Technical Fine, Super Fine grades
EINECS Number: 215-263-9
CHEMICAL FAMILY: Inorganic salt

SECTION 2 COMPOSITION INFORMATION

CAS NUMBER: 1317-33-5
RTECS NUMBER: QA4697000
PERCENTAGE: >99%

SECTION 3 HAZARDS IDENTIFICATION

HAZARDS IDENTIFICATION
HMIS(II) RATING (SCALE 0-4): HEALTH = 1 FIRE = 1 REACTIVITY = 0
NFPA RATINGS (SCALE 0-4): HEALTH = 1 FIRE = 1 REACTIVITY = 0
EMERGENCY OVERVIEW: Odorless, black, lustrous powder. No significant target effects reported.
POTENTIAL HEALTH EFFECTS
SHORT TERM EXPOSURE: May cause irritation to skin and eyes.
LONG TERM EFFECTS: No information available on significant adverse effects.
CARCINOGEN STATUS: OSHA: N/NTP: N/IARC: N

SECTION 4 FIRST AID

INHALATION: Possible irritant. **FIRST AID:** Remove from exposure area to fresh air immediately. Note: if breathing has stopped, perform artificial respiration. Keep person warm and at rest. Get medical attention.
SKIN CONTACT: Possible irritant. **FIRST AID:** Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of powder remains (approx. 15-20 minutes). Get medical attention if aggravation persists.
EYE CONTACT: Possible irritant. **FIRST AID:** Wash eyes immediately with large amounts of water or saline solution, occasionally lifting upper and lower lids, until no evidence of powder remains (approx. 15-20 minutes). Get medical attention if aggravation persists.
INGESTION: **FIRST AID** - If vomiting occurs, keep head lower than hips to prevent aspiration. Get medical attention if needed.

SECTION 5 FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARD: Slight fire hazard when exposed to heat or flame.
EXTINGUISHING MEDIA: Extinguish using agent suitable for type of surrounding fire.
FIRE FIGHTING: No acute hazard. Move container from fire area if possible. Avoid breathing vapors or dusts; keep upwind.
FIRE FIGHTING PROTECTIVE EQUIPMENT: Full firefighting turnout gear (bunker gear). Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

SECTION 6 ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL SPILL: For large spills, sweep up with a minimum of dusting and place into suitable clean, dry containers for reclamation or later disposal. Residue should be cleaned up using a high-efficiency particulate filter vacuum.

SECTION 7 HANDLING AND STORAGE

STORAGE: Observe all federal, state and local regulations when storing or disposing of this substance. Store away from incompatible substances.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS: MOLYBDENUM, INSOLUBLE COMPOUNDS (AS Mo): 10 mg/m³ (i) ACGIH TWA 3 mg/m³ (r) ACGIH TWA
VENTILATION: Provide local exhaust ventilation and/or general dilution ventilation to meet published exposure limits.
EYE PROTECTION: Employee should wear splash-proof or dust-resistant safety goggles to prevent eye contact with this substance.
EMERGENCY EYE WASH: Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain within the immediate work area for emergency use.
CLOTHING: Protective clothing not required. Avoid repeated or prolonged contact with this substance.
GLOVES: Protective gloves not required but recommended.
RESPIRATOR: NIOSH n95 or better for routine ambient light dust.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

DESCRIPTION: Odorless, Dark Gray to Black powder.
MOLECULAR WEIGHT: 160.06
MOLECULAR FORMULA: MoS₂
MELTING POINT: >599 F (>315 C) may oxidize
VAPOR PRESSURE: approx 0 @ 20 C
SPECIFIC GRAVITY: 4.80 @ 14 C
WATER SOLUBILITY: insoluble
SOLVENT SOLUBILITY: Soluble in hot sulfuric acid, aqua regia, nitric acid; insoluble in dilute acid.

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: Stable under normal temperatures and pressures.
CONDITIONS TO AVOID: Prevent dispersion of dust in air.
INCOMPATIBILITIES - HYDROGEN PEROXIDE: Vigorous or violent reaction.
OXIDIZERS (STRONG): Fire and explosion hazard.
POTASSIUM NITRATE: Forms explosive mixture.
HAZARDOUS DECOMPOSITION: Thermal decomposition may release toxic and/or hazardous gases.
POLYMERIZATION: Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

SECTION 11 TOXICOLOGY INFORMATION

CARCINOGEN STATUS: None
ACUTE TOXICITY LEVEL: No data available
TARGET EFFECTS: No data available
HEALTH EFFECTS
INHALATION: ACUTE EXPOSURE: No specific data available. Insoluble molybdenum compounds are characterized by low toxicity.
CHRONIC EXPOSURE: 25 one-hour exposures to 490 mg/m³ caused no effects in all the animals tested except one which died after the third exposure.
SKIN CONTACT: ACUTE EXPOSURE: Dermatitis has not been reported in exposed workers.
CHRONIC EXPOSURE: No data available.
EYE CONTACT: ACUTE EXPOSURE: No specific data available. Some insoluble molybdenum compounds are irritating to the eyes.
CHRONIC EXPOSURE: No data available.
INGESTION: ACUTE EXPOSURE: No data available.
CHRONIC EXPOSURE: Rats fed up to 500 mg daily for 44 days showed no toxic signs and all gained weight.

SECTION 12 ECOLOGICAL INFORMATION

ACUTE AQUATIC TOXICITY: Levels up to 750 mg/l powdered MoS2 resulted in 0 mortality to rainbow trout (*Salmo gairdneri*).

SECTION 13 DISPOSAL INFORMATION

WASTE DISPOSAL: Observe all federal, state and local regulations when disposing of this substance.

SECTION 14 TRANSPORTATION INFORMATION

No classification currently assigned.

SECTION 15 REGULATORY INFORMATION

U. S. REGULATIONS

TSCA INVENTORY STATUS: Y

TSCA 12 (b) EXPORT NOTIFICATION: Not listed

CERCLA SECTION 103 (40 CFR 302.4): N

SARA SECTION 302 (40 CFR 355.30): N

SARA SECTION 304 (40 CFR 355.40): N

SARA SECTION 313 (40 CFR 372.65): N

OSHA PROCESS SAFETY (29 CFR 1910.119): N

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40 CFR 370.21):

ACUTE HAZARD: N

CHRONIC HAZARD: N

FIRE HAZARD: N

REACTIVITY HAZARD: N

SUDDEN RELEASE HAZARD: N

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65: N

SECTION 16 OTHER

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