

MATERIAL SAFETY DATA SHEET

SECTION 1 – PRODUCT IDENTIFICATION

Product Name: **Molybdenum Telluride Powder**
 Product Item: **246154**
 Product Code: **HA 6154**

 Supplier: **HAI Advanced Material Specialists, Inc.**
1688 Sierra Madre Circle
Placentia, CA 92870
(714)-414-0575

 Emergency Contact: (888) 255 3924 – Toll free
 Chemical Family: Metal Telluride
 Formula: MoTe_2
 Molecular Weight: 315.14

SECTION 2 – HAZARDOUS INGREDIENTS

IMPORTANT! This section covers the material from which these products are manufactured. Dust and gases produced when spraying with normal use of these products are covered in Section 5.

Material or Component	CAS Number	Concentration	OSHA PEL	ACGIH TLV	Other Limits *
Molybdenum Telluride	12058-20-7	0 - 100%	5 mg/m ³	5 mg/m ³	NE

US EPA SARA TITLE III

Material or Component	CAS Number	Sec. 302 (EHS)	Sec. 304 RQ	Sec. 313 (TRI)
Molybdenum Telluride	12058-20-7	No	No	No

SECTION 3 – PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: [] Gas [] Liquid [X] Solid
Melting Point: N/A
Boiling Point: N/A
Specific gravity (water=1): NE
Vapor pressure (mmHg): N/A
Vapor Density (Air=1): N/A
Evaporation rate (Butylacetate=1): N/A
Solubility in water: NE
Percent volatile (vol.): N/A
Corrosion Rate: No data
Appearance and odor: powder, odorless.
Other: None

SECTION 4 – FIRE AND EXPLOSION HAZARD DATA

Flash point: N/A Method Used: Unknown
Auto ignition temp.: N/A
Flammable limits: N/A
Explosive Limits: LEL: N/A UEL: N/A
Extinguishing Media: N/A Use suitable extinguishing media for surrounding materials and type of fire.
Special fire fighting procedures: Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.
Unusual fire and explosion hazards: When heated to decomposition, molybdenum telluride may emit toxic fumes of tellurium.

SECTION 5 – REACTIVITY DATA

Stability: Unstable [] Stable [X]
Conditions to avoid - Instability: none
Incompatibility – Materials to avoid: None recorded
Hazardous decomposition products: Fumes of Tellurium.
Hazardous polymerization: Will occur [] Will not occur [X]
Conditions to avoid – Hazardous polymerization: None
Product corrosive: Yes [] No [X]

SECTION 6 – HEALTH HAZARD DATA

Health Hazards (Acute and Chronic)

To the best of our knowledge the chemical, physical and toxicological properties of molybdenum telluride have not been thoroughly investigated and recorded.

Molybdenum compounds are poison by subcutaneous and intraperitoneal routes. Molybdenum and its compounds are highly toxic based upon animal experiments. Symptoms of acute poisoning include severe gastrointestinal irritation with diarrhea, coma and deaths from heart failure. Experimental animals exposed to high levels accumulated Mo in the lungs spleen, and heart, and showed a decrease of DNA and RNA in the liver, kidneys and spleen. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Elemental tellurium has relatively low toxicity. It is converted in the body to dimethyl telluride which imparts a garlic-like odor to the breath and sweat. Heavy exposures may, in addition, result in headache, drowsiness, metallic taste, loss of appetite, nausea, tremors, convulsions, and respiratory arrest. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Inhalation: Acute: DANGER-POISON.
May cause irritation to the upper respiratory system, dry mouth, garlic odor to breath and urine.

Chronic: May cause pneumoconiosis, anorexia, nausea, depression to the central nervous system and somnolence.

Ingestion: Acute: DANGER-POISON.
May cause a dry mouth, suppression of sweat, garlic odor to breath and urine and acute molybdenum poisoning.

Chronic: May cause anorexia, nausea, depression to the central nervous system, somnolence and chronic molybdenum poisoning.

Skin: Acute: May cause irritation.
Chronic: May cause dermatitis.

Eye: Acute: May cause irritation.
Chronic: No chronic health effects recorded.

Target Organs: May affect the lungs, bones, spleen and heart.

Carcinogenicity: NTP? [No] ARC Monographs? [No] OSHA
Regulated? [No]

Recommended Exposure Limits See "Section II"

LD 50 / LC 50 No toxicity data recorded

Signs and Symptoms of Exposure

Inhalation: May cause a red, dry throat, coughing, garlic-like odor to breath, sweat and urine, loss of appetite, sleepiness and nausea.

Ingestion: May cause a dry mouth, garlic-like odor to breath and urine, loss of appetite, sleepiness and nausea. Acute molybdenum poisoning may cause severe gastrointestinal irritation, diarrhea, coma, and death from cardiac failure. Chronic molybdenum poisoning as seen in animals may cause: loss of weight, anorexia, anemia, deficient lactation, male sterility, osteoporosis and bone-joint abnormalities.

Skin: May cause redness, burning, and itching.

Eye: May cause redness, burning, itching and watering.

Medical Conditions Generally Aggravated by Exposure

Pre-existing respiratory disorders.

Emergency and First Aid Procedures

Inhalation: Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention.

Ingestion: Give 1-2 glasses of milk or water and induce vomiting; seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

Skin: Remove contaminated clothing; brush material off skin; wash affected area with mild soap and water; seek medical attention if symptoms persist.

Eye: Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE/DISPOSAL

Steps to be Taken in Case Material is Released or Spilled

Wear appropriate respiratory and protective equipment specified in section VIII-control measures. 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 proper disposal. Take care not to raise dust.

Waste Disposal Method

Dispose of in accordance with local, state and federal regulations.

Hazard Label information

Store in cool, dry area Store in tightly sealed container Wash thoroughly after handling

Precautions to be Taken in Handling

None recorded

Other Precautions

None recorded.

SECTION 8 - CONTROL MEASURES

Protective Equipment Summary - Hazard Label Information:

NIOSH approved respirator Impervious gloves Safety glasses Clothes to prevent skin contact

Respiratory Equipment (Specify Type)

NIOSH - approved dust, mist, fume cartridge respirator

Eye Protection

Safety glasses

Protective Gloves

Rubber gloves

Other Protective Clothing

Protective gear suitable to prevent contamination

Ventilation

Local Exhaust: To maintain concentration at or below the PEL, TLV
Special: Handle in a controlled, enclosed process
Mechanical (Gen): Not recommended
Other: None

Work/Hygienic/Maintenance Practices

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels.
Use good housekeeping and sanitation practices.
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.

SECTION 9 – OTHER

HAI Advanced Material Specialists, Inc. request the users of this product to study this Material Safety Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify its employees, agents, and contractors of the information on this MSDS and any product hazard and safety information, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers for the product of the product hazards and safety information.

Company Policy or Disclaimer

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change, and the conditions of handling and use or misuse are beyond our control, HAI MAKES NO WARRANTY, EITHER EXPRESSED NOR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN, AND DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. Users should satisfy themselves that they have all current data relevant to their particular use.

Danger	Minimal 0	Slight 1	Moderate 2	Serious 3	Extreme 4
Health:				3	
Flammability:	0				
Reactivity:	0				

Abbreviations used: N/A=Not Applicable NE: Not Established