MATERIAL SAFETY DATA SHEET
OSHA HAZARD COMMUNICATION RULE

CHEMICAL IDENTITY

LABEL IDENTITY
MOLYBDENUM SILICIDE
CALCULATED MOLECULAR WEIGHT
152.11
FORMULA
MoSi₂
CHEMICAL FAMILY
METAL
CAS REGISTRY NUMBER
12136-78-6
HAZARDOUS INGREDIENTS
MOLYBDENUM METAL

HAZARDOUS INGREDIENTS
%
100.0%
TLV
10 mg/m³
OSHA/PEL
10 mg/m³

PHYSICAL AND CHEMICAL PROPERTIES

COLOR, FORM
Grey-black powder and pieces
ODOR
Odorless
BOILING POINT
NA
DENSITY (gm/cc)
NA
VAPOR PRESSURE @ 20°
NE
% VOLATILE BY VOLUME (%)
NA
REACTION WITH WATER
None
EVAPORATION RATE (H₂O=1)
NA
SOLUBILITY IN WATER
Insoluble
MELTING POINT
1870.0° C

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT
NA
AUTOIGNITION TEMPERATURE (°C)
NA
FLAMMABILITY
Non-flammable
EXTINGUISHING MEDIA
Use suitable extinguishing agent 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 & EXPLOSION HAZARDS
When heated to decomposition, Molybdenum
Silicide may emit toxic fumes of molybdenum
and silicon. Molybdenum silicide on contact
with acids emit flammable hydrogen gas.
HEALTH HAZARD INFORMATION

ROUTES OF ENTRY

INHALATION: Yes
SKIN: Yes
INGESTION: Yes
EYES: Yes
OTHER: No

EFFECTS OF OVEREXPOSURE (acute and chronic):

INHALATION:
Acute: May cause irritation to the respiratory system.
Chronic: May cause pneumonoconiosis.

SKIN:
Acute: Prolonged contact may cause irritation.
Chronic: No chronic health effects recorded.

INGESTION:
Acute: May cause acute molybdenum poisoning.
Chronic: May cause chronic molybdenum poisoning.

EYE:
Acute: Contact may cause irritation.
Chronic: No chronic health effects recorded.

OTHER: No reports of toxic effects of Mo in the industrial setting are known. Animal studies indicate that insoluble Mo compounds are of a low order of toxicity. Freshly generated Molybdenum Oxide fumes can be more toxic (according to certain animal tests). Inhalation of high concentrates (by animals) of Molybdenum Trioxide has caused weight loss, diarrhea, loss of muscular coordination, and a high mortality rate.

EMERGENCY FIRST AID PROCEDURES:

INGESTION: Give 1-2 glasses of milk or water and induce vomiting, seek medical attention. Never induce vomiting or give oxygen if breathing is difficult, seek medical attention.

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

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

EYE: Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention.
MOLYBDENUM SILICIDE
MATERIAL SAFETY DATA SHEET

REACTIVITY DATA

STABILITY
Stable

CONDITIONS CONTRIBUTING TO UNSTABILITY
None

INCOMPATIBILITY (MATERIALS TO AVOID)
Acids, interhalogens and strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS
Molybdenum, oxides of molybdenum, Silicon and hydrogen.

HAZARDOUS POLYMERIZATION
Will Not Occur

CONDITIONS TO AVOID
None

SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Wear appropriate respiratory and protective equipment specified in section VIII. Isolate spill area, provide ventilation and extinguish sources of ignition. 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. Use non-sparking tools.

WASTE DISPOSAL METHOD:
Dispose of in accordance with state, local, and federal regulations.

SPECIAL PROTECTIVE INFORMATION

RESPIRATORY PROTECTION
NIOSH approved respirator

LOCAL EXHAUST
To maintain concentration at or below the PEL, TLV

MECHANICAL (general)
Recommended

PROTECTIVE GLOVES
Impervious gloves

EYE PROTECTION
Safety glasses

OTHER PROTECTIVE EQUIPMENT
Clothes to prevent skin contact.

SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE:
Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

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NA= NOT APPLICABLE  ND= NO DATA FOUND  NR= NOT RECORDED