

SAFETY DATA SHEET

HCS-2012 APPENDIX D TO §1910.1200

Version 1
Product Name molybdenum disulphide

Issue Date 24-Feb-2016
Revision date 24-Feb-2016

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name molybdenum disulphide

Other means of identification

No information available.

Recommended use of the chemical and restrictions on use

Recommended Use Used as additive in lubricant and friction materials.
Uses advised against No information available.

Details of the supplier of the safety data sheet

Supplier Songxian Exploiter Molybdenum Co., Ltd.
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2. HAZARDS IDENTIFICATION

GHS Classification

Not classified

Label elements

Symbols/Pictograms None
Signal word None
Hazard Statements Not applicable
Precautionary Statements
Prevention Not applicable
Response Not applicable
Storage Not applicable
Disposal Not applicable

Hazards not otherwise classified (HNOC)

No information available.

Unknown acute toxicity

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Chemical nature</u>	Substance	
Chemical Name	CAS No	Weight-%
Molybdenum (IV) sulfide	1317-33-5	≥98.5

4. FIRST AID MEASURES

Description of first aid measures

General advice	Remove contaminated clothing and shoes. If symptoms persist, call a physician.
Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
Skin Contact	Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Rinse mouth. Get medical attention. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media Water spray (fog). Foam. Dry chemical. Carbon dioxide (CO₂). Dry sand.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Contact with flames may catch fire. Reacts violently with hydrogen peroxide. Powdered materials may form explosive dust mixed with sodium nitrate.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Stay upwind. Ensure adequate ventilation, especially in confined areas. Move containers from fire area if you can do it without risk. Cool drums with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Evacuate personnel to safe areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation, especially in confined areas. Remove all sources of ignition. Do not touch or walk through spilled material. Avoid creating dust. Avoid breathing dust/fume/gas/mist/vapors/spray.

Methods and material for containment and cleaning up

Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Avoid generation of dust. Remove all sources of ignition. Ventilation. Flush area with flooding quantities of water.

7. HANDLING AND STORAGE

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Use personal protective equipment as required. Wash thoroughly after handling. Ensure adequate ventilation, especially in confined areas. Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat. Store in accordance with local regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control parameters**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH	Denmark	European Union
Molybdenum (IV) sulfide (CAS #: 1317-33-5)	TWA: 10 mg/m ³ Mo inhalable fraction TWA: 3 mg/m ³ Mo respirable fraction	-	IDLH: 5000 mg/m ³ Mo	TWA: 10 mg/m ³	-

Chemical Name	Norway	United Kingdom	Australia	Austria	Belgium
Molybdenum (IV) sulfide (CAS #: 1317-33-5)	TWA: 10 mg/m ³ STEL: 10 mg/m ³	-	10 mg/m ³	STEL 20 mg/m ³ TWA: 10 mg/m ³	-

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hand Protection	Wear protective gloves.
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin and body protection	Wear suitable protective clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Appearance	Powder
Color	Grey black
Odor	Odorless
Odor Threshold	Not determined
pH	Not applicable.
Melting point/freezing point	1185°C
Boiling point / boiling range	Not determined
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not determined
Flammability Limit in Air	Not determined
Vapor Pressure	Not applicable.
Vapor density	Not determined
Density	4.5-4.8g/cm ³
Relative density	Not determined
Bulk density	Not determined
Solubility(ies)	Insoluble in water. Soluble in strong Sulfuric acid.
Specific gravity	Not determined

Partition coefficient (LogPow)	Not determined
Autoignition temperature	Not determined
Decomposition temperature	Not determined
Kinematic viscosity	Not applicable.
Dynamic viscosity	Not applicable.
Explosive properties	No explosion properties.
Oxidizing properties	No oxidizing properties.

Other information

No information available

10. STABILITY AND REACTIVITY**Reactivity**

Stable under recommended storage and handling conditions (see SECTION 7, handling and storage).

Chemical stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Reacts violently with hydrogen peroxide.

Conditions to avoid

Heat, flames and sparks. Incompatible materials.

Incompatible materials

Hydrogen peroxide, sodium nitrate, strong alkali, strong oxidizing materials.

Hazardous Decomposition Products

Molybdenum compound, sulfur compound.

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Inhalation	No known effect based on information supplied.
Eye contact	No known effect based on information supplied.
Skin Contact	No known effect based on information supplied.
Ingestion	No known effect based on information supplied.

Information on toxicological effects**Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Molybdenum (IV) sulfide (CAS #: 1317-33-5)	>2000 mg/kg (rat)	>2000 mg/kg (rat)	> 2820 mg/m ³ (Rat) 4 h

Skin corrosion/irritation

No information available.

Serious eye damage/eye irritation

No information available.

Sensitization

No information available.

Germ cell mutagenicity

No information available.

Carcinogenicity

No information available.

Reproductive toxicity

No information available.

STOT - single exposure

No information available.

STOT - repeated exposure

No information available.

Aspiration hazard

No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

No information available.

Persistence and degradability

No information available.

Bioaccumulative potential

No information available.

Mobility in soil

No information available.

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging

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

14. TRANSPORT INFORMATION

DOT

UN/ID No.

Not regulated

UN Proper shipping name

Not regulated

Hazard Class

Not regulated

Packing Group

Not regulated

Special precautions

No information available

Marine pollutant

Not applicable

15. REGULATORY INFORMATION

International Inventories

Component	AICS	DSL/NDSL	EINECS/ELI NCS	ENCS	IECSC	KECL	PICCS	TSCA
Molybdenum (IV) sulfide 1317-33-5	X	X	X	X	X	X	X	X

"-" Not Listed

"X" Listed

US Federal Regulations

SARA 313

Not applicable

SARA 311/312 Hazard Categories

Not applicable

CWA (Clean Water Act)

Not applicable

CERCLA

Not applicable

US State Regulations

California Proposition 65

Not applicable

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Molybdenum (IV) sulfide 1317-33-5	-	X	-

16. OTHER INFORMATION

Revision Note

Issue Date	24-Feb-2016
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Revision Note	Not applicable

Key or legend to abbreviations and acronyms used in the safety data sheet

TWA - TWA (time-weighted average)

STEL - STEL (Short Term Exposure Limit)

Ceiling - Maximum limit value

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

----- End of Safety Data Sheet -----