

Safety Data Sheet

LS-MoS₂

SDS Revision Date:

05/31/2015

1. Identification

1.1. Product identifier

Product Identity

LS-MoS₂

Alternate Names

Molybdenum(IV) Sulfide

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use

Laboratory chemicals, Manufacture of substances

1.3. Details of the supplier of the safety data sheet

Company Name

Lone Star Lubricants
2232 Moneda St.
Fort Worth, TX 76117-5310

Emergency

24 hour Emergency Telephone No.

(817) 831-2522

Customer Service: Lone Star Lubricants

(817) 831-2522

2. Hazard(s) identification

2.1. Classification of the substance or mixture

No applicable GHS categories.

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

No applicable GHS categories.

[Prevention]:

No GHS prevention statements

[Response]:

No GHS response statements

[Storage]:

No GHS storage statements

[Disposal]:

No GHS disposal statements

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3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Molybdenum disulfide (MoS ₂) CAS Number: 1317-33-5	<=100%	No applicable GHS classification	

In accordance with paragraph (i) of §1910.1200, the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

Inhalation Remove to fresh air. If breathing is irregular or stopped, give artificial respiration.

Eyes Flush eyes with water as a precaution.

Skin Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2. Most important symptoms and effects, both acute and delayed

Overview The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media; water spray, alcohol resistant foam, dry chemical or CO₂.

5.2. Special hazards arising from the substance or mixture

Sulfur oxides, Molybdenum oxides

5.3. Advice for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

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6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapours, mist or gas. (For personal protection see section 8)

6.2. Environmental precautions

No special environmental precautions required.

6.3. Methods and material for containment and cleaning up

Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4. Reference to other Sections

For disposal see section 13.

7. Handling and storage

7.1. Precautions for safe handling

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see sections 2.2.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place. Storage class (TRGS 510): Non Combustible Solids

7.3. Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0001317-33-5	Molybdenum disulfide (MoS ₂)	OSHA	TWA - 15.00mg/m ₃
		ACGIH	TWA - 10.00mg/m ₃
		Supplier	No Established Limit

Carcinogen Data

CAS No.	Ingredient	Source	Value
0001317-33-5	Molybdenum disulfide (MoS ₂)	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

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8.2. Exposure controls

Respiratory	Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Eyes	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).
Skin	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching the glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable law and good laboratory practices. Wash and dry hands.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If mechanical, use non sparking equipment.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

Appearance	Grey powder
Odor	Nil
Odor threshold	Not Measured
pH	Not Measured
Melting point / freezing point	2,375 °C (4,307 °F)
Initial boiling point and boiling range	Not Measured
Flash Point	Not Measured
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: Not Measured Upper Explosive Limit: Not Measured
Vapor pressure (Pa)	Not Measured
Vapor Density	Not Measured
Specific Gravity	Not Measured
Solubility in Water	Not Measured
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured
Relative Density	5.06 g/cm ³ at 25 °C (77 °F)

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9.2. Other information

No data available

10. Stability and reactivity

10.1. Reactivity

No data available.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

No data available.

10.5. Incompatible materials

Hydrogen peroxide, Strong oxidizing agents.

10.6. Hazardous decomposition products

Other decomposition products – No data available

In the event of fire: see section 5

11. Toxicological information

Information on toxicological effects: The information provided in this section is consistent with the type of information provided in the other molybdenum compound REACH Chemical Safety Reports. For contact details, please refer to Section 16 of this data sheet.

Toxicity endpoints	Description of effects
Toxicokinetics: Absorption, Distribution, Metabolism and Excretion	Molybdenum is an essential element. Up taken molybdenum disulfide (MoS ₂) is relatively inert, any dissolved MoS ₂ exists predominately in the form of the molybdate ion (MoO ₄ ²⁻). Oral absorption: Slow absorption through GI tract. Inhalation absorption: Absorption in humans dependent on particle size, deposition/clearance. Dermal absorption: Low to negligible. Metabolism: No metabolism. Up taken molybdenum disulfide (MoS ₂) is relatively inert, any dissolved MoS ₂ exists predominately in the form of the molybdate ion (MoO ₄ ²⁻). Excretion: Rapidly eliminated from plasma predominantly via renal excretion (>80%), and faeces (<10%).
(a) acute toxicity	No specific data available. Insoluble molybdenum compounds are characterized by low toxicity. LD50 (rat) > 5000 mg/kg
(b) skin corrosion/irritation	Not irritating / non corrosive to the skin. LD50 (rat) > 16000 mg/kg
(c) serious eye damage/irritation	Not irritant / not corrosive to the skin.
(d) respiratory or skin sensitization	MoS ₂ is not sensitizing to the skin.
(e) germ-cell mutagenicity	Not a germ cell mutagen.
(f) carcinogenicity	Not a carcinogen.

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(g) reproductive toxicity	There are currently no reliable scientific data available indicating adverse effects on reproduction or fertility.
(h) STOT-single exposure	There are no specific target organ effects after single exposure to diammonium dimolybdate.
(i) STOT-repeated exposure	No reliable scientific data available indicating adverse systemic effects after repeated exposure to molybdenum substances.
(j) aspiration hazard	Not applicable (not an aerosol/mist).

12. Ecological information

12.1. Toxicity

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr LC50 crustacea, mg/l	ErC50 algae, mg/l
Molybdenum disulfide (MoS ₂)	7,600.00, Oncorhynchus mykiss [1]	2729.40, Daphnia magna [2]	295.0-390.9 (72 hr), Psuedokirchneriella subcapitata [3]

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6. Other adverse effects

No data available.

13. Disposal considerations

13.1. Waste treatment methods

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

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent material and residues at the time of disposition.

Conditions of use may cause this material to become a "hazardous waste", as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a "hazardous waste" at the time of disposal.

Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). State and/or local regulations may be more restrictive. Contact

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your regional US EPA office for guidance concerning case specific disposal issues.

14. Transport information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	Not Applicable	Not Regulated	Not Regulated
14.2. UN proper shipping name	Not Regulated	Not Regulated	Not Regulated
14.3. Transport hazard class(es)	DOT Hazard Class: Not Applicable	IMDG: Not Applicable Sub Class: Not Applicable	Air Class: Not Applicable
14.4. Packing group	Not Applicable	Not Applicable	Not Applicable
14.5. Environmental hazards			
IMDG	Marine Pollutant: No		
14.6. Special precautions for user	No further information		

15. Regulatory information

Regulatory Overview	The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.
Toxic Substance Control Act (TSCA)	All components of this material are either listed or exempt from listing on the TSCA Inventory.
WHMIS Classification	Not Regulated
US EPA Tier II Hazards	Fire: No Sudden Release of Pressure: No Reactive: No Immediate (Acute): No Delayed (Chronic): No

SARA 311/312 Chemicals and RQs:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

SARA 302 Extremely Hazardous:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

SARA 313 Toxic Chemicals:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimus) reporting levels established by SARA Title III, Section 313.

Proposition 65 - Carcinogens (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

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Proposition 65 - Male Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

New Jersey RTK Substances (>1%) :

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Pennsylvania RTK Substances (>1%) :

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

[1] Huntingdon Research centre (1994a). The acute toxicity of sodium molybdate dihydrate to rainbow trout (*Oncorhynchus mykiss*). Testing laboratory: Huntingdon Research Centre Ltd. Report no.: IMA 13(b) /920163. Owner company: International Molybdenum Association, 280 Earls Court, London, SW5 9AS, England. Report date: 1994-06-09.

[2] Rodriguez (2007). Sodium Molybdate: Acute and chronic Toxicity to *Daphnia magna*. Final Report to the International Molybdenum Association. Testing laboratory: Chilean Mining and Metallurgy Research Center. Owner: International Molybdenum Association. Report date: 2007-08-01.

[3] Rodriguez PH (2008). Sodium Molybdate: Toxicity to *Pseudokirchneriella subcapitata*, comparative testing using CIMM and University of Gent Algae and OECD media. Final Report to The International Molybdenum Association. Testing laboratory: Chilean Mining and Metallurgy Research Center. Owner: International Molybdenum Association. Report date: 2008-05-01.

This is the first version in the GHS SDS format. Listings of changes from previous versions in other formats are not applicable.

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