SAFETY DATA SHEET

SODIUM MOLYBDATE

CAS No.: 7631-95-0 (anhydrous)

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

SODIUM MOLYBDATE
Disodium Molybdate; Na_2MoO_4 (anhydrous); commercially also traded/hydrated as the dihydrate, $Na_2MoO_4 \cdot 2H_2O$ (CAS 10102-40-6)
CAS: 7631-95-0 (anhydrous)

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Corrosion inhibitor in cooling-water and metalworking-fluid formulations, trace-element micronutrient in fertilisers and animal feed, analytical reagent, catalyst and pigment intermediate. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3.

Supplier's details

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

Emergency phone number

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), based on well-established public data for sodium molybdate (CAS 7631-95-0).

Acute Tox. 4 (Oral)	Acute oral toxicity, Category 4, H302
Repr. 2	Reproductive toxicity, Category 2 (suspected of damaging fertility), H361f

GHS label elements, including precautionary statements

GHS: Warning

Hazard statements
H302: Harmful if swallowed.
H361f: Suspected of damaging fertility.

Precautionary statements
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P264: Wash exposed skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P405: Store locked up.
P501: Dispose of contents/container in accordance with local/regional/national regulations.

Other hazards which do not result in classification

Not a PBT/vPvB substance. Not classified as flammable or corrosive.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Sodium Molybdate (Na_2MoO_4)

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7631-95-0	Sodium Molybdate – Acute Tox. 4, Repr. 2: H302, H361f – Warning	≥98%

Supplied as anhydrous or dihydrate (CAS 10102-40-6) grade depending on order – confirmed on the product Certificate of Analysis. To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

Mixtures

Non-applicable (single substance)

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance if symptoms are severe or persist, showing the SDS of this product.

By inhalation
Dust may irritate the respiratory tract. Remove person to fresh air.

By skin contact
Wash skin with plenty of water.

By eye contact
Rinse eyes thoroughly with water for at least 15 minutes, holding eyelids open. Seek medical attention if irritation persists.

By ingestion/aspiration
Rinse mouth. Give water to drink if the person is conscious. Call a poison centre/doctor if the person feels unwell.

Most important symptoms/effects, acute and delayed

Harmful if swallowed. Suspected reproductive/fertility hazard based on animal data; relevance to normal industrial handling exposures is limited but avoidance of ingestion/dust inhalation is recommended, particularly for pregnant workers.

Indication of immediate medical attention and special treatment needed, if necessary	Treat symptomatically. No specific antidote known.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	**Suitable:** Use extinguishing media appropriate to the surrounding fire (water spray, foam, dry chemical, CO_2). **Unsuitable:** None known.
Specific hazards arising from the chemical	Non-combustible, non-flammable. No unusual fire or explosion hazard. May release molybdenum/sodium oxide fumes on strong thermal decomposition.
Special protective actions for fire-fighters	Wear self-contained breathing apparatus in enclosed or poorly ventilated areas. **Additional provisions** Cool fire-exposed containers with water spray if safe to do so.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	**For non-emergency personnel** Avoid dust generation and ingestion. Use PPE described in section 8. **For emergency responders** Wear appropriate protective equipment (see section 8).
Environmental precautions	Avoid release to soil, drains or watercourses. Contain if possible.
Methods and materials for containment and cleaning up	Sweep up or vacuum dry material and place in a suitable, labelled container for reuse or disposal. Avoid generating dust.
Reference to other sections	See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use
Avoid ingestion and inhalation of dust. Avoid contact with eyes. Use with adequate ventilation. Pregnant workers should avoid direct handling given the H361f classification.

B. Technical recommendations for the prevention of fires and explosions
Non-combustible; no specific fire/explosion prevention measures required beyond general good practice.

C. Technical recommendations on general occupational hygiene
Do not eat, drink or smoke while handling. Wash hands thoroughly after handling.

D. Technical recommendations to prevent environmental risks
Prevent uncontrolled discharge to drains or watercourses.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Storage condition	Store in tightly closed containers in a cool, dry, well-ventilated, locked storage area
Incompatible materials	Strong oxidising agents, strong acids

B. General conditions for storage
Keep dry. Store away from food and feed unless specifically supplied as a certified feed/fertiliser-grade micronutrient.

Specific end use(s)

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Identification	Occupational Exposure Limit Type	Value
Sodium Molybdate (as Mo) CAS: 7631-95-0	TWA (soluble molybdenum compounds, as Mo)	5 mg/m³

Appropriate engineering controls

Provide local exhaust ventilation where dust is generated to keep airborne concentrations below occupational exposure limits.

B. Respiratory protection
Use a particulate filter respirator (FFP2 type) where dust levels are elevated or ventilation is inadequate.

C. Specific protection for the hands
Chemical-resistant gloves recommended.

D. Eye and face protection
Safety glasses with side shields or chemical goggles.

E. Bodily protection
Standard industrial work clothing.

F. Additional emergency measures
Eyewash station and washing facilities should be available in the work area.

Environmental exposure controls
Prevent uncontrolled discharge to the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Solid (crystalline powder)
Appearance	White crystalline solid
Odor	Odorless
Odour threshold	Not applicable
Volatility	
Boiling point	Not applicable (solid, decomposes before boiling)
Melting point	687°C (anhydrous)
Vapour pressure	Negligible
Evaporation rate	Not applicable (solid)
Product Description	
Molecular weight (anhydrous)	205.92 g/mol (dihydrate: 241.95 g/mol)
Density (anhydrous)	3.28 g/cm³
pH (5% aqueous solution)	~8.0–9.5 (mildly alkaline)
Solubility in water at 20°C	Freely soluble (>600 g/L)
Flammability	
Flash Point	Non-applicable (non-combustible solid)
Flammability (solid, gas)	Not flammable
Autoignition temperature	Not applicable
Lower / Upper flammability limit	Not applicable

Other information

Explosive properties	Not applicable
Oxidising properties	Not classified as an oxidiser
Corrosive to metals	Not classified

10. STABILITY AND REACTIVITY

Reactivity No hazardous reactivity expected under normal conditions of storage, handling and use.

Chemical stability Chemically stable under the indicated conditions of storage, handling and use.

Possibility of hazardous reactions Under specified conditions, hazardous reactions leading to excessive temperature or pressure are not expected.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Not applicable	Not applicable	Keep dry

Incompatible materials Strong oxidising agents, strong acids.

Hazardous decomposition products None expected under normal conditions of storage and use; strong heating may release molybdenum oxide fumes.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)
Harmful if swallowed; may cause gastrointestinal irritation.

B. Inhalation (acute effect)
Dust may cause irritation of the nose, throat and respiratory tract.

C. Contact with skin and eyes (acute effect)
Skin: not expected to be irritating under normal handling. Eyes: dust may cause mechanical irritation.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)
Suspected of damaging fertility (Repr. 2, H361f) based on animal reproductive-toxicity data for molybdenum compounds. Not listed as a carcinogen by IARC, NTP or OSHA. Mutagenicity classification criteria are not met based on available data.

E. Sensitizing effects
Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure
Classification criteria are not met based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure
Chronic excess molybdenum intake has been associated with copper-deficiency-like effects in animal studies; not classified based on available human data.

H. Aspiration hazard
Not applicable (solid).

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Sodium Molybdate CAS: 7631-95-0	LD50 oral: 4000–4232 mg/kg	Rat

12. ECOLOGICAL INFORMATION

Molybdenum is an essential trace nutrient at low concentrations; toxicity to aquatic organisms is generally low relative to many metal salts.

Toxicity

Acute Toxicity	Species	Genus
LC50: >200 mg/L (96h, as Mo)	Non-applicable	Fish
EC50: >100 mg/L (48h, as Mo)	Non-applicable	Daphnia

Persistence and degradability Inorganic; biodegradation is not applicable.

Bioaccumulative potential Low bioaccumulation potential reported for molybdenum in aquatic organisms.

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Not applicable	Not applicable	Highly soluble/mobile as molybdate anion	

Results of PBT and vPvB assessment
Not applicable (inorganic substance).

Other adverse effects
None expected under normal use and discharge volumes.

13. DISPOSAL CONSIDERATIONS

Disposal methods
Dissolve/dilute and dispose of in accordance with local discharge consent, or dispose of via a licensed waste contractor, giving due regard to molybdenum content limits in local trade-effluent consents.
Refer to national and local regulations on waste management.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR/RID)

14.1 UN number	Not regulated
14.2 UN proper shipping name	Sodium Molybdate – non-hazardous for transport
14.3 Transport hazard class(es)	N/A
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not applicable

Transport of dangerous goods by sea (IMDG)

14.1 UN number	Not regulated
14.2 UN proper shipping name	Sodium Molybdate – non-hazardous for transport
14.3 Transport hazard class(es)	N/A
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not applicable

Transport of dangerous goods by air (IATA/ICAO)

14.1 UN number	Not regulated
14.2 UN proper shipping name	Sodium Molybdate – non-hazardous for transport
14.3 Transport hazard class(es)	N/A
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not applicable

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question
It is recommended to use the information in this SDS as data for a local risk evaluation for handling, use, storage and disposal. Where used as a fertiliser/feed micronutrient, additional regulatory requirements (e.g. Fertiliser Control Order) apply and are the responsibility of the end formulator.

Other legislation
Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)

16. OTHER INFORMATION

Legislation related to safety data sheets
This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3
H302: Harmful if swallowed.
H361f: Suspected of damaging fertility.
The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training
Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources
Publicly available GHS classification and physicochemical reference data for sodium molybdate (CAS 7631-95-0 / 10102-40-6).

Abbreviations and acronyms
LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Mo: Molybdenum | IARC: International Agency for Research on Cancer

Disclaimer: The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

(This document is computer generated and therefore does not require any signature.)