

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Molybdate Reagent for Silica
Catalog Number: 1454699

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00026
Chemical Name: Molybdate (MoO_4^{2-}), disodium
CAS No.: 10102-40-6
Chemical Formula: $\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$
Chemical Family: Inorganic Salt
Hazard: May cause irritation.
Date of MSDS Preparation:
Day: 15
Month: October
Year: 2009

2. COMPOSITION / INFORMATION ON INGREDIENTS

Sodium Molybdate

CAS No.: 10102-40-6
TSCA CAS Number: 7631-95-0
Percent Range: 100.0
Percent Range Units: weight / weight
LD50: Oral rat LD_{50} = 4000 mg/kg.
LC50: Inhalation rat LC_{50} = > 2080 $\text{mg}/\text{m}^3/4$ hrs
TLV: 5 mg/m^3 (as Mo)
PEL: 5 mg/m^3 (as Mo)
Hazard: May cause irritation.

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: White powder
Odor: None
MAY CAUSE EYE AND RESPIRATORY TRACT IRRITATION

HMIS:

Health: 1
Flammability: 0
Reactivity: 0
Protective Equipment: X - See protective equipment, Section 8.

NFPA:

Health: 1
Flammability: 0
Reactivity: 0
Symbol: Not applicable
Potential Health Effects:

Eye Contact: May cause irritation
Skin Contact: May cause irritation
Skin Absorption: No effects anticipated
Target Organs: Not applicable
Ingestion: May cause: diarrhea loss of coordination loss of appetite gout anemia liver damage
Target Organs: Liver
Inhalation: May cause: difficult breathing irritation of nose and throat gout anemia liver damage
Target Organs: Liver
Medical Conditions Aggravated: Pre-existing: Liver conditions Respiratory conditions
Chronic Effects: Chronic overexposure may cause copper deficiency enzyme activity effects Molybdenum poisoning signs include loss of appetite, listlessness and reduced growth rate. Excessive exposure to molybdenum compounds may cause gout and anemia.
Cancer / Reproductive Toxicity Information:
O.S.H.A. Listed: No

IARC Listed: No

NTP Listed: No

Additional Cancer / Reproductive Toxicity Information: None reported
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water.
Ingestion (First Aid): Give large quantities of water. Call physician immediately.
Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn.
Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not applicable
Hazardous Combustion Products: None reported
Fire / Explosion Hazards: This product will not burn or explode.
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Stop spilled material from being released to the environment.
Clean-up Technique: Scoop up spilled material into a large beaker and dissolve with water. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.
Special Instructions (for accidental release): Not applicable

304 EHS RQ (40 CFR 355): Not applicable
D.O.T. Emergency Response Guide Number: Not applicable

7. HANDLING / STORAGE

Handling: Avoid contact with eyes Do not breathe dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Store in a cool, dry place.

Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Use general ventilation to minimize exposure to mist, vapor or dust. Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin Protection: disposable latex gloves lab coat

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes Do not breathe: dust Wash thoroughly after handling.

TLV: 5 mg/m³ (as Mo)

PEL: 5 mg/m³ (as Mo)

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: White powder

Physical State: Solid

Molecular Weight: 241.95 g/mol

Odor: None

pH: 9 - 10 (5% solution)

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Boiling Point: Not applicable

Melting Point: 687°C (1269°F)

Specific Gravity (water = 1): 3.28

Evaporation Rate (water = 1): Not applicable

Volatile Organic Compounds Content: Not applicable

Partition Coefficient (n-octanol / water): Not determined

Solubility:

Water: Soluble

Acid: Not determined

Other: Not determined

Metal Corrosivity:

Steel: Not determined

Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Conditions to Avoid: Excess moisture

Reactivity / Incompatibility: None reported

Hazardous Decomposition: No hazardous decomposition products known.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:

LD50: Oral rat LD₅₀ = 4000 mg/kg.

LC50: Inhalation rat LC50 = > 2080 mg/m³/4 hrs
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: None reported
Mutation Data: None reported
Reproductive Effects Data: None reported
Ingredient Toxicological Data: --
Not applicable

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
Not applicable

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: Not applicable
Special Instructions (Disposal): Work in an approved fume hood. Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system.
Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:

D.O.T. Proper Shipping Name: Not Currently Regulated

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DOT Hazard Class: NA
DOT Subsidiary Risk: NA
DOT ID Number: NA
DOT Packing Group: NA

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Not Currently Regulated

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ICAO Hazard Class: NA
ICAO Subsidiary Risk: NA
ICAO ID Number: NA
ICAO Packing Group: NA

I.M.O.:

I.M.O. Proper Shipping Name: Not Currently Regulated

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I.M.O. Hazard Class: NA
I.M.O. Subsidiary Risk: NA
I.M.O. ID Number: NA
I.M.O. Packing Group: NA

Additional Information: There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is NOT in a set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard

S.A.R.A. Title III Section 313 (40 CFR 372): Not applicable

302 (EHS) TPQ (40 CFR 355): Not applicable

304 CERCLA RQ (40 CFR 302.4): Not applicable

304 EHS RQ (40 CFR 355): Not applicable

Clean Water Act (40 CFR 116.4): Not applicable

RCRA: Contains no RCRA regulated substances.

C.P.S.C.: Not applicable

State Regulations:

California Prop. 65: Not applicable

Identification of Prop. 65 Ingredient(s): Not applicable

California Perchlorate Rule CCR Title 22 Chap 33: Not applicable

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: TSCA Listed: Yes

TSCA CAS Number: 7631-95-0

16. OTHER INFORMATION

Intended Use: Laboratory Reagent

References: Vendor Information. NIOSH Registry of Toxic Effects of Chemical Substances, 1985-86. Cincinnati: U.S. Department of Health and Human Services, April, 1987. NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards. Cincinnati: Department of Health and Human Services, 1981. Technical Judgment. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Cassaret and Doull's Toxicology, 3rd Ed. New York: Macmillan Publishing Co., Inc., 1986. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. Sixth Annual Report on Carcinogens, 1991. U.S. Department of Health and Human Services. Rockville, MD: Technical Resources, Inc. 1991.

Revision Summary: Updates in Section(s) 14,

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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