

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Molybdate Reagent
Catalog Number: 2107369

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 Number: 7631-95-0
Additional CAS No. (for hydrated forms): Not applicable
10102-40-6 dihydrate
Chemical Formula: $\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$
Chemical Family: Inorganic Salt
Intended Use: Laboratory Use

2. HAZARDS IDENTIFICATION

GHS Classification:

Hazard categories: Acute Toxicity: Acute Tox. 4-Inh Acute Toxicity: Acute Tox. 4-Orl Serious Eye Damage/Eye Irritation: Eye Irrit. 2

GHS Label Elements:

WARNING



Hazard statements: Harmful if inhaled. Harmful if swallowed. Causes serious eye irritation.

Precautionary statements: Wear protective gloves / protective clothing / eye protection / face protection. Do not eat, drink or smoke when using this product. Avoid breathing dust/fume/gas/mist/vapours/spray. Wear eye protection. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. IF INHALED: Remove victim/person to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. 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. Dispose of contents/container according to state, local, federal or national regulations.

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

WHMIS Hazard Classification: Class D, Division 1, Subdivision B - Toxic material (immediate effects) Class D, Division 2, Subdivision B - Toxic material (other toxic effects)

WHMIS Symbols: Acute Poison Other Toxic Effects

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components according to GHS:

Sodium Molybdate

CAS Number: 7631-95-0

Chemical Formula: Na₂MoO₄ · 2H₂O

GHS Classification: Acute Tox. Inh. 4, H332; Acute Tox. Orl. 4, H302; Eye Irrit. 2, H319; Acute Tox. 5-Derm., H313

Percent Range (Trade Secret): 100.0

Percent Range Units: weight / weight

PEL: 5 mg/m³ (as Mo)

TLV: 5 mg/m³ (as Mo)

WHMIS Symbols: Acute Poison Other Toxic Effects

4. FIRST AID MEASURES

General Information: In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.

Advice to doctor: Treat symptomatically.

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.

Skin Contact (First Aid): Call physician if irritation develops. Remove contaminated clothing. Wash skin with plenty of water.

Inhalation: Remove to fresh air.

Ingestion (First Aid): Give large quantities of water. Call physician immediately. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material is not classified as flammable according to GHS criteria. Material will not burn.

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.

Extinguishing Media: Use media appropriate to surrounding fire conditions

Extinguishing Media NOT To Be Used: Not applicable

Fire / Explosion Hazards: This product will not burn or explode.

Hazardous Combustion Products: None reported

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. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Containment Technique: Stop spilled material from being released to the environment.

Clean-up Technique: If permitted by regulation, 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. Otherwise, Pick up spill for disposal and place in a closed container. Dispose of in accordance with local, state and federal regulations or laws.

Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.

DOT Emergency Response Guide Number: Not applicable

7. HANDLING AND 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 / PERSONAL PROTECTION

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: nitrile 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)

For Occupational Exposure Limits (OEL) for ingredients, see section 3 - Composition/Information on Ingredients.:

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White powder

Physical State: Solid

Molecular Weight: 241.95 g/mol

Odor: Odorless

Odor Threshold: Not applicable

pH: 9 - 10 (5% solution)

Metal Corrosivity:

Corrosivity Classification: Not classified as corrosive to metals according to GHS criteria.

Steel: Not applicable

Aluminum: Not applicable

Specific Gravity/ Relative Density (water = 1; air =1): 3.28

Viscosity: Not applicable

Solubility:

Water: 84 g/100 mL

Acid: Soluble

Other: Not determined

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

Coefficient of Water / Oil: Not determined

Melting Point: 687 °C (1269 °F)

Decomposition Temperature: Not determined

Boiling Point: Not determined

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Evaporation Rate (water = 1): Not applicable

Volatile Organic Compounds Content: Not applicable

Flammable Properties: Material is not classified as flammable according to GHS criteria. 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

Explosive Properties:

Not classified according to GHS criteria.

Oxidizing Properties:

Not classified according to GHS criteria.

Reactivity Properties:

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

Gas under Pressure:

Not classified according to GHS criteria.
Not applicable

10. STABILITY AND REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Mechanical Impact: None reported
Static Discharge: None reported.
Reactivity / Incompatibility: None reported
Hazardous Decomposition: Heating to decomposition releases: sodium oxides
Conditions to Avoid: Excess moisture

11. TOXICOLOGICAL INFORMATION

Toxicokinetics, Metabolism and Distribution: No information available
Toxicologically Synergistic Products: None reported
Acute Toxicity: Toxicological Testing Route Data Given Below
Oral Rat LD50 = 250-4000 mg/kg; Oral Guinea pig LD50 = 310 mg/kg.
Dermal Rat LD50 > 2000 mg/kg
Inhalation Rat LC50 = 2080 mg/m³/4 hr (2.08 mg/L/4 hr)
Specific Target Organ Toxicity - Single Exposure (STOT-SE): Based on classification principles, the classification criteria are not met.
Specific Target Organ Toxicity - Repeat Exposure (STOT-RE): Based on classification principles, the classification criteria are not met.
Skin Corrosion/Irritation: Based on classification principles, the classification criteria are not met.
Skin rabbit - No skin irritation - OECD Test Guideline 404
Eye Damage: Irritating to eyes.
Animal eye: 20% solution a - conjunctivitis with discharge
Sensitization: Based on classification principles, the classification criteria are not met.
Maximisation Test - Guinea pig - OECD Test Guideline 406 - Not sensitizing.
CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction): Based on classification principles, the classification criteria are not met. Data insufficient for classification Summary of findings reported in the literature follow.
Intrastrectular Mouse TDLo = 16.474 mg/kg/1 d - Reproductive: Paternal effects: Testes, epididymis, sperm duct. Phage Inhibition Capacity - E. Coli - 16 mmol/L; Sex Chromosome Loss and Nondisjunction - Saccharomyces cerevisiae - 80 mmol/L.
IARC Listed: No
NTP Listed: No
O.S.H.A. Listed: No
Symptoms/Effects:
Ingestion: Harmful May cause: diarrhea loss of appetite loss of coordination gout anemia liver damage
Inhalation: Harmful May cause: difficult breathing gout anemia liver damage
Skin Absorption: May be harmful if absorbed through skin.
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.
Medical Conditions Aggravated: Pre-existing: Liver conditions Respiratory conditions Eye conditions

12. ECOLOGICAL INFORMATION

Product Ecological Information: 96 hr Oncorhynchus mykiss LC50 = 800 mg/L; 96 hr Fish LC50 = 1320 mg/L
Based on classification principles, not classified as hazardous to the environment. No bioaccumulation potential
Mobility in soil: Highly mobile
CEPA Categorization: Persistent Not Bioaccumulative Not inherently toxic to aquatic organisms
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. If permitted by regulation, 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. Otherwise, Check with national, local municipal and state authorities and waste contractors for pertinent local information on the disposal of this article.

Empty Containers: Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state or federal regulations. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P. A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.

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. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

D.O.T.:

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

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Hazard Class: NA

Subsidiary Risk: NA

ID Number: NA

Packing Group: NA

T.D.G.:

Proper Shipping Name: Not Currently Regulated

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Hazard Class: NA

Subsidiary Risk: NA

UN Number/PIN: NA

Packing Group: NA

I.C.A.O.:

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

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Hazard Class: NA

Subsidiary Risk: NA

ID Number: NA

Packing Group: NA

I.M.O.:

Proper Shipping Name: Not Currently Regulated

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Hazard Class: NA

Subsidiary Risk: NA

ID Number: NA

Packing Group: NA

Marine Pollutant:

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

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

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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.

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

CAS Number: 7631-95-0

Canadian Inventory Status: DSL Listed: Yes

EEC Inventory Status: EINECS Listed: Yes

Australian Inventory (AICS) Status: Listed

New Zealand Inventory (NZIoC) Status: Listed

Korean Inventory (KECI) Status: Listed - See anhydrous Chemical Abstract (CAS) Registry Number

Japan (ENCS) Inventory Status: Listed

China (PRC) Inventory (MEP) Status: Listed

16. OTHER INFORMATION

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. **Complete Text of H phrases referred to in Section 3:** H332 Harmful if inhaled. H302 Harmful if swallowed. H319 Causes serious eye irritation.

Revision Summary: . Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

Date of MSDS Preparation:

Day: 09

Month: June

Year: 2014

MSDS Prepared: MSDS prepared by Product Compliance Department extension 3350

CCOHS Evaluation Note: It is offered under the interim policy that was established by Health Canada permitting use of GHS-formatted safety data sheets in Canada prior to revision of CPR to GHS. This product has been classified and labeled in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3).

Legend:

NA - Not Applicable

ND - Not Determined

NV - Not Available

w/w - weight/weight

w/v - weight/volume

v/v - volume/volume

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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.

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