

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

MSDS No: M00026

# 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 ( $\text{MoO}_4^{2-}$ ), 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

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Hazardous Components according to GHS:**

**Sodium Molybdate**

**CAS Number:** 7631-95-0

**Chemical Formula:** Na<sub>2</sub>MoO<sub>4</sub> · 2H<sub>2</sub>O

**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/m<sup>3</sup> (as Mo)

**TLV:** 5 mg/m<sup>3</sup> (as Mo)

**WHMIS Symbols:** Acute Poison Other Toxic Effects

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### 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.

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### 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

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### 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

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### 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

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## 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/m<sup>3</sup> (as Mo)

**PEL:** 5 mg/m<sup>3</sup> (as Mo)

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

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## 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

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## 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

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## 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/m<sup>3</sup>/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.  
Intratesticular 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

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## 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

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## 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.

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## 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

**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.

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## 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

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## 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).

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**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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