



**Univar USA Inc.**  
**6100 Carillon Point**  
**Kirkland, WA 98033**  
**(425) 889-3400**

For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

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The Version Date and Number for this MSDS is : 03/22/2006 - #003

PRODUCT NAME: SODIUM MOLYBDATE DIHYDRATE  
MSDS NUMBER: P21567VS  
EFFECTIVE DATE: 5/21/2003  
SUPERSEDES: 10/2/1997  
ISSUED BY: 006480

This MSDS was reviewed on 3/22/2006, and is  
current as of the DATE ISSUED above.

HMIS RATING  
HEALTH 1  
FLAMMABILITY 0  
REACTIVITY 0  
PROTECTIVE EQUIPMENT

#### SECTION I. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Sodium molybdate dihydrate

Distributed by:  
Univar USA Inc.  
6100 Carillon Point  
Kirkland, WA 98033  
425-889-3400

Product Use: Industrial manufacturing, water treatment for corrosion

WHMIS Class: Class D - Division 2B  
Trade Names/Synonyms: Disodium molybdate dihydrate, sodium molybdate

24-Hour Emergency Phone  
Chemtrec: 1-800-424-9300

#### SECTION II. COMPOSITION / INFORMATION ON INGREDIENTS

CAS No. 10102-40-6\*

RTECS No. QA5075000

Chemical Name Sodium molybdate dihydrate

Exposure Limits Molybdenum, soluble compounds (as Mo)

OSHA PEL: 5 mg/m<sup>3</sup>

ACGIH TWA: 0.5 mg/m<sup>3</sup> R

% by wt 100

\* The chemical abstract service (CAS) number for the anhydrous form, sodium molybdate is 7631-95-0.

### SECTION III. HAZARDS IDENTIFICATION

Emergency Overview: Odorless, white opaque powder. Exposure to fine dust and small particles in excess of established exposure limit may cause irritation to eyes, skin, and respiratory system.

Route(s) of Entry: Ingestion, inhalation, skin, and eye contact.

Acute/Chronic Exposure: May cause irritation to eyes, skin and respiratory tract. However, ingestion of acute, high doses of molybdenum compounds may cause weakness and coma; repeated (chronic) inhalation overexposure may cause liver dysfunction with hyperbilirubinemia; and chronic ingestion may cause lack of appetite, diarrhea.

Carcinogenicity: (NTP) No (IARC) No (OSHA) No

### SECTION IV. FIRST AID MEASURES

Eye Contact: Wash eyes with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention.

Skin Contact: Remove contaminated clothes and shoes. Wash affected area with soap or a mild detergent and large amounts of water until no evidence of chemical remains (approximately 15-20 minutes). Seek medical attention if irritation persists.

Inhalation: Remove from exposure area to fresh air. If breathing has stopped, perform artificial respiration. Keep person warm and at rest. Get medical attention if symptoms persists.

Ingestion: Get medical attention if needed. If vomiting occurs, keep head lower than hips to prevent aspiration.

### SECTION V. FIRE FIGHTING MEASURES

Flash Pt: Not applicable

Flammable Limits in Air - Lower: Not applicable

Flammable Limits in Air - Upper: Not applicable

Auto Ignition Temperature: Not applicable

Fire Fighting Extinguishing Media:

Extinguish using agent suitable for type of surrounding fire.

Fire Fighting Equipment:

Full firefighting turn-out gear (bunker gear). Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

Fire Fighting Instructions:

No acute hazard. Move container from fire area if possible. Avoid breathing vapors or dusts; keep upwind.

Fire and Explosion Hazards:

Negligible fire hazard when exposed to heat or flame.

Unusual Hazards:

None

Hazardous Combustion Products:

Thermal decomposition may release toxic and/or hazardous gases.

### SECTION VI. ACCIDENTAL RELEASE MEASURES

Occupational Spill: Use clean-up methods that avoid dust generation (vacuum, wet). Contain liquid or dry material and place in suitable clean, dry containers for reclamation or later disposal. Do not flush spilled material into sewer. Keep unnecessary people away.

#### SECTION VII. HANDLING AND STORAGE

Signal Word: Caution

Handling Information: Observe applicable federal, state and local provisions when handling or storing this substance.

Storage Information: Store away from incompatible substances.  
(See Section X.)

#### SECTION VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Provide local exhaust ventilation system to meet published exposure limits.

Eye Protection: Employee should wear safety glasses or dust-resistant safety goggles to prevent eye contact.

Emergency Eyewash: Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain within the immediate work area for emergency use.

Skin Protection: Employee should wear appropriate protective clothing and equipment to prevent repeated or prolonged skin contact.

Gloves: Employee should wear appropriate protective gloves.

Respiratory Protection: Use respirator suitable for levels of dust/fume in the work environment. If respirators are worn establish a respiratory protection program that meets federal, state and local standards.

For firefighting and other immediately dangerous to life or health conditions: Any self-contained breathing apparatus that has a full face piece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

#### SECTION IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White powder

Melting Point: 1269 deg F (687 deg C) (anhydrous)

Flash Point: Not available

Boiling Point: Not available

Specific Gravity: 3.28 (anhydrous)

Vapor Pressure: Not applicable

Vapor Density: Not applicable

Solubility in Water: 65 g/100 cm<sup>3</sup> @ 20 deg C

Solvent solubility: Slightly soluble in methanol and acetone

pH: 9-10 @ 5% solution

Molecular Weight: 241.95

Molecular Formula: Na<sub>4</sub>MoO<sub>4</sub> · 2(H<sub>2</sub>O)

Other: Loses water of hydration above 212 deg F

#### SECTION X. STABILITY AND REACTIVITY

Stability/Reactivity: Stable under normal temperatures and pressures.

Conditions to avoid: May burn but does not ignite readily. Avoid contact with strong reducing agents such as hydrocarbons, excessive heat, sparks, or open flame.

Incompatibility: None identified.

Hazardous Decomposition Products: Thermal decomposition products may include toxic sodium oxide.

Hazardous Polymerization: Has not been reported to occur under normal temperatures and pressures

## SECTION XI. TOXICOLOGICAL INFORMATION

Sodium molybdate dihydrate

Test: 1

LD/LC: LD50

Test Type: Acute

Test Route: Oral

Test Species: rat

Results Amounts: 4233 mg/kg

Test: 2

LD/LC: LC50

Test Type: Acute

Test Route: Inhalation, 4-Hr

Test Species: rat

Results Amounts: >1.93 mg/l#

Test: 3

LD/LC: LD50

Test Type: Acute

Test Route: Dermal

Test Species: rat

Results Amounts: >2000 mg/kg

Carcinogen status: None.

Mutagenic data: No data available

Target effects: Poisoning may affect the liver and kidneys.\*

Eye Irritation: Instillation of sodium molybdate into the rabbit eye elicited transient very slight conjunctival inflammation only.

Skin Irritation: A single semi-occlusive application of sodium molybdate to intact rabbit skin for four hours elicited no dermal irritation

Inhalation Toxicity: Acute exposure may cause respiratory tract irritation.

Chronic exposure of workmen in a molybdenum-copper plant produced liver dysfunction with hyperbilirubinemia.

Ingestion: Acute high dose in animals have caused dyspnea, anorexia, colic, trembling, and incoordination. Listlessness, anemia, and deformities of the forelegs were reported. There is a correlation between high molybdenum content in food and the incidence of gout, uricemia, and xanthine oxidase activity. In animals, molybdenum may interfere with copper metabolism.

Skin Contact: Among chemists handling solutions of molybdenum and tungsten, there was a high incidence of gout.

Medical conditions aggravated by exposure (at increased risk from exposure): Persons with pre-existing respiratory, kidney, or blood disorders or gout.\* May be excreted in breast milk.

Additional Information: The levels of copper, sulfur, and zinc in the diet may have an effect on toxicity.\*

# It was not possible to generate a dust cloud of 5 mg/l, but even at the highest possible concentrations generated, there were no animal deaths

\* Based on general information on soluble molybdenum compounds.

## SECTION XII. ECOLOGICAL INFORMATION

Sodium molybdate dihydrate

Test: 1

LD/LC: LC50

Test Type: Acute 96 hr

Test Species: Fish, rainbow trout (*Oncorhynchus mykiss*)  
Results Amounts: 7600 mg/l

Test: 2  
LD/LC: EC50  
Test Type: Acute 48 hr (immobilisation)  
Test Species: *Daphnia Magna*  
Results Amounts: 330 mg/l

Test: 3  
LD/LC: IC50  
Test Type: 72 hr Algal growth  
Test Species: *Selenastrum Capricornutum*  
Results Amounts: >100 mg/l

Bioaccumulative potential: No data available  
Acute bacterial toxicity: Tests on *Pseudomonas putida* NCTC 10936, conducted in compliance with UK, US, Japanese and OECD GLP Standards, established a toxic concentration of 50 ppm. The toxic concentration was taken to be the concentration causing a 10% reduction in the mean turbidity of test substance cultures compared with control growth cultures.

#### SECTION XIII. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Waste must be disposed of in accordance with federal, state/provincial, and local environmental control regulations. Improper disposal is a violation of law. If allowed by federal, state/provincial and local authorities, dispose of container in a sanitary landfill or by incineration.

#### SECTION XIV. TRANSPORT INFORMATION

Not regulated by DOT or TDG.

#### SECTION XV. REGULATORY INFORMATION

US Federal

RCRA: Not listed.

Clean Air Act: Not listed.

Clean Water Act: This product is not identified in 40 CFR 116.4, but in contact with water could dissociate into compounds listed in 40 CFR 116.4.  
Safe Drinking Water Act: This product could contain minor impurities, such as chromium, for which there are Maximum Concentration Limits established. See 40 CFR 141.62.

EPCRA, SARA Title III, Section 313 (chemicals subject to reporting requirements, see Section II for CAS number and percentage in mixture: Section 312 reporting may be required for this product, depending on the quantity stored on-site.

CERCLA Hazardous Substances: CERCLA reporting for releases into the environment may be required in the event of thermal decomposition.

DOT: See Section XIII TRANSPORT INFORMATION

TSCA Inventory Status: YES

TSCA 12 (B) Export Notification: Not listed

OSHA Process Safety: No

DOT: See Section XIII TRANSPORT INFORMATION

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Product Regulations.

#### SECTION XVI. OTHER INFORMATION

For Additional Information:

Contact: MSDS Coordinator - Univar USA

During business hours, Pacific Time - (425) 889-3400

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END OF MSDS