

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Molybdate 3 Reagent for Silica
Catalog Number: 199532

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: M00187

Chemical Name: Not applicable

CAS No.: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Hazard: Causes eye burns. Harmful if inhaled. Contains a recognized carcinogen.

Date of MSDS Preparation:

Day: 15

Month: October

Year: 2009

2. COMPOSITION / INFORMATION ON INGREDIENTS

Demineralized Water

CAS No.: 7732-18-5

TSCA CAS Number: 7732-18-5

Percent Range: 60.0 - 70.0

Percent Range Units: volume / volume

LD50: None reported

LC50: None reported

TLV: Not established

PEL: Not established

Hazard: No effects anticipated.

Molybdic Acid

CAS No.: 7782-91-4

TSCA CAS Number: 7782-91-4

Percent Range: 5.0 - 15.0

Percent Range Units: weight / volume

LD50: None reported

LC50: None reported

TLV: 10 mg/m³ as Mo

PEL: 5 mg/m³ Respirable Dust; 15 mg/m³ Total Dust

Hazard: Toxic. Causes irritation.

Sodium Bisulfate

CAS No.: 10034-88-5

TSCA CAS Number: 7681-38-1

Percent Range: 10.0 - 20.0

Percent Range Units: weight / volume

LD50: Oral rat LD50 = 2828 mg/kg; Oral rat LD50 = 1600 mg/kg

LC50: None reported

TLV: Not established

PEL: Not established

Hazard: Causes eye burns. Causes irritation.

Sulfuric Acid

CAS No.: 7664-93-9
TSCA CAS Number: 7664-93-9
Percent Range: 5.0 - 15.0
Percent Range Units: volume / volume
LD50: Oral rat LD50 = 2140 mg/kg.
LC50: Inhalation rat LC50 = 87 ppm/4 hr
TLV: 1 mg/m³ (TWA); 3 mg/m³ (STEL)
PEL: 1 mg/m³
Hazard: Causes severe burns. Harmful if inhaled. Recognized carcinogen.

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Clear, colorless to light yellow liquid
Odor: Not determined
CAUSES EYE BURNS HARMFUL IF INHALED

HMIS:

Health: 3
Flammability: 0
Reactivity: 1
Protective Equipment: X - See protective equipment, Section 8.

NEPA:

Health: 3
Flammability: 0
Reactivity: 1
Symbol: Not applicable

Potential Health Effects:

Eye Contact: Causes eye burns.
Skin Contact: May cause irritation
Skin Absorption: None reported
Target Organs: None reported
Ingestion: May cause: burns of the mouth and esophagus nausea vomiting diarrhea circulatory disturbances rapid pulse and respirations loss of appetite anemia liver damage Molybdenum compounds may cause loss of coordination, enzyme activity effects, copper deficiency and gout.

Target Organs: Liver

Inhalation: May cause: irritation of nose and throat difficult breathing teeth erosion mouth soreness anemia liver damage

Target Organs: Liver Teeth

Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions Respiratory conditions Liver conditions Gout

Chronic Effects: Molybdenum poisoning signs include loss of appetite, listlessness and reduced growth rate. Excessive exposure to molybdenum compounds may cause gout and anemia. Chronic overexposure may cause enzyme activity effects copper deficiency erosion of the teeth chronic irritation or inflammation of the lungs cancer

Cancer / Reproductive Toxicity Information:

This product does NOT contain any OSHA listed carcinogens.

An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen
Sulfuric Acid - The IARC evaluation was based on exposure to the mist or vapor of concentrated sulfuric acid generated during chemical processes.

This product does NOT contain any NTP listed chemicals.

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. Call physician if irritation develops.

Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Never give anything by mouth to an unconscious person. Call physician immediately.

Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

5. FIRE FIGHTING MEASURES

Flammable Properties: During a fire, corrosive and toxic gases may be generated by thermal decomposition.

Flash Point: > 212 °F; > 100 °C

Method: Closed cup

Flammability Limits:

Lower Explosion Limits: Not applicable

Upper Explosion Limits: Not applicable

Autoignition Temperature: Not applicable

Hazardous Combustion Products: None reported

Fire / Explosion Hazards: None reported

Static Discharge: None reported.

Mechanical Impact: None reported

Extinguishing Media: Water. Dry chemical. Carbon dioxide

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: Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment. Dike large spills to keep spilled material from entering sewage and drainage systems or bodies of water.

Clean-up Technique: Cover spilled material with an alkali, such as soda ash or sodium bicarbonate. Scoop up slurry into a large beaker. Dilute with a large excess of water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. 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 local area (15 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. If conditions warrant, increase the size of the evacuation.

Special Instructions (for accidental release): Mixture contains a component which is regulated as a water pollutant. Product is regulated as RCRA hazardous waste.

304 EHS RQ (40 CFR 355): Sulfuric Acid - RQ 1000 lbs.

D.O.T. Emergency Response Guide Number: 154

7. HANDLING / STORAGE

Handling: Avoid contact with eyes skin clothing Do not breathe mist or vapors. Wash thoroughly after handling. Use with adequate ventilation. Maintain general industrial hygiene practices when using this product.

Storage: Store between 10° and 25°C. Keep away from: oxidizers reducers alkalies

Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Have a safety shower 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: chemical splash goggles

Skin Protection: lab coat disposable latex gloves
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: mist/vapor Wash thoroughly after handling. Use with adequate ventilation. Keep away from: oxidizers reducers alkalies
TLV: Not established
PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless to light yellow liquid
Physical State: Liquid
Molecular Weight: Not applicable
Odor: Not determined
pH: < 0.5
Vapor Pressure: Not determined
Vapor Density (air = 1): Not determined
Boiling Point: ~ 100 °C
Melting Point: Not applicable
Specific Gravity (water = 1): 1.2 - 1.3
Evaporation Rate (water = 1): Not determined
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not determined
Solubility:
Water: Soluble
Acid: Soluble
Other: Not determined
Metal Corrosivity:
Steel: 5.97 in/yr (151.6 mm/yr)
Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Extreme temperatures Heating to decomposition.
Reactivity / Incompatibility: Incompatible with: reducers oxidizers strong bases
Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: sulfur oxides
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: Skin rabbit: 3-min: Very slight erythema, no edema @ 1 hr; 1-hr: Erythema and edema, absent - very slight @ 1 hr, clear by 24 hr; 4-hr: Erythema, absent to very slight @ 1hr, clear by 24 hr, edema absent.
Mutation Data: None reported
Reproductive Effects Data: None reported
Ingredient Toxicological Data: Sulfuric Acid: Oral rat LD₅₀ = 2140 mg/kg; Inhalation rat LC₅₀ = 347 ppm/ 1 hour.
Sodium Bisulfate: Oral rat LD₅₀ = 2828 mg/kg; Oral rat LD₅₀ = 1600 mg/kg.

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: Sulfuric Acid: The 48-Hour TLm in flounder is 100-300 ppm.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: D002

Special Instructions (Disposal): Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. 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. 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.

14. TRANSPORT INFORMATION

D.O.T.:

D.O.T. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S.
(Sulphuric Acid/Sodium Bisulphate Solution)

DOT Hazard Class: 8

DOT Subsidiary Risk: NA

DOT ID Number: UN3264

DOT Packing Group: III

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S.
(Sulphuric Acid/Sodium Bisulphate Solution)

ICAO Hazard Class: 8

ICAO Subsidiary Risk: NA

ICAO ID Number: UN3264

ICAO Packing Group: III

I.M.O.:

I.M.O. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S.
(Sulphuric Acid/Sodium Bisulphate Solution)

I.M.O. Hazard Class: 8

I.M.O. Subsidiary Risk: NA

I.M.O. ID Number: UN3264

I.M.O. Packing Group: III

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 Reactive

S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.

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302 (EHS) TPQ (40 CFR 355): Sulfuric Acid 1000 lbs.

304 CERCLA RQ (40 CFR 302.4): Sulfuric Acid 1000 lbs.

304 EHS RQ (40 CFR 355): Sulfuric Acid - RQ 1000 lbs.

Clean Water Act (40 CFR 116.4): Sulfuric acid - RQ 1000 lbs.

RCRA: Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.

C.P.S.C.: The label for this product bears the signal word "POISON" because the concentration of Sulfuric Acid in the product is greater than/equal to 10%.

State Regulations:

California Prop. 65: No Prop. 65 listed chemicals are present in this product.

Identification of Prop. 65 Ingredient(s): None

California Perchlorate Rule CCR Title 22 Chap 33:

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

TSCA CAS Number: Not applicable

16. OTHER INFORMATION

Intended Use: Silica determination

References: CCINFO MSDS/FTSS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. In-house information. Technical Judgment. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987.

Revision Summary: Updates in Section(s) 2,

Legend:

NA - Not Applicable

ND - Not Determined

NV - Not Available

w/w - weight/weight

w/v - weight/volume

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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