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MSDS No: M00997

# SAFETY DATA SHEET

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product Name:** Molybdate Reagent Solution  
**Catalog Number:** 2599849

HACH LANGE GmbH  
Willstätterstrasse 11  
40549 Düsseldorf, Germany  
+49-(0)211-52880

Emergency Telephone Numbers:  
(Poison Information Center Main)  
(+49 (0) 6131 19240) 24 HR

**SDS Number:** M00997

**Chemical Name:** Not applicable

**Chemical Formula:** Not applicable

**Chemical Family:** Not applicable

**Use of the substance/preparation:** Phosphate determination

**CAS No.:** Not applicable

**Hazard:** Harmful if inhaled. Recognized carcinogen. Causes eye burns.

**Date of MSDS Preparation:**

**Day:** 12

**Month:** 01

**Year:** 2006

**Additional Emergency Response Numbers:** Austria: +49 (0)6131 19240, Belgium: +32-(0)70-245245, France: +33 (0)1-40370404, Italy: +39-0266101029, Netherlands: +31 -(0)30-2748888, Switzerland: +41-(0)1-2515151

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

### Ammonium Molybdate

**EEC Number:** 2347224

**CAS No.:** 12054-85-2

**Percent Range:** 1,0 - 10,0

**Percent Range Units:** weight / volume

**Ingredient EEC Symbol:** Not applicable

**Ingredient R phrase(s) (R phrase details given in Heading 16):** Not applicable

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

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

**EU Occupational Exposure Limits:** 5 mg/m<sup>3</sup> as Mo. 3 mg/m<sup>3</sup>, Inhalable dust. For ammonia, 20 ppm (14 mg/m<sup>3</sup>);

**STEL:** 50 ppm (36 mg/m<sup>3</sup>) Recommended

### Demineralized Water

**EEC Number:** 2317912

**CAS No.:** 7732185

**Percent Range:** 60,0 - 70,0

**Percent Range Units:** volume / volume

**Ingredient EEC Symbol:** Not applicable

**Ingredient R phrase(s) (R phrase details given in Heading 16):** Not applicable

**TLV:** Not established

**PEL:** Not established

**EU Occupational Exposure Limits:** Not established

### Other component

**EEC Number:** Not applicable

**CAS No.:** Not applicable

**Percent Range:** < 1,0

**Percent Range Units:** weight / volume  
**Ingredient EEC Symbol:** Not applicable  
**Ingredient R phrase(s) (R phrase details given in Heading 16):** Not applicable  
**TLV:** Not established  
**PEL:** Not established  
**EU Occupational Exposure Limits:** Not established

#### **Sulfuric Acid**

**EEC Number:** 2316395  
**CAS No.:** 7664939  
**Percent Range:** 20,0 - 30,0  
**Percent Range Units:** weight / weight  
**Ingredient EEC Symbol:** C - CORROSIVE  
**Ingredient R phrase(s) (R phrase details given in Heading 16):** R 35  
**TLV:** 1 mg/m<sup>3</sup> (TWA); 3 mg/m<sup>3</sup> (STEL)  
**PEL:** 1 mg/m<sup>3</sup>  
**EU Occupational Exposure Limits:** 0,1 mg/m<sup>3</sup>

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### **3. HAZARDS IDENTIFICATION**

#### ***Emergency Overview:***

**Appearance:** Colorless to light blue liquid  
**Odor:** Sulfur-like  
**EU Symbols:** C - CORROSIVE  
**R PHRASES:** R 35: Causes severe burns.

#### ***Protective Equipment:***

#### ***Potential Health Effects:***

**Eye Contact (EC):** Causes severe burns  
**Skin Contact (EC):** Causes severe burns  
**Skin Absorption (EC):** None Reported  
**Target Organs (SA E):** None Reported  
**Ingestion (EC):** Causes: severe burns circulatory disturbances nausea vomiting diarrhea rapid pulse and respirations coma death  
**Target Organs (Ing E):** None Reported  
**Inhalation:** Causes: severe burns difficult breathing mouth soreness teeth erosion  
**Target Organs (Inh E):** Lungs Teeth  
**Medical Conditions Aggravated:** Pre-existing: Eye conditions Skin conditions Respiratory conditions  
**Chronic Effects:** Chronic overexposure may cause chronic irritation or inflammation of the lungs erosion of the teeth cancer  
**Cancer / Reproductive Toxicity Information:**  
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.  
**Additional Cancer / Reproductive Toxicity Information:** None reported  
**Toxicologically Synergistic Products:** None reported

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### **4. FIRST AID MEASURES**

**Eye Contact:** Immediately flush eyes with water for 15 minutes. Call physician.  
**Skin Contact (First Aid):** Wash skin with plenty of water for 15 minutes. Remove contaminated clothing. Call physician immediately.  
**Ingestion (First Aid):** Do not induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.  
**Inhalation:** Remove to fresh air. Give artificial respiration if necessary. Call physician.

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### **5. FIRE FIGHTING MEASURES**

**Flammable Properties:** Not Flammable, but reacts with most metals to form flammable hydrogen gas. During a fire, corrosive and toxic gases may be generated by thermal decomposition.

**Hazardous Combustion Products:** This material will not burn.

**Fire / Explosion Hazards:** Contact with metals gives off hydrogen gas which is flammable. May react violently with strong bases.

**Static Discharge:** None reported.

**Mechanical Impact:** None reported.

**Extinguishing Media:** Dry chemical. Do NOT use water.

**Extinguishing Media NOT To Be Used:** Not applicable. Do NOT use water.

**Fire Fighting Instruction:** As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

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## 6. ACCIDENTAL RELEASE MEASURES

### **Spill Response Notice:**

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

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

**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. Use sulfuric or citric acid to lower pH. Use soda ash or sodium bicarbonate to increase pH. 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: a gallon or more of liquid is spilled. If conditions warrant, increase the size of the evacuation.

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## 7. HANDLING AND STORAGE

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

**Storage:** Keep container tightly closed when not in use.

**Special Packaging Instructions:** Not applicable.

**Use of the substance/preparation:** Phosphate determination.

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## 8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

**Engineering Controls:** Have an eyewash station nearby. Have a safety shower nearby. Use a fume hood to avoid exposure to dust, mist or vapor. Maintain general industrial hygiene practices when using this product.

### **Personal Protective Equipment:**

**Eye Protection:** chemical splash goggles

**Skin / Hand Protection:** disposable latex gloves, lab coat

**Inhalation Protection:** laboratory fume hood

**Precautionary Measures:** Avoid contact with: eyes, skin, clothing. Do not breathe: mist/vapor. Wash thoroughly after handling.

**TLV:** Not established

**PEL:** Not established

**EU Occupational Exposure Limits:** Not established

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## 9. PHYSICAL / CHEMICAL PROPERTIES

**Appearance:** Colorless to light blue liquid

**Physical State:** Liquid

**Odor:** Sulfur-like

**pH:** 0,05

**Vapor Pressure:** Not determined

**Vapor Density (air = 1):** Not determined

**Boiling Point:** 111° C (232° F)

**Melting Point:** Not determined

**Flash Point:** Not applicable

**Method:** Not applicable

**Autoignition Temperature:** Not applicable

**Flammability Limits:**

**Lower Explosion Limits:** Not applicable

**Upper Explosion Limits:** Not applicable  
**Specific Gravity (water = 1):** 1,285  
**Evaporation Rate (water = 1):** 0,47  
**Volatile Organic Compounds Content:** Not applicable  
**Partition Coefficient (n-octanol / water):** Not applicable  
**Solubility:**  
**Water:** Miscible  
**Acid:** Miscible  
**Other:** Not determined  
**Metal Corrosivity:**  
**Steel:** >0,25 in/yr  
**Aluminum:** Not determined

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## 10. STABILITY / REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.  
**Conditions to Avoid:** Heating to decomposition.  
**Reactivity / Incompatibility:** May react violently in contact with: strong bases reducers acetic acid chlorosulfonic acid  
Incompatible with: oxidizers metals  
**Hazardous Decomposition:** Heating to decomposition releases toxic and/or corrosive fumes of: sulfur oxides Contact with metals may release flammable hydrogen gas.  
**Hazardous Polymerization:** Will not occur.

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## 11. TOXICOLOGICAL INFORMATION

**Product Toxicological Data:**

**LD50:** None reported

**LC50:** None reported

**Dermal Toxicity Data:** None reported

**Skin and Eye Irritation Data:** This product is not corrosive to skin. Slight to well defined erythema. Absent to slight edema. (OECD Number 404, Acute Dermal Irritation/Corrosion)

**Mutation Data:** None reported

**Reproductive Effects Data:** None reported

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**Ingredient Toxicological Data:** Sulfuric Acid: Oral rat LD50 = 2140 mg/kg, Inhalation rat LC50 = 87 ppm/4hr, Inhalation guinea pig LC50 = 18 mg/m<sup>3</sup>; Ammonium Molybdate: Oral rat LD50 = 333 mg/kg

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.

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## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --

No ecological data available for this product.

**Ingredient Ecological Information:** Sulfuric Acid: 48-hour TLm in flounder = 100-300 ppm

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## 13. DISPOSAL CONSIDERATIONS

**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

**I.C.A.O.:**

**I.C.A.O. Proper Shipping Name:** Corrosive Liquid, Acidic, Inorganic, N.O.S.  
(<45% Sulfuric Acid in Solution)

**ICAO Hazard Class:** 8  
**ICAO Subsidiary Risk:** NA  
**ICAO UN/ID Number:** UN3264  
**ICAO Packing Group:** III

**I.M.O.:**

**I.M.O. Proper Shipping Name:** Corrosive Liquid, Acidic, Inorganic, N.O.S.  
(<45% Sulfuric Acid in Solution)  
**I.M.O. Hazard Class:** 8  
**I.M.O. Subsidiary Risk:** NA  
**I.M.O. UN Number:** UN3264  
**I.M.O. Packing Group:** III

**A.D.R.:**

**A.D.R. Proper Shipping Name:** Corrosive Liquid, Acidic, Inorganic, N.O.S.  
(<45% Sulfuric Acid in Solution)  
**A.D.R Hazard Class:** 8  
**A.D.R. Subsidiary Risk:** NA  
**A.D.R. UN-Number:** 3264  
**A.D.R. Packing Group:** III

**Additional Information:** This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

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## 15. REGULATORY INFORMATION

**National Inventories:**

**EEC Inventory Status:** All ingredients used to make this product are listed on EINECS / ELINCS.

**EEC Number:** Not applicable

**EEC LABEL COPY:**

**EU Symbols:** C - CORROSIVE

**R PHRASES:** R 35: Causes severe burns.

**S PHRASES:** S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 36/37/39: Wear suitable protective clothing, gloves and eye/face protection. S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

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## 16. OTHER INFORMATION

**References:** 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. In-house information. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987. Technical Judgment.

**R PHRASES:** R 35: Causes severe burns.

**Use of the substance/preparation:** Phosphate determination

**Revision Summary:** Updates in Section(s) 14,

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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.

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