

The following list contains the Material Safety Data Sheets you requested. Please scroll down to view the requested MSDS(s).

Product	MSDS	Distributor	Format	Language	Quantity
2606945	2395266	Hach Company	WHMIS	English	1
2606945	2395466	Hach Company	WHMIS	English	1
2606945	2607000	Hach Company	WHMIS	English	1
2106028	N/A	Hach Company	WHMIS	English	1
2106028	2106069	Hach Company	ROWGHS	English	1
212599	N/A	Hach Company	WHMIS	English	1
220928	N/A	Hach Company	WHMIS	English	1
220999	N/A	Hach Company	WHMIS	English	1
1400153	N/A	Hach Company	WHMIS	English	1

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Total Enclosures: 9

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

MSDS No: M00127

# MATERIAL SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Ammonia Salicylate Reagent  
**Catalog Number:** 2395266

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:** M00127

**Chemical Name:** Not applicable

**CAS No.:** Not applicable

**Chemical Formula:** Not applicable

**Chemical Family:** Not applicable

**PIN:** NA

**Intended Use:** Laboratory Use Reagent for ammonia test

**Date of MSDS Preparation:**

**Day:** 06

**Month:** July

**Year:** 2011

**MSDS Prepared:** MSDS prepared by Product Compliance Department extension 3350

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## 2. HAZARDS IDENTIFICATION

**Emergency Overview:**

**Appearance:** Tan powder

**Physical State:** Solid

**Odor:** None

HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION

CONTACT WITH ACIDS FORMS TOXIC FUMES

**HMIS:**

**Health:** 3

**Flammability:** 1

**Reactivity:** 0

**Protective Equipment:** X - See protective equipment, Section 8.

**Potential Health Effects:**

**Eye Contact:** May cause irritation

**Skin Contact:** May cause irritation

**Skin Absorption:** Harmful if absorbed through the skin Effects similar to those of ingestion Sodium nitroferrocyanide produces a delayed cyanide poisoning reaction.

**Target Organs:** Central nervous system Blood

**Ingestion:** Sodium nitroferrocyanide produces a delayed cyanide poisoning reaction. May cause: headache nausea vomiting central nervous system effects

**Target Organs:** Central nervous system Blood

**Inhalation:** Sodium nitroferrocyanide produces a delayed cyanide poisoning reaction. May cause: headache nausea, vomiting central nervous system effects

**Target Organs:** Central nervous system Blood

**Medical Conditions Aggravated:** Allergies or sensitivity to aspirin or salicylates.

**Chronic Effects:** Chronic overexposure may cause confusion diarrhea fatigue weakness death Salicylates may cause ringing in the ears (tinnitus), abnormal bleeding, gastric ulceration, mental deterioration, skin eruption, temporary vision loss, and other optical effects.

**Cancer / Reproductive Toxicity Information:**

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

**Additional Cancer / Reproductive Toxicity Information:** Contains: an experimental mutagen. an experimental teratogen.

**Toxicologically Synergistic Products:** None reported

**WHMIS Hazard Classification:** Class D, Division 2, Subdivision A - Very toxic materials (other toxic effects)

**WHMIS Symbols:** Other Toxic Effects

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Sodium Salicylate**

**Percent Range:** 40.0 - 50.0

**Percent Range Units:** weight / weight

**CAS No.:** 54-21-7

**LD50:** Oral rat LD<sub>50</sub> = 1200 mg/kg; Oral mouse LD<sub>50</sub> = 540 mg/kg; Oral rabbit LD<sub>50</sub> = 1700 mg/kg.

**LC50:** None reported.

**TLV:** Respirable particles: 3 mg/m<sup>3</sup>; Inhalable particles: 10 mg/m<sup>3</sup>

**PEL:** Total dust: 15 mg/m<sup>3</sup>; Respirable fraction: 5 mg/m<sup>3</sup>

**Ingredient WHMIS Symbol:** Other Toxic Effects

**Sodium Nitroferri cyanide**

**Percent Range:** < 1.0

**Percent Range Units:** weight / weight

**CAS No.:** 14402-89-2

**LD50:** Oral rat LD<sub>50</sub> = 99 mg/kg (anhydrous).

**LC50:** None reported.

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

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

**Ingredient WHMIS Symbol:** Other Toxic Effects

**m - Nitrophenol**

**Percent Range:** < 0.5

**Percent Range Units:** weight / weight

**CAS No.:** 554-84-7

**LD50:** Oral rat LD<sub>50</sub> = 328 mg/kg; Oral mouse LD<sub>50</sub> = 1070 mg/kg.

**LC50:** None reported.

**TLV:** Not established.

**PEL:** Not established.

**Ingredient WHMIS Symbol:** Not applicable

**Sodium Citrate**

**Percent Range:** 40.0 - 50.0

**Percent Range Units:** weight / weight

**CAS No.:** 68-04-2

**LD50:** Oral rat LD50 >8 g/Kg

**LC50:** None Reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Not applicable

**Sodium Tartrate**

**Percent Range:** 10.0 - 20.0

**Percent Range Units:** weight / weight  
**CAS No.:**  
**LD50:** Oral rabbit LD50 = 5290 mg/kg  
**LC50:** None Reported  
**TLV:** Not established  
**PEL:** Not established  
**Ingredient WHMIS Symbol:** Not applicable

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#### 4. FIRST AID MEASURE

**Eye Contact:** Immediately flush eyes with water for 15 minutes. Call physician.  
**Skin Contact (First Aid):** Wash skin with soap and plenty of water for 15 minutes. Remove contaminated clothing. Call physician immediately.  
**Ingestion (First Aid):** Never give anything by mouth to an unconscious person. Call physician immediately.  
**Inhalation:** Remove to fresh air. Give artificial respiration if necessary. Call physician.

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#### 5. FIRE FIGHTING MEASURES

**Flammable Properties:** During a fire, this product decomposes to form toxic gases.  
**Flash Point:** Not applicable  
**Method:** Not applicable  
**Flammability Limits:**  
    **Lower Explosion Limits:** Not applicable  
    **Upper Explosion Limits:** Not applicable  
**Autoignition Temperature:** Not determined.  
**Hazardous Combustion Products:** May emit acrid smoke and fumes.  
**Fire / Explosion Hazards:** This product will not burn or explode.  
    **Static Discharge:** None reported.  
    **Mechanical Impact:** None reported  
**Extinguishing Media:** Dry chemical. Carbon dioxide. Alcohol foam.  
**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.

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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:** Releases of this material may contaminate the environment. Stop spilled material from being released to the environment.  
**Clean-up Technique:** Avoid contact with spilled material. Sweep up material. Dilute with a large excess of water. Flush the spilled 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 pound or more of loose powder is spilled. If conditions warrant, increase the size of the evacuation.  
**D.O.T. Emergency Response Guide Number:** None

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#### 7. HANDLING AND STORAGE

**Handling:** Avoid contact with eyes skin clothing Do not breathe dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.  
**Storage:** Store between 10° and 25°C. Keep away from: acids / acid fumes. oxidizers

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#### 8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

**Engineering Controls:** Use a fume hood to avoid exposure to dust, mist or vapor.  
**Personal Protective Equipment:**  
    **Eye Protection:** safety glasses with top and side shields

**Skin Protection:** lab coat disposable latex gloves In the EU, the selected gloves must satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it.

**Inhalation Protection:** laboratory fume hood

**Precautionary Measures:** eyes skin clothing Do not breathe: dust Wash thoroughly after handling. Use with adequate ventilation. Keep away from: acids/acid fumes oxidizers

**TLV:** Not established.

**PEL:** Not established.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Tan powder

**Physical State:** Solid

**Molecular Weight:** Not applicable

**Odor:** None

**pH:** 7.84 (5% solution)

**Vapor Pressure:** Not applicable

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

**Boiling Point:** Not applicable

**Melting Point:** 97°C (206.6°F)

**Specific Gravity/ Relative Density (water = 1; air =1):** 1.689

**Evaporation Rate (water = 1):** Not applicable

**Volatile Organic Compounds Content:** None.

**Coefficient of Water / Oil:** Not applicable

**Solubility:**

**Water:** Soluble.

**Acid:** Soluble.

**Other:** Not determined.

**Metal Corrosivity:**

**Steel:** Not applicable

**Aluminum:** Not applicable

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## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.

**Conditions to Avoid:** Heating to decomposition. Extreme temperatures

**Reactivity / Incompatibility:** Incompatible with: acids iodine iron salts lead acetate organic materials oxidizers silver nitrate sodium phosphate

**Hazardous Decomposition:** Heating to decomposition releases toxic and/or corrosive fumes of: cyanide nitrogen oxides sodium oxides

**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:** None reported.

**Mutation Data:** None reported.

**Reproductive Effects Data:** None reported.

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**Ingredient Toxicological Data:** Sodium Salicylate: Oral rat LD<sub>50</sub> = 1200 mg/kg; Sodium Citrate: Oral rat LD<sub>50</sub> > 8 g/kg; Sodium Tartrate: Oral rabbit LD<sub>50</sub> = 5290 mg/kg; Sodium Nitroferricyanide: Oral rat LD<sub>50</sub> = 99 mg/kg.

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## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --

No ecological data available for this product.

**Ingredient Ecological Information:**

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## 13. DISPOSAL CONSIDERATIONS

**Special Instructions (Disposal):** Dilute to 3 to 5 times the volume with cold water. Flush system with plenty of water.

**Empty Containers:** Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.

**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.

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## 14. TRANSPORT INFORMATION

**T.D.G.:**

**Proper Shipping Name:** Not Currently Regulated

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**Hazard Class:** NA

**PIN:** NA

**Group:** NA

**Subsidiary Risk:** 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

**National Inventories:**

**Canadian Inventory Status:** All ingredients of this product are DSL/NDSL Listed.

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

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## 16. OTHER INFORMATION

**References:** TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Technical Judgment. Sixth Annual Report on Carcinogens, 1991. U.S. Department of Health and Human Services. Rockville, MD: Technical Resources, Inc. 1991. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 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. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Cassaret and Doull's Toxicology, 3rd Ed. New York: Macmillan Publishing Co., Inc., 1986. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor).

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### 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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(970) 669-3050

MSDS No: M00128

# MATERIAL SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Ammonia Cyanurate Reagent  
**Catalog Number:** 2395466

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:** M00128  
**Chemical Name:** Not Applicable  
**CAS No.:** Not Applicable  
**Chemical Formula:** Not Applicable  
**Chemical Family:** Not applicable  
**PIN:** 1759  
**Intended Use:** Laboratory Use Reagent for ammonia test  
**Date of MSDS Preparation:**  
**Day:** 11  
**Month:** July  
**Year:** 2011  
**MSDS Prepared:** MSDS prepared by Product Compliance Department extension 3350

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## 2. HAZARDS IDENTIFICATION

**Emergency Overview:**

**Appearance:** White powder

**Physical State:** Solid

**Odor:** Chlorine

CAUSES BURNS HARMFUL IF SWALLOWED

MAY CAUSE KIDNEY OR LIVER DAMAGE BASED ON ANIMAL DATA

**HMIS:**

**Health:** 3

**Flammability:** 1

**Reactivity:** 1

**Protective Equipment:** X - See protective equipment, Section 8.

**Potential Health Effects:**

**Eye Contact:** Causes eye burns.

**Skin Contact:** Causes burns.

**Skin Absorption:** None Reported

**Target Organs:** None Reported

**Ingestion:** Causes: burns May cause: dizziness nausea kidney damage liver damage

**Target Organs:** Liver Kidneys Central nervous system Bone marrow

**Inhalation:** Causes: burns May cause: shortness of breath coughing

**Target Organs:** None reported

**Medical Conditions Aggravated:** Pre-existing: Eye conditions Skin conditions Respiratory conditions

**Chronic Effects:** Lithium compounds have been implicated in development of aplastic anemia. Signs of lithium poisoning include dehydration, extreme weight loss, fine tremor of hands, nausea, vomiting and diarrhea, Chronic overexposure may cause central nervous system effects kidney damage liver damage

**Cancer / Reproductive Toxicity Information:**

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

**Additional Cancer / Reproductive Toxicity Information:** None reported

**Toxicologically Synergistic Products:** None reported

**WHMIS Hazard Classification:** Class E - Corrosive material Class D, Division 2, Subdivision B - Toxic material (other toxic effects)

**WHMIS Symbols:** Corrosive Other Toxic Effects

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

#### **Sodium Dichloroisocyanurate**

**Percent Range:** 1.0 - 5.0

**Percent Range Units:** weight / weight

**CAS No.:** 2893-78-9

**LD50:** Oral rat LD50 = 1400 mg/kg; Oral human LDLo = 3570 mg/kg

**LC50:** None reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Not applicable

#### **Lithium Hydroxide, Anhydrous**

**Percent Range:** 1.0 - 5.0

**Percent Range Units:** weight / weight

**CAS No.:** 1310-65-2

**LD50:** Oral rat LD50 = 225 mg/kg

**LC50:** Inhalation rat LC50 = 980 mg/m<sup>3</sup>/4H

**TLV:** 3mg/m<sup>3</sup> Respirable Particles; 10 mg/m<sup>3</sup> Inhalable particles

**PEL:** 5 mg/m<sup>3</sup> Respirable Fraction; 15 mg/m<sup>3</sup> Total Dust

**Ingredient WHMIS Symbol:** Corrosive

#### **Sodium Citrate**

**Percent Range:** 80.0 - 90.0

**Percent Range Units:** weight / weight

**CAS No.:** 68-04-2

**LD50:** Oral rat LD50 >8 g/Kg

**LC50:** None Reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Not applicable

#### **Sodium Tartrate**

**Percent Range:** 5.0 - 15.0

**Percent Range Units:** weight / weight

**CAS No.:**

**LD50:** Oral rabbit LD50 = 5290 mg/kg

**LC50:** None Reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Not applicable

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### 4. FIRST AID MEASURE

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



**Skin Contact (First Aid):** Wash skin with soap and 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:** During a fire, irritating and highly toxic gases may be generated by thermal decomposition.

**Flash Point:** Not applicable

**Method:** Not applicable

**Flammability Limits:**

**Lower Explosion Limits:** Not applicable

**Upper Explosion Limits:** Not applicable

**Autoignition Temperature:** Not determined

**Hazardous Combustion Products:** May emit toxic and corrosive fumes.

**Fire / Explosion Hazards:** Not combustible.

**Static Discharge:** None reported.

**Mechanical Impact:** None reported

**Extinguishing Media:** Dry chemical. Carbon dioxide. 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:** Cover spilled solid material with sand or other inert material. Stop spilled material from being released to the environment.

**Clean-up Technique:** Scoop up spilled material into a large beaker and dissolve with water. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. 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.

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

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## 7. HANDLING AND STORAGE

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

**Storage:** Protect from: heat moisture Store away from: acids / acid fumes.

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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:** safety glasses with top and side shields

**Skin Protection:** disposable latex gloves In the EU, the selected gloves must satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it. lab coat

**Inhalation Protection:** adequate ventilation

**Precautionary Measures:** Avoid contact with: eyes skin clothing Do not breathe: dust Wash thoroughly after handling. Keep away from: acids/acid fumes metals

**TLV:** 3mg/m<sup>3</sup> Respirable Particles; 10 mg/m<sup>3</sup> Inhalable particles

**PEL:** 5 mg/m<sup>3</sup> Respirable Fraction; 15 mg/m<sup>3</sup> Total Dust

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** White powder

**Physical State:** Solid  
**Molecular Weight:** Not applicable  
**Odor:** Chlorine  
**pH:** of a 5% solution = 12.33  
**Vapor Pressure:** Not applicable  
**Vapor Density (air = 1):** Not applicable  
**Boiling Point:** Not applicable  
**Melting Point:** >240 °C, >464 °F  
**Specific Gravity/ Relative Density (water = 1; air =1):** 1.783  
**Evaporation Rate (water = 1):** Not applicable  
**Volatile Organic Compounds Content:** None reported  
**Coefficient of Water / Oil:** Not applicable  
**Solubility:**  
    **Water:** Soluble  
    **Acid:** Soluble  
    **Other:** Not determined  
**Metal Corrosivity:**  
    **Steel:**  
    **Aluminum:**

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## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.  
**Conditions to Avoid:** Heating to decomposition. Extreme temperatures Excess moisture  
**Reactivity / Incompatibility:** Incompatible with: acids  
**Hazardous Decomposition:** Contact with acids releases toxic and/or corrosive fumes of: chlorides nitrogen oxides  
**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:** None Reported  
    **Mutation Data:** None Reported  
    **Reproductive Effects Data:** None Reported  
    --  
**Ingredient Toxicological Data:** Sodium Citrate Oral rat LD50 > 8 g/kg; Sodium Tartrate Oral rabbit LD50 = 5290 mg/kg;  
Lithium Hydroxide Oral rat LD50 = 225 mg/kg; Sodium Dichloroisocyanurate Oral rat LD50 = 1400 mg/kg

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## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --  
Do not release into the environment.  
**Ingredient Ecological Information:**

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## 13. DISPOSAL CONSIDERATIONS

**Special Instructions (Disposal):** 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. Open cold water tap completely, slowly pour the reacted material to the drain. Flush system with plenty of water.  
**Empty Containers:** Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.  
**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.

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## 14. TRANSPORT INFORMATION

**T.D.G.:**

**Proper Shipping Name:** Corrosive Solid, N.O.S.

(Lithium Hydroxide Mixture)

**Hazard Class:** 8

**PIN:** 1759

**Group:** II

**Subsidiary Risk:** 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

**National Inventories:**

**Canadian Inventory Status:** All ingredients of this product are DSL Listed.

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

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## 16. OTHER INFORMATION

**References:** NIOSH Registry of Toxic Effects of Chemical Substances, 1985-86. Cincinnati: U.S. Department of Health and Human Services, April, 1987. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Technical Judgment. In-house information. 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.

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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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(970) 669-3050

MSDS No: M01553

# MATERIAL SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** AmVer™ High Range Ammonia Test 'N Tube™ Reagent  
**Catalog Number:** 2607000

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:** M01553

**Chemical Name:** Not applicable

**CAS No.:** Not applicable

**Chemical Formula:** Not applicable

**Chemical Family:** Not applicable

**PIN:** NA

**Intended Use:** Determination of ammonium nitrogen

**Date of MSDS Preparation:**

**Day:** 10

**Month:** March

**Year:** 2010

**MSDS Prepared:** MSDS prepared by Product Compliance Department extension 3350

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## 2. COMPOSITION / INFORMATION ON INGREDIENTS

### Demineralized Water

**Percent Range:** > 99.0

**Percent Range Units:** volume / volume

**CAS No.:** 7732-18-5

**LD50:** None reported

**LC50:** None reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Not applicable

### Other components, each

**Percent Range:** < 1.0

**Percent Range Units:** weight / volume

**CAS No.:** Not applicable

**LD50:** Not applicable

**LC50:** Not applicable

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Not applicable

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## 3. HAZARDS IDENTIFICATION

**Emergency Overview:**

**Appearance:** Colorless liquid

*Physical State:* Liquid  
*Odor:* None

**HMIS:**

*Health:* 0

*Flammability:* 0

*Reactivity:* 0

*Protective Equipment:* Not applicable

**Potential Health Effects:**

*Eye Contact:* No effects are anticipated

*Skin Contact:* No effects are anticipated

*Skin Absorption:* No effects anticipated

*Target Organs:* Not applicable

*Ingestion:* No Effects Anticipated

*Target Organs:* Not applicable

*Inhalation:* No effects anticipated

*Target Organs:* Not applicable

*Medical Conditions Aggravated:* None reported

*Chronic Effects:* No effects anticipated

**Cancer / Reproductive Toxicity Information:**

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

*Additional Cancer / Reproductive Toxicity Information:* None reported

*Toxicologically Synergistic Products:* None reported

*WHMIS Hazard Classification:* Not applicable

*WHMIS Symbols:* Not applicable

---

## 4. FIRST AID

*Eye Contact:* Flush eyes with water. Call physician if irritation develops.

*Skin Contact (First Aid):* Wash skin with plenty of water.

*Ingestion (First Aid):* Give large quantities of water. Call physician immediately.

*Inhalation:* None required.

---

## 5. FIRE FIGHTING MEASURES

*Flammable Properties:* 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

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

*Fire / Explosion Hazards:* None reported

*Static Discharge:* None reported.

*Mechanical Impact:* None reported

*Extinguishing Media:* Use media appropriate to surrounding fire conditions

*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 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 a dry acid, such as citric or boric. Scoop up slurry into a large beaker. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. Flush reacted material to the drain with a large excess of water.

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

**D.O.T. Emergency Response Guide Number:** None

---

## 7. HANDLING / STORAGE

**Handling:** Maintain general industrial hygiene practices when using this product.

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

---

## 8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

**Engineering Controls:** Maintain general industrial hygiene practices when using this product.

**Personal Protective Equipment:**

**Eye Protection:** safety glasses with top and side shields

**Skin Protection:** disposable latex gloves

**Inhalation Protection:** adequate ventilation

**Precautionary Measures:** Avoid contact with: eyes

**TLV:** Not established

**PEL:** Not established

---

## 9. PHYSICAL / CHEMICAL PROPERTIES

**Appearance:** Colorless liquid

**Physical State:** Liquid

**Molecular Weight:** Not applicable

**Odor:** None

**pH:** 11

**Vapor Pressure:** Not determined

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

**Boiling Point:** ~ 100° C (~212° F)

**Melting Point:** Not determined

**Specific Gravity (water = 1):** ~1.00

**Evaporation Rate (water = 1):** Not determined

**Volatile Organic Compounds Content:** Not applicable

**Coefficient of Water / Oil:** Not applicable

**Solubility:**

**Water:** Miscible

**Acid:** Miscible

**Other:** Not determined

**Metal Corrosivity:**

**Steel:** Not determined

**Aluminum:** Not determined

---

## 10. STABILITY / REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.

**Conditions to Avoid:** Extreme temperatures

**Reactivity / Incompatibility:** None reported

**Hazardous Decomposition:** None reported

**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:** None reported  
**Mutation Data:** None reported  
**Reproductive Effects Data:** None reported

--  
**Ingredient Toxicological Data:** --  
No toxicological data available for the ingredients of this product.

---

## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --  
No ecological data available for this product.  
**Ingredient Ecological Information:** --  
No ecological data available for the ingredients of this product.

---

## 13. DISPOSAL CONSIDERATIONS

**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:** Dispose of empty container as normal trash.

**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

**T.D.G.:**

**Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**PIN:** NA

**Group:** NA

**Subsidiary Risk:** 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.

---

## 15. REGULATORY INFORMATION

**National Inventories:**

**Canadian Inventory Status:** All ingredients of this product are DSL Listed.

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

---

## 16. OTHER INFORMATION

**References:** 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. Technical Judgment.

---

### 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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Hach Company  
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Loveland, CO USA 80539  
(970) 669-3050

MSDS No: M00035

# MATERIAL SAFETY DATA SHEET

---

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** PhosVer ® 3 Phosphate Reagent Powder Pillows  
**Catalog Number:** 2106028

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:** M00035

**Chemical Name:** Not applicable

**CAS No.:** Not applicable

**Chemical Formula:** Not applicable

**Chemical Family:** Not applicable

**PIN:** NA

**Intended Use:** Laboratory Use Phosphate determination

**Date of MSDS Preparation:**

**Day:** 28

**Month:** June

**Year:** 2011

**MSDS Prepared:** MSDS prepared by Product Compliance Department extension 3350

---

## 2. HAZARDS IDENTIFICATION

**Emergency Overview:**

**Appearance:** White to off-white powder

**Physical State:** Solid

**Odor:** None

CAUSES EYE BURNS MAY CAUSE RESPIRATORY TRACT IRRITATION

**HMIS:**

**Health:** 3

**Flammability:** 1

**Reactivity:** 0

**Protective Equipment:** X - See protective equipment, Section 8.

**Potential Health Effects:**

**Eye Contact:** Causes eye burns.

**Skin Contact:** No effects are anticipated

**Skin Absorption:** None Reported

**Target Organs:** None Reported

**Ingestion:** May cause: copper deficiency anemia gout loss of appetite loss of coordination listlessness diarrhea liver damage May effect enzyme activity.

**Target Organs:** Blood Liver

**Inhalation:** May cause: respiratory tract irritation Effects similar to those of ingestion.

**Target Organs:** Blood Liver

**Medical Conditions Aggravated:** Pre-existing: Eye conditions Respiratory conditions Gout

**Chronic Effects:** Chronic overexposure may cause copper deficiency enzyme activity effects liver damage

Molybdenum poisoning signs include loss of appetite, listlessness and reduced growth rate. Excessive exposure to molybdenum compounds may cause gout and anemia.

***Cancer / Reproductive Toxicity Information:***

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

***Additional Cancer / Reproductive Toxicity Information:*** Contains: an experimental mutagen.  
***Toxicologically Synergistic Products:*** None reported

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

***WHMIS Symbols:*** Other Toxic Effects

---

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Potassium Pyrosulfate**

***Percent Range:*** 75.0 - 85.0

***Percent Range Units:*** weight / weight

***CAS No.:*** 7790-62-7

***LD50:*** Oral rat LD50 = 2340 mg/kg

***LC50:*** None reported

***TLV:*** Not established

***PEL:*** Not established

***Ingredient WHMIS Symbol:*** Other Toxic Effects

**Ascorbic Acid**

***Percent Range:*** 15.0 - 25.0

***Percent Range Units:*** weight / weight

***CAS No.:*** 50-81-7

***LD50:*** Oral rat LD50 = 11900 mg/kg

***LC50:*** None reported

***TLV:*** Not established

***PEL:*** Not established

***Ingredient WHMIS Symbol:*** Not applicable

**Sodium Molybdate**

***Percent Range:*** 1.0 - 10.0

***Percent Range Units:*** weight / weight

***CAS No.:*** 7631-95-0

***LD50:*** Oral rat LD<sub>50</sub> = 4000 mg/kg.

***LC50:*** Inhalation rat LC50 = > 2080 mg/m<sup>3</sup>/4 hrs

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

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

***Ingredient WHMIS Symbol:*** Not applicable

**Other components, each**

***Percent Range:*** 1.0 - 10.0

***Percent Range Units:*** weight / weight

***CAS No.:*** Not applicable

***LD50:*** Not applicable

***LC50:*** Not applicable

***TLV:*** Not established

***PEL:*** Not established

***Ingredient WHMIS Symbol:*** Not applicable

---

### 4. FIRST AID MEASURE

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

***Skin Contact (First Aid):*** Wash skin with plenty of water.

**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.

---

## 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Can burn in fire, releasing toxic vapors.

**Flash Point:** Not applicable

**Method:** Not applicable

**Flammability Limits:**

**Lower Explosion Limits:** Not applicable

**Upper Explosion Limits:** Not applicable

**Autoignition Temperature:** Not determined

**Hazardous Combustion Products:** Toxic fumes of: sulfur oxides. carbon monoxide, carbon dioxide. sodium monoxide

**Fire / Explosion Hazards:** None reported

**Static Discharge:** None reported.

**Mechanical Impact:** None reported

**Extinguishing Media:** Use media appropriate to surrounding fire conditions

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

---

## 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:** Scoop up spilled material into a large beaker and dissolve with 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.

**D.O.T. Emergency Response Guide Number:** NONE

---

## 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 between 10° and 25°C.

---

## 8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

**Engineering Controls:** Maintain general industrial hygiene practices when using this product.

**Personal Protective Equipment:**

**Eye Protection:** safety glasses with top and side shields

**Skin Protection:** disposable latex gloves. In the EU, the selected gloves must satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it. lab coat

**Inhalation Protection:** adequate ventilation

**Precautionary Measures:** Avoid contact with: eyes. Do not breathe: dust. Wash thoroughly after handling.

**TLV:** Not established

**PEL:** Not established

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** White to off-white powder

**Physical State:** Solid

**Molecular Weight:** Not applicable

**Odor:** None

**pH:** of a 5% solution = 1.5

**Vapor Pressure:** Not applicable

**Vapor Density (air = 1):** Not applicable  
**Boiling Point:** Not applicable  
**Melting Point:** 105 °C (221 °F)  
**Specific Gravity/ Relative Density (water = 1; air =1):** 2.22  
**Evaporation Rate (water = 1):** Not applicable  
**Volatile Organic Compounds Content:** Not applicable  
**Coefficient of Water / Oil:** Not applicable  
**Solubility:**  
    **Water:** Soluble  
    **Acid:** Soluble  
    **Other:** Not determined  
**Metal Corrosivity:**  
    **Steel:** Not Applicable  
    **Aluminum:** Not Applicable

---

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.  
**Conditions to Avoid:** Extreme temperatures  
**Reactivity / Incompatibility:** Incompatible with: oxidizers dyes alkalies iron copper  
**Hazardous Decomposition:** Heating to decomposition releases: carbon dioxide carbon monoxide 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:** Not corrosive to skin, no erythema

**Mutation Data:** None reported

**Reproductive Effects Data:** None reported

--

**Ingredient Toxicological Data:** Potassium Pyrosulfate Oral rat LD50 = 2340 mg/kg; Sodium Molybdate Oral rat LD50 = 4000 mg/kg, Inhalation rat LC50 > 2080mg/m<sup>3</sup>/4 hr; Ascorbic Acid Oral rat LD50 = 11.9 g/kg

---

## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --

No ecological data available for this product. Mobility in soil: No data available

**Ingredient Ecological Information:** --

Ecological data for ingredients is not indicative of likely ecological harm.

---

## 13. DISPOSAL CONSIDERATIONS

**Special Instructions (Disposal):** Work in an approved fume hood. Dilute material with excess water making a weaker than 5% solution. 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.

**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

**T.D.G.:**

**Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**PIN:** NA

**Group:** NA

**Subsidiary Risk:** 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.

---

## 15. REGULATORY INFORMATION

### *National Inventories:*

**Canadian Inventory Status:** All ingredients of this product are DSL Listed.

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

---

## 16. OTHER INFORMATION

**References:** 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. In-house information. Technical Judgment. Outside Testing. NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards. Cincinnati: Department of Health and Human Services, 1981. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Vendor Information. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981.

---

### **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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(970) 669-3050

MSDS No: M00035

# MATERIAL SAFETY DATA SHEET

---

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** PhosVer ® 3 Phosphate Reagent  
**Catalog Number:** 2106069

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:** M00035  
**Chemical Name:** Not applicable  
**CAS Number:** Not applicable  
**Additional CAS No. (for hydrated forms):** Not applicable  
**Chemical Formula:** Not applicable  
**Chemical Family:** Not applicable  
**Intended Use:** Laboratory Use Phosphate determination

---

## 2. HAZARDS IDENTIFICATION

**GHS Classification:**  
**Hazard categories:** Serious Eye Damage/Eye Irritation:Eye Irrit. 2  
**GHS Label Elements:**  
WARNING



**Hazard statements:** Causes serious eye irritation.  
**Precautionary statements:** Wear protective gloves / protective clothing / eye protection / face protection. Wash thoroughly after handling. 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.

**HMIS:**  
**Health:** 3  
**Flammability:** 1  
**Reactivity:** 0  
**Protective Equipment:** X - See protective equipment, Section 8.  
**NFPA:**  
**Health:** 3  
**Flammability:** 1  
**Reactivity:** 0  
**Symbol:** Not applicable

---

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Hazardous Components according to GHS:** Yes  
**Potassium Pyrosulfate**

**CAS Number:** 7790-62-7

**Chemical Formula:**  $K_2S_2O_7$   
**GHS Classification:** Eye Irrit. 2, H319  
**Percent Range:** 75.0 - 85.0  
**Percent Range Units:** weight / weight  
**PEL:** Not established  
**TLV:** Not established

#### **Sodium Molybdate**

**CAS Number:** 7631-95-0  
**Chemical Formula:**  $Na_2MoO_4 \cdot 2H_2O$   
**GHS Classification:** Acute Tox. Inh. 4, H332; Acute Tox. Orl. 4, H302; Eye Irrit. 2, H319  
**Percent Range:** 1.0 - 10.0  
**Percent Range Units:** weight / weight  
**PEL:** 5 mg/m<sup>3</sup> (as Mo)  
**TLV:** 5 mg/m<sup>3</sup> (as Mo)

**Hazardous Components according to GHS:** No

#### **Ascorbic Acid**

**CAS Number:** 50-81-7  
**Chemical Formula:**  $C_6H_8O_6$   
**GHS Classification:** Not applicable  
**Percent Range:** 15.0 - 25.0  
**Percent Range Units:** weight / weight  
**PEL:** Not established  
**TLV:** Not established

#### **Other components, each**

**CAS Number:** Not applicable  
**Chemical Formula:** Not applicable  
**GHS Classification:** Not applicable  
**Percent Range:** 1.0 - 10.0  
**Percent Range Units:** weight / weight  
**PEL:** Not established  
**TLV:** Not established

---

## **4. FIRST AID MEASURE**

**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):** Wash skin with plenty of water.  
**Inhalation:** Remove to fresh air. Give artificial respiration if necessary. Call physician.  
**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.

---

## **5. FIRE FIGHTING MEASURES**

**Flammable Properties:** Can burn in fire, releasing toxic vapors.  
**Fire Fighting Instruction:** As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.  
**Extinguishing Media:** Use media appropriate to surrounding fire conditions  
**Extinguishing Media NOT To Be Used:** Not applicable  
**Fire / Explosion Hazards:** None reported  
**Hazardous Combustion Products:** Toxic fumes of: sulfur oxides. carbon monoxide, carbon dioxide. sodium monoxide

---

## **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:** Scoop up spilled material into a large beaker and dissolve with 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.

**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 between 10° and 25°C.

**Flammability Class:** Not applicable

---

## 8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

**Engineering Controls:** Maintain general industrial hygiene practices when using this product.

**Personal Protective Equipment:**

**Eye Protection:** safety glasses with top and side shields

**Skin Protection:** disposable latex gloves In the EU, the selected gloves must satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it. lab coat

**Inhalation Protection:** adequate ventilation

**Precautionary Measures:** Avoid contact with: eyes Do not breathe: dust Wash thoroughly after handling.

**TLV:** Not established

**PEL:** Not established

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

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** White to off-white powder

**Physical State:** Solid

**Molecular Weight:** Not applicable

**Odor:** None

**Odor Threshold:** Odorless

**pH:** of a 5% solution = 1.5

**Metal Corrosivity:**

**Corrosivity Classification:**

**Steel:** Not Applicable

**Aluminum:** Not Applicable

**Specific Gravity/ Relative Density (water = 1; air =1):** 2.22

**Viscosity:** Not applicable

**Solubility:**

**Water:** Soluble

**Acid:** Soluble

**Other:** Not determined

**Partition Coefficient (n-octanol / water):** Not applicable

**Coefficient of Water / Oil:** Not applicable

**Melting Point:** 105 °C (221 °F)

**Decomposition Temperature:** Not available

**Boiling Point:** Not applicable

**Vapor Pressure:** Not applicable

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

**Evaporation Rate (water = 1):** Not applicable

**Volatile Organic Compounds Content:** Not applicable



**Flammable Properties:** Can burn in fire, releasing toxic vapors.

**Flash Point:** Not applicable

**Method:** Not applicable

**Flammability Limits:**

**Lower Explosion Limits:** Not applicable

**Upper Explosion Limits:** Not applicable

**Autoignition Temperature:** Not determined

**Explosive Properties:**

Not applicable Not classified according to GHS criteria.

**Oxidizing Properties:**

Not applicable Not classified according to GHS criteria.

**Reactivity Properties:**

Not applicable 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.

---

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.

**Mechanical Impact:** None reported

**Static Discharge:** None reported.

**Reactivity / Incompatibility:** Incompatible with: oxidizers dyes alkalies iron copper

**Hazardous Decomposition:** Heating to decomposition releases: carbon dioxide carbon monoxide sulfur oxides

**Conditions to Avoid:** Extreme temperatures

---

## 11. TOXICOLOGICAL INFORMATION

**Toxicokinetics, Metabolism and Distribution:** No information available for mixture.

**Toxicologically Synergistic Products:** None reported

**Acute Toxicity:** Acute Toxicity Estimate (ATE) - Calculated from Ingredient Toxicity Data

Oral rat LD50 = 12,970 mg/kg.

**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.

**Eye Damage:** Irritating to eyes.

**Sensitization:** Based on classification principles, the classification criteria are not met.

**CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction):** Data insufficient for classification

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

This product does NOT contain any OSHA listed carcinogens.

**Symptoms/Effects:**

**Ingestion:** May cause: copper deficiency anemia gout loss of appetite loss of coordination listlessness diarrhea liver damage May effect enzyme activity.

**Inhalation:** May cause: irritation of nose and throat Effects similar to those of ingestion.

**Skin Absorption:** None Reported

**Chronic Effects:** Chronic overexposure may cause copper deficiency enzyme activity effects liver damage 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: Eye conditions Respiratory conditions Gout

---

## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --

No ecological data available for this product. Mobility in soil: No data available

**Ingredient Ecological Information:** --

Ecological data for ingredients is not indicative of likely ecological harm.

---

## 13. DISPOSAL CONSIDERATIONS

**EPA Waste ID Number:** Not applicable

**Special Instructions (Disposal):** Work in an approved fume hood. Dilute material with excess water making a weaker than 5% solution. 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.

**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

--

**Hazard Class:** NA

**Subsidiary Risk:** NA

**ID Number:** NA

**Packing Group:** NA

**T.D.G.:**

**Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**Subsidiary Risk:** NA

**PIN:** NA

**Group:** NA

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

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

--

**Hazard Class:** NA

**Subsidiary Risk:** NA

**ID Number:** NA

**Packing Group:** NA

**I.M.O.:**

**I.M.O. Proper Shipping Name:** Not Currently Regulated

--

**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.

---

## 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):** Immédiat (aigu) Danger pour la santé Delayed (Chronic) Health Hazard

**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.

--

**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:** 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:** Not applicable

**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).

**CAS Number:** Not applicable

**Canadian Inventory Status:** All ingredients of this product are DSL Listed.

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

**Australian Inventory (AICS) Status:** All ingredients are listed.

**New Zealand Inventory (NZIoC) Status:** All components either listed or exempt.

**Korean Inventory (KECI) Status:** Not listed - exempt. Quantity < 100 kg per annum.

**Japan (ENCs) Inventory Status:** All components either listed or exempt.

**China (PRC) Inventory (MEP) Status:** All components either listed or exempt.

---

## 16. OTHER INFORMATION

**References:** 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. In-house information. Technical Judgment. Outside Testing. NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards. Cincinnati: Department of Health and Human Services, 1981. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Vendor Information. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981.

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

**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:** 28

**Month:** June

**Year:** 2011

**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	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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Loveland, CO USA 80539  
(970) 669-3050

MSDS No: M00035

# MATERIAL SAFETY DATA SHEET

---

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** PhosVer ® 3 Phosphate Reagent  
**Catalog Number:** 212599

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:** M00035  
**Chemical Name:** Not applicable  
**CAS No.:** Not applicable  
**Chemical Formula:** Not applicable  
**Chemical Family:** Not applicable  
**PIN:** NA  
**Intended Use:** Laboratory Use Phosphate determination  
**Date of MSDS Preparation:**  
**Day:** 28  
**Month:** June  
**Year:** 2011  
**MSDS Prepared:** MSDS prepared by Product Compliance Department extension 3350

---

## 2. HAZARDS IDENTIFICATION

**Emergency Overview:**

**Appearance:** White to off-white powder

**Physical State:** Solid

**Odor:** None

CAUSES EYE BURNS MAY CAUSE RESPIRATORY TRACT IRRITATION

**HMIS:**

**Health:** 3

**Flammability:** 1

**Reactivity:** 0

**Protective Equipment:** X - See protective equipment, Section 8.

**Potential Health Effects:**

**Eye Contact:** Causes eye burns.

**Skin Contact:** No effects are anticipated

**Skin Absorption:** None Reported

**Target Organs:** None Reported

**Ingestion:** May cause: copper deficiency anemia gout loss of appetite loss of coordination listlessness diarrhea liver damage May effect enzyme activity.

**Target Organs:** Blood Liver

**Inhalation:** May cause: respiratory tract irritation Effects similar to those of ingestion.

**Target Organs:** Blood Liver

**Medical Conditions Aggravated:** Pre-existing: Eye conditions Respiratory conditions Gout

**Chronic Effects:** Chronic overexposure may cause copper deficiency enzyme activity effects liver damage Molybdenum poisoning signs include loss of appetite, listlessness and reduced growth rate. Excessive exposure to molybdenum compounds may cause gout and anemia.

**Cancer / Reproductive Toxicity Information:**

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

**Additional Cancer / Reproductive Toxicity Information:** Contains: an experimental mutagen.  
**Toxicologically Synergistic Products:** None reported  
**WHMIS Hazard Classification:** Class D, Division 2, Subdivision B - Toxic material (other toxic effects)  
**WHMIS Symbols:** Other Toxic Effects

---

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

#### **Potassium Pyrosulfate**

**Percent Range:** 75.0 - 85.0  
**Percent Range Units:** weight / weight  
**CAS No.:** 7790-62-7  
**LD50:** Oral rat LD50 = 2340 mg/kg  
**LC50:** None reported  
**TLV:** Not established  
**PEL:** Not established  
**Ingredient WHMIS Symbol:** Other Toxic Effects

#### **Ascorbic Acid**

**Percent Range:** 15.0 - 25.0  
**Percent Range Units:** weight / weight  
**CAS No.:** 50-81-7  
**LD50:** Oral rat LD50 = 11900 mg/kg  
**LC50:** None reported  
**TLV:** Not established  
**PEL:** Not established  
**Ingredient WHMIS Symbol:** Not applicable

#### **Sodium Molybdate**

**Percent Range:** 1.0 - 10.0  
**Percent Range Units:** weight / weight  
**CAS No.:** 7631-95-0  
**LD50:** Oral rat LD<sub>50</sub> = 4000 mg/kg.  
**LC50:** Inhalation rat LC50 = > 2080 mg/m<sup>3</sup>/4 hrs  
**TLV:** 5 mg/m<sup>3</sup> (as Mo)  
**PEL:** 5 mg/m<sup>3</sup> (as Mo)  
**Ingredient WHMIS Symbol:** Not applicable

#### **Other components, each**

**Percent Range:** 1.0 - 10.0  
**Percent Range Units:** weight / weight  
**CAS No.:** Not applicable  
**LD50:** Not applicable  
**LC50:** Not applicable  
**TLV:** Not established  
**PEL:** Not established  
**Ingredient WHMIS Symbol:** Not applicable

---

### 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.  
**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.

---

### 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Can burn in fire, releasing toxic vapors.

**Flash Point:** Not applicable

**Method:** Not applicable

**Flammability Limits:**

**Lower Explosion Limits:** Not applicable

**Upper Explosion Limits:** Not applicable

**Autoignition Temperature:** Not determined

**Hazardous Combustion Products:** Toxic fumes of: sulfur oxides. carbon monoxide, carbon dioxide. sodium monoxide

**Fire / Explosion Hazards:** None reported

**Static Discharge:** None reported.

**Mechanical Impact:** None reported

**Extinguishing Media:** Use media appropriate to surrounding fire conditions

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

---

## 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:** Scoop up spilled material into a large beaker and dissolve with 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.

**D.O.T. Emergency Response Guide Number:** NONE

---

## 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 between 10° and 25°C.

---

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Maintain general industrial hygiene practices when using this product.

**Personal Protective Equipment:**

**Eye Protection:** safety glasses with top and side shields

**Skin Protection:** disposable latex gloves In the EU, the selected gloves must satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it. lab coat

**Inhalation Protection:** adequate ventilation

**Precautionary Measures:** Avoid contact with: eyes Do not breathe: dust Wash thoroughly after handling.

**TLV:** Not established

**PEL:** Not established

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** White to off-white powder

**Physical State:** Solid

**Molecular Weight:** Not applicable

**Odor:** None

**pH:** of a 5% solution = 1.5

**Vapor Pressure:** Not applicable

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

**Boiling Point:** Not applicable

**Melting Point:** 105 °C (221 °F)

**Specific Gravity/ Relative Density (water = 1; air =1):** 2.22

**Evaporation Rate (water = 1):** Not applicable

**Volatile Organic Compounds Content:** Not applicable

**Coefficient of Water / Oil:** Not applicable

**Solubility:**

**Water:** Soluble

**Acid:** Soluble

**Other:** Not determined

**Metal Corrosivity:**

**Steel:** Not Applicable

**Aluminum:** Not Applicable

---

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.

**Conditions to Avoid:** Extreme temperatures

**Reactivity / Incompatibility:** Incompatible with: oxidizers dyes alkalies iron copper

**Hazardous Decomposition:** Heating to decomposition releases: carbon dioxide carbon monoxide 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:** Not corrosive to skin, no erythema

**Mutation Data:** None reported

**Reproductive Effects Data:** None reported

--

**Ingredient Toxicological Data:** Potassium Pyrosulfate Oral rat LD50 = 2340 mg/kg; Sodium Molybdate Oral rat LD50 = 4000 mg/kg, Inhalation rat LC50 > 2080mg/m<sup>3</sup>/4 hr; Ascorbic Acid Oral rat LD50 = 11.9 g/kg

---

## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --

No ecological data available for this product. Mobility in soil: No data available

**Ingredient Ecological Information:** --

Ecological data for ingredients is not indicative of likely ecological harm.

---

## 13. DISPOSAL CONSIDERATIONS

**Special Instructions (Disposal):** Work in an approved fume hood. Dilute material with excess water making a weaker than 5% solution. 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.

**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

**T.D.G.:**

**Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**PIN:** NA

**Group:** NA

**Subsidiary Risk:** 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.

---

## 15. REGULATORY INFORMATION

### *National Inventories:*

**Canadian Inventory Status:** All ingredients of this product are DSL Listed.

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

---

## 16. OTHER INFORMATION

**References:** 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. In-house information. Technical Judgment. Outside Testing. NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards. Cincinnati: Department of Health and Human Services, 1981. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Vendor Information. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981.

---

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

MSDS No: M00038

# MATERIAL SAFETY DATA SHEET

---

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** PhosVer ® 3 Phosphate Reagent  
**Catalog Number:** 220928

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:** M00038

**Chemical Name:** Not applicable

**CAS No.:** Not applicable

**Chemical Formula:** Not applicable

**Chemical Family:** Not applicable

**PIN:** NA

**Intended Use:** Phosphate determination

**Date of MSDS Preparation:**

**Day:** 15

**Month:** October

**Year:** 2009

**MSDS Prepared:** MSDS prepared by Product Compliance Department extension 3350

---

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

### Potassium Pyrosulfate

**Percent Range:** 70.0 - 80.0

**Percent Range Units:** weight / weight

**CAS No.:** 7790-62-7

**LD50:** Oral rat LD50 = 2340 mg/kg

**LC50:** None reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Other Toxic Effects

### Ascorbic Acid

**Percent Range:** 20.0 - 30.0

**Percent Range Units:** weight / weight

**CAS No.:** 50-81-7

**LD50:** Oral rat LD50 = 11900 mg/kg

**LC50:** None reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Not applicable

### Sodium Molybdate

**Percent Range:** 1.0 - 10.0

**Percent Range Units:** weight / weight

**CAS No.:** 10102-40-6

**LD50:** Oral rat LD<sub>50</sub> = 4000 mg/kg.

**LC50:** Inhalation rat LC50 = > 2080 mg/m<sup>3</sup>/4 hrs  
**TLV:** 5 mg/m<sup>3</sup> (as Mo)  
**PEL:** 5 mg/m<sup>3</sup> (as Mo)  
**Ingredient WHMIS Symbol:** Not applicable

**Other components, each**

**Percent Range:** < 1.0  
**Percent Range Units:** weight / weight  
**CAS No.:** Not applicable  
**LD50:** Not applicable  
**LC50:** Not applicable  
**TLV:** Not established  
**PEL:** Not established  
**Ingredient WHMIS Symbol:** Not applicable

---

### 3. HAZARDS IDENTIFICATION

***Emergency Overview:***

**Appearance:** White to off-white powder

**Physical State:** Solid

**Odor:** None

CAUSES EYE BURNS MAY CAUSE RESPIRATORY TRACT IRRITATION

***HMIS:***

**Health:** 3

**Flammability:** 1

**Reactivity:** 0

**Protective Equipment:** X - See protective equipment, Section 8.

***Potential Health Effects:***

**Eye Contact:** Causes eye burns.

**Skin Contact:** No effects are anticipated

**Skin Absorption:** None Reported

**Target Organs:** None Reported

**Ingestion:** May cause: copper deficiency anemia gout loss of coordination loss of appetite listlessness diarrhea liver damage May effect enzyme activity.

**Target Organs:** Blood Liver

**Inhalation:** May cause: respiratory tract irritation Effects similar to those of ingestion.

**Target Organs:** Blood Liver

**Medical Conditions Aggravated:** Pre-existing: Eye conditions Respiratory conditions Gout

**Chronic Effects:** Chronic overexposure may cause copper deficiency enzyme activity effects liver damage Molybdenum poisoning signs include loss of appetite, listlessness and reduced growth rate. Excessive exposure to molybdenum compounds may cause gout and anemia.

***Cancer / Reproductive Toxicity Information:***

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

**Additional Cancer / Reproductive Toxicity Information:** Contains: an experimental mutagen.

**Toxicologically Synergistic Products:** None reported

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

**WHMIS Symbols:** Other Toxic Effects

---

### 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.

**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.

---

## 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Can burn in fire, releasing toxic vapors.

**Flash Point:** Not applicable

**Method:** Not applicable

**Flammability Limits:**

**Lower Explosion Limits:** Not applicable

**Upper Explosion Limits:** Not applicable

**Autoignition Temperature:** Not determined

**Hazardous Combustion Products:** Toxic fumes of: sulfur oxides. carbon monoxide, carbon dioxide. sodium monoxide

**Fire / Explosion Hazards:** None reported

**Static Discharge:** None reported.

**Mechanical Impact:** None reported

**Extinguishing Media:** Use media appropriate to surrounding fire conditions

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

---

## 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:** Scoop up spilled material into a large beaker and dissolve with 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.

**D.O.T. Emergency Response Guide Number:** NONE

---

## 7. HANDLING / STORAGE

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

**Storage:** Store between 10° and 25°C.

---

## 8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

**Engineering Controls:** Have a safety shower nearby. Maintain general industrial hygiene practices when using this product.

**Personal Protective Equipment:**

**Eye Protection:** safety glasses with top and side shields

**Skin Protection:** disposable latex gloves lab coat

**Inhalation Protection:** adequate ventilation

**Precautionary Measures:** Avoid contact with: eyes Do not breathe: dust Wash thoroughly after handling. Protect from: heat

**TLV:** Not established

**PEL:** Not established

---

## 9. PHYSICAL / CHEMICAL PROPERTIES

**Appearance:** White to off-white powder

**Physical State:** Solid

**Molecular Weight:** Not applicable

**Odor:** None

**pH:** of a 5% Solution = 1.1

**Vapor Pressure:** Not applicable  
**Vapor Density (air = 1):** Not applicable  
**Boiling Point:** Not applicable  
**Melting Point:** 190 °C (374 °F)  
**Specific Gravity (water = 1):** 2.17  
**Evaporation Rate (water = 1):** Not applicable  
**Volatile Organic Compounds Content:** Not applicable  
**Coefficient of Water / Oil:** Not applicable  
**Solubility:**  
    **Water:** Soluble  
    **Acid:** Soluble  
    **Other:** Not determined  
**Metal Corrosivity:**  
    **Steel:** Not Applicable  
    **Aluminum:** Not Applicable

---

## 10. STABILITY / REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.  
**Conditions to Avoid:** Extreme temperatures  
**Reactivity / Incompatibility:** Incompatible with: oxidizers dyes alkalies iron copper  
**Hazardous Decomposition:** Heating to decomposition releases: carbon dioxide carbon monoxide 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:** None reported

**Mutation Data:** None reported

**Reproductive Effects Data:** None reported

--

**Ingredient Toxicological Data:** Potassium Pyrosulfate Oral rat LD50 = 2340 mg/kg; Sodium Molybdate Oral rat LD50 = 4000 mg/kg, Inhalation rat LC50 > 2080mg/m<sup>3</sup>/4hr; Ascorbic Acid Oral rat LD50 = 11.9 g/kg

---

## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --

No ecological data available for this product.

**Ingredient Ecological Information:** --

No ecological data available for the ingredients of this product.

---

## 13. DISPOSAL CONSIDERATIONS

**Special Instructions (Disposal):** Work in an approved fume hood. Dilute material with excess water making a weaker than 5% solution. 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.

**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

**T.D.G.:**

**Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**PIN:** NA

**Group:** NA

**Subsidiary Risk:** 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.

---

## 15. REGULATORY INFORMATION

**National Inventories:**

**Canadian Inventory Status:** All ingredients of this product are DSL Listed.

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

---

## 16. OTHER INFORMATION

**References:** 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. In-house information. Technical Judgment. Outside Testing. NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards. Cincinnati: Department of Health and Human Services, 1981. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Vendor Information. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981.

---

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

MSDS No: M00038

# MATERIAL SAFETY DATA SHEET

---

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** PhosVer ® 3 Phosphate Reagent  
**Catalog Number:** 220999

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:** M00038

**Chemical Name:** Not applicable

**CAS No.:** Not applicable

**Chemical Formula:** Not applicable

**Chemical Family:** Not applicable

**PIN:** NA

**Intended Use:** Phosphate determination

**Date of MSDS Preparation:**

**Day:** 15

**Month:** October

**Year:** 2009

**MSDS Prepared:** MSDS prepared by Product Compliance Department extension 3350

---

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

### Potassium Pyrosulfate

**Percent Range:** 70.0 - 80.0

**Percent Range Units:** weight / weight

**CAS No.:** 7790-62-7

**LD50:** Oral rat LD50 = 2340 mg/kg

**LC50:** None reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Other Toxic Effects

### Ascorbic Acid

**Percent Range:** 20.0 - 30.0

**Percent Range Units:** weight / weight

**CAS No.:** 50-81-7

**LD50:** Oral rat LD50 = 11900 mg/kg

**LC50:** None reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Not applicable

### Sodium Molybdate

**Percent Range:** 1.0 - 10.0

**Percent Range Units:** weight / weight

**CAS No.:** 10102-40-6

**LD50:** Oral rat LD<sub>50</sub> = 4000 mg/kg.

**LC50:** Inhalation rat LC50 = > 2080 mg/m<sup>3</sup>/4 hrs  
**TLV:** 5 mg/m<sup>3</sup> (as Mo)  
**PEL:** 5 mg/m<sup>3</sup> (as Mo)  
**Ingredient WHMIS Symbol:** Not applicable

**Other components, each**

**Percent Range:** < 1.0  
**Percent Range Units:** weight / weight  
**CAS No.:** Not applicable  
**LD50:** Not applicable  
**LC50:** Not applicable  
**TLV:** Not established  
**PEL:** Not established  
**Ingredient WHMIS Symbol:** Not applicable

---

### 3. HAZARDS IDENTIFICATION

***Emergency Overview:***

**Appearance:** White to off-white powder

**Physical State:** Solid

**Odor:** None

CAUSES EYE BURNS MAY CAUSE RESPIRATORY TRACT IRRITATION

***HMIS:***

**Health:** 3

**Flammability:** 1

**Reactivity:** 0

**Protective Equipment:** X - See protective equipment, Section 8.

***Potential Health Effects:***

**Eye Contact:** Causes eye burns.

**Skin Contact:** No effects are anticipated

**Skin Absorption:** None Reported

**Target Organs:** None Reported

**Ingestion:** May cause: copper deficiency anemia gout loss of coordination loss of appetite listlessness diarrhea liver damage May effect enzyme activity.

**Target Organs:** Blood Liver

**Inhalation:** May cause: respiratory tract irritation Effects similar to those of ingestion.

**Target Organs:** Blood Liver

**Medical Conditions Aggravated:** Pre-existing: Eye conditions Respiratory conditions Gout

**Chronic Effects:** Chronic overexposure may cause copper deficiency enzyme activity effects liver damage Molybdenum poisoning signs include loss of appetite, listlessness and reduced growth rate. Excessive exposure to molybdenum compounds may cause gout and anemia.

***Cancer / Reproductive Toxicity Information:***

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

***Additional Cancer / Reproductive Toxicity Information:*** Contains: an experimental mutagen.

**Toxicologically Synergistic Products:** None reported

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

**WHMIS Symbols:** Other Toxic Effects

---

### 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.

**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.

---

## 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Can burn in fire, releasing toxic vapors.

**Flash Point:** Not applicable

**Method:** Not applicable

**Flammability Limits:**

**Lower Explosion Limits:** Not applicable

**Upper Explosion Limits:** Not applicable

**Autoignition Temperature:** Not determined

**Hazardous Combustion Products:** Toxic fumes of: sulfur oxides. carbon monoxide, carbon dioxide. sodium monoxide

**Fire / Explosion Hazards:** None reported

**Static Discharge:** None reported.

**Mechanical Impact:** None reported

**Extinguishing Media:** Use media appropriate to surrounding fire conditions

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

---

## 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:** Scoop up spilled material into a large beaker and dissolve with 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.

**D.O.T. Emergency Response Guide Number:** NONE

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## 7. HANDLING / STORAGE

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

**Storage:** Store between 10° and 25°C.

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## 8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

**Engineering Controls:** Have a safety shower nearby. Maintain general industrial hygiene practices when using this product.

**Personal Protective Equipment:**

**Eye Protection:** safety glasses with top and side shields

**Skin Protection:** disposable latex gloves lab coat

**Inhalation Protection:** adequate ventilation

**Precautionary Measures:** Avoid contact with: eyes Do not breathe: dust Wash thoroughly after handling. Protect from: heat

**TLV:** Not established

**PEL:** Not established

---

## 9. PHYSICAL / CHEMICAL PROPERTIES

**Appearance:** White to off-white powder

**Physical State:** Solid

**Molecular Weight:** Not applicable

**Odor:** None

**pH:** of a 5% Solution = 1.1



**Vapor Pressure:** Not applicable  
**Vapor Density (air = 1):** Not applicable  
**Boiling Point:** Not applicable  
**Melting Point:** 190 °C (374 °F)  
**Specific Gravity (water = 1):** 2.17  
**Evaporation Rate (water = 1):** Not applicable  
**Volatile Organic Compounds Content:** Not applicable  
**Coefficient of Water / Oil:** Not applicable  
**Solubility:**  
    **Water:** Soluble  
    **Acid:** Soluble  
    **Other:** Not determined  
**Metal Corrosivity:**  
    **Steel:** Not Applicable  
    **Aluminum:** Not Applicable

---

## 10. STABILITY / REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.  
**Conditions to Avoid:** Extreme temperatures  
**Reactivity / Incompatibility:** Incompatible with: oxidizers dyes alkalies iron copper  
**Hazardous Decomposition:** Heating to decomposition releases: carbon dioxide carbon monoxide 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:** None reported

**Mutation Data:** None reported

**Reproductive Effects Data:** None reported

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**Ingredient Toxicological Data:** Potassium Pyrosulfate Oral rat LD50 = 2340 mg/kg; Sodium Molybdate Oral rat LD50 = 4000 mg/kg, Inhalation rat LC50 > 2080mg/m<sup>3</sup>/4hr; Ascorbic Acid Oral rat LD50 = 11.9 g/kg

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## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --

No ecological data available for this product.

**Ingredient Ecological Information:** --

No ecological data available for the ingredients of this product.

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## 13. DISPOSAL CONSIDERATIONS

**Special Instructions (Disposal):** Work in an approved fume hood. Dilute material with excess water making a weaker than 5% solution. 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.

**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.

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## 14. TRANSPORT INFORMATION

**T.D.G.:**

**Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**PIN:** NA

**Group:** NA

**Subsidiary Risk:** 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.

---

## 15. REGULATORY INFORMATION

**National Inventories:**

**Canadian Inventory Status:** All ingredients of this product are DSL Listed.

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

---

## 16. OTHER INFORMATION

**References:** 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. In-house information. Technical Judgment. Outside Testing. NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards. Cincinnati: Department of Health and Human Services, 1981. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Vendor Information. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981.

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

MSDS No: M00361

# MATERIAL SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Potassium Iodate-Iodide Standard Solution 0.0125 N

**Catalog Number:** 1400153

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:** M00361

**Chemical Name:** Not applicable

**CAS No.:** Not applicable

**Chemical Formula:** Not applicable

**Chemical Family:** Not applicable

**PIN:** NA

**Intended Use:** Standard solution

**Date of MSDS Preparation:**

**Day:** 22

**Month:** September

**Year:** 2009

**MSDS Prepared:** MSDS prepared by Product Compliance Department extension 3350

---

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

### Potassium Iodide

**Percent Range:** < 1.0

**Percent Range Units:** weight / volume

**CAS No.:** 7681-11-0

**LD50:** Oral Mouse LD50 = 1862 mg/kg

**LC50:** None reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Not applicable

### Sodium Hydroxide

**Percent Range:** < 1.0

**Percent Range Units:** weight / volume

**CAS No.:** 1310-73-2

**LD50:** Oral rat LDLo = 500 mg/kg.

**LC50:** None reported

**TLV:** 2 mg/m<sup>3</sup> Ceiling/STEL

**PEL:** 2 mg/m<sup>3</sup>

**Ingredient WHMIS Symbol:** Other Toxic Effects

**Demineralized Water**

**Percent Range:** > 99.0

**Percent Range Units:** volume / volume

**CAS No.:** 7732-18-5

**LD50:** None reported

**LC50:** None reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Not applicable

**Potassium Iodate**

**Percent Range:** < 1.0

**Percent Range Units:** weight / volume

**CAS No.:** 7758-05-6

**LD50:** Oral mouse LDLo = 531 mg/kg

**LC50:** None reported

**TLV:** Not established

**PEL:** Not established

**Ingredient WHMIS Symbol:** Not applicable

---

### **3. HAZARDS IDENTIFICATION**

***Emergency Overview:***

**Appearance:** Clear, colorless liquid

**Physical State:** Liquid

**Odor:** None

CAUSES EYE BURNS

***HMIS:***

**Health:** 3

**Flammability:** 0

**Reactivity:** 0

**Protective Equipment:** X - See protective equipment, Section 8.

***Potential Health Effects:***

**Eye Contact:** Causes eye burns.

**Skin Contact:** No effects are anticipated

**Skin Absorption:** None Reported

**Target Organs:** None Reported

**Ingestion:** Practically non-toxic

**Target Organs:** Not applicable

**Inhalation:** No effects anticipated

**Target Organs:** Not applicable

**Medical Conditions Aggravated:** Pre-existing: Eye conditions

**Chronic Effects:** None reported

***Cancer / Reproductive Toxicity Information:***

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

**Additional Cancer / Reproductive Toxicity Information:** None reported

**Toxicologically Synergistic Products:** None reported  
**WHMIS Hazard Classification:** Class D, Division 2, Subdivision B - Toxic material (other toxic effects)  
**WHMIS Symbols:** Other Toxic Effects

---

#### 4. FIRST AID

**Eye Contact:** Immediately flush eyes with water for 15 minutes. Call physician.  
**Skin Contact (First Aid):** Wash skin with soap and plenty of water.  
**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:** None required.

---

#### 5. FIRE FIGHTING MEASURES

**Flammable Properties:** 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  
**Hazardous Combustion Products:** Not applicable  
**Fire / Explosion Hazards:** This product will not burn or explode.  
    **Static Discharge:** None reported.  
    **Mechanical Impact:** None reported  
**Extinguishing Media:** Use media appropriate to surrounding fire conditions  
**Fire Fighting Instruction:** As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

---

#### 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 a dry acid, such as citric or boric. Scoop up slurry into a large beaker. Dilute with a large excess of water. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a weak acid solution.  
**Evacuation Procedure:** Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.  
**D.O.T. Emergency Response Guide Number:** None

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#### 7. HANDLING / STORAGE

**Handling:** Avoid contact with eyes skin clothing Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.  
**Storage:** Keep container tightly closed when not in use.

---

#### 8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

**Engineering Controls:** Have an eyewash station nearby. Maintain general industrial hygiene practices when using this product.  
**Personal Protective Equipment:**

**Eye Protection:** chemical splash goggles  
**Skin Protection:** disposable latex gloves lab coat  
**Inhalation Protection:** adequate ventilation  
**Precautionary Measures:** Avoid contact with: eyes skin clothing Wash thoroughly after handling. Keep away from: acids/acid fumes  
**TLV:** Not established  
**PEL:** Not established

---

## 9. PHYSICAL / CHEMICAL PROPERTIES

**Appearance:** Clear, colorless liquid  
**Physical State:** Liquid  
**Molecular Weight:** Not applicable  
**Odor:** None  
**pH:** 12.7  
**Vapor Pressure:** Not determined  
**Vapor Density (air = 1):** Not determined  
**Boiling Point:** >100 °C (>212°F)  
**Melting Point:** Not determined  
**Specific Gravity (water = 1):** Not determined  
**Evaporation Rate (water = 1):** Not determined  
**Volatile Organic Compounds Content:** Not applicable  
**Coefficient of Water / Oil:** Not applicable  
**Solubility:**  
    **Water:** Soluble  
    **Acid:** Soluble  
    **Other:** Not determined  
**Metal Corrosivity:**  
    **Steel:** 0.000 in/yr  
    **Aluminum:** 0.163 in/yr

---

## 10. STABILITY / REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.  
**Conditions to Avoid:** Heat Exposure to light. Evaporation  
**Reactivity / Incompatibility:** Incompatible with: strong acids  
**Hazardous Decomposition:** Toxic fumes of: Iodine iodine compounds  
**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:** None reported  
    **Mutation Data:** None reported  
    **Reproductive Effects Data:** None reported  
    --  
**Ingredient Toxicological Data:** Potassium Iodate: Oral mouse LDLo = 531 mg/kg; Potassium Iodide: Oral mouse LDLo = 1862 mg/kg; Sodium Hydroxide: Oral rat LDLo = 500 mg/kg

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## 12. ECOLOGICAL INFORMATION

**Product Ecological Information: --**

No ecological data available for this product.

**Ingredient Ecological Information: --**

No ecological data available for the ingredients of this product.

---

## 13. DISPOSAL CONSIDERATIONS

**Special Instructions (Disposal):** 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. Open cold water tap completely, slowly pour the reacted material to the drain. Flush system with plenty of water.

**Empty Containers:** Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.

**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

**T.D.G.:**

**Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**PIN:** NA

**Group:** NA

**Subsidiary Risk:** 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.

---

## 15. REGULATORY INFORMATION

**National Inventories:**

**Canadian Inventory Status:** All ingredients of this product are DSL Listed.

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

---

## 16. OTHER INFORMATION

**References:** 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). 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. Technical Judgment. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991.

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