

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

<u>Product</u>	<u>MSDS</u>	<u>Distributor</u>	<u>Format</u>	<u>Language</u>	<u>Quantity</u>
2242500	204399	Hach Company	ROWGHS	English	1
2242500	204499	Hach Company	ROWGHS	English	1
2242500	212699	Hach Company	ROWGHS	English	1
2242500	1206699	Hach Company	ROWGHS	English	1

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Total Enclosures: 4

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

MSDS No: M00033

# SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Chromium 1 Reagent

**Catalog Number:** 204399

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:** M00033

**Chemical Name:** Not applicable

**CAS Number:** Not applicable

**Additional CAS No. (for hydrated forms):** Not applicable

**Chemical Formula:** Not applicable

**Chemical Family:** Mixture

**Intended Use:** Laboratory Reagent Determination of chromium

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## 2. HAZARDS IDENTIFICATION

**GHS Classification:**

**Hazard categories:** Acute Toxicity: Acute Tox. 4-Orl Skin Corrosion/Irritation: Skin Corr. 1A Acute Toxicity: Acute Tox. 4-Inh Hazardous to the Aquatic Environment: Aquatic Acute 2

**GHS Label Elements:**

DANGER



**Hazard statements:** Harmful if swallowed. Causes severe skin burns and eye damage. Harmful if inhaled. Toxic to aquatic life.

**Precautionary statements:** Do not breathe dust/fume/gas/mist/vapours/spray. . Wear eye protection. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF INHALED: Remove victim/person to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. .

**HMIS:**

**Health:** 3

**Flammability:** 0

**Reactivity:** 1

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

**NFPA:**

**Health:** 3

**Flammability:** 0

**Reactivity:** 1

**Symbol:** Not applicable

**WHMIS Hazard Classification:** Class D, Division 1, Subdivision B - Toxic material (immediate effects) Class E - Corrosive material

**WHMIS Symbols:** Acute Poison Corrosive

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Hazardous Components according to GHS:**

**Lithium Hydroxide, Anhydrous**

**CAS Number:** 1310-65-2

**Chemical Formula:** LiOH · H<sub>2</sub>O

**GHS Classification:** Met. Corr. 1, H290; Acute Tox. 3 -Orl., H301; Skin Corr. 1A, H314; Acute Tox. 3 - Inh, H331

**Percent Range (Trade Secret):** 40.0 - 50.0

**Percent Range Units:** weight / weight

**PEL:** 15 mg/m<sup>3</sup> as inhalable dust; 5 mg/m<sup>3</sup> as respirable dust

**TLV:** 10 mg/m<sup>3</sup> as inhalable dust; 3 mg/m<sup>3</sup> as respirable dust

**WHMIS Symbols:** CorrosiveAcute Poison

**Lithium Hypobromite**

**CAS Number:** 13824-95-8

**Chemical Formula:** LiBrO

**GHS Classification:** Ox Sol. 2, H272; Skin Corr. 1B, H314; Aquatic Acute 1, H400

**Percent Range (Trade Secret):** 10.0 - 20.0

**Percent Range Units:** weight / weight

**PEL:** Not established

**TLV:** Not established

**WHMIS Symbols:** CorrosiveOxidizingAcute Poison

**Hazardous Components according to GHS: Yes- Aquatic Acute 2 or Aquatic Acute 3**

**Sodium Sulfate**

**CAS Number:** 7757-82-6

**Chemical Formula:** Na<sub>2</sub>SO<sub>4</sub>

**GHS Classification:** Aquatic Acute 3, H402

**Percent Range (Trade Secret):** 35.0 - 45.0

**Percent Range Units:** weight / weight

**PEL:** 15 mg/m<sup>3</sup> as inhalable dust; 5 mg/m<sup>3</sup> as respirable dust

**TLV:** 10 mg/m<sup>3</sup> as inhalable dust; 3 mg/m<sup>3</sup> as respirable dust

**WHMIS Symbols:** Not applicable

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### 4. FIRST AID MEASURES

**General Information:** In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.

**Advice to doctor:** Treat symptomatically.

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

**Skin Contact (First Aid):** Remove contaminated clothing. Wash skin with soap and plenty of water. Call physician immediately.

**Inhalation:** Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen. 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.

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### 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Material is not classified as flammable according to GHS criteria. During a fire, corrosive and toxic gases may be generated by thermal decomposition.

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

**Extinguishing Media:** Water. Carbon dioxide Dry chemical.

**Extinguishing Media NOT To Be Used:** Not applicable

**Fire / Explosion Hazards:** Contact with metals gives off hydrogen gas which is flammable May react violently with: organic materials

*Hazardous Combustion Products:* None reported

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## 6. ACCIDENTAL RELEASE MEASURES

**Spill Response Notice:**

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

**Containment Technique:** Stop spilled material from being released to the environment. Cover spilled solid material with sand or other inert material.

**Clean-up Technique:** Work in an approved fume hood. Dilute with a large excess of water. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. If permitted by regulation, Flush reacted material to the drain with a large excess of water. Otherwise, Decontaminate the area of the spill with a soap solution. Dispose of in accordance with local, state and federal regulations or laws.

**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.

**DOT 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:** Store between 10° and 25°C. Keep away from: acids Protect from: heat moisture

**Flammability Class:** Not applicable

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Use a fume hood to avoid exposure to dust, mist or vapor. Maintain general industrial hygiene practices when using this product.

**Personal Protective Equipment:**

**Eye Protection:** chemical splash goggles

**Skin Protection:** lab coat nitrile 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 and / or adequate ventilation

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

Keep away from: acids/acid fumes Protect from: heat moisture

**TLV:** 10 mg/m<sup>3</sup> as inhalable dust

**PEL:** 15 mg/m<sup>3</sup> as inhalable dust; 5 mg/m<sup>3</sup> as respirable dust

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Bright yellow powder

**Physical State:** Solid

**Molecular Weight:** Not applicable

**Odor:** Slight

**Odor Threshold:** Not Applicable

**pH:** > 11 (1% solution)

**Metal Corrosivity:**

**Corrosivity Classification:** Classed as corrosive to skin. Not generally classed as corrosive to metals in addition to skin classification.

**Steel:** Not applicable

**Aluminum:** Not applicable

**Specific Gravity/ Relative Density (water = 1; air =1):** 1.48

**Viscosity:** Not determined

**Solubility:**

**Water:** Partially soluble

**Acid:** Partially soluble

**Other:** Not determined

**Partition Coefficient (n-octanol / water):** Not determined  
**Coefficient of Water / Oil:** Not applicable  
**Melting Point:** > 400 °C (> 752 °F)  
**Decomposition Temperature:** Not determined  
**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:** Material is not classified as flammable according to GHS criteria. During a fire, corrosive and 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 applicable  
**Explosive Properties:**  
Not classified according to GHS criteria.  
**Oxidizing Properties:**  
Not classified according to GHS criteria. Based on internal test results.  
**Reactivity Properties:**  
Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.  
**Gas under Pressure:**  
Not classified according to GHS criteria.  
Not determined

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## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.  
**Mechanical Impact:** None reported  
**Static Discharge:** None reported.  
**Reactivity / Incompatibility:** Incompatible with: acids metals combustible materials  
**Hazardous Decomposition:** Contact with metals may release flammable hydrogen gas. Toxic fumes of: hydrogen bromide sodium monoxide sulfur oxides  
**Conditions to Avoid:** Excess moisture Heat

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## 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 Route Data Given Below  
Oral Rat LD50 = 553 mg/kg  
Inhalation Rat LC50 = 2.4 mg/L/4 hr  
**Specific Target Organ Toxicity - Single Exposure (STOT-SE):** Based on classification principles, the classification criteria are not met.  
**Specific Target Organ Toxicity - Repeat Exposure (STOT-RE):** Based on classification principles, the classification criteria are not met.  
**Skin Corrosion/Irritation:** Corrosive to skin.  
**Eye Damage:** Corrosive to eyes.  
**Sensitization:** Based on classification principles, the classification criteria are not met.  
**CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction):** Based on classification principles, the classification criteria are not met.  
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:** Harmful Causes: severe burns May cause: central nervous system effects kidney damage liver damage dizziness nausea vomiting coma death  
**Inhalation:** Harmful Causes: severe burns shortness of breath coughing

**Skin Absorption:** None Reported

**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

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

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## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --

No ecological data available for this product. Mobility in soil: No data available Do not place in landfill. Recycle appropriately. Do not release into the environment.

Method Used for Estimation of Aquatic Toxicity of Mixture Summation Method M-factor (Multiplier) for highly toxic ingredients: 1

**Ingredient Ecological Information:** Sodium Sulfate: 96 hr Gambusia affinis LC50 = 120 mg/L; 48 hr Daphnia magna EC50 = 2564 mg/L; 96 hr Fish LC50 = 56 mg/L

CEPA Statement: Sodium Sulfate: Persistent, not bioaccumulative or inherently toxic to aquatic organisms. Lithium Hydroxide: Persistent and inherently toxic to aquatic organisms (PiT).

Lithium Hypobromite: Not persistent or bioaccumulative. Inherently toxic to aquatic organisms.

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## 13. DISPOSAL CONSIDERATIONS

**EPA Waste ID Number:** D002

**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 acid, such as sulfuric or citric. If permitted by regulation, Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system. Otherwise, Dispose of material in an E.P.A. approved hazardous waste facility.

**Empty Containers:** Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state or federal regulations. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P. A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.

**NOTICE (Disposal):** These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

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## 14. TRANSPORT INFORMATION

**D.O.T.:**

**D.O.T. Proper Shipping Name:** Corrosive Solid, Basic, Inorganic, N.O.S.  
(Lithium Hypobromite/Lithium Hydroxide Mixture)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**ID Number:** UN3262

**Packing Group:** II

**T.D.G.:**

**Proper Shipping Name:** Corrosive Solid, Basic, Inorganic, N.O.S.  
(Lithium Hypobromite/Lithium Hydroxide Mixture)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**UN Number/PIN:** 3262

**Packing Group:** II

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

**I.C.A.O. Proper Shipping Name:** Corrosive Solid, Basic, Inorganic, N.O.S.  
(Lithium Hypobromite/Lithium Hydroxide Mixture)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**ID Number:** UN3262

**Packing Group:** II

**I.M.O.:**

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

(Lithium Hypobromite/Lithium Hydroxide Mixture)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**ID Number:** UN3262

**Packing Group:** II

**Additional Information:** There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is NOT in a set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

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## 15. REGULATORY INFORMATION

### **U.S. Federal Regulations:**

**O.S.H.A.:** This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

### **E.P.A.:**

**S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370):** Immediate (Acute) Health Hazard

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

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**302 (EHS) TPQ (40 CFR 355):** 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:** No

**Trade Secret Registry:** Not applicable

### **National Inventories:**

**U.S. Inventory Status:** This product contains a chemical(s) exempt from the TSCA 8(b) Inventory due to a Low Volume Exemption held by Hach Company.

**CAS Number:** Not applicable

Lithium Hypobromite. This chemical may only be used as an oxidant in tests for total chromium.

**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 or are placed on the market in quantities less than 10 kg per year.

**Australian Inventory (AICS) Status:** Some ingredients are not 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:** Not Listed - Exempt.

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

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## 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. Outside Testing. Technical Judgment. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984.

**Complete Text of H phrases referred to in Section 3:** H271 May cause fire or explosion; strong oxidizer. H290 May be corrosive to metals. H301 Toxic if swallowed. H314 Causes severe skin burns and eye damage. H331 Toxic if inhaled. H400 Very toxic to aquatic life. .

**Revision Summary:** . Substantially Revised MSDS 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:** 12

**Month:** September

**Year:** 2014

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

**CCOHS Evaluation Note:** It is offered under the interim policy that was established by Health Canada permitting use of GHS-formatted safety data sheets in Canada prior to revision of CPR to GHS. It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17. This product has been classified and labeled in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3). This SDS has been prepared in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3).

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**Legend:**

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

**USER RESPONSIBILITY:** Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

**THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.**

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

MSDS No: M00034

# SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Chromium 2 Reagent  
**Catalog Number:** 204499

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:** M00034  
**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 Reagent Debrominating reagent in Total Chromium Test

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## 2. HAZARDS IDENTIFICATION

**GHS Classification:**

**Hazard categories:** Corrosive to Metals: Met. Corr. 1 . Skin Corrosion/Irritation: Skin Corr. 1B

**GHS Label Elements:**

DANGER



**Hazard statements:** May be corrosive to metals. . Causes severe skin burns and eye damage.

**Precautionary statements:** Keep only in original container. Do not breathe dust/fume/gas/mist/vapours/spray. Wear eye protection. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF INHALED: Remove victim/person to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. Absorb spillage to prevent material damage. . Wear protective gloves / protective clothing / eye protection / face protection. Dispose of contents/container according to state, local, federal or national regulations.

**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

**WHMIS Hazard Classification:** Class E - Corrosive material

**WHMIS Symbols:** Corrosive

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

*Hazardous Components according to GHS:*

**5-Sulfosalicylic Acid**

*CAS Number:* 97-05-2

*Chemical Formula:* C<sub>7</sub>H<sub>6</sub>O<sub>6</sub>S · 2H<sub>2</sub>O

*GHS Classification:* Acute Tox. 4 -Orl, H302; Skin Corr. 1B; H314; Eye Dam. 1, H318;

*Percent Range (Trade Secret):* 65.0 - 75.0

*Percent Range Units:* weight / weight

*PEL:* Not established

*TLV:* Not established

*WHMIS Symbols:* Corrosive

**1,2-Cyclohexanediaminetetraacetic Acid Trisodium Salt**

*CAS Number:* 36679-96-6

*Chemical Formula:* C<sub>14</sub>H<sub>19</sub>N<sub>2</sub>O<sub>8</sub>Na<sub>3</sub>

*GHS Classification:* Skin Irrit. 2, H315; Eye Irrit. 2A, H319

*Percent Range (Trade Secret):* 15.0 - 25.0

*Percent Range Units:* weight / weight

*PEL:* 15 mg/m<sup>3</sup> as inhalable dust; 5 mg/m<sup>3</sup> as respirable dust

*TLV:* 10 mg/m<sup>3</sup> as inhalable dust; 3 mg/m<sup>3</sup> as respirable dust

*WHMIS Symbols:* Not applicable

*Hazardous Components according to GHS: Yes- Aquatic Acute 2 or Aquatic Acute 3*

**Sodium Sulfate**

*CAS Number:* 7757-82-6

*Chemical Formula:* Na<sub>2</sub>SO<sub>4</sub>

*GHS Classification:* Aquatic Acute 3, H402

*Percent Range (Trade Secret):* 15.0 - 25.0

*Percent Range Units:* weight / weight

*PEL:* 15 mg/m<sup>3</sup> as inhalable dust; 5 mg/m<sup>3</sup> as respirable dust

*TLV:* 10 mg/m<sup>3</sup> as inhalable dust; 3 mg/m<sup>3</sup> as respirable dust

*WHMIS Symbols:* Not applicable

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### 4. FIRST AID MEASURES

*General Information:* In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.

*Advice to doctor:* Treat symptomatically.

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

*Skin Contact (First Aid):* Remove contaminated clothing. Wash skin with plenty of water for 15 minutes. Call physician immediately.

*Inhalation:* Remove to fresh air. If you feel unwell, contact a 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.

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### 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: nitrogen oxides. sodium oxides carbon monoxide, carbon dioxide. sulfur oxides.

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## 6. ACCIDENTAL RELEASE MEASURES

### **Spill Response Notice:**

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

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

**Clean-up Technique:** If permitted by regulation, Scoop up spilled material into a large beaker and dissolve with water. 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. Otherwise, Pick up spill for disposal and place in a closed container. Dispose of in accordance with local, state and federal regulations or laws.

**Evacuation Procedure:** Evacuate 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.

**DOT Emergency Response Guide Number:** 154

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## 7. HANDLING AND STORAGE

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

**Storage:** Protect from: heat. Keep away from: oxidizers

**Flammability Class:** Not applicable

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## 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 skin. Do not breathe: dust. Wash thoroughly after handling. Keep away from: oxidizers. Protect from: heat

**TLV:** Not established

**PEL:** Not established

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** White to brown

**Physical State:** Solid

**Molecular Weight:** Not applicable

**Odor:** Not determined

**Odor Threshold:** Not available

**pH:** 5% solution = 1.2

### **Metal Corrosivity:**

**Corrosivity Classification:** Classified as corrosive to metals.

**Steel:** 0.410 in/yr

**Aluminum:** 0.118 in/yr

**Specific Gravity/ Relative Density (water = 1; air =1):** 1.61

**Viscosity:** Not determined

### **Solubility:**

**Water:** 50% soluble

**Acid:** Not determined

**Other:** Not determined

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

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

**Melting Point:** 155-170 °C (311-338 °F)

**Decomposition Temperature:** Not determined

**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 available  
**Explosive Properties:**  
Not classified according to GHS criteria.  
**Oxidizing Properties:**  
Not classified according to GHS criteria.  
**Reactivity Properties:**  
Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.  
**Gas under Pressure:**  
Not classified according to GHS criteria.

---

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.  
**Mechanical Impact:** None reported  
**Static Discharge:** None reported.  
**Reactivity / Incompatibility:** May react violently in contact with: oxidizers  
**Hazardous Decomposition:** Heating to decomposition releases toxic and/or corrosive fumes of: sulfur oxides nitrogen oxides carbon monoxide carbon dioxide  
**Conditions to Avoid:** Excess moisture Heat

---

## 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  
ATE Oral Rat LD50 = 2682 mg/kg  
ATE Dermal Rabbit LD50 = 12477 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:** Corrosive to skin.  
**Eye Damage:** Corrosive to eyes.  
**Sensitization:** Based on classification principles, the classification criteria are not met.  
**CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction):** No germ cell mutagenicity, carcinogenicity or reproductive toxicity data found.  
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: gastrointestinal tract irritation nausea vomiting diarrhea  
**Inhalation:** May cause: respiratory tract irritation  
**Skin Absorption:** None Reported  
**Chronic Effects:** None reported  
**Medical Conditions Aggravated:** Pre-existing: Eye conditions Skin conditions Respiratory conditions

---

## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --  
No ecological data available for this product. Mobility in soil: No data available Based on classification principles, not classified as hazardous to the environment.

Method Used for Estimation of Aquatic Toxicity of Mixture Summation Method M-factor (Multiplier) for highly toxic ingredients: 1

**Ingredient Ecological Information:** Sodium Sulfate: *Gambusia affinis* 96 hr LC50 = 120 mg/L; *Daphnia magna* 48 hr EC50 = 2564 mg/L.

CEPA Statement: Sodium Sulfate: Persistent, not bioaccumulative or inherently toxic to aquatic organisms; Sulfosalicylic Acid, CDTA, Trisodium Salt: Not persistent, not bioaccumulative or inherently toxic to aquatic organisms.

---

### 13. DISPOSAL CONSIDERATIONS

**EPA Waste ID Number:** Not applicable

**Special Instructions (Disposal):** If permitted by regulation, 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. Otherwise, Dispose of material in an E.P.A. approved hazardous waste facility.

**Empty Containers:** Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state or federal regulations. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P. A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.

**NOTICE (Disposal):** These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

---

### 14. TRANSPORT INFORMATION

**D.O.T.:**

**D.O.T. Proper Shipping Name:** Corrosive Solid, Acidic, Organic, N.O.S.  
(Sulfosalicylic Acid Mixture)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**ID Number:** UN3261

**Packing Group:** III

**T.D.G.:**

**Proper Shipping Name:** Corrosive Solid, Acidic, Organic, N.O.S.  
(Sulfosalicylic Acid Mixture)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**UN Number/PIN:** 3261

**Packing Group:** III

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

**I.C.A.O. Proper Shipping Name:** Corrosive Solid, Acidic, Organic, N.O.S.  
(Sulfosalicylic Acid Mixture)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**ID Number:** UN3261

**Packing Group:** III

**I.M.O.:**

**Proper Shipping Name:** Corrosive Solid, Acidic, Organic, N.O.S.  
(Sulfosalicylic Acid Mixture)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**ID Number:** UN3261

**Packing Group:** III

**Additional Information:** There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is NOT in a set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

---

### 15. REGULATORY INFORMATION

**U.S. Federal Regulations:**

**O.S.H.A.:** This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

**E.P.A.:**

**S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370):** Immediate (Acute) Health Hazard

**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:** This product contains a chemical(s) exempt from the TSCA 8(b) Inventory due to a Low Volume Exemption held by Hach Company.

**CAS Number:** Not applicable

1,2-Cyclohexanediaminetetraacetic Acid Trisodium Salt. This chemical may only be used as a chelating reagent for chemical reactions.

**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 or are placed on the market in quantities less than 10 kg per year.

**Australian Inventory (AICS) Status:** Not Listed

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

**Korean Inventory (KECI) Status:** All components of this product are either listed, listed as the anhydrous compound or exempt.

**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:** 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. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. 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. In-house information. Technical Judgment.

**Complete Text of H phrases referred to in Section 3:** H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H318 Causes serious eye damage. H319 Causes serious eye irritation. .

**Revision Summary:** . Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

**Date of MSDS Preparation:**

**Day:** 17

**Month:** September

**Year:** 2014

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

**CCOHS Evaluation Note:** It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17. 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). This SDS has been prepared in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3).

---

### Legend:

NA - Not Applicable

ND - Not Determined

w/w - weight/weight

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: M00036

## SAFETY DATA SHEET

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Acid Reagent  
**Catalog Number:** 212699

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:** M00036  
**Chemical Name:** Disulfuric Acid, Dipotassium Salt  
**CAS Number:** 7790-62-7  
**Additional CAS No. (for hydrated forms):** Not applicable  
**Chemical Formula:** K<sub>2</sub>S<sub>2</sub>O<sub>7</sub>  
**Chemical Family:** Inorganic Salt  
**Intended Use:** Laboratory Use

---

### 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 eye protection. 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:** 2  
**Flammability:** 0  
**Reactivity:** 0  
**Protective Equipment:** X - See protective equipment, Section 8.

**NFPA:**  
**Health:** 2  
**Flammability:** 0  
**Reactivity:** 0  
**Symbol:** Not applicable

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

---

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

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



**CAS Number:** 7790-62-7  
**Chemical Formula:** K<sub>2</sub>S<sub>2</sub>O<sub>7</sub>  
**GHS Classification:** Acute Tox. 5 -Orl, H303; Eye Irrit. 2A, H319;  
**Percent Range (Trade Secret):** 100.0  
**Percent Range Units:** weight / weight  
**PEL:** 15 mg/m<sup>3</sup> as inhalable dust; 5 mg/m<sup>3</sup> as respirable dust  
**TLV:** 10 mg/m<sup>3</sup> as inhalable dust; 3 mg/m<sup>3</sup> as respirable dust

**WHMIS Symbols:** Other Toxic Effects

---

#### 4. FIRST AID MEASURES

**General Information:** In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.

**Advice to doctor:** Treat symptomatically.

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

**Skin Contact (First Aid):** Wash skin with plenty of water. Call physician if irritation develops. Remove contaminated clothing.

**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:** May react violently with: strong bases strong reducers

**Hazardous Combustion Products:** Toxic fumes of: sulfur oxides.

---

#### 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. Cover spilled solid material with sand or other inert material.

**Clean-up Technique:** If permitted by regulation, 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. Otherwise, Pick up spill for disposal and place in a closed container Dispose of in accordance with local, state and federal regulations or laws.

**Evacuation Procedure:** Evacuate 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.

**DOT Emergency Response Guide Number:** Not applicable

---

#### 7. HANDLING AND STORAGE

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

**Storage:** Keep away from: reducers Protect from: moisture

**Flammability Class:** Not applicable

---

#### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Have an eyewash station nearby. Use general ventilation to minimize exposure to mist, vapor or dust. Maintain general industrial hygiene practices when using this product.

**Personal Protective Equipment:**

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

**Skin Protection:** 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:** adequate ventilation

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

**TLV:** 10 mg/m<sup>3</sup> as inhalable dust; 3 mg/m<sup>3</sup> as respirable dust

**PEL:** 15 mg/m<sup>3</sup> as inhalable dust; 5 mg/m<sup>3</sup> as respirable dust

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

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** White crystals

**Physical State:** Solid

**Molecular Weight:** 254.0

**Odor:** Not determined

**Odor Threshold:** Not applicable

**pH:** of 5% solution = 1.0

**Metal Corrosivity:**

**Corrosivity Classification:** Not classified as corrosive to metals according to GHS criteria.

**Steel:** Not Applicable

**Aluminum:** Not Applicable

**Specific Gravity/ Relative Density (water = 1; air =1):** 2.25

**Viscosity:** Not applicable

**Solubility:**

**Water:** 25 g/L

**Acid:** Not determined

**Other:** Not determined

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

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

**Melting Point:** 325°C 617°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 classified according to GHS criteria.

**Oxidizing Properties:**

Not classified according to GHS criteria.

**Reactivity Properties:**

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

**Gas under Pressure:**

Not classified according to GHS criteria.

---

## 10. STABILITY AND REACTIVITY

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

**Mechanical Impact:** None reported

**Static Discharge:** None reported.

**Reactivity / Incompatibility:** Incompatible with: strong bases reducers  
**Hazardous Decomposition:** Heating to decomposition releases toxic and/or corrosive fumes of: sulfur oxides  
**Conditions to Avoid:** Excess moisture

---

## 11. TOXICOLOGICAL INFORMATION

**Toxicokinetics, Metabolism and Distribution:** No information available  
**Toxicologically Synergistic Products:** None reported  
**Acute Toxicity:** Route Data Given Below  
Oral Rat LD50 = 2340 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:** Not corrosive or irritating to skin.  
Assessment based on internal test data.  
**Eye Damage:** Irritating to eyes. Assessment based on pH  
**Sensitization:** Based on classification principles, the classification criteria are not met.  
**CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction):** No germ cell mutagenicity, carcinogenicity or reproductive toxicity data found.  
IARC Listed: No  
NTP Listed: No  
O.S.H.A. Listed: No  
**Symptoms/Effects:**  
**Ingestion:** Causes: irritation of the mouth and esophagus  
**Inhalation:** May cause: irritation of nose and throat  
**Skin Absorption:** None Reported  
**Chronic Effects:** None reported  
**Medical Conditions Aggravated:** None reported

---

## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** 96 hr Oncorhynchus mykiss LC50 = 420 mg/L; 48 hr Daphnia magna EC50 = 140 mg/L.  
Based on classification principles, not classified as hazardous to the environment.  
CEPA Categorization: Persistent Not Bioaccumulative Not inherently toxic to aquatic organisms  
**Ingredient Ecological Information:** --  
Not applicable

---

## 13. DISPOSAL CONSIDERATIONS

**EPA Waste ID Number:** Not applicable  
**Special Instructions (Disposal):** If permitted by regulation, 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. Otherwise, Dispose of material in an E.P.A. approved hazardous waste facility.  
**Empty Containers:** Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state or federal regulations. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P. A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.  
**NOTICE (Disposal):** These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

---

## 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

*UN Number/PIN:* NA

*Packing 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.:**

*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):** Immediate (Acute) 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:** TSCA Listed: Yes

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

**Canadian Inventory Status:** DSL Listed: Yes

**EEC Inventory Status:** EINECS Listed: Yes

**Australian Inventory (AICS) Status:** Listed

**New Zealand Inventory (NZIoC) Status:** Listed

**Korean Inventory (KECI) Status:** Listed

**Japan (ENCs) Inventory Status:** Listed

**China (PRC) Inventory (MEP) Status:** Listed

---

## 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. In-house information. CCINFO MSDS/FTSS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor).  
**Complete Text of H phrases referred to in Section 3:** Not applicable H319 Causes serious eye irritation.  
**Revision Summary:** Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

**Date of MSDS Preparation:**

**Day:** 23

**Month:** September

**Year:** 2014

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

**CCOHS Evaluation Note:** It is offered under the interim policy that was established by Health Canada permitting use of GHS-formatted safety data sheets in Canada prior to revision of CPR to GHS. It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17. 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

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

MSDS No: M00001

## SAFETY DATA SHEET

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** ChromaVer<sup>®</sup>3 Chromium Reagent  
**Catalog Number:** 1206699

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:** M00001  
**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 Reagent Indicator for Chromium

---

### 2. HAZARDS IDENTIFICATION

**GHS Classification:**

**Hazard categories:** Serious Eye Damage/Eye Irritation: Eye Irrit. 2 . Carcinogenicity: Carc. 2

**GHS Label Elements:**

WARNING



**Hazard statements:** . Causes serious eye irritation. Suspected of causing cancer.

**Precautionary statements:** Obtain special instructions before use. Wear protective gloves / protective clothing / eye protection / face protection. 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. IF exposed or concerned: Get medical advice/attention. Call a POISON CENTER or doctor/physician if you feel unwell. Dispose of contents/container according to state, local, federal or national regulations.

**HMIS:**

**Health:** 2\*

**Flammability:** 0

**Reactivity:** 0

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

**NFPA:**

**Health:** 2

**Flammability:** 0

**Reactivity:** 0

**Symbol:** Not applicable

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

**WHMIS Symbols:** Other Toxic Effects

---

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Hazardous Components according to GHS:**

**Potassium Pyrosulfate**

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

**Chemical Formula:**  $K_2S_2O_7$

**GHS Classification:** Acute Tox. 5 -Orl, H303; Eye Irrit. 2A, H319;

**Percent Range (Trade Secret):** 75.0 - 85.0

**Percent Range Units:** weight / weight

**PEL:** 15 mg/m<sup>3</sup> as inhalable dust; 5 mg/m<sup>3</sup> as respirable dust

**TLV:** 10 mg/m<sup>3</sup> as inhalable dust; 3 mg/m<sup>3</sup> as respirable dust

**WHMIS Symbols:** Other Toxic Effects

**1,5-Diphenylcarbohydrazide**

**CAS Number:** 140-22-7

**Chemical Formula:**  $C_{13}H_{14}N_4O$

**GHS Classification:** Acute Tox. 4-Orl, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT Single 3, H335; Aquatic Chronic 2, H411

**Percent Range (Trade Secret):** 0.01 - 0.1

**Percent Range Units:** weight / weight

**PEL:** 15 mg/m<sup>3</sup> as inhalable dust; 5 mg/m<sup>3</sup> as respirable dust

**TLV:** 10 mg/m<sup>3</sup> as inhalable dust; 3 mg/m<sup>3</sup> as respirable dust

**WHMIS Symbols:** Not applicable

**Hazardous Components according to GHS:** No

**Magnesium Sulfate**

**CAS Number:** 7487-88-9

**Chemical Formula:**  $MgSO_4$

**GHS Classification:** Not applicable

**Percent Range (Trade Secret):** 15.0 - 25.0

**Percent Range Units:** weight / weight

**PEL:** 15 mg/m<sup>3</sup> as inhalable dust; 5 mg/m<sup>3</sup> as respirable dust

**TLV:** 10 mg/m<sup>3</sup> as inhalable dust; 3 mg/m<sup>3</sup> as respirable dust

**WHMIS Symbols:** Not applicable

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## 4. FIRST AID MEASURES

**General Information:** In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.

**Advice to doctor:** Treat symptomatically.

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

**Skin Contact (First Aid):** Call physician if irritation develops. Remove contaminated clothing. Wash skin with plenty of water.

**Inhalation:** Remove to fresh air.

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

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## 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Combustion generates toxic fumes.

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

**Extinguishing Media:** Dry chemical. Carbon dioxide. Alcohol foam.

**Extinguishing Media NOT To Be Used:** Not applicable

**Fire / Explosion Hazards:** May react violently with: strong bases strong reducers

**Hazardous Combustion Products:** Toxic fumes of: sulfur oxides.

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## 6. ACCIDENTAL RELEASE MEASURES

**Spill Response Notice:**

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

**Containment Technique:** Stop spilled material from being released to the environment. Cover spilled solid material with sand or other inert material.

**Clean-up Technique:** If permitted by regulation, 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. Otherwise, Pick up spill for disposal and place in a closed container. Dispose of in accordance with local, state and federal regulations or laws.

**Evacuation Procedure:** Evacuate 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.

**DOT Emergency Response Guide Number:** Not applicable

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## 7. HANDLING AND STORAGE

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

**Storage:** Keep away from: reducers. Protect from: moisture. Store between 10° and 25°C.

**Flammability Class:** Not applicable

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Use general ventilation to minimize exposure to mist, vapor or dust. Maintain general industrial hygiene practices when using this product.

**Personal Protective Equipment:**

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

**Skin Protection:** 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:** adequate ventilation

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

**TLV:** Not established

**PEL:** Not established

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** White or light pink powder

**Physical State:** Solid

**Molecular Weight:** Not applicable

**Odor:** Not determined

**Odor Threshold:** Not available

**pH:** of 5% solution = 1.1

**Metal Corrosivity:**

**Corrosivity Classification:** Not classified as corrosive to metals according to GHS criteria.

**Steel:** Not Applicable

**Aluminum:** Not Applicable

**Specific Gravity/ Relative Density (water = 1; air =1):** 2.26

**Viscosity:** Not determined

**Solubility:**

**Water:** Slightly Soluble

**Acid:** Soluble

**Other:** Not determined

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

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

**Melting Point:** Decomposes at 215°C; 419°F

**Decomposition Temperature:** Not determined

**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 determined  
**Flammable Properties:** Combustion generates toxic fumes.  
**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 classified according to GHS criteria.  
**Oxidizing Properties:**  
Not classified according to GHS criteria.  
**Reactivity Properties:**  
Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.  
**Gas under Pressure:**  
Not classified according to GHS criteria.

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## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.  
**Mechanical Impact:** None reported  
**Static Discharge:** None reported.  
**Reactivity / Incompatibility:** Incompatible with: strong bases reducers  
**Hazardous Decomposition:** Heating to decomposition releases toxic and/or corrosive fumes of: sulfur oxides  
**Conditions to Avoid:** Excess moisture Heating to decomposition.

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## 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  
ATE Oral LD50 = 2794 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):** Potential carcinogen  
Contains 1,5-Diphenylcarbohydrazide, classified as Carc. 2, H351.  
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: gastrointestinal tract irritation  
**Inhalation:** May cause: irritation of nose and throat  
**Skin Absorption:** None Reported  
**Chronic Effects:** None reported  
**Medical Conditions Aggravated:** Pre-existing: Eye conditions Skin conditions Respiratory conditions

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## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --  
No ecological data available for this product. Mobility in soil: No data available  
**Ingredient Ecological Information:** Potassium Pyrosulfate: *Oncorhynchus mykiss* 96 hr LC50 = 420 mg/L, *Daphnia magna* 48 hr EC50 = 140 mg/L; Magnesium Sulphate: *Gambusia affinis* 96hr LC50 = 15500 mg/l, *Daphnia magna* 24hr EC50 = 1700 mg/l, *Scenedesmus subspicatus* 72hr EC50 = 2700 mg/l

CEPA categorization for each and every ingredient: Persistent

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## 13. DISPOSAL CONSIDERATIONS

**EPA Waste ID Number:** Not applicable

**Special Instructions (Disposal):** 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.

**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.

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## 14. TRANSPORT INFORMATION

**D.O.T.:**

**D.O.T. Proper Shipping Name:** Not Currently Regulated

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**Hazard Class:** NA

**Subsidiary Risk:** NA

**ID Number:** NA

**Packing Group:** NA

**T.D.G.:**

**Proper Shipping Name:** Not Currently Regulated

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**Hazard Class:** NA

**Subsidiary Risk:** NA

**UN Number/PIN:** NA

**Packing Group:** NA

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

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

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**Hazard Class:** NA

**Subsidiary Risk:** NA

**ID Number:** NA

**Packing Group:** NA

**I.M.O.:**

**Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**Subsidiary Risk:** NA

**ID Number:** NA

**Packing Group:** NA

**Additional Information:** There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is NOT in a set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

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## 15. REGULATORY INFORMATION

**U.S. Federal Regulations:**

**O.S.H.A.:** This product is an "Article" as defined in the Hazard Communication Standard (29 CFR. 1910.1200)

**E.P.A.:**

**S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370):** Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard

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

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**302 (EHS) TPQ (40 CFR 355):** 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):** Not applicable  
**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/NDSL 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:** All components of this product are either listed, listed as the anhydrous compound or exempt.  
**Japan (ENCS) Inventory Status:** All components either listed or exempt.  
**China (PRC) Inventory (MEP) Status:** All components either listed or exempt.

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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. Outside Testing. In-house information. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor).

**Complete Text of H phrases referred to in Section 3:** Not applicable H319 Causes serious eye irritation. H335 May cause respiratory irritation. H351 Suspected of causing cancer.

**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:** 01  
**Month:** July  
**Year:** 2014

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

**CCOHS Evaluation Note:** It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17. 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). This SDS has been prepared in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3).

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**Legend:**

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

**USER RESPONSIBILITY:** Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

**THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.**

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