

# MATERIAL SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** FerroVer<sup>®</sup> Iron Reagent  
**Catalog Number:** 2105769

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:** M00135  
**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 Iron determination

## 2. HAZARDS IDENTIFICATION

**GHS Classification:**

**Hazard categories:** Acute Toxicity: Acute Tox. 4-Orl Serious Eye Damage/Eye Irritation: Eye Dam. 1 Skin Corrosion/Irritation: Skin Irrit. 2

**GHS Label Elements:**



**Hazard statements:** Harmful if swallowed. Causes skin irritation. Causes serious eye damage.

**Precautionary statements:** Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves / protective clothing / eye protection / face protection. IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

**HMIS:**

**Health:** 2

**Flammability:** 0

**Reactivity:** 1

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

**NFPA:**

**Health:** 2

**Flammability:** 0

**Reactivity:** 1

**Symbol:** Not applicable

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

**WHMIS Symbols:** Other Toxic Effects

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Hazardous Components according to GHS:**

### **Sodium Thiosulfate**

*CAS Number:* 7772-98-7

*Chemical Formula:* Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> · 5H<sub>2</sub>O

*GHS Classification:* Skin Irrit 2, H315; Eye Irrit 2, H319, STOT SE 3, H335

*Percent Range:* 45.0 - 55.0

*Percent Range Units:* weight / weight

*PEL:* 15 mg/m<sup>3</sup> as total 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

### **Sodium Metabisulfite**

*CAS Number:* 7681-57-4

*Chemical Formula:* Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>

*GHS Classification:* Acute Tox. Or1 4, H302; Acute Tox. Derm 5, H313; Acute Tox. Inh. 4, H332; Skin Irrit. 2, H315; Eye Dam. 1, H318; Resp. Sens. 1, H334; Aquatic Chronic 3, H412

*Percent Range:* 20.0 - 30.0

*Percent Range Units:* weight / weight

*PEL:* Not established

*TLV:* 5 mg/m<sup>3</sup> (ACGIH - TWA)

*WHMIS Symbols:* Other Toxic Effects

### **Sodium Hydrosulfite**

*CAS Number:* 7775-14-6

*Chemical Formula:* Na<sub>2</sub>S<sub>2</sub>O<sub>4</sub>

*GHS Classification:* Self-heat. 1, H251; Acute Tox. 4\* Or1., H302; Aquatic Chronic 3, H412;

*Percent Range:* 15.0 - 25.0

*Percent Range Units:* weight / weight

*PEL:* Not established

*TLV:* Not established

*WHMIS Symbols:* Other Toxic Effects Flammable / Combustible

### **1,10-Phenanthroline-p-toluenesulfonic Acid Salt**

*CAS Number:* 92798-16-8

*Chemical Formula:* C<sub>19</sub>H<sub>10</sub>N<sub>2</sub>O<sub>3</sub>S

*GHS Classification:* Acute Tox. 3 - Or1, H301; Skin Irrit. 2, H315; Eye Irrit. 2, H319

*Percent Range:* 1.0 - 5.0

*Percent Range Units:* weight / weight

*PEL:* Not established

*TLV:* Not established

*WHMIS Symbols:* Not applicable

*Hazardous Components according to GHS:* No

### **Sodium Citrate**

*CAS Number:* 68-04-2

*Chemical Formula:* C<sub>6</sub>H<sub>5</sub>O<sub>7</sub>Na<sub>3</sub> · 2H<sub>2</sub>O

*GHS Classification:* Not applicable

*Percent Range:* 1.0 - 10.0

*Percent Range Units:* weight / weight

*PEL:* 15 mg/m<sup>3</sup> as total 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.

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

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

**Ingestion (First Aid):** Give 1-2 glasses of water. Do not induce vomiting. Call physician immediately.

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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:** Carbon dioxide Alcohol foam. Dry chemical.

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

**Fire / Explosion Hazards:** May react violently with: organic materials aluminum / aluminum compounds strong oxidizers combustible materials strong acids water

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

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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, Sweep up material. Dilute with a large excess of water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. 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: any quantity 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 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. Protect from: heat moisture light Keep away from: acids / acid fumes. combustible materials organic material oxidizers

**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:** 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 and / or dust / mist mask

**Precautionary Measures:** Avoid contact with: eyes skin clothing Do not breathe: dust Wash thoroughly after handling. Use with adequate ventilation. Protect from: heat Keep away from: acids/acid fumes organic materials combustible material oxidizers water

**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 light yellow crystals  
**Physical State:** Solid  
**Molecular Weight:** Not applicable  
**Odor:** Sulfur-like  
**Odor Threshold:** Not determined  
**pH:** 5% solution = 5.29  
**Metal Corrosivity:**  
**Corrosivity Classification:** Not classified as corrosive to metals according to GHS criteria.  
**Steel:** 0.106 in/yr  
**Aluminum:** 0.003 in/yr  
**Specific Gravity/ Relative Density (water = 1; air =1):** 2.27  
**Viscosity:** Not applicable  
**Solubility:**  
**Water:** Soluble  
**Acid:** Soluble  
**Other:** Not determined  
**Partition Coefficient (n-octanol / water):** Not determined  
**Coefficient of Water / Oil:** Not determined  
**Melting Point:** decomposes at 192° C  
**Decomposition Temperature:** Not applicable  
**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:** 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.

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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: combustible materials organic materials oxidizers aluminum acids sodium nitrite sodium chlorite  
**Hazardous Decomposition:** Heating to decomposition releases toxic and/or corrosive fumes of: sulfur oxides carbon monoxide carbon dioxide  
**Conditions to Avoid:** Exposure to light. Excess moisture Extreme temperatures

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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  
**Specific Target Organ Toxicity - Single Exposure (STOT-SE):** Target Organs Respiratory Tract  
**Specific Target Organ Toxicity - Repeat Exposure (STOT-RE):** Based on classification principles, the classification criteria are not met.

**Skin Corrosion/Irritation:** Irritating to skin.

**Eye Damage:** Corrosive to eyes.

**Sensitization:** Respiratory Sensitizer

**CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction):** No germ cell mutagenicity, carcinogenicity or reproductive toxicity data found.

An ingredient of this mixture is: IARC Group 3: Non-classifiable  
Metabisulfites

This product does NOT contain any NTP listed chemicals.

This product does NOT contain any OSHA listed carcinogens.

**Symptoms/Effects:**

**Ingestion:** May cause: allergic respiratory reaction gastrointestinal tract irritation circulatory disturbances central nervous system depression Very large doses may cause: abdominal pain diarrhea vomiting depression

**Inhalation:** Causes: respiratory tract irritation May cause: allergic respiratory reaction difficult breathing coughing rapid pulse and respirations blood pressure changes chest pain sweating flushing hives

**Skin Absorption:** None Reported

**Chronic Effects:** Chronic overexposure may cause allergic respiratory reactions

**Medical Conditions Aggravated:** Sulfites are strong sensitizers. Inhalation and ingestion may cause allergic respiratory reactions in asthmatics. Persons with respiratory conditions should take special care when working with products that contain sulfites.

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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:** Sodium Metabisulfite: 120 ppm / 24, 48 & 96 hours / mosquito fish / TLm / fresh water (converting bisulfite figure to metabisulfite); Sodium Thiosulfate: Aquatic toxicity: 24,000 mg / l / 96 hours / mosquito-fish / TLm / turbid water at 22 ° - 24° C.

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## 13. DISPOSAL CONSIDERATIONS

**EPA Waste ID Number:** Not applicable

**Special Instructions (Disposal):** Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system.

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

**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

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**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 meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

**E.P.A.:**

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

**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 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:** All ingredients are listed.

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

**Korean Inventory (KECI) Status:** Some ingredients are not listed 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:** CCINFO MSDS/FTSS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. NIOSH Registry of Toxic Effects of Chemical Substances, 1985-86. Cincinnati: U.S. Department of Health and Human Services, April, 1987. Outside Testing. Vendor Information. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. 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. Technical Judgment. In-house information. 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. **Complete Text of H phrases referred to in Section 3:** H302 Harmful if swallowed. H315 Causes skin irritation. H318 Causes serious eye damage.

**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:** 16

**Month:** September

**Year:** 2013

**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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