

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: FerroVer[®] 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 No.: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Hazard: May cause allergic reaction. May cause irritation. Causes eye burns.

Date of MSDS Preparation:

Day: 16

Month: August

Year: 2011

2. COMPOSITION / INFORMATION ON INGREDIENTS

Sodium Thiosulfate

CAS No.: 7772-98-7

TSCA CAS Number: 7772-98-7

Percent Range: 45.0 - 55.0

Percent Range Units: weight / weight

LD50: Oral rat LD50 > 5 000 mg/kg.

LC50: None reported

TLV: Not established

PEL: Not established

Hazard: May cause irritation.

1,10-Phenanthroline-p-toluenesulfonic Acid Salt

CAS No.: 92798-16-8

TSCA CAS Number: 92798-16-8

Percent Range: 1.0 - 5.0

Percent Range Units: weight / weight

LD50: None reported

LC50: None reported

TLV: Not established

PEL: Not established

Hazard: May cause irritation. Toxic properties unknown.

Sodium Hydrosulfite

CAS No.: 7775-14-6

TSCA CAS Number: 7775-14-6

Percent Range: 15.0 - 25.0

Percent Range Units: weight / weight

LD50: Oral rat LD50 > 500 mg/kg

LC50: None reported

TLV: Not established

PEL: Not established

Hazard: Allergen Causes moderate eye irritation. Flammable solid.

Sodium Citrate

CAS No.: 68-04-2
TSCA CAS Number: 68-04-2
Percent Range: 1.0 - 10.0
Percent Range Units: weight / weight
LD50: Oral rat LD50 >8 g/Kg
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: May cause irritation.

Sodium Metabisulfite

CAS No.: 7681-57-4
TSCA CAS Number: 7681-57-4
Percent Range: 20.0 - 30.0
Percent Range Units: weight / weight
LD50: Oral rat LD₅₀ = 1131 mg/kg
LC50: None reported
TLV: 5 mg/m³ (ACGIH - TWA)
PEL: Not established
Hazard: May cause irritation. May cause allergic reaction.

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: White to light yellow crystals

Odor: Sulfur-like

MAY CAUSE EYE AND RESPIRATORY TRACT IRRITATION

MAY CAUSE ALLERGIC RESPIRATORY REACTION IF SWALLOWED OR INHALED

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

Potential Health Effects:

Eye Contact: May cause irritation

Skin Contact: No effects are anticipated

Skin Absorption: None reported

Target Organs: None reported

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

Target Organs: None reported

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

Target Organs: None reported

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.

Chronic Effects: Chronic overexposure may cause allergic respiratory reactions

Cancer / Reproductive Toxicity Information:

This product does NOT contain any OSHA listed carcinogens.

An ingredient of this mixture is: IARC Group 3: Non-classifiable
Metabisulfites
This product does NOT contain any NTP listed chemicals.
Additional Cancer / Reproductive Toxicity Information: Contains: an experimental mutagen.
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with soap and plenty of water.
Ingestion (First Aid): Give 1-2 glasses of water. Do not induce vomiting. Call physician immediately.
Inhalation: Give artificial respiration if necessary. Remove to fresh air. Call physician.

5. FIRE FIGHTING MEASURES

Flammable Properties: Can burn in fire, releasing toxic vapors.
Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not determined
Hazardous Combustion Products: Toxic fumes of: sulfur oxides. sodium monoxide carbon monoxide, carbon dioxide.
Fire / Explosion Hazards: May react violently with: organic materials aluminum / aluminum compounds strong oxidizers combustible materials strong acids water
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Carbon dioxide Alcohol foam. Dry chemical.
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances 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: 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.
Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. If conditions warrant, increase the size of the evacuation.
Special Instructions (for accidental release): Not applicable
304 EHS RQ (40 CFR 355): Not applicable
D.O.T. Emergency Response Guide Number: Not applicable

7. HANDLING / 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

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

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

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: White to light yellow crystals

Physical State: Solid

Molecular Weight: Not applicable

Odor: Sulfur-like

pH: 5% solution = 5.29

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Boiling Point: Not applicable

Melting Point: decomposes at 192° C

Specific Gravity/ Relative Density (water = 1; air =1): 2.27

Evaporation Rate (water = 1): Not applicable

Volatile Organic Compounds Content: Not determined

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

Solubility:

Water: Soluble

Acid: Soluble

Other: Not determined

Metal Corrosivity:

Steel: 0.106 in/yr

Aluminum: 0.003 in/yr

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Conditions to Avoid: Exposure to light. Excess moisture Extreme temperatures

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

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:

LD50: None reported

LC50: None reported

Dermal Toxicity Data: None reported

Skin and Eye Irritation Data: Erythema at 3 minutes, 1 hour, 4 hours, 24 hours, 48 hours, 72 hours = 0. Edema at 3 minutes, 1 hour, 4 hours, 24 hours, 48 hours, 72 hours = 0.

Mutation Data: Sodium Metabisulfite: cytogenetic analysis hamster ovary 180 µg/l; sister chromatid exchange on hamster ovary @ 200 µg/l.

Reproductive Effects Data: Sodium Metabisulfite: oral rat TDLo = 20 g/kg - effects on newborn - stillbirth; oral rat TDLo = 40 g/kg - effects on newborn - weaning or lactation index.

Ingredient Toxicological Data: Sodium Hydrosulfite Oral rat LD50 > 500 mg/kg; Sodium Thiosulfate Oral rat LD50 > 8 g/kg; Sodium Citrate Oral rat LD50 > 8 g/kg

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.

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.

14. TRANSPORT INFORMATION

D.O.T.:

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

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DOT Hazard Class: NA

DOT Subsidiary Risk: NA

DOT ID Number: NA

DOT Packing Group: NA

I.C.A.O.:

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

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ICAO Hazard Class: NA

ICAO Subsidiary Risk: NA

ICAO ID Number: NA

ICAO Packing Group: NA

I.M.O.:

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

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I.M.O. Hazard Class: NA

I.M.O. Subsidiary Risk: NA

I.M.O. ID Number: NA

I.M.O. 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 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.

C.P.S.C.: Not applicable

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).

TSCA CAS Number: Not applicable

16. OTHER INFORMATION

Intended Use: Laboratory reagent Iron determination

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.

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

Legend:

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

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

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

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