

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

MSDS No: M00024

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ferrous Iron Reagent

Catalog Number: 103769

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: M00024

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: Iron determination

2. HAZARDS IDENTIFICATION

GHS Classification:

Hazard categories: . Hazardous to the Aquatic Environment: Aquatic Chronic 2 Serious Eye Damage/Eye Irritation: Eye Dam. 1 Specific Target Organ Toxicity - Repeated Exposure: STOT RE. 2

GHS Label Elements:

WARNING



Hazard statements: Harmful if swallowed. Causes serious eye irritation. Harmful if inhaled. Very toxic to aquatic life with long lasting effects.

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. If skin irritation occurs: Get medical advice/attention. IF INHALED: Remove victim/person to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

HMIS:

Health: 1

Flammability: 0

Reactivity: 0

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

NFPA:

Health: 1

Flammability: 0

Reactivity: 0

Symbol: Not applicable

WHMIS Hazard Classification: Not applicable

WHMIS Symbols: Not applicable

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components according to GHS:

Sodium Bicarbonate

CAS Number: 144-55-8

Chemical Formula: NaHCO₃

GHS Classification: Acute Tox. 5-Orl, H303; Skin irrit. 3, H316

Percent Range (Trade Secret): > 90.0

Percent Range Units: weight / weight

PEL: 15 mg/m³ as inhalable dust; 5 mg/m³ as respirable dust

TLV: 10 mg/m³ as inhalable dust; 3 mg/m³ as respirable dust

WHMIS Symbols: Not applicable

1, 10-Phenanthroline

CAS Number: 66-71-7

Chemical Formula: C₁₂H₈N₂ · H₂O

GHS Classification: Acute Tox. 3 - Orl, H301; Aquatic Chronic 1, H410

Percent Range (Trade Secret): 1.0 - 10.0

Percent Range Units: weight / weight

PEL: 15 mg/m³ as inhalable dust; 5 mg/m³ as respirable dust

TLV: 10 mg/m³ as inhalable dust; 3 mg/m³ as respirable dust

WHMIS Symbols: Acute Poison

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): Wash skin with soap and plenty of water. Call physician if irritation develops.

Inhalation: Remove to fresh air.

Ingestion (First Aid): Never give anything by mouth to an unconscious person. Rinse mouth with plenty of water. Give large quantities of water. If you feel unwell, contact a physician. Large quantities: call physician immediately. Give a slurry of powdered activated charcoal. Give 1-2 glasses of water. Induce vomiting using syrup of ipecac or by sticking finger down throat.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material is not classified as flammable according to GHS criteria. Does not burn, but may melt in a fire, releasing toxic fumes. During a fire, this product decomposes to form toxic gases.

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: May react violently with: strong acids strong oxidizers

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

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.

Containment Technique: Stop spilled material from being released to the environment. Releases of this material may contaminate the environment.

Clean-up Technique: Wear appropriate protective equipment as defined by MSDS Avoid breathing spilled material. Avoid contact with spilled material. Scoop up spilled material into a large beaker and dissolve with water. If permitted by regulation, Flush the spilled material to the drain with a large excess of water. Otherwise, Decontaminate the area of the

spill with a weak acid solution. 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 as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.

DOT Emergency Response Guide Number: 171

7. HANDLING AND STORAGE

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

Storage: Keep this product in its original container when not in use. Keep container tightly closed when not in use. Store in a cool, dry, well-ventilated place. Protect from: moisture. Keep away from: oxidizers acids / acid fumes.

Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin Protection: nitrile gloves lab coat

Inhalation Protection: adequate ventilation

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

TLV: Not established

PEL: Not established

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White powder

Physical State: Solid

Molecular Weight: Not applicable

Odor: Odorless

Odor Threshold: Not applicable

pH: ~ 8

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): 2.10

Viscosity: Not applicable

Solubility:

Water: Slightly soluble

Acid: Slightly soluble

Other: Not determined

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

Coefficient of Water / Oil: Not applicable

Melting Point: Decomposes at 270 °C (518 °F)

Decomposition Temperature: 270 °C (518 °F)

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. Does not burn, but may melt in a fire, releasing toxic fumes. During a fire, this product decomposes to form toxic gases.

Flash Point: Not applicable

Method: Not applicable

Flammability Limits:

Lower Explosion Limits: Not applicable

Upper Explosion Limits: Not applicable

Autoignition Temperature: Not applicable

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: oxidizers acids

Hazardous Decomposition: Toxic fumes of: nitrogen oxides sodium oxides carbon monoxide carbon dioxide

Conditions to Avoid: Excess moisture Heating to decomposition. Contact with acid or acid fumes Contact with oxidizers

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 = 1829 mg/kg

Inhalation Rat LC50 > 4.67 mg/L/4 hr

Specific Target Organ Toxicity - Single Exposure (STOT-SE): Based on classification principles, the classification criteria are not met. Summary of findings reported in the literature follow.

Sodium Bicarbonate: Oral Infant TDLo = 1260 mg/kg/Urine volume increased, nutritional and gross metabolic changes in Na.

Specific Target Organ Toxicity - Repeat Exposure (STOT-RE): Based on classification principles, the classification criteria are not met. Summary of findings reported in the literature follow.

Sodium Bicarbonate: Oral Man TDLo = 20 mg/kg/5 days/Vomiting, metabolic acidosis; Inhalation Rat TCLo = 77.2 mg/kg/17 wk/Changes in blood serum composition, nutritional and gross metabolic changes in Na

Skin Corrosion/Irritation: Mildly irritating to skin. Testing data given below.

Sodium Bicarbonate: Skin - Human - 30 mg/3 days/mild irritation; Skin - Rabbit - Slightly irritating

Eye Damage: Based on classification principles, the classification criteria are not met. Test data follows.

Sodium Bicarbonate: Eye - Human - Slightly irritating; Eye - Rabbit - 100 mg/30 s/Mild irritation; Eye - Rabbit 220 mg/Irritating

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. Summary of findings reported in the literature follow.

1, 10-Phenanthroline: DNA Inhibition Human Leukocyte - 5 mg/L; Mutation in Mouse Lymphoma - 0.0005 - 0.5 mg/mL;

Intraperitoneal Mouse TDLo = 30 mg/kg/Specific Developmental Abnormalities: Musculoskeletal system

Sodium Bicarbonate: Oral Rat Unscheduled DNA Synthesis - 50400 mg/kg/4 wk; Intraperitoneal Mouse TDLo = 40 mg/kg/Developmental abnormalities

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 May cause: gastrointestinal disturbances abdominal pain nausea diarrhea vomiting alkalosis which causes abnormally high alkali reserve of the blood and other body fluids acidosis Large doses may cause: heart problems death

Inhalation: Large doses may cause: May cause: respiratory tract irritation

Skin Absorption: None Reported No effects anticipated

Chronic Effects: None reported

Medical Conditions Aggravated: Pre-existing: Kidney conditions Cardiovascular diseases Skin conditions Eye conditions

12. ECOLOGICAL INFORMATION

Product Ecological Information: --

No ecological data available for this product. Do not place in landfill. Recycle appropriately. Do not release into the environment. No bioaccumulation potential

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

Ingredient Ecological Information: 1, 10-Phenanthroline: 96 hr Fish LC50 = 3.2 mg/L (Anhydrate); 96 hr Invertebrate LC50 = 0.6 mg/L; Sodium Bicarbonate: 96 hr *Lepomis macrochirus* LC50 = 7100 mg/L; 96 hr *Oncorhynchus mykiss* LC50 = 7700 mg/L; 48 hr *Daphnia magna* EC50 = 4100 mg/L

1, 10-Phenanthroline: CEPA Categorization: Not Persistent or Bioaccumulative. Not inherently toxic to aquatic organisms.

Sodium Bicarbonate: CEPA Categorization: Persistent, Not Bioaccumulative, Not inherently toxic to aquatic organisms

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: Not applicable

Special Instructions (Disposal): Dilute material with excess water making a weaker than 5% solution. If permitted by regulation, Open cold water tap completely, slowly pour the material to the drain. Otherwise, Check with local municipal and state authorities and waste contractors for pertinent local information regarding the proper disposal of chemicals.

Empty Containers: Working in a well-ventilated area, Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state or federal regulations. 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: Environmentally hazardous substances, solid, n.o.s.
(1,10-Phenanthroline mixture)

Hazard Class: 9

Subsidiary Risk: NA

ID Number: UN3077

Packing Group: III

T.D.G.:

Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.
(1,10-Phenanthroline mixture)

Hazard Class: 9

Subsidiary Risk: NA

UN Number/PIN: 3077

Packing Group: III

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Environmentally Hazardous Substance, Solid, nos
(1,10-Phenanthroline mixture)

Hazard Class: 9

Subsidiary Risk: NA

ID Number: UN3077

Packing Group: III

I.M.O.:

Proper Shipping Name: Environmentally Hazardous Substance, Solid, nos
(1,10-Phenanthroline mixture)

Hazard Class: 9

Subsidiary Risk: NA

ID Number: UN3077

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. ALSO NOTE: If the National Competent Authority declares this product an environmental hazard by Special Provision 909 (IMDG) and Special Provision A97 (IATA) the classification may be UN3077 or UN3082.

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

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: Not applicable

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

CAS Number: Not applicable

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

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

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

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

Korean Inventory (KECI) Status: 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: 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. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). In-house information. Technical Judgment. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991.

Complete Text of H phrases referred to in Section 3: H301 Toxic if swallowed. Not applicable H316 Causes mild skin irritation. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.

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: 05

Month: May

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

w/w - weight/weight

ND - Not Determined
NV - Not Available

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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