



Be Right™

SAFETY DATA SHEET

Issue Date 31-May-2016

Revision Date 01-Feb-2017

Version 2

Page 1 / 18

1. IDENTIFICATION

Product identifier

Product Name Ferrous Iron Reagent

Other means of identification

Product Code(s) 2514025

Safety data sheet number M00024

UN/ID no UN3077

Synonyms

Recommended use of the chemical and restrictions on use

Recommended Use Iron determination.

Uses advised against None.

Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address

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

Emergency telephone number

(303) 623-5716 - 24 Hour Service (515)232-2533 - 8am - 4pm CST

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Aquatic Acute Toxicity	Category 2
Chronic aquatic toxicity	Category 2

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word - Warning

Product Code(s) 2514025
Issue Date 31-May-2016
Version 2

Product Name Ferrous Iron Reagent
Revision Date 01-Feb-2017
Page 2 / 18



Hazard statements

H302 - Harmful if swallowed
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements

P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 - Rinse mouth
P391 - Collect spillage
P501 - Dispose of contents/ container to an approved waste disposal plant

Other Information

Causes mild skin irritation

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable

Mixture

Synonyms

Percent ranges are used where confidential product information is applicable.

Chemical Name	CAS No	Percent Range	HMRIC #
Sodium bicarbonate	144-55-8	90 - 100%	-
1,10-Phenanthroline	66-71-7	1 - 5%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice	IF IN EYES: Flush eyes for at least 15 minutes. May cause skin irritation.
Eye contact	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.
Skin contact	For minor skin contact, avoid spreading material on unaffected skin. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Remove and isolate contaminated clothing and shoes. Call a POISON CENTER or doctor if you feel unwell. If skin irritation persists, call a physician.
Inhalation	IF INHALED: Remove person to fresh air and keep comfortable for breathing. If symptoms persist, call a physician.
Ingestion	Never give anything by mouth to an unconscious person. Clean mouth with water and drink afterwards plenty of water. Remove from exposure, lie down. Call a POISON CENTER or doctor/physician if you feel unwell. Do not induce vomiting without medical advice.
Self-protection of the first aider	Use personal protective equipment as required. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Most important symptoms and effects, both acute and delayed

Symptoms See Section 11: TOXICOLOGICAL INFORMATION.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Water. Carbon dioxide. Dry chemical.

Unsuitable extinguishing media Caution: Use of water spray when fighting fire may be inefficient.

Flammable properties

During a fire, this product decomposes to form toxic gases.

Specific hazards arising from the chemical

May react violently with. Strong acids. Strong oxidizers.

Hazardous combustion products

Sodium monoxide. Nitrogen oxides. Carbon monoxide, Carbon dioxide.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

U.S. 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.

Product Code(s) 2514025
Issue Date 31-May-2016
Version 2

Product Name Ferrous Iron Reagent
Revision Date 01-Feb-2017
Page 4 / 18

Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

EC Notice

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

WHMIS Notice

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Personal precautions, protective equipment and emergency procedures

Personal precautions

Evacuate personnel to safe areas. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.

For emergency responders

Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment

Prevent further leakage or spillage if safe to do so. Cover with plastic sheet to prevent spreading.

Methods for cleaning up

Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.

Emergency Response Guide Number

171

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Flammability class

Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Legend

See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls Showers
 Eyewash stations
 Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Wear tight sealing safety goggles and/or face protection shield. Avoid contact with eyes.
Wear safety glasses with side shields (or goggles).

Skin and body protection Wear protective gloves and protective clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.
Wear suitable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice.
Avoid prolonged or repeated contact with skin. Take off all contaminated clothing and wash it before reuse. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs.

Environmental exposure controls

Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid		
Gas Under Pressure	Not classified according to GHS criteria		
Appearance	powder	Color	white
Odor	Odorless	Odor threshold	No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Molecular weight	No data available	
pH	~ 8	
Melting point/freezing point	270 °C / 518 °F	
Boiling point / boiling range	No data available	
Evaporation rate	Not applicable	
Vapor pressure	Not applicable	
Vapor density (air = 1)	Not applicable	
Specific gravity (water = 1 / air = 1)	2.10	
Partition Coefficient (n-octanol/water)	No data available	
Soil Organic Carbon-Water Partition	No data available	

Product Code(s) 2514025
Issue Date 31-May-2016
Version 2

Product Name Ferrous Iron Reagent
Revision Date 01-Feb-2017
Page 6 / 18

Coefficient

Autoignition temperature No data available
Decomposition temperature 270 °C
Dynamic viscosity Not applicable
Kinematic viscosity Not applicable

Solubility(ies)

Water solubility

<u>Water solubility classification</u>	<u>Water solubility</u>	<u>Water Solubility Temperature</u>
Slightly soluble	> 0.1 mg/L	25 °C / 77 °F

Solubility in other solvents

<u>Chemical Name</u>	<u>Solubility classification</u>	<u>Solubility</u>	<u>Solubility Temperature</u>
Acid	Slightly soluble	> 0.1 mg/L	25 °C / 77 °F

Other Information

Metal Corrosivity Not classified as corrosive to metal according to GHS criteria

Steel Corrosion Rate Not applicable

Aluminum Corrosion Rate Not applicable

Volatile Organic Compounds (VOC) Content Not applicable.

Bulk density No data available

Explosive properties Not classified according to GHS criteria.

Explosion data Does not burn, but may melt in a fire, releasing toxic fumes.

Upper explosion limit No data available

Lower explosion limit No data available

Flammable properties During a fire, this product decomposes to form toxic gases.

Flammability Limit in Air

Upper flammability limit: No data available

Lower flammability limit: No data available

Flash point Not applicable

Method No information available

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.

10. STABILITY AND REACTIVITY

Reactivity properties

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

Chemical stability

Stable under recommended storage conditions.

Special dangers of the product

None reported

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Extremes of temperature and direct sunlight. Incompatible materials.

Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products

Nitrogen oxides. Sodium oxides. Carbon monoxide. Carbon dioxide.

Explosive properties

Not classified according to GHS criteria. Does not burn, but may melt in a fire, releasing toxic fumes.

Upper explosion limit

No data available

Lower explosion limit

No data available

Autoignition temperature

No data available

Sensitivity to Static Discharge

None reported

Sensitivity to Mechanical Impact

None reported

11. TOXICOLOGICAL INFORMATION

NIOSH (RTECS) Number

None reported

Information on Likely Routes of Exposure

Product Information	Causes mild skin irritation. Harmful if swallowed.
Inhalation	No known effect based on information supplied.
Eye contact	No known effect based on information supplied.
Skin contact	Causes mild skin irritation.
Ingestion	Harmful if swallowed.
Aggravated Medical Conditions	Skin disorders.
Toxicologically synergistic products	None known.

Toxicokinetics, metabolism and distribution	No information available.
--	---------------------------

Chemical Name	Toxicokinetics, metabolism and distribution
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	The major extracellular buffer in the blood and the interstitial fluid of vertebrates is the bicarbonate buffer system.

Product Acute Toxicity Data

Oral Exposure Route No data available

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	1,829.00 mg/kg
----------------------	----------------

Ingredient Acute Toxicity Data

Oral Exposure Route

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Rat LD ₅₀	4220 mg/kg	None reported	None reported	Vendor SDS
1,10-Phenanthroline (1 - 5%) CAS#: 66-71-7	Rat LD ₅₀	132 mg/kg	None reported	None reported	Vendor SDS
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Mouse LD ₅₀	3360 mg/kg	None reported	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Infant TD _{Lo}	1260 mg/kg	None reported	Kidney, Ureter, or Bladder Urine volume increased Lungs, Thorax, or Respiration Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Rat LC ₅₀	> 4.47 mg/L	4 hours	None reported	OECD (Organization for Economic Co-operation and Development)

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

Product Skin Corrosion/Irritation Data

Product Code(s) 2514025
Issue Date 31-May-2016
Version 2

Product Name Ferrous Iron Reagent
Revision Date 01-Feb-2017
Page 9 / 18

No data available.

Ingredient Skin Corrosion/Irritation Data

If available, see data below

Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Standard Draize Test	Human	30 mg	3 days	Mild skin irritant	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Standard Draize Test	Rabbit	None reported	None reported	Mild skin irritant	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Serious Eye Damage/Eye Irritation Data

No data available.

Ingredient Eye Damage/Eye Irritation Data

If available, see data below

Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Standard Draize Test	Rabbit	100 mg	0.5 minutes	Mild eye irritant	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Standard Draize Test	Rabbit	220 mg	None reported	Eye irritant	RTECS (Registry of Toxic Effects of Chemical Substances)

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route

No data available.

Respiratory Sensitization Exposure Route

No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route

If available, see data below.

Chemical Name	Test method	Species	Results	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Based on human experience	Human	Not confirmed to be a skin sensitizer	No information available

Respiratory Sensitization Exposure Route

If available, see data below.

Chemical Name	Test method	Species	Results	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Based on human experience	Human	Not confirmed to be a respiratory sensitizer	No information available

Chronic Toxicity Information

Product Repeat Dose Toxicity Data

Oral Exposure Route No data available.
 Dermal Exposure Route No data available.
 Inhalation (Dust/Mist) Exposure Route No data available.
 Inhalation (Vapor) Exposure Route No data available.
 Inhalation (Gas) Exposure Route No data available.

Ingredient Repeat Dose Toxicity Data

Oral Exposure Route

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Man TD _{Lo}	20 mg/kg	5 days	Gastrointestinal Nausea or vomiting Nutritional and Gross Metabolic Metabolic acidosis	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Rat TC _{Lo}	77.2 mg/L	119 days	Blood Changes in serum composition (e.g. TP, bilirubin, cholesterol) Cardiac Other changes Nutritional and Gross Metabolic Changes in sodium	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Chemical Name	CAS No	ACGIH	IARC	NTP	OSHA
Sodium bicarbonate	144-55-8	-	-	-	-
1,10-Phenanthroline	66-71-7	-	-	-	-

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	Does not apply
IARC (International Agency for Research on Cancer)	Does not apply
NTP (National Toxicology Program)	Does not apply
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	Does not apply

Product Carcinogenicity Data

No data available

Oral Exposure Route

No data available

Product Code(s) 2514025
 Issue Date 31-May-2016
 Version 2

Product Name Ferrous Iron Reagent
 Revision Date 01-Feb-2017
 Page 11 / 18

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

Ingredient Carcinogenicity Data

Oral Exposure Route No data available

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

Product Germ Cell Mutagenicity *invitro* Data

No data available.

Ingredient Germ Cell Mutagenicity *invitro* Data

If available, see data below

Chemical Name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
1,10-Phenanthroline (1 - 5%) CAS#: 66-71-7	DNA inhibition	Human leukocyte	5 mg/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
1,10-Phenanthroline (1 - 5%) CAS#: 66-71-7	DNA inhibition	Mouse ascites tumor	0.005 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
1,10-Phenanthroline (1 - 5%) CAS#: 66-71-7	Mutation in microorganisms	Mouse lymphocyte	0.5 mg/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Oral Exposure Route No data available

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

Ingredient Germ Cell Mutagenicity *invivo* Data

Oral Exposure Route If available, see data below

Chemical Name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	Unscheduled DNA synthesis	Rat	50400 mg/kg	4 weeks	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

Oral Exposure Route No data available

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route No data available

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity Toxic to aquatic life with long lasting effects.

Product Ecological Data

Aquatic toxicity

Fish No data available

Crustacea No data available

Algae No data available

Terrestrial toxicity

Soil No data available

Vertebrates No data available

Invertebrates No data available

Ingredient Ecological Data

Aquatic toxicity

Fish

If available, see ingredient data below

Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	96 hours	<i>Lepomis macrochirus</i>	LC ₅₀	7100 mg/L	PEEN (Pan European Ecological Network)
1,10-Phenanthroline (1 - 5%) CAS#: 66-71-7	96 hours	None reported	LC ₅₀	3.2 mg/L	Vendor SDS
Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	96 hours	<i>Oncorhynchus mykiss</i>	LC ₅₀	7700 mg/L	PEEN (Pan European Ecological Network)

Crustacea

If available, see ingredient data below

Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	48 Hours	<i>Daphnia magna</i>	EC ₅₀	4100 mg/L	PEEN (Pan European Ecological Network)

Algae

If available, see ingredient data below

Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
1,10-Phenanthroline (1 - 5%) CAS#: 66-71-7	96 hours	None reported	EC ₅₀	0.6 mg/L	Vendor SDS

Terrestrial toxicity

Soil

No data available

Vertebrates

No data available

Invertebrates

No data available

Other Information

Persistence and degradability

None known.

Product Biodegradability Data

If available, see ingredient data below.

Ingredient Biodegradability Data

Test data reported below

Chemical Name	Test method	Biodegradation	Exposure time	Results
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	None reported	None reported	None reported	Readily biodegradable
1,10-Phenanthroline (1 - 5%) CAS#: 66-71-7	OECD Test No. 303: Simulation Test - Aerobic Sewage Treatment -- A: Activated Sludge Units; B: Biofilms	None reported	None reported	Not readily biodegradable

Product Code(s) 2514025
Issue Date 31-May-2016
Version 2

Product Name Ferrous Iron Reagent
Revision Date 01-Feb-2017
Page 14 / 18

Bioaccumulation

If available, see ingredient data below.

Product Bioaccumulation Data

If available, see ingredient data below.

Ingredient Bioaccumulation Data

No data available

Chemical Name	Test method	Exposure time	Species	Bioconcentration factor (BCF)	Results
Sodium bicarbonate (90 - 100%) CAS#: 144-55-8	None reported	None reported	None reported	None reported	Does not have the potential to bioaccumulate

Additional information

Product Information

No data available

Partition Coefficient (n-octanol/water)

No data available

Ingredient Information

Chemical Name	Partition Coefficient (n-octanol/water)	Method
1,10-Phenanthroline (1 - 5%) CAS#: 66-71-7	log K _{ow} = 1.78	No information available

Mobility

Mobility in soil: Moderate to low mobility. If available, see ingredient data below.

Product Information

No data available

Soil Organic Carbon-Water Partition Coefficient

No data available

Ingredient Information

Chemical Name	Soil Organic Carbon-Water Partition Coefficient	Method
1,10-Phenanthroline (1 - 5%) CAS#: 66-71-7	log K _{oc} = 4.22	No information available

Additional information

Water solubility

Product Information

Water solubility classification	Water solubility	Water Solubility Temperature
Slightly soluble	> 0.1 mg/L	25 °C / 77 °F

Ingredient Information

Chemical Name	Water solubility classification	Water solubility	Water solubility temperature °C	Water solubility temperature °F
---------------	---------------------------------	------------------	---------------------------------	---------------------------------

Product Code(s) 2514025
Issue Date 31-May-2016
Version 2

Product Name Ferrous Iron Reagent
Revision Date 01-Feb-2017
Page 15 / 18

Sodium bicarbonate CAS#: 144-55-8	Completely soluble	95500 mg/L	20 °C	68 °F
1,10-Phenanthroline CAS#: 66-71-7	Soluble	2690 mg/L	20 °C	68 °F

Other adverse effects

Environmental exposure.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes

Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Contaminated packaging

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. 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 in countries other than the US. Improper disposal or reuse of this container may be dangerous and illegal. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Special instructions for 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. Check with local municipal and state authorities and waste contractors for pertinent local information regarding the proper disposal of chemicals.

14. TRANSPORT INFORMATION

DOT

UN/ID no UN3077
Proper shipping name Environmentally hazardous substances, solid, n.o.s.
DOT Technical Name (1,10-Phenanthroline mixture)
Hazard Class 9
Packing Group III
Emergency Response Guide Number 171

TDG

UN/ID no UN3077
Proper shipping name Environmentally hazardous substances, solid, n.o.s.
TDG Technical Name (1,10-Phenanthroline mixture)
Hazard Class 9
Packing Group III

IATA

UN/ID no UN3077
Proper shipping name Environmentally hazardous substances, solid, n.o.s.
IATA Technical Name (1,10-Phenanthroline mixture)
Hazard Class 9
Packing Group III
ERG Code 171

IMDG

UN/ID no UN3077

Product Code(s) 2514025
Issue Date 31-May-2016
Version 2

Product Name Ferrous Iron Reagent
Revision Date 01-Feb-2017
Page 16 / 18

IMDG Technical Name (1,10-Phenanthroline mixture)
Hazard Class 9
Packing Group III
Marine pollutant This material meets the definition of a marine pollutant

Note: No special precautions necessary.

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 reagent set or kit, the classification given above applies. If the item is part of a reagent set or kit the classification would change to the following: UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories

TSCA Complies
DSL/NDSL Complies

TSCA- United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL- Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

EINECS/ELINCS Complies
ENCS Complies
IECSC Complies
KECL Complies
PICCS Complies
TCSI Complies
AICS Complies
NZIoC Complies

EINECS/ELINCS- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS- Japan Existing and New Chemical Substances
IECSC- China Inventory of Existing Chemical Substances
KECL- Korean Existing and Evaluated Chemical Substances
PICCS- Philippines Inventory of Chemicals and Chemical Substances
TCSI- Taiwan Chemical Substances Inventory
AICS- Australian Inventory of Chemical Substances
NZIoC- New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Product Code(s) 2514025
Issue Date 31-May-2016
Version 2

Product Name Ferrous Iron Reagent
Revision Date 01-Feb-2017
Page 17 / 18

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Additional information

Global Automotive Declarable Substance List (GADSL)

Not applicable

Special Comments

None

NFPA and HMIS Classifications

NFPA	Health hazards - 1	Flammability - 0	Instability - 0	Physical and Chemical Properties -
HMIS	Health hazards - 1	Flammability - 0	Physical Hazards - 0	Personal protection - X - See section 8 for more information

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH Immediately Dangerous to Life or Health
ACGIH ACGIH (American Conference of Governmental Industrial Hygienists)
NDF no data

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.

Product Code(s) 2514025
Issue Date 31-May-2016
Version 2

Product Name Ferrous Iron Reagent
Revision Date 01-Feb-2017
Page 18 / 18

SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By Hach Product Compliance Department

Issue Date 31-May-2016

Revision Date 01-Feb-2017

Revision Note None

Disclaimer

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.

HACH COMPANY©2016

End of Safety Data Sheet