



Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table><tr><td>Health Hazard</td><td>1</td></tr><tr><td>Fire Hazard</td><td>0</td></tr><tr><td>Reactivity</td><td>0</td></tr></table>	Health Hazard	1	Fire Hazard	0	Reactivity	0	<div></div> <div>See Section 15.</div>
Health Hazard	1							
Fire Hazard	0							
Reactivity	0							

Section 1. Chemical Product and Company Identification			Page Number: 1
Common Name/Trade Name Ferroin Indicator, 0.025M		Catalog Number(s).	F-157
Manufacturer SPECTRUM CHEMICAL MFG. CORP. 14422 S. SAN PEDRO STREET GARDENA, CA 90248		CAS#	Mixture.
		RTECS	Not applicable.
		TSCA	TSCA 8(b) inventory: Ferrous sulfate heptahydrate; Water
Commercial Name(s)	Not available.	CI#	Not available.
Synonym	Not available.	IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300 CALL (310) 516-8000	
Chemical Name	Not applicable.		
Chemical Family	Not available.		
Chemical Formula	Not applicable.		
Supplier	SPECTRUM CHEMICAL MFG. CORP. 14422 S. SAN PEDRO STREET GARDENA, CA 90248		

Section 2.Composition and Information on Ingredients					
		Exposure Limits			
Name	CAS #	TWA (mg/m³)	STEL (mg/m³)	CEIL (mg/m³)	% by Weight
1) {1,10-}Phenanthroline monohydrate	5144-89-8	1		2	1.5
2) Ferrous sulfate heptahydrate	7782-63-0				0.7
3) Water	7732-18-5				97.8
Toxicological Data on Ingredients		1,10-Phenanthroline monohydrate: ORAL (LD50): Acute: 132 mg/kg [Rat]. Ferrous sulfate heptahydrate: ORAL (LD50): Acute: 1520 mg/kg [Mouse]. 1480 mg/kg [Rat].			

Section 3. Hazards Identification	
Potential Acute Health Effects	Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Non-corrosive for skin. Non-sensitizer for skin.

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Potential Chronic Health Effects

Slightly hazardous in case of skin contact (irritant), of eye contact (irritant).
 Non-corrosive for skin. Non-sensitizer for skin. Non-permeator by skin.
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
 The substance is toxic to lungs, mucous membranes, liver.
 Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4. First Aid Measures
Eye Contact

Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used.

Skin Contact

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention.

Serious Skin Contact

Not available.

Inhalation

Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation

Not available.

Ingestion

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion

Not available.

Section 5. Fire and Explosion Data
Flammability of the Product

Non-flammable.

Auto-Ignition Temperature

Not applicable.

Flash Points

Not applicable.

Flammable Limits

Not applicable.

Products of Combustion

Not available.

Fire Hazards in Presence of Various Substances

Not applicable.

Explosion Hazards in Presence of Various Substances

Risks of explosion of the product in presence of mechanical impact: Not available.
 Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions

Not applicable.

Special Remarks on Fire Hazards

Not available.

Special Remarks on Explosion Hazards

Not available.

Section 6. Accidental Release Measures

Small Spill	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spill	Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7. Handling and Storage

Precautions	Do not ingest. Do not breathe gas/fumes/ vapour/spray. If ingested, seek medical advice immediately and show the container or the label.
Storage	No specific storage is required. Use shelves or cabinets sturdy enough to bear the weight of the chemicals. Be sure that it is not necessary to strain to reach materials, and that shelves are not overloaded.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Personal Protection	Safety glasses. Lab coat.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	Ferrous sulfate heptahydrate TWA: 1 CEIL: 2 (mg/m ³) Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Liquid.	Odor	Not available.
Molecular Weight	Not applicable.	Taste	Not available.
pH (1% soln/water)	Neutral.	Color	Not available.
Boiling Point	The lowest known value is 100°C (212°F) (Water).		
Melting Point	Not available.		
Critical Temperature	Not available.		
Specific Gravity	The only known value is 1 (Water = 1) (Water).		
Vapor Pressure	The highest known value is 17.535 mm of Hg (@ 20°C) (Water).		
Vapor Density	The highest known value is 0.62 (Air = 1) (Water).		
Volatility	Not available.		
Odor Threshold	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Easily soluble in cold water, hot water.		

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Not available.
Incompatibility with various substances	Not available.
Corrosivity	Non-corrosive in presence of glass.
Special Remarks on Reactivity	Not available.
Special Remarks on Corrosivity	Not available.
Polymerization	No.

Section 11. Toxicological Information

Routes of Entry	Not available.
Toxicity to Animals	Acute oral toxicity (LD50): 8800 mg/kg (Rat) (Calculated value for the mixture).
Chronic Effects on Humans	The substance is toxic to lungs, mucous membranes, liver.
Other Toxic Effects on Humans	Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation. Non-corrosive for skin. Non-sensitizer for skin.
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	Animal embryotoxic. (1,10-Phenanthroline monohydrate)
Special Remarks on other Toxic Effects on Humans	Not available.

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The products of degradation are as toxic as the original product.
Special Remarks on the Products of Biodegradation	Not available.

Section 13. Disposal Considerations**Waste Disposal****Section 14. Transport Information****DOT Classification****Identification****Special Provisions for Transport**

Not available.

DOT (Pictograms)**Section 15. Other Regulatory Information and Pictograms****Federal and State Regulations**

Pennsylvania RTK: Ferrous sulfate heptahydrate
 Massachusetts RTK: Ferrous sulfate heptahydrate
 TSCA 8(b) inventory: Ferrous sulfate heptahydrate; Water
 SARA 313 toxic chemical notification and release reporting: Ferrous sulfate heptahydrate
 CERCLA: Hazardous substances.: Ferrous sulfate heptahydrate;

California Proposition 65 Warnings**Other Regulations**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications**WHMIS (Canada)**

CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC)

This product is not classified according to the EU regulations.

HMIS (U.S.A.)

Health Hazard	1
Fire Hazard	0
Reactivity	0
Personal Protection	a

National Fire Protection Association (U.S.A.)

Health	1	0	Flammability
			Reactivity
			Specific hazard

WHMIS (Canada) (Pictograms)**DSCL (Europe) (Pictograms)****TDG (Canada) (Pictograms)****ADR (Europe) (Pictograms)**

Protective Equipment


Not applicable.
Lab coat.



Wear appropriate respirator when
ventilation is inadequate.
Safety glasses.

Section 16. Other Information

MSDS Code F157S

References Not available.

Other Special Considerations Not available.

Validated by Sonia Owen on 8/11/2006.

Verified by Sonia Owen.
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CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.