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Revision Number 0

1. PRODUCT AND COMPANY IDENTIFICATION

Product name FERROIN INDICATOR

Product Code(s) 6410

Synonyms none

Recommended Use Test kit reagent. Laboratory chemicals. Industrial (not for food or food contact use).

Company LaMotte Company, Inc.
802 Washington Avenue
P.O. Box 329
Chestertown, MD 21620
USA

Emergency telephone number 24 Hour Emergency Number (CHEM-TEL):USA, Canada, Puerto Rico 1-800-255-3924
Outside North American Continent (Call collect) 813-248-0585

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
May cause skin and eye irritation
May be harmful if swallowed

Appearance Clear, Red-Orange **Physical state** liquid **Odor** Odorless

OSHA Regulatory Status Safety information is given for exposure to the reagent as sold and considers exposure to the chemical if user has direct eye and skin contact.

Potential health effects
Principle Routes of Exposure Skin and eye contact.

Acute toxicity

- Eyes** No adverse effects expected from eye contact, but may cause irritation and redness.
- Skin** Not expected to be a health hazard from skin contact. May cause slight irritation.
- Inhalation** Not an expected route of exposure.
- Ingestion** May cause gastrointestinal discomfort if consumed in extremely large amounts.

Chronic effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Chemical name	CAS-No	Weight %
Ferrous sulfate heptahydrate	7782-63-0	<0.2
Phenanthroline (1,10), monohydrate	5144-89-8	<0.5
Water	7732-18-5	to 100%

4. FIRST AID MEASURES

General advice	Do not get in eyes, on skin, or on clothing.
Eye contact	Rinse thoroughly with water as necessary. If irritation persists or develops, contact a physician.
Skin contact	Wash off with soap and plenty of water removing all contaminated clothes and shoes. If irritation develops or persists, consult physician.
Inhalation	Not expected to require first aid measures. Move to fresh air.
Ingestion	Clean mouth with water and afterwards drink plenty of water. If symptoms persist or develop contact physician.
Protection of First-aiders	Use personal protective equipment. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

5. FIRE-FIGHTING MEASURES

Flammable properties	Not a fire hazard.
Flash point	Not Applicable
Suitable extinguishing media	Water spray, dry chemical, carbon dioxide (CO ₂), or foam.

NFPA	Health hazard 0	Flammability 0	Stability 0	Physical and Chemical Hazards -
HMIS	Health hazard 1	Flammability 0	Stability 0	

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Refer to Section 8. Avoid contact with skin, eyes, and clothing. Wear protective gloves/clothing and eye/face protection.
Methods for containment	Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.
Methods for cleaning up	Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13). After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Handling	Handle in accordance with good industrial hygiene and safety practice. Prevent contact with skin, eyes, and clothing. Do not ingest. Do not eat, drink, or smoke when using this product.
Storage	Keep containers tightly closed in a dry, cool, and well-ventilated place. Keep from freezing. Keep out of the reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure guidelines

Chemical name	CAS-No	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ferrous sulfate heptahydrate	7782-63-0	TWA: 1 mg/m ³	None known	TWA: 1 mg/m ³
Phenanthroline (1,10), monohydrate	5144-89-8	None known	None known	None known
Water	7732-18-5	None known	None known	None known

Personal protective equipment

Eye/face Protection	Safety glasses with side-shields.
Skin and body protection	Gloves & Lab Coat.

Hygiene Measures Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear Red-Orange	Odor	Odorless
Physical state	liquid	pH	5
Flash point	Not Applicable	Boiling Point/Range	ca. 100°C/212°F
Specific gravity	ca. 1.0 (g/cm ³ at 20°C/68°F)	Vapor density	<1(Air = 1)
Vapor pressure	<17 mmHg @ 20°C		

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions of use and storage.
Incompatible Products	Strong oxidizing agents.
Conditions to avoid	Do not freeze.
Hazardous decomposition products	May produce the following when heated to decomposition: Carbon oxides (COx). Nitrogen oxides (NOx). Sulfur oxides (SOx).
Hazardous Reactions	None under normal processing.
Hazardous polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical name	CAS-No	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ferrous sulfate heptahydrate	7782-63-0	= 237 mg/kg (Rat)	None known	None known
Phenanthroline (1,10), monohydrate	5144-89-8	= 132 mg/kg (Rat)	None known	None known
Water	7732-18-5	> 90 mL/kg (Rat)	None known	None known

Carcinogenicity

Chemical name	CAS-No	ACGIH	IARC	NTP	OSHA
Ferrous sulfate heptahydrate	7782-63-0	None known	None known	None known	None known
Phenanthroline (1,10), monohydrate	5144-89-8	None known	None known	None known	None known
Water	7732-18-5	None known	None known	None known	None known

Endocrine Disruptor Information

Chemical name	CAS-No	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine disrupting potential
Ferrous sulfate heptahydrate	7782-63-0	None known	None known	None known
Phenanthroline (1,10), monohydrate	5144-89-8	None known	None known	None known
Water	7732-18-5	None known	None known	None known

12. ECOLOGICAL INFORMATION

Ecotoxicity

The product contains following substances which are hazardous for the environment. 1,10 Phenanthroline monohydrate. At the concentration present, this preparation is not expected to present significant adverse environmental effects.

Chemical name	CAS-No	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Ferrous sulfate heptahydrate	7782-63-0	None known	0.56: 96 h Cyprinus carpio mg/L LC50 semi-static 925: 96 h Poecilia reticulata mg/L LC50 static	None known	6.15 - 9.26: 48 h Daphnia magna mg/L EC50 Static 152: 48 h Daphnia magna mg/L EC50
Phenanthroline (1,10), monohydrate	5144-89-8	None known	None known	None known	None known
Water	7732-18-5	None known	None known	None known	None known

Persistence and degradability No information available.

Bioaccumulation/Accumulation No information available.

Chemical name	CAS-No	Log Pow
Ferrous sulfate heptahydrate	7782-63-0	None known
Phenanthroline (1,10), monohydrate	5144-89-8	None known
Water	7732-18-5	None known

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method Dispose according to federal, state, and local regulations. If permitted, dissolve in large volume of water and rinse to drain with excess water. Dispose of contents/container in accordance with local regulation.

Chemical name	CAS-No	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Ferrous sulfate heptahydrate	7782-63-0	None known	None known	None known	None known
Phenanthroline (1,10), monohydrate	5144-89-8	None known	None known	None known	None known
Water	7732-18-5	None known	None known	None known	None known

Chemical name	California Hazardous Waste Status
Ferrous sulfate heptahydrate 7782-63-0	-
Phenanthroline (1,10), monohydrate 5144-89-8	-
Water 7732-18-5	-

14. TRANSPORT INFORMATION

DOT Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

International Inventories

Chemical name	CAS-No	TSCA	DSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS

Ferrous sulfate heptahydrate	7782-63-0	TSCA	DSL	EINECS/ELINCS	Present	X	KECL	X	X
Phenanthroline (1,10), monohydrate	5144-89-8	TSCA	DSL	EINECS/ELINCS	ENCS	X	KECL	X	X
Water	7732-18-5	Present	X	X	ENCS	X	KE-35400	X	X

U.S. 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

Chemical name	CAS-No	Weight %	SARA 313 - Threshold Values %
Ferrous sulfate heptahydrate	7782-63-0	<0.2	None known
Phenanthroline (1,10), monohydrate	5144-89-8	<0.5	None known
Water	7732-18-5	to 100%	None known

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

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CAS-No	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ferrous sulfate heptahydrate	7782-63-0	None known	None known	None known	X
Phenanthroline (1,10), monohydrate	5144-89-8	None known	None known	None known	None known
Water	7732-18-5	None known	None known	None known	None known

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

Chemical name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depleters	Class 2 Ozone Depleters
Ferrous sulfate heptahydrate	7782-63-0	<0.2	None known	None known	None known	None known
Phenanthroline (1,10), monohydrate	5144-89-8	<0.5	None known	None known	None known	None known
Water	7732-18-5	to 100%	None known	None known	None known	None known

CERCLA

Chemical name	CAS-No	Hazardous Substances RQs	CERCLA/SARA RQ
Ferrous sulfate heptahydrate	7782-63-0	1000 lb	None known
Phenanthroline (1,10), monohydrate	5144-89-8	None known	None known
Water	7732-18-5	None known	None known

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

Chemical name	CAS-No	California Prop. 65
Ferrous sulfate heptahydrate	7782-63-0	None known
Phenanthroline (1,10), monohydrate	5144-89-8	None known
Water	7732-18-5	None known

U.S. State Right-to-Know Regulations

Chemical name	CAS-No	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ferrous sulfate heptahydrate	7782-63-0	X	X	X	None known	X
Phenanthroline (1,10), monohydrate	5144-89-8	None known	None known	None known	None known	None known
Water	7732-18-5	None known	None known	X	None known	None known

International Regulations

Mexico - Grade

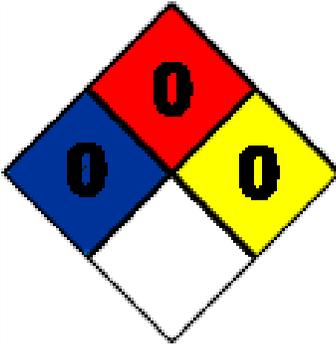
Chemical name	CAS-No	Carcinogen Status	Exposure Limits
Ferrous sulfate heptahydrate	7782-63-0	None known	Mexico: TWA 1 mg/m ³ Mexico: STEL 2 mg/m ³
Phenanthroline (1,10), monohydrate	5144-89-8	None known	None known
Water	7732-18-5	None known	None known

Canada

Component	CAS-No	WHMIS Hazard Class
Ferrous sulfate heptahydrate 7782-63-0 (<0.2)	7782-63-0	1 % Uncontrolled product according to WHMIS classification criteria
Phenanthroline (1,10), monohydrate 5144-89-8 (<0.5)	5144-89-8	Not Determined
Water 7732-18-5 (to 100%)	7732-18-5	Uncontrolled product according to WHMIS classification criteria

Chemical name	CAS-No	NPRI
Ferrous sulfate heptahydrate	7782-63-0	
Phenanthroline (1,10), monohydrate	5144-89-8	
Water	7732-18-5	

16. OTHER INFORMATION

NFPA	HMIS	PPE	Transport Symbol						
	<table border="1"> <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		
Health Hazard	1								
Fire Hazard	0								
Reactivity	0								

Prepared by Regulatory Affairs Department
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 Revision note MSDS was reviewed per Canada request - Canada requires MSDS to be dated within 3 years of the request.

Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS