Safety Data Sheet

OSHA format

Issuing Date Jun-26-2015 **Revision Number** 0

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product name **Ferrous Iron Reagent**

Other means of identification

Product Code(s) **5264**

UN-No 1170

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory chemicals. Industrial (not for food or food contact use). Use as a laboratory reagent.

Details of the supplier of the safety data sheet

Manufacturer Address
LaMotte Company, Inc.
802 Washington Avenue
P.O. Box 329
Chestertown, MD 21620 USA
T 410-778-3100
F 410-778-9748

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

Acute toxicity - Oral	Category 4
Serious eye damage/eye irritation	Category 2A
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive toxicity	Category 1A
Specific target organ toxicity (single exposure)	Category 2
Specific target organ toxicity (repeated exposure)	Category 1
Physical hazards Flammable Liquids.	Category 2

EMERGENCY OVERVIEW

DANGER

Hazard statements

Harmful if swallowed. Causes serious eye irritation. May cause genetic defects. May cause cancer. May damage fertility or the unborn child. May cause damage to organs. Causes damage to organs through prolonged or repeated exposure. .
Highly flammable liquid and vapor.

Appearance light yellow **Physical state** liquid **Odor** Alcohol

Precautionary Statements - Prevention
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed. Take precautionary measures against static discharge.

Response: IF exposed or concerned: Get medical advice/attention.
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 ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
In case of fire: Use CO2, dry chemical, or foam for extinction

Storage
Store locked up. Store in a well-ventilated place. Keep cool.

Disposal
Dispose of contents/container to an approved waste disposal plant.

Other Hazards
May be harmful in contact with skin. Toxic to aquatic life with long lasting effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS*

Chemical name	CAS #	Weight-%
2,2`-Bipyridine	366-18-7	2
Methyl alcohol	67-56-1	4
Ethyl alcohol	64-17-5	94

4. FIRST AID MEASURES

First Aid Measures

General advice Do not get in eyes, on skin, or on clothing.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water. If irritation develops or persists, consult physician.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and contact emergency personnel.

Ingestion Drink plenty of water. Do not induce vomiting without medical advice. If accidentally swallowed obtain immediate medical attention. Rinse mouth.

Self-protection of the first aider Use personal protective equipment. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

5. FIREFIGHTING MEASURES

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

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

Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment. Ensure adequate ventilation. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Dike far ahead of spill; use dry sand to contain the flow of material. A vapor suppressing foam may be used to reduce vapors.

Methods for cleaning up Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Minimize the amount spilled and supress resultant vapors.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Prevent contact with skin, eyes, and clothing. Do not taste or swallow. Do not eat, drink, or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep out of the reach of children.

Incompatible Products Oxidizing agents. Silver salts.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
2,2`-Bipyridine 366-18-7	-	-	Not Established
Methyl alcohol 67-56-1	STEL: 250 ppm TWA: 200 ppm S*	TWA: 200 ppm TWA: 260 mg/m^3 (vacated) TWA: 200 ppm (vacated) TWA: 260 mg/m^3 (vacated) STEL: 250 ppm (vacated) STEL: 325 mg/m^3 (vacated) S*	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m^3 STEL: 250 ppm STEL: 325 mg/m^3
Ethyl alcohol 64-17-5	STEL: 1000 ppm	TWA: 1000 ppm TWA: 1900 mg/m^3 (vacated) TWA: 1000 ppm (vacated) TWA: 1900 mg/m^3	IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m^3

NIOSH IDLH: Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Wear safety glasses with side shields (or goggles).

Skin and body protection	Wear protective gloves/clothing. Neoprene gloves.
Respiratory protection	Use only with adequate ventilation. In case of insufficient ventilation wear suitable respiratory equipment.
Hygiene Measures	Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid		
Appearance	light yellow	**Odor**	Alcohol

Property	**Values**	**Remarks • Method**
pH		
Melting point / freezing point	No information available	
Boiling point / boiling range	77.1 °C / 170.8 °F	
Flash point	Not Applicable 13 °C / 56 °F	Closed cup
Evaporation rate	3.6 (Butyl acetate=1.0)	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	~36% (Methanol)	
Lower flammability limit:	3.3% (Ethanol)	
Vapor pressure	48	mmHg @ 20°C for SDA (3A) Ethyl Alcohol
Vapor density	1.6	@ 20°C (Air=1) for SDA (3A) Ethyl Alcohol
Specific gravity	0.80 @ 20°C	
Water solubility	completely soluble	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

Other Information

Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available
Density	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions of use and storage.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Extremes of temperature and direct sunlight. Exposure to light.
Incompatible materials	Oxidizing agents. Silver salts.
Hazardous decomposition products	Carbon oxides (COx). Nitrogen oxides (NOx).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Component identification

Chemical name	ATEmix (oral)	ATEmix (dermal)	Inhalation LC50
2,2`-Bipyridine 366-18-7	= 100 mg/kg (Rat)	= 250 mg/kg (Rat)	Not Established
Methyl alcohol 67-56-1	= 6200 mg/kg (Rat)	= 15800 mg/kg (Rabbit)	= 64000 ppm (Rat) 4 h = 22500 ppm (Rat) 8 h
Ethyl alcohol 64-17-5	= 7060 mg/kg (Rat)	Not Established	= 124.7 mg/L (Rat) 4 h

Information on toxicological effects

Carcinogenicity Ethanol has been shown to be carcinogenic in long-term studies only when consumed as an alcoholic beverage. This industrial ethanol contains a denaturant (Methanol) that renders it undesirable to drink.

Chemical name	ACGIH	IARC	NTP	OSHA
2,2`-Bipyridine 366-18-7	Not Established	Not Established	Not Established	Not Established
Methyl alcohol 67-56-1	Not Established	Not Established	Not Established	Not Established
Ethyl alcohol 64-17-5	A3	Group 1	Known	X

ATEmix (oral) 1,364.00 mg/kg
ATEmix (dermal) 4,687.00 mg/kg
ATEmix (inhalation-dust/mist) 12.53 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Unknown Aquatic Toxicity 2 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical name	Toxicity to Algae	Toxicity to Fish	Daphnia Magna (Water Flea)
2,2`-Bipyridine 366-18-7	Not Established	Not Established	Not Established
Methyl alcohol 67-56-1	Not Established	13500 - 17600: 96 h Lepomis macrochirus mg/L LC50 flow-through 18 - 20: 96 h Oncorhynchus mykiss mL/L LC50 static 19500 - 20700: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 28200: 96 h Pimephales promelas mg/L LC50 flow-through 100: 96 h Pimephales promelas mg/L LC50 static	Not Established
Ethyl alcohol 64-17-5	Not Established	12.0 - 16.0: 96 h Oncorhynchus mykiss mL/L LC50 static 13400 - 15100: 96 h Pimephales promelas mg/L LC50 flow-through 100: 96 h Pimephales promelas mg/L LC50 static	9268 - 14221: 48 h Daphnia magna mg/L LC50 10800: 24 h Daphnia magna mg/L EC50 2: 48 h Daphnia magna mg/L EC50 Static

Persistence and degradability

Ethanol: When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into water, this material may evaporate to a moderate extent. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to be readily removed from the atmosphere by dry and wet deposition. When released into the air, this material is expected to have a half-life between 1 and 10 days.

Bioaccumulation/Accumulation

This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

Mobility

Will likely be mobile in the environment due to its water solubility.

Chemical name	Log Pow
2,2`-Bipyridine	Not Established

366-18-7	
Methyl alcohol 67-56-1	-0.77
Ethyl alcohol 64-17-5	-0.32

13. DISPOSAL CONSIDERATIONS

Disposal Methods Should not be released into the environment. Dispose of contents/containers in accordance with local regulations.

Contaminated packaging Do not reuse empty containers.

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
2,2`-Bipyridine 366-18-7	Not Established	-	Not Established	Not Established
Methyl alcohol 67-56-1	Not Established	Included in waste stream: F039	Not Established	U154
Ethyl alcohol 64-17-5	Not Established	-	Not Established	Not Established

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
2,2`-Bipyridine 366-18-7	Not Established	Not Established	Not Established	Not Established
Methyl alcohol 67-56-1	Not Established	Not Established	Not Established	Not Established
Ethyl alcohol 64-17-5	Not Established	Not Established	Not Established	Not Established

Chemical name	California Hazardous Waste Status
2,2`-Bipyridine 366-18-7	-
Methyl alcohol 67-56-1	Toxic Ignitable
Ethyl alcohol 64-17-5	Toxic Ignitable

14. TRANSPORT INFORMATION

DOT

Proper shipping name ETHANOL SOLUTION (94% Ethanol; 4% Methanol)
UN-No 1170
Hazard Class 3
Packing group II

IATA

UN-No 1170
Hazard Class 3
Packing group II

IMDG/IMO

UN-No 1170
Hazard Class 3
Packing group II

15. REGULATORY INFORMATION

International Inventories

TSCA	Does not comply
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:

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

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
2,2`-Bipyridine 366-18-7	Not Established
Methyl alcohol 67-56-1	1.0
Ethyl alcohol 64-17-5	Not Established

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	Yes
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)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
2,2`-Bipyridine 366-18-7	Not Established	Not Established	Not Established	Not Established
Methyl alcohol 67-56-1	Not Established	Not Established	Not Established	Not Established
Ethyl alcohol 64-17-5	Not Established	Not Established	Not Established	Not Established

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	RQ
2,2`-Bipyridine 366-18-7	-	Not Established	-
Methyl alcohol 67-56-1	5000 lb	Not Established	RQ 5000 lb final RQ RQ 2270 kg final RQ
Ethyl alcohol 64-17-5	-	Not Established	-

US State Regulations

California Proposition 65

WARNING! This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

(Ethyl alcohol is only considered a Proposition 65 cancer and developmental hazard when it is ingested as an alcoholic beverage).

Chemical name	California Proposition 65
2,2`-Bipyridine 366-18-7	Not Established
Methyl alcohol 67-56-1	Developmental
Ethyl alcohol 64-17-5	Carcinogen

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
2,2`-Bipyridine 366-18-7	Not Established	Not Established	Not Established
Methyl alcohol 67-56-1	X	X	X
Ethyl alcohol 64-17-5	X	X	X

CPSC (Consumer Product Safety Commission) - Specially Regulated Substances

Chemical name	CPSC (Consumer Product Safety Commission) - Specially Regulated Substances
Methyl alcohol 67-56-1	Special labeling, 16 CFR 1500.14

16. OTHER INFORMATION

NFPA **Health hazard** 1 **Flammability** 3 **Instability** 0 **Physical and Chemical Hazards** N/A

Health hazard 2 **Flammability** 3 **Stability** 0

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Disclaimer

The information provided on this SDS 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 Safety Data Sheet