MATERIAL SAFETY DATA SHEET

Issuing Date 8/27/2013 **Revision Number** 0

1. PRODUCT AND COMPANY IDENTIFICATION

Product name **FERROUS AMMONIUM SULFATE, 0.4N**

Product Code(s) 5117

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

WARNING

EMERGENCY OVERVIEW

Can cause severe irritation or burns to every area of contact
Harmful if swallowed

Appearance Clear, Pale green **Physical state** liquid **Odor** odorless

OSHA Regulatory Status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). 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 Eye Contact, Skin Contact, and, Ingestion.

Acute toxicity

EYES Contact with eyes can cause severe irritation. May cause burns.

skin Causes irritation. Symptoms can include redness, itching, and pain. May cause burns.

Inhalation May cause irritation of respiratory tract.

Ingestion Harmful if swallowed. Causes irritation or burns to the digestive and respiratory tract. Effects are expected to be less severe than for exposure to higher concentrations which symptoms can include coughing, nausea, vomiting.

Chronic effects Chronic exposure to mists containing sulfuric acid is a cancer hazard. Chronic exposure to corrosive mists or vapors may cause erosion of the teeth.

Aggravated Medical Conditions Hypersensitivity may occur in those with preexisting skin disorders. Respiratory disorders. Preexisting eye disorders.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No	Weight %
Sulfuric acid	7664-93-9	<4
Ferrous ammonium sulfate.6H2O	7783-85-9	16
Water	7732-18-5	to 100%

4. FIRST AID MEASURES

General advice Do not get in eyes, on skin, or on clothing. Do not breathe dust/fume/gas/mist/vapors/spray. Show this safety data sheet to the doctor in attendance.

Eye contact Immediately flush eyes with gentle stream of water for at least 15 minutes, occasionally lifting upper and lower eyelids. Call a physician immediately.

Skin contact Wash off immediately with soap and plenty of water for at least 15 minutes while removing all contaminated clothing and shoes. Excess acid on skin can be neutralized with a 2% solution of sodium bicarbonate in water. Call a physician immediately.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and contact emergency personnel. Call a physician immediately.

Ingestion Do NOT induce vomiting. Drink plenty of water. Clean mouth with water. Call a physician immediately. Never give anything by mouth to an unconscious person.

Protection of First-aiders Use personal protective equipment. See Section 8 for more detail. 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 flammable.

Flash point Not Applicable

Suitable extinguishing media Dry chemical or CO_2. DO NOT USE WATER.

Specific hazards arising from the chemical
Contact with most metals causes the formation of explosive and flammable hydrogen gas. React vigorously with water.

NFPA	**Health hazard** 1	**flammability** 0	**Stability** 0	**Physical and Chemical Hazards** W
HMIS	**Health hazard** 2	**flammability** 0	**Stability** 1	

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Ensure adequate ventilation. Avoid contact with skin, eyes, and inhalation of vapors. Use personal protective equipment. Refer to Section 8.

Methods for cleaning up Neutralize spill with alkaline material (sodium bicarbonate), being careful to prevent splattering, then containerize slurry and hold for later disposal. If local regulations permit, dilute slurry with water and rinse to drain with excess water. 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 away from incompatible materials such as cyanides or sulfides. Store away from strong bases or metals. Do not store near combustible materials. Keep out of the reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sulfuric acid 7664-93-9	TWA: 0.2 mg/m³	TWA: 1 mg/m³	IDLH: 15 mg/m³ TWA: 1 mg/m³
Ferrous ammonium sulfate.6H2O 7783-85-9	TWA: 1 mg/m³	None known	TWA: 1 mg/m³
Water 7732-18-5	None known	None known	None known

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/face Protection Safety glasses with side-shields.

Skin and body protection Wear protective gloves/clothing.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. 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 Pale green	**Odor**	odorless
Physical state	liquid	**pH**	1
Flash point	Not Applicable	**Autoignition temperature**	Not Applicable
Boiling Point/Range	no data available	**Flammability Limits in Air**	Not Applicable
Vapor pressure	No information available	**Vapor density**	No information available

10. STABILITY AND REACTIVITY

Stability Stable under normal conditions of use and storage.

Incompatible Products Water. Strong bases. Metals. Combustible materials. Cyanides. Sulfides. Formaldehyde.

Conditions to avoid Excessive heat. Incompatible products. Direct sunlight.

Hazardous decomposition products Hydrogen gas. Sulfur oxides (SOx). Carbon oxides (COx). Nitrogen oxides (NOx).

Hazardous Reactions Reacts violently with water. Contact with metals may evolve flammable hydrogen gas.

Hazardous polymerization Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sulfuric acid	2140 mg/kg (Rat)	None known	510 mg/m³ (Rat) 2 h
Ferrous ammonium sulfate.6H2O	3250 mg/kg (Rat)	None known	None known
Water	90 mL/kg (Rat)	None known	None known

Chronic toxicity

Chronic toxicity Chronic exposure to mists containing sulfuric acid is a cancer hazard. Chronic exposure to corrosive mists or vapors may cause erosion of the teeth.

Chemical name	ACGIH	IARC	NTP	OSHA
Sulfuric acid	A2	Group 1	Known	X
Ferrous ammonium sulfate.6H2O	None known	None known	None known	None known
Water	None known	None known	None known	None known

ACGIH: (American Conference of Governmental Industrial Hygienists)
A2 - Suspected Human Carcinogen
IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
OSHA: (Occupational Safety & Health Administration)
X - Present

Chemical name	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine disrupting potential
Sulfuric acid	None known	None known	None known
Ferrous ammonium sulfate.6H2O	None known	None known	None known
Water	None known	None known	None known

12. ECOLOGICAL INFORMATION

Ecotoxicity
The material may be toxic to aquatic life.

Chemical name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Sulfuric acid	None known	LC50> 500 mg/L Brachydanio rerio 96 h	None known	EC50 = 29 mg/L 24 h
Ferrous ammonium sulfate.6H2O	None known	None known	None known	None known
Water	None known	None known	None known	None known

Bioaccumulation/Accumulation When released into the soil, this material may leach into ground water. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet or dry deposition.

Chemical name	Log Pow
Sulfuric acid	None known
Ferrous ammonium sulfate.6H2O	None known
Water	None known

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method Dispose according to federal, state, and local regulations. If permitted, neutralize reagent with sodium bicarbonate/sodium carbonate, add slurry to large volume of water to dilute, rinse to drain with excess water.

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Sulfuric acid - 7664-93-9	None known	None known	None known	None known
Ferrous ammonium sulfate.6H2O - 7783-85-9	None known	None known	None known	None known
Water - 7732-18-5	None known	None known	None known	None known

14. TRANSPORT INFORMATION

DOT

Proper shipping name SULFURIC ACID (< 51% ACID)
Hazard Class 8
UN-No 2796
Packing group II
Reportable Quantity (RQ) 1000

IATA

UN-No 2796
Proper shipping name SULPHURIC ACID (<51% ACID)
Hazard Class 8
Packing group II

IMDG/IMO

Proper shipping name SULPHURIC ACID (<51% ACID)
Hazard Class 8
UN-No 2796
Packing group II

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Sulfuric acid 7664-93-9 (<4)	Present	X	X	1-430; 1-724	X	KE-32570	X	X
Ferrous ammonium sulfate.6H2O 7783-85-9 (16)	TSCA	DSL	EINECS/ELINCS	ENCS	X	KECL	X	X
Water 7732-18-5 (to 100%)	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 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	CAS-No	Weight %	SARA 313 - Threshold Values %
Sulfuric acid	7664-93-9	<4	1.0
Ferrous ammonium sulfate.6H2O	7783-85-9	16	None known
Water	7732-18-5	to 100%	None known

SARA 311/312 Hazard Categories

Acute health hazard yes
Chronic Health Hazard yes
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).

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sulfuric acid 7664-93-9 (<4)	1000 lb	None known	None known	X
Ferrous ammonium sulfate.6H2O 7783-85-9 (16)	None known	None known	None known	None known
Water 7732-18-5 (to 100%)	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 HAPs.

Chemical name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Sulfuric acid	7664-93-9	<4	None known	None known	None known	None known
Ferrous ammonium sulfate.6H2O	7783-85-9	16	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	Hazardous Substances RQs	CERCLA/SARA RQ
Sulfuric acid	1000 lb	1000 lb
Ferrous ammonium sulfate.6H2O	None known	None known
Water	None known	None known

U.S. State Regulations

California Proposition 65

WARNING! California Proposition 65 has classified "strong inorganic acid mists containing sulfuric acid" as a chemical known to the State of California to cause cancer. This classification applies only to "mists" containing sulfuric acid and not to sulfuric acid or sulfuric acid solutions, as in this solution.

Chemical name	CAS-No	California Prop. 65
Sulfuric acid	7664-93-9	Carcinogen
Ferrous ammonium sulfate.6H2O	7783-85-9	None known
Water	7732-18-5	None known

U.S. State Right-to-Know Regulations

Chemical name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Sulfuric acid	X	X	X	X	X
Ferrous ammonium sulfate.6H2O	None known	None known	X	None known	X
Water	None known	None known	None known	None known	None known

International Regulations

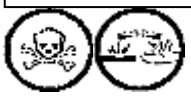
Mexico - Grade

Chemical name	Carcinogen Status	Exposure Limits
Sulfuric acid	A2	Mexico: TWA= 1 mg/m^3
Ferrous ammonium sulfate.6H2O	None known	Mexico: TWA= 1 mg/m^3
Water	None known	None known

CANADA

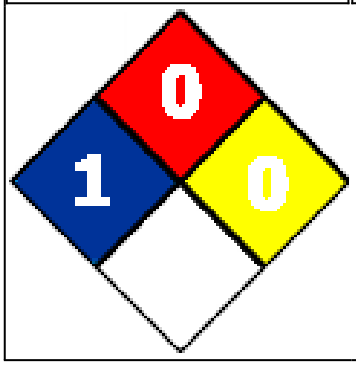
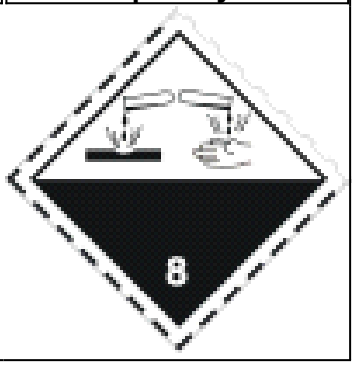
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR LaMotte classifies as a Laboratory Supply House per section 10 and 17 of the CPR and is exempt

Component	WHMIS Hazard Class
Sulfuric acid 7664-93-9 (<4)	1 % D1A E
Ferrous ammonium sulfate.6H2O 7783-85-9 (16)	Uncontrolled product according to WHMIS classification criteria
Water 7732-18-5 (to 100%)	Uncontrolled product according to WHMIS classification criteria



Chemical name	NPRI
Sulfuric acid	X

16. OTHER INFORMATION

NFPA	HMIS	PPE	Transport Symbol
			

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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