

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**Product identifier****Product name** PERACETIC ACID TITRANT**Other means of identification****Product Code(s)** S-6155**Recommended use of the chemical and restrictions on use****Recommended Use** Use as a laboratory reagent. Laboratory chemicals. Industrial (not for food or food contact use).**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 numbers**

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

2. HAZARDS IDENTIFICATION**OSHA Regulatory Status**

This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

EMERGENCY OVERVIEW**Appearance** Colorless **Physical state** liquid **Odor** None**Precautionary Statements - Prevention**

Do not handle until all safety precautions have been read and understood. Keep container tightly closed. Keep out of reach of children.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF SWALLOWED: Drink 1 or 2 glasses of water. Call a physician immediately.

Storage:

Store in a well-ventilated place. Keep cool.

3. COMPOSITION/INFORMATION ON INGREDIENTS*

4. FIRST AID MEASURES

First Aid Measures

General advice	Do not get in eyes, on skin, or on clothing.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If irritation persists or develops, contact a physician.
Skin contact	Wash off with warm water and soap. If skin irritation persists, call a physician.
Inhalation	Not expected.
Ingestion	Drink plenty of water. If symptoms persist or develop contact physician. Never give anything by mouth to an unconscious person.
<u>Self-protection of the first aider</u>	Use personal protective equipment. See section 8 for more information. 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

Dry chemical, CO₂, alcohol-resistant foam or water spray.

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. See section 8. Avoid contact with eyes, skin and clothing.
Environmental precautions	See Section 12 for additional Ecological Information. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
<u>Methods and material for containment and cleaning up</u>	
Methods for containment	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).
Methods for cleaning up	If local regulations permit, rinse to drain with excess water. After cleaning, flush away traces with water.

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.
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Conditions for safe storage, including any incompatibilities

Storage:	Keep containers tightly closed in a dry, cool and well-ventilated place. Store at room temperature. Keep away from direct sunlight. Store away from incompatible materials. Keep
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out of the reach of children.

Incompatible Products Acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

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.

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

Information on basic physical and chemical properties

Physical state	liquid		
Appearance	Colorless	Odor	None

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
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pH	No information available	
Melting point / freezing point	>100 °C / >212 °F	
Boiling point / boiling range	Not Applicable	
Flash point		
Evaporation rate		
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Water solubility	No information available	
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	Excessive heat. Direct sunlight.
Incompatible materials	Acids.
Hazardous decomposition products	

11. TOXICOLOGICAL INFORMATIONInformation on likely routes of exposure

Component identification

Information on toxicological effects**12. ECOLOGICAL INFORMATION**EcotoxicityPersistence and degradability

No information available.

Bioaccumulation/Accumulation

No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods	This material, as supplied, is not a hazardous waste according to state and federal regulations (40 CFR 261). Can be disposed as waste water, when in compliance with local regulations.
Contaminated packaging	Do not reuse empty containers.

14. TRANSPORT INFORMATION

<u>DOT</u>	Not regulated
<u>TDG</u>	Not regulated
<u>MEX</u>	Not regulated
<u>ICAO</u>	Not regulated
<u>IATA</u>	Not regulated
<u>IMDG/IMO</u>	Not regulated
<u>RID</u>	Not regulated

ADR Not regulatedADN Not regulated**15. REGULATORY INFORMATION****International Inventories**

TSCA	Complies
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 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	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

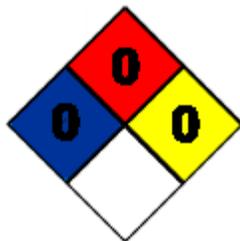
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

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**U.S. State Right-to-Know Regulations****CPSC (Consumer Product Safety Commission) - Specially Regulated Substances****16. OTHER INFORMATION**

<u>NFPA</u>	Health hazard 0	Flammability 0	Instability 0	Physical and Chemical Hazards N/A
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Health Hazard	1
Fire Hazard	0
Reactivity	0

Prepared by

Issuing Date

Disclaimer

Regulatory Affairs Department

Apr-11-2017

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

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**Product identifier****Product name** Hydrogen Peroxide Titrant**Other means of identification****Product Code(s)** 5650**UN-No** 2796**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 numbers**

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

2. HAZARDS IDENTIFICATION

Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

EMERGENCY OVERVIEW**DANGER****Hazard statements**

Causes severe skin burns and eye damage.



Appearance Clear, amber colored

Physical state liquid

Odor Slight

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. Do not taste or swallow. Do not breathe dust/fume/gas/mist/vapors/spray. Wash face, hands and any exposed skin thoroughly after handling.

Response: Immediately call a poison center or physician.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage:

Store locked up.

Disposal:

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

Unknown Acute Toxicity

30% of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS*

Chemical name	CAS No.	Weight-%
Sulfuric acid	7664-93-9	10
Ceric Ammonium Nitrate	16774-21-3	30-35

4. FIRST AID MEASURES**First Aid Measures****General advice**

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

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.

Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Take off contaminated clothing and wash before reuse. Excess acid on skin can be neutralized with a 2% solution of sodium bicarbonate in water. Call a physician immediately.
Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Give artificial respiration if victim is not breathing. Call a physician immediately.
Ingestion	Do NOT induce vomiting. Call a physician immediately. Clean mouth with water. Never give anything by mouth to an unconscious person.
<u>Self-protection of the first aider</u>	Use personal protection recommended in Section 8. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards arising from the chemical

Some of these materials may react violently with water.

Hazardous combustion products

Contact with metals may evolve flammable hydrogen gas.

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

Ensure adequate ventilation. Avoid breathing vapors or mists. Avoid contact with skin, eyes or clothing. Use personal protection recommended in Section 8.

Environmental precautions

See Section 12 for additional Ecological Information. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

Methods for containment

Absorb/Cover spill with sodium bicarbonate or sodium carbonate to neutralize, then place in a chemical waste container for later disposal. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Dispose of contents/containers in accordance with local regulations.

Methods for cleaning up

Clean contaminated surface thoroughly. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling

Handle in accordance with good industrial hygiene and safety practice. Do not taste or swallow. Avoid contact with skin, eyes or clothing. 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. Store at room temperature. Store away from incompatible materials. Keep out of the reach of children. Protect from light.

Incompatible Products Metals. Strong bases. Cyanides. Reducing agents. Organic material. Combustible materials. Water-reactive, reacts vigorously with water.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sulfuric acid 7664-93-9	TWA: 0.2 mg/m ³ thoracic fraction	TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³	IDLH: 15 mg/m ³ TWA: 1 mg/m ³
Ceric Ammonium Nitrate 16774-21-3	*-	*-	Not Established

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

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.

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. Take off contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state liquid
Appearance Clear, amber colored
Odor Slight

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	<1	
Melting point / freezing point	No information available	
Boiling point / boiling range	> 100 °C / 212 °F	
Flash point	Not Applicable	
Evaporation rate		
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Water solubility	No information available	
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 recommended storage conditions.
Hazardous Reactions	Contact with metals may evolve flammable hydrogen gas.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Excessive heat. Incompatible Products.
Incompatible materials	Metals. Strong bases. Cyanides. Reducing agents. Organic material. Combustible materials. Water-reactive, reacts vigorously with water.
Hazardous decomposition products	Nitrogen oxides (NOx). Hydrogen gas. Sulfur oxides (SOx). Carbon oxides (COx).

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Component identification**

Chemical name	ATEmix (oral)	ATEmix (dermal)	Inhalation LC50
Sulfuric acid 7664-93-9	= 2140 mg/kg (Rat)	Not Established	= 510 mg/m ³ (Rat) 2 h
Ceric Ammonium Nitrate 16774-21-3	Not Established	Not Established	Not Established

Information on toxicological effects

Chemical name	ACGIH	IARC	NTP	OSHA
Sulfuric acid 7664-93-9	Not Established	Group 1	Known	Not Established
Ceric Ammonium Nitrate 16774-21-3	Not Established	Group 2A	Not Established	X

ACGIH (American Conference of Governmental Industrial Hygienists)

A2 - Suspected Human Carcinogen

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Cancer Status: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulfuric acid and not to sulfuric acid or sulfuric acid solutions

ATEmix (oral) 14,980.00 mg/kg

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Unknown Aquatic Toxicity 30 % 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)
Sulfuric acid 7664-93-9	Not Established	500: 96 h Brachydanio rerio mg/L LC50 static	29: 24 h Daphnia magna mg/L EC50
Ceric Ammonium Nitrate 16774-21-3	Not Established	Not Established	Not Established

Persistence and degradability

No information available.

Bioaccumulation/Accumulation

No information available.

Chemical name	Log Pow
Sulfuric acid 7664-93-9	Not Established
Ceric Ammonium Nitrate 16774-21-3	Not Established

13. DISPOSAL CONSIDERATIONS**Disposal Methods** Dispose of waste product or used containers according to local regulations.**Contaminated packaging** Do not reuse empty containers.

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Sulfuric acid 7664-93-9	Not Established	-	Not Established	Not Established
Ceric Ammonium Nitrate 16774-21-3	Not Established	-	Not Established	Not Established

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Sulfuric acid 7664-93-9	Not Established	Not Established	Not Established	Not Established
Ceric Ammonium Nitrate 16774-21-3	Not Established	Not Established	Not Established	Not Established

Chemical name	California Hazardous Waste Status
Sulfuric acid 7664-93-9	Toxic Corrosive
Ceric Ammonium Nitrate 16774-21-3	*-

14. TRANSPORT INFORMATION**DOT**

Proper shipping name SULFURIC ACID <51%
UN-No 2796
Hazard Class 8
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

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

RID

UN-No 2796

Proper shipping name SULPHURIC ACID (<51% ACID)
Hazard Class 8
Packing group II

ADR

UN-No 2976
Proper shipping name SULPHURIC ACID (<51% ACID)
Hazard Class 8
Packing group II

15. REGULATORY INFORMATION**International Inventories**

TSCA Complies
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 %
Sulfuric acid 7664-93-9	1.0
Ceric Ammonium Nitrate 16774-21-3	1.0

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

CWA (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	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sulfuric acid 7664-93-9	1000 lb	Not Established	Not Established	X
Ceric Ammonium Nitrate 16774-21-3	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
Sulfuric acid 7664-93-9	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg final RQ
Ceric Ammonium Nitrate 16774-21-3	*-	Not Established	-

US State Regulations

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 occupational exposures to these mists generated during manufacturing processes which sulfuric acid is used or produced.

Chemical name	California Proposition 65
Sulfuric acid 7664-93-9	Carcinogen
Ceric Ammonium Nitrate 16774-21-3	Not Established

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Sulfuric acid 7664-93-9	X	X	X
Ceric Ammonium Nitrate 16774-21-3	X	Not Established	Not Established

CPSC (Consumer Product Safety Commission) - Specially Regulated Substances

Chemical name	CPSC (Consumer Product Safety Commission) - Specially Regulated Substances
Sulfuric acid 7664-93-9	Add POISON to label, 16 CFR 1500.129

16. OTHER INFORMATION**NFPA**

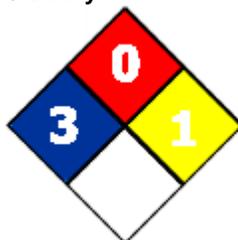
Health hazard 3

Flammability 0

Instability 1

Physical and Chemical
Hazards W

Stability 1



Health Hazard	3
Fire Hazard	0
Reactivity	1

Prepared by
Issuing Date
Revision Date
Disclaimer

Regulatory Affairs Department
Apr-11-2017
Apr-11-2017

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

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**Product identifier****Product name** SULFURIC ACID 1:1**Other means of identification****Product Code(s)** 6141**UN-No** 1830**Recommended use of the chemical and restrictions on use****Recommended Use** Laboratory chemicals. Use as a laboratory reagent. Industrial (not for food or food contact use).**Uses advised against** This product should not be used in applications other than those listed**Details of the supplier of the safety data sheet**LaMotte Company, Inc.
802 Washington Avenue
P.O. Box 329
Chestertown, MD 21620 USA
T 410-778-3100
F 410-778-9748**Emergency telephone numbers**

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

contaminated clothing and shoes. Wash contaminated clothing before reuse. Call a physician immediately.

Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. If symptoms persist, call a physician.
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.
<u>Self-protection of the first aider</u>	Use personal protection recommended in Section 8. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical. Carbon dioxide (CO₂). DO NOT USE WATER.

Specific hazards arising from the chemical

React vigorously and/or explosively with water.

Hazardous combustion products

Contact with metals may evolve flammable hydrogen gas.

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 protection recommended in Section 8. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid breathing vapors or mists.
Environmental precautions	See Section 12 for additional Ecological Information. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

Methods for containment	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).
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

Precautions for safe handling

Handling	Handle in accordance with good industrial hygiene and safety practice. Do not taste or swallow. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product.
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Conditions for safe storage, including any incompatibilities

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sulfuric acid 7664-93-9	TWA: 0.2 mg/m ³ thoracic particulate matter	TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³	IDLH: 15 mg/m ³ TWA: 1 mg/m ³

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 Gloves & Lab Coat. Wear protective gloves/clothing. Impervious clothing. Rubber gloves. Nitrile rubber.

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. Take off contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid	Odor	Odorless
Appearance	Clear, colorless		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	<1	
Melting point / freezing point	No information available	
Boiling point / boiling range	<100 °C / 214 °F	
Flash point	Not Applicable	
Evaporation rate		
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	~1.57	
Water solubility	No information available	
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 recommended storage conditions.
Hazardous Reactions	Reacts violently with water. Contact with metals may evolve flammable hydrogen gas.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Excessive heat. Incompatible Products. Protect from light.
Incompatible materials	Water. Strong bases. Metals. Combustible materials. Cyanides. Sulfides. Formaldehyde.
Hazardous decomposition products	Hydrogen gas. Sulfur oxides (SOx).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Component identification

Chemical name	ATEmix (oral)	ATEmix (dermal)	Inhalation LC50
Sulfuric acid 7664-93-9	= 2140 mg/kg (Rat)	Not Established	85 - 103 mg/m ³ (Rat) 1 h

Information on toxicological effects

Carcinogenicity IARC has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to occupational exposures to these mists. (Steel pickling / the manufacture of isopropyl alcohol by strong-acid process that uses sulfuric acid).

Chemical name	ACGIH	IARC	NTP	OSHA
Sulfuric acid 7664-93-9	A2	Group 1	Known	X

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

ATEmix (oral) 3,344.00 mg/kg mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical name	Toxicity to Algae	Toxicity to Fish	Daphnia Magna (Water Flea)
Sulfuric acid 7664-93-9	Not Established	500: 96 h Brachydanio rerio mg/L LC50 static	29: 24 h Daphnia magna mg/L EC50

Persistence and degradability

No information available.

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 7664-93-9	Not Established

13. DISPOSAL CONSIDERATIONS

Disposal Methods Dispose of contents/containers in accordance with local regulations. When in compliance with local regulations, neutralize reagent to pH 7 with dilute base (NaOH/soda ash/slaked lime), then rinse to drain with excess water.

Contaminated packaging Do not reuse empty containers.

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Sulfuric acid 7664-93-9	Not Established	-	Not Established	Not Established

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Sulfuric acid 7664-93-9	Not Established	Not Established	Not Established	Not Established

Chemical name	California Hazardous Waste Status
Sulfuric acid 7664-93-9	Toxic Corrosive

14. TRANSPORT INFORMATION

DOT

Proper shipping name SULFURIC ACID (> 51%ACID)
UN-No 1830
Hazard Class 8
Packing group II
Reportable Quantity (RQ) 1000

TDG

Not regulated

MEX

Not regulated

ICAO

Not regulated

IATA

UN-No 1830
Proper shipping name SULPHURIC ACID (<51% ACID)
Hazard Class 8
Packing group II

IMDG/IMO

UN-No 1830
Proper shipping name SULPHURIC ACID (<51% ACID)
Hazard Class 8
Packing group II

RID

UN-No 1830
Proper shipping name SULPHURIC ACID (<51% ACID)
Hazard Class 8
Packing group II

ADR

UN-No 1830
Proper shipping name SULPHURIC ACID (<51% ACID)
Hazard Class 8
Packing group II

ADN

Not regulated

15. REGULATORY INFORMATION**International Inventories**

TSCA	Complies
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 %
Sulfuric acid 7664-93-9	1.0

SARA 311/312 Hazard Categories

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

CWA (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	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sulfuric acid 7664-93-9	1000 lb	Not Established	Not Established	X

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
Sulfuric acid 7664-93-9	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations**California Proposition 65**

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 occupational exposures to these mists generated during manufacturing processes which sulfuric acid is used or produced.

Chemical name	California Proposition 65
Sulfuric acid	Carcinogen

7664-93-9

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Sulfuric acid 7664-93-9	X	X	X

CPSC (Consumer Product Safety Commission) - Specially Regulated Substances

Chemical name	CPSC (Consumer Product Safety Commission) - Specially Regulated Substances
Sulfuric acid 7664-93-9	Add POISON to label, 16 CFR 1500.129

16. OTHER INFORMATION**NFPA**

Health hazard 3

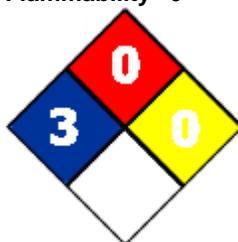
Physical and Chemical**HMIS**

Health hazard 3

Flammability 0

Stability 2

Hazards W



Health Hazard	3
Fire Hazard	0
Reactivity	2

Prepared by

Regulatory Affairs Department

Issuing Date

Dec-19-2016

Reason for revision

SDS sections updated 1 14

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**4.1. Description of first aid measures****Inhalation**

Remove to fresh air.

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.

Ingestion

Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed**Symptoms**

No information available.

Indication of any immediate medical attention and special treatment needed**Note to physicians**

Treat symptomatically.

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**Product identifier****Product name** SODIUM THIOSULFATE 0.1N**Other means of identification****Product Code(s)** 6155**Recommended use of the chemical and restrictions on use****Recommended Use** Use as a laboratory reagent. Laboratory chemicals. Industrial (not for food or food contact use).**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 numbers**

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

2. HAZARDS IDENTIFICATION**OSHA Regulatory Status**

This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

EMERGENCY OVERVIEW**Appearance** Clear, colorless liquid **Physical state** liquid **Odor** None**Precautionary Statements - Prevention**

Do not handle until all safety precautions have been read and understood. Keep container tightly closed. Keep out of reach of children.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF SWALLOWED: Drink 1 or 2 glasses of water. Call a physician immediately.

Storage:

Store in a well-ventilated place. Keep cool.

3. COMPOSITION/INFORMATION ON INGREDIENTS*

4. FIRST AID MEASURES

First Aid Measures

General advice	Do not get in eyes, on skin, or on clothing.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If irritation persists or develops, contact a physician.
Skin contact	Wash off with warm water and soap. If skin irritation persists, call a physician.
Inhalation	Not expected.
Ingestion	Drink plenty of water. If symptoms persist or develop contact physician. Never give anything by mouth to an unconscious person.
<u>Self-protection of the first aider</u>	Use personal protective equipment. See section 8 for more information. 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

Dry chemical, CO₂, alcohol-resistant foam or water spray.

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. See section 8. Avoid contact with eyes, skin and clothing.
Environmental precautions	See Section 12 for additional Ecological Information. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
<u>Methods and material for containment and cleaning up</u>	
Methods for containment	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).
Methods for cleaning up	If local regulations permit, rinse to drain with excess water. After cleaning, flush away traces with water.

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.
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Conditions for safe storage, including any incompatibilities

Storage:	Keep containers tightly closed in a dry, cool and well-ventilated place. Store at room temperature. Keep away from direct sunlight. Store away from incompatible materials. Keep
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out of the reach of children.

Incompatible Products Acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

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.

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

Information on basic physical and chemical properties

Physical state	liquid	Odor	None
Appearance	Clear, colorless liquid		
Color	Clear Colorless		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	7.0-7.5	
Melting point / freezing point	No information available	
Boiling point / boiling range	>100 °C / >212 °F	
Flash point	Not Applicable	
Evaporation rate		
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Water solubility	No information available	
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 Excessive heat. Direct sunlight.

Incompatible materials Acids.

Hazardous decomposition products

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Component identification

Information on toxicological effects

12. ECOLOGICAL INFORMATION

Ecotoxicity

Persistence and degradability

No information available.

Bioaccumulation/Accumulation

No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods This material, as supplied, is not a hazardous waste according to state and federal regulations (40 CFR 261). Can be disposed as waste water, when in compliance with local regulations.

Contaminated packaging Do not reuse empty containers.

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO Not regulated

RID Not regulatedADR Not regulatedADN Not regulated**15. REGULATORY INFORMATION****International Inventories**

TSCA	Complies
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 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	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

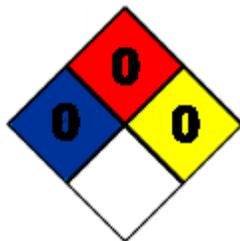
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

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**U.S. State Right-to-Know Regulations****CPSC (Consumer Product Safety Commission) - Specially Regulated Substances****16. OTHER INFORMATION**

<u>NFPA</u>	Health hazard 0	Flammability 0	Instability 0	Physical and Chemical Hazards N/A
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Health Hazard	1
Fire Hazard	0
Reactivity	0

Prepared by
Issuing Date
Reason for revision

Regulatory Affairs Department
Apr-13-2017

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

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**Product identifier****Product name** FERROIN INDICATOR**Other means of identification****Product Code(s)** 6410**Recommended use of the chemical and restrictions on use****Recommended Use** Use as a laboratory reagent. Laboratory chemicals. Industrial (not for food or food contact use).**Uses advised against** This product should not be used in applications other than those listed**Details of the supplier of the safety data sheet**LaMotte Company, Inc.
802 Washington Avenue
P.O. Box 329
Chestertown, MD 21620 USA
T 410-778-3100
F 410-778-9748**Emergency telephone numbers**

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

2. HAZARDS IDENTIFICATION**OSHA Regulatory Status**

This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

EMERGENCY OVERVIEW**Hazard statements**

This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Appearance Clear Red-Orange**Physical state** liquid**Odor** Odorless**Precautionary Statements - Prevention**

Do not handle until all safety precautions have been read and understood. Keep container tightly closed. Keep out of reach of children.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. IF SWALLOWED:.

Drink 1 or 2 glasses of water. Call a physician immediately.

Storage:

Store in a well-ventilated place. Keep cool.

Other Hazards

Harmful to aquatic life with long lasting effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS*

Chemical name	CAS No	Weight-%
Phenanthroline (1,10), monohydrate	5144-89-8	<0.5

4. FIRST AID MEASURES

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. Remove to fresh air.
Ingestion	Clean mouth with water and drink afterwards plenty of water. If symptoms persist or develop contact physician.
<u>Self-protection of the first aider</u>	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 (CO₂), 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	See section 8. Avoid contact with eyes, skin and clothing. Wear protective gloves/clothing and eye/face protection.
Environmental precautions	See Section 12 for additional Ecological Information. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

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.
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

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.
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Conditions for safe storage, including any incompatibilities

Storage: Keep containers tightly closed in a dry, cool and well-ventilated place. Keep from freezing. Keep out of the reach of children.

Incompatible Products Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**Exposure guidelines**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Phenanthroline (1,10), monohydrate 5144-89-8	*-	*-	Not Established

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

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

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

Information on basic physical and chemical properties

Physical state liquid
Appearance Clear Red-Orange
Odor Odorless

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	5	
Melting point / freezing point	No information available	
Boiling point / boiling range	No information available	
Flash point	Not Applicable	
Evaporation rate		
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	ca. 1.0 (g/cm ³ at 20°C/68°F)	
Water solubility	No information available	
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 Reactions	None under normal processing.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Do not freeze.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	May produce the following when heated to decomposition: Carbon oxides (COx). Nitrogen oxides (NOx). Sulfur oxides (SOx).

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Component identification**

Chemical name	ATEmix (oral)	ATEmix (dermal)	Inhalation LC50
Phenanthroline (1,10), monohydrate 5144-89-8	= 132 mg/kg (Rat)	Not Established	Not Established

Information on toxicological effects

Carcinogenicity 1,10-Phenanthroline has been investigated a mutagen, reproductive effector. Ferrous sulfate: has been investigated a tumorigen, mutagen, reproductive effector.

Chemical name	ACGIH	IARC	NTP	OSHA
Phenanthroline (1,10), monohydrate 5144-89-8	Not Established	Not Established	Not Established	Not Established

ATEmix (oral) 44,000.00 mg/kg

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Harmful to aquatic life with long lasting effects

Chemical name	Toxicity to Algae	Toxicity to Fish	Daphnia Magna (Water Flea)
Phenanthroline (1,10), monohydrate 5144-89-8	Not Established	Not Established	Not Established

Persistence and degradability

No information available.

Bioaccumulation/Accumulation

No information available.

Chemical name	Log Pow
Phenanthroline (1,10), monohydrate 5144-89-8	Not Established

13. DISPOSAL CONSIDERATIONS

Disposal Methods 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/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
Phenanthroline (1,10), monohydrate 5144-89-8	Not Established	-	Not Established	Not Established

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Phenanthroline (1,10), monohydrate 5144-89-8	Not Established	Not Established	Not Established	Not Established

Chemical name	California Hazardous Waste Status
Phenanthroline (1,10), monohydrate 5144-89-8	*-

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO Not regulated

RID Not regulated

ADR Not regulated

ADN Not regulated

15. REGULATORY INFORMATION**International Inventories**

TSCA Complies

DSL/NDL Does not comply

EINECS/ELINCS Does not comply

ENCS Complies

IECSC Complies

KECL Does not comply

PICCS Complies

AICS Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - 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 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	SARA 313 - Threshold Values %
Phenanthroline (1,10), monohydrate 5144-89-8	Not Established

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 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	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Phenanthroline (1,10), monohydrate 5144-89-8	Not Established	Not Established	Not Established	Not Established

CERCLA

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	RQ
Phenanthroline (1,10), monohydrate 5144-89-8	*	Not Established	-

US State Regulations**California Proposition 65**

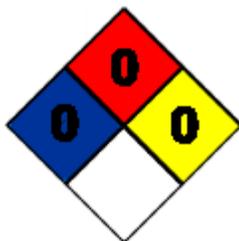
Chemical name	California Proposition 65
Phenanthroline (1,10), monohydrate 5144-89-8	Not Established

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Phenanthroline (1,10), monohydrate 5144-89-8	Not Established	Not Established	Not Established

CPSC (Consumer Product Safety Commission) - Specially Regulated Substances**16. OTHER INFORMATION**

NFPA Health hazard 0 Health hazard 1 Flammability 0 Stability 0



Health Hazard	1
Fire Hazard	0
Reactivity	0

Prepared by

Issuing Date

Revision Date

Reason for revision

Disclaimer

Regulatory Affairs Department

Mar-02-2017

Aug-06-2021

New GHS format

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

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**Product identifier****Product name** Potassium Iodide 20% Solution**Other means of identification****Product Code(s)** 6521**Recommended use of the chemical and restrictions on use****Recommended Use** Laboratory chemicals. Industrial (not for food or food contact use).**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 numbers**

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

2. HAZARDS IDENTIFICATION**OSHA Regulatory Status**

This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

EMERGENCY OVERVIEW**Appearance** Clear, colorless **Physical state** liquid **Odor** Odorless**Precautionary Statements - Prevention**

Do not handle until all safety precautions have been read and understood. Keep container tightly closed. Keep out of reach of children.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF SWALLOWED: Drink 1 or 2 glasses of water. Call a physician immediately.

Storage:

Store in a well-ventilated place. Keep cool.

Unknown Acute Toxicity

20% of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS*

Chemical name	CAS No.	Weight-%
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Potassium iodide*	7681-11-0	20
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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 off immediately with soap and plenty of water for at least 15 minutes while removing all contaminated clothing and shoes. If irritation develops or persists, consult physician.
Inhalation	Remove to fresh air. If breathing is difficult, give oxygen.
Ingestion	Induce vomiting, but only if victim is fully conscious. Never give anything by mouth to an unconscious person.
<u>Self-protection of the first aider</u>	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 (CO₂), 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	See section 8.
Environmental precautions	See Section 12 for additional Ecological Information. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

Methods for containment	Soak up with inert absorbent material, containerize, and hold for disposal. Dispose according to federal, state, and local regulations.
Methods for cleaning up	After cleaning, flush away traces with water.

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.
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Conditions for safe storage, including any incompatibilities

Storage:	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight. Separate from acids. Keep out of the reach of children.
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Incompatible Products Strong acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Potassium iodide* 7681-11-0	TWA: 0.01 ppm inhalable fraction and vapor	*-	Not Established

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

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

Skin and body protection Gloves & Lab Coat.

Hygiene Measures Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state liquid
Appearance Clear, colorless
Odor Odorless

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	8	
Melting point / freezing point	No information available	
Boiling point / boiling range	100 °C No information available	
Flash point	Not Applicable	
Evaporation rate		
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Water solubility	No information available	
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	Exposure to light. Moisture. Exposure to air.
Incompatible materials	Strong acids.
Hazardous decomposition products	

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Component identification**

Chemical name	ATEmix (oral)	ATEmix (dermal)	Inhalation LC50
Potassium iodide* 7681-11-0	Not Established	Not Established	Not Established

Information on toxicological effects

Chemical name	ACGIH	IARC	NTP	OSHA
Potassium iodide* 7681-11-0	Not Established	Not Established	Not Established	Not Established

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Chemical name	Toxicity to Algae	Toxicity to Fish	Daphnia Magna (Water Flea)
Potassium iodide* 7681-11-0	Not Established	Not Established	Not Established

Persistence and degradability

No information available.

Bioaccumulation/Accumulation

No information available.

Chemical name	Log Pow
Potassium iodide* 7681-11-0	Not Established

13. DISPOSAL CONSIDERATIONS

Disposal Methods Dispose of waste product or used containers according to local regulations.

Contaminated packaging Do not reuse empty containers.

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Potassium iodide* 7681-11-0	Not Established	-	Not Established	Not Established

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Potassium iodide* 7681-11-0	Not Established	Not Established	Not Established	Not Established

Chemical name	California Hazardous Waste Status

Potassium iodide* 7681-11-0	*-
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14. TRANSPORT INFORMATION

<u>DOT</u>	Not regulated
<u>TDG</u>	Not regulated
<u>MEX</u>	Not regulated
<u>ICAO</u>	Not regulated
<u>IATA</u>	Not regulated
<u>IMDG/IMO</u>	Not regulated
<u>RID</u>	Not regulated
<u>ADR</u>	Not regulated
<u>ADN</u>	Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Does not comply
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 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	SARA 313 - Threshold Values %
Potassium iodide* 7681-11-0	Not Established

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

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
Potassium iodide* 7681-11-0	Not Established	Not Established	Not Established	Not Established

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

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	RQ
Potassium iodide* 7681-11-0	*-	Not Established	-

US State Regulations

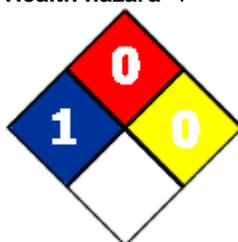
Chemical name	California Proposition 65
Potassium iodide* 7681-11-0	Not Established

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Potassium iodide* 7681-11-0	Not Established	Not Established	Not Established

CPSC (Consumer Product Safety Commission) - Specially Regulated Substances**16. OTHER INFORMATION**

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



Health Hazard	1
Fire Hazard	0
Reactivity	1

Prepared by
Issuing Date
Revision Date
Reason for revision

Regulatory Affairs Department
Apr-11-2017
Dec-20-2016

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End of Safety Data Sheet