Safety Data Sheet

OSHA format

Issuing Date May-27-2015 **Revision Number** 0

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

Product identifier

Product name **Mixed Acid Reagent**

Other means of identification

Product Code(s) **V-6278**

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

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

Serious eye damage/eye irritation	Category 2A

EMERGENCY OVERVIEW

WARNING

Hazard statements

Causes serious eye irritation.

Appearance Clear Blue green **Physical state** liquid **Odor** vinegar

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling. Wear eye/face protection.

Precautionary Statements - Response

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: 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.

Precautionary Statements - Storage

Store in a well-ventilated place. Keep cool.

Precautionary Statements - Disposal
Dispose of contents/containers in accordance with local regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS*

Chemical name	CAS No	Weight-%
Acetic acid	64-19-7	2
Citric acid	77-92-9	4
Sodium chloride USP	7647-14-5	10
Ammonium chloride	12125-02-9	17

4. FIRST AID MEASURES

First Aid Measures

General advice Do not get in eyes, on skin, or on clothing. Show this safety data sheet to the doctor in attendance.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Skin contact Wash off immediately with soap and plenty of water for at least 15 minutes. Take off contaminated clothing and wash before reuse. If symptoms persist, call a physician.

Inhalation Remove to fresh air. If symptoms persist, call a physician.

Ingestion Drink plenty of water. Consult a physician if necessary.

Self-protection of the first aider 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.

Notes to Physician Treat symptomatically.

5. FIREFIGHTING MEASURES

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

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. Avoid contact with skin, eyes or clothing.

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Dispose of contents/containers in accordance with local regulations. Absorb/Cover spill with sodium bicarbonate or sodium carbonate to neutralize, then place in a chemical waste container for later disposal.

Methods for cleaning up After cleaning, flush away traces with water. If local regulations permit, rinse to drain with excess 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. Protect from moisture. Keep out of the reach of children.

Incompatible Products Alkalis. Strong oxidizing agents. Strong bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Acetic acid 64-19-7	STEL: 15 ppm TWA: 10 ppm	TWA: 10 ppm TWA: 25 mg/m³ (vacated) TWA: 10 ppm (vacated) TWA: 25 mg/m³	IDLH: 50 ppm TWA: 10 ppm TWA: 25 mg/m³ STEL: 15 ppm STEL: 37 mg/m³
Citric acid 77-92-9	-	-	Not Established
Sodium chloride USP 7647-14-5	-	-	Not Established
Ammonium chloride 12125-02-9	STEL: 20 mg/m³ fume TWA: 10 mg/m³ fume	(vacated) TWA: 10 mg/m³ fume (vacated) STEL: 20 mg/m³ fume	TWA: 10 mg/m³ fume STEL: 20 mg/m³ fume

Appropriate engineering controls

Engineering Measures Provide appropriate exhaust ventilation at places where dust is formed. Ensure that eyewash stations and safety showers are close to the workstation location.

Individual protection measures, such as personal protective equipment

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

Skin and body protection Gloves & Lab Coat. Impervious clothing. Protective gloves. Rubber gloves. Nitrile rubber.

Respiratory protection Maintain adequate ventilation.

Hygiene Measures Avoid contact with eyes, skin and clothing. Handle in accordance with good industrial hygiene and safety practice. Wash hands and face 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 Blue green **Odor** vinegar

Property	Values	Remarks • Method
pH	2-3	
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 data available	
Water solubility	Soluble in water	
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.
Hazardous Reactions	Hazardous polymerization does not occur.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Exposure to air or moisture over prolonged periods. Excessive heat.
Incompatible materials	Alkalis. Strong oxidizing agents. Strong bases.
Hazardous decomposition products	Ammonia. Hydrogen chloride. Sodium oxides.

11. TOXICOLOGICAL INFORMATION

Product Information Product does not present an acute toxicity hazard based on known or supplied information

Information on likely routes of exposure

Inhalation	None known.
Eye contact	May cause temporary eye irritation.
Skin contact	Substance may cause slight skin irritation.
Ingestion	May be harmful if swallowed. May cause gastrointestinal discomfort if consumed in large amounts.

Component identification

Chemical name	ATEmix (oral)	ATEmix (dermal)	Inhalation LC50
Acetic acid 64-19-7	= 3310 mg/kg (Rat)	= 1060 mg/kg (Rabbit)	= 11.4 mg/L (Rat) 4 h
Citric acid 77-92-9	= 3 g/kg (Rat) = 3000 mg/kg (Rat)	Not Established	Not Established
Sodium chloride USP 7647-14-5	= 3 g/kg (Rat)	> 10 g/kg (Rabbit)	> 42 g/m^3 (Rat) 1 h

Ammonium chloride 12125-02-9	= 1650 mg/kg (Rat)	Not Established	Not Established

Information on toxicological effects

Carcinogenicity There are no known carcinogenic chemicals in this product.

Chemical name	ACGIH	IARC	NTP	OSHA
Acetic acid 64-19-7	Not Established	Not Established	Not Established	Not Established
Citric acid 77-92-9	Not Established	Not Established	Not Established	Not Established
Sodium chloride USP 7647-14-5	Not Established	Not Established	Not Established	Not Established
Ammonium chloride 12125-02-9	Not Established	Not Established	Not Established	Not Established

ATEmix (oral) 6,421.00 mg/kg
ATEmix (dermal) 34,641.00 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Unknown Aquatic Toxicity 0.27 % 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)
Acetic acid 64-19-7	Not Established	75: 96 h Lepomis macrochirus mg/L LC50 static 79: 96 h Pimephales promelas mg/L LC50 static	47: 24 h Daphnia magna mg/L EC50 65: 48 h Daphnia magna mg/L EC50 Static
Citric acid 77-92-9	Not Established	1516: 96 h Lepomis macrochirus mg/L LC50 static	120: 72 h Daphnia magna mg/L EC50
Sodium chloride USP 7647-14-5	Not Established	4747 - 7824: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 5560 - 6080: 96 h Lepomis macrochirus mg/L LC50 flow-through 6020 - 7070: 96 h Pimephales promelas mg/L LC50 static 6420 - 6700: 96 h Pimephales promelas mg/L LC50 static 12946: 96 h Lepomis macrochirus mg/L LC50 static 7050: 96 h Pimephales promelas mg/L LC50 semi-static	340.7 - 469.2: 48 h Daphnia magna mg/L EC50 Static 1000: 48 h Daphnia magna mg/L EC50
Ammonium chloride 12125-02-9	Not Established	209: 96 h Cyprinus carpio mg/L LC50 static 725: 24 h Lepomis macrochirus mg/L LC50	202: 24 h Daphnia magna mg/L LC50

Persistence and degradability

No information available.

Bioaccumulation/Accumulation

No information available.

Chemical name	Log Pow
Acetic acid 64-19-7	-0.31
Citric acid 77-92-9	-1.72
Sodium chloride USP 7647-14-5	Not Established
Ammonium chloride 12125-02-9	Not Established

13. DISPOSAL CONSIDERATIONS

Disposal Methods Dispose of contents/containers in accordance with local regulations.

Contaminated packaging Dispose of waste product or used containers according to local regulations.

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Acetic acid 64-19-7	Not Established	-	Not Established	Not Established
Citric acid 77-92-9	Not Established	-	Not Established	Not Established
Sodium chloride USP 7647-14-5	Not Established	-	Not Established	Not Established
Ammonium chloride 12125-02-9	Not Established	-	Not Established	Not Established

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Acetic acid 64-19-7	Not Established	Not Established	Not Established	Not Established
Citric acid 77-92-9	Not Established	Not Established	Not Established	Not Established
Sodium chloride USP 7647-14-5	Not Established	Not Established	Not Established	Not Established
Ammonium chloride 12125-02-9	Not Established	Not Established	Not Established	Not Established

.

Chemical name	California Hazardous Waste Status
Acetic acid 64-19-7	Toxic Corrosive Ignitable
Citric acid 77-92-9	-
Sodium chloride USP 7647-14-5	-
Ammonium chloride 12125-02-9	-

14. TRANSPORT INFORMATION

DOT Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO Not regulated

RID Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Does not comply
EINECS/ELINCS	Does not comply
ENCS	Does not comply
IECSC	Complies
KECL	Does not comply
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 %
Acetic acid 64-19-7	Not Established
Citric acid 77-92-9	Not Established
Sodium chloride USP 7647-14-5	Not Established
Ammonium chloride 12125-02-9	1.0

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
Acetic acid 64-19-7	5000 lb	Not Established	Not Established	X
Citric acid 77-92-9	Not Established	Not Established	Not Established	Not Established
Sodium chloride USP 7647-14-5	Not Established	Not Established	Not Established	Not Established
Ammonium chloride 12125-02-9	5000 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
Acetic acid 64-19-7	5000 lb	Not Established	RQ 5000 lb final RQ RQ 2270 kg final RQ
Citric acid 77-92-9	-	Not Established	-
Sodium chloride USP 7647-14-5	-	Not Established	-
Ammonium chloride 12125-02-9	5000 lb	Not Established	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

Chemical name	California Proposition 65
Acetic acid 64-19-7	Not Established
Citric acid 77-92-9	Not Established
Sodium chloride USP 7647-14-5	Not Established
Ammonium chloride 12125-02-9	Not Established

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Acetic acid 64-19-7	X	X	X
Citric acid 77-92-9	Not Established	Not Established	Not Established
Sodium chloride USP 7647-14-5	Not Established	Not Established	Not Established
Ammonium chloride 12125-02-9	X	X	X

CPSC (Consumer Product Safety Commission) - Specially Regulated Substances

Chemical name	CPSC (Consumer Product Safety Commission) - Specially Regulated Substances
Acetic acid 64-19-7	Add POISON to label, 16 CFR 1500.129

16. OTHER INFORMATION

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

Health hazard 1

Prepared by Regulatory Affairs Department
Issuing Date May-27-2015

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

MATERIAL SAFETY DATA SHEET

Issuing Date Oct-24-2011 **Revision Date** Oct-21-2014 **Revision Number** 0

1. PRODUCT AND COMPANY IDENTIFICATION

Product name **MIXED ACID REAGENT**

Product Code(s) **V-6278**

Synonyms none / ninguno / aucun

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

Company

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

Emergency telephone number

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

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

May be harmful if swallowed
May cause skin, eye, and respiratory tract irritation

Appearance Clear, Blue green **Physical state** liquid **Odor** vinegar

Potential health effects

Principle Routes of Exposure Eye Contact, Skin Contact, and, Ingestion.

Acute toxicity

Eyes May cause irritation.
Skin May cause irritation.
Inhalation May cause irritation of respiratory tract.
Ingestion May cause irritation. May be harmful if swallowed.

Chronic effects

Aggravated Medical Conditions None known.

Environmental hazard No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No	Weight %
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	<0.1
Sodium phosphate dibasic	7558-79-4	<0.5
Acetic acid	64-19-7	1-5
Citric acid	77-92-9	1-5
Sodium chloride USP	7647-14-5	5-15
Ammonium chloride	12125-02-9	10-20
Water	7732-18-5	to 100%

4. FIRST AID MEASURES

General advice Do not get in eyes, on skin, or on clothing. Show this safety data sheet to the doctor in attendance.

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 with soap and plenty of water removing all contaminated clothes and shoes. If irritation develops or persists, consult physician.

Inhalation Move to fresh air. If breathing is difficult, give oxygen.

Ingestion Drink plenty of water. Clean mouth with water. Consult a physician.

Notes to Physician Treat symptomatically.

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 a fire hazard.

Flash point Not Applicable

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 and full protective gear.

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Avoid contact with the skin and the eyes. Refer to Section 8.

Methods for containment Sweep up in a manner that does not dispurse dust and shovel into suitable containers for disposal. Dispose according to federal, state, and local regulations.

Methods for cleaning up Containerize spill material and hold for later disposal. If local regulations permit, dissolve with large volume of water, neutralize with alkaline material (sodium bicarbonate), then 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. Provide appropriate exhaust ventilation at places where dust is formed. 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. Protect from moisture. Keep out of the reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical name	CAS-No	ACGIH TLV	OSHA PEL	NIOSH IDLH
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	TWA: 1 mg/m³	None known	IDLH: 100 mg/m³ TWA: 1 mg/m³
Sodium phosphate dibasic	7558-79-4	None known	None known	None known
Acetic acid	64-19-7	15 ppm STEL TWA: 10 ppm	TWA: 10 ppm TWA: 25 mg/m³	IDLH: 50 ppm TWA: 10 ppm TWA: 25 mg/m³ STEL: 15 ppm STEL: 37 mg/m³
Citric acid	77-92-9	None known	None known	None known
Sodium chloride USP	7647-14-5	None known	None known	None known
Ammonium chloride	12125-02-9	20 mg/m³ STEL (fume) TWA: 10 mg/m³	None known	TWA: 10 mg/m³ STEL: 20 mg/m³
Water	7732-18-5	None known	None known	None known

Engineering Measures Provide appropriate exhaust ventilation at places where dust is formed. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye/face Protection Safety glasses with side-shields. Avoid contact with eyes.
Skin and body protection Gloves & Lab Coat.
Respiratory protection Maintain adequate ventilation.

Hygiene Measures Avoid contact with skin, eyes and clothing. Handle in accordance with good industrial hygiene and safety practice. Wash hands and face before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Clear Blue green
Physical state liquid
Flash point Not Applicable
Boiling Point/Range > 100°C/212°F
Flammability Limits in Air No data available

Specific gravity No data available
Water solubility Soluble in water

Solubility Soluble
Vapor density No information available

Odor vinegar
pH 2-3 (0.1g/10mL water)
Autoignition temperature Not Applicable

Explosion Limits No data available

Molecular weight No data available

Vapor pressure No information available

10. STABILITY AND REACTIVITY

Stability Stable.

Incompatible Products Alkalis. Strong oxidizing agents. Strong bases.

Conditions to avoid Exposure to air or moisture over prolonged periods. Excessive heat.

Hazardous decomposition products Ammonia. Hydrogen chloride. Sodium oxides.

Hazardous Reactions Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product Information Product does not present an acute toxicity hazard based on known or supplied information.

Chemical name	CAS-No	LD50 Oral	LD50 Dermal	LC50 Inhalation
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	= 300 mg/kg (Rat) = 960 mg/kg (Rat)	> 2 g/kg (Rat) = 1000 mg/kg (Rabbit)	None known
Sodium phosphate dibasic	7558-79-4	= 17 g/kg (Rat)	None known	None known

Acetic acid	64-19-7	= 3310 mg/kg (Rat)	= 1060 mg/kg (Rabbit)	= 11.4 mg/L (Rat) 4 h
Citric acid	77-92-9	= 3000 mg/kg (Rat)	None known	None known
Sodium chloride USP	7647-14-5	= 3 g/kg (Rat)	> 10 g/kg (Rabbit)	> 42 g/m³ (Rat) 1 h
Ammonium chloride	12125-02-9	= 1650 mg/kg (Rat)	None known	None known
Water	7732-18-5	> 90 mL/kg (Rat)	None known	None known

Carcinogenicity

Chemical name	CAS-No	ACGIH	IARC	NTP	OSHA
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	None known	None known	None known	None known
Sodium phosphate dibasic	7558-79-4	None known	None known	None known	None known
Acetic acid	64-19-7	None known	None known	None known	None known
Citric acid	77-92-9	None known	None known	None known	None known
Sodium chloride USP	7647-14-5	None known	None known	None known	None known
Ammonium chloride	12125-02-9	None known	None known	None known	None known
Water	7732-18-5	None known	None known	None known	None known

Endocrine Disruptor Information .

Chemical name	CAS-No	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine disrupting potential
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	None known	None known	None known
Sodium phosphate dibasic	7558-79-4	None known	None known	None known
Acetic acid	64-19-7	None known	None known	None known
Citric acid	77-92-9	None known	None known	None known
Sodium chloride USP	7647-14-5	None known	None known	None known
Ammonium chloride	12125-02-9	None known	None known	None known
Water	7732-18-5	None known	None known	None known

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical name	CAS-No	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	None known	0.09 - 0.19: 96 h Oncorhynchus mykiss mg/L LC50 static 0.1478 - 0.165: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.66 - 1.15: 96 h Lepomis macrochirus mg/L LC50 semi-static 0.96 - 1.8: 96 h Lepomis macrochirus mg/L LC50 static 0.1: 96 h Oncorhynchus mykiss mg/L LC50 0.6752: 96 h Pimephales promelas mg/L LC50 static	EC50 < 0.25 mg/L 30 min EC50 = 0.25 mg/L 15 min EC50 = 1.3 mg/L 5 min	0.0058 - 0.0073: 48 h Daphnia magna mg/L EC50 Static 0.147 - 0.227: 48 h Daphnia magna mg/L EC50 Static
Sodium phosphate dibasic	7558-79-4	None known	None known	None known	None known
Acetic acid	64-19-7	None known	75: 96 h Lepomis macrochirus mg/L LC50 static 79: 96 h Pimephales promelas mg/L LC50 static	EC50 = 8.8 mg/L 15 min EC50 = 8.8 mg/L 25 min EC50 = 8.8 mg/L 5 min	47: 24 h Daphnia magna mg/L EC50 65: 48 h Daphnia magna mg/L EC50 Static
Citric acid	77-92-9	None known	1516: 96 h Lepomis macrochirus mg/L LC50 static	EC50 = 14 mg/L 15 min	120: 72 h Daphnia magna mg/L EC50
Sodium chloride USP	7647-14-5	None known	4747 - 7824: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 5560 - 6080: 96 h Lepomis macrochirus mg/L LC50 flow-through 6020 - 7070: 96 h Pimephales promelas mg/L LC50 static 6420 - 6700: 96 h Pimephales promelas mg/L LC50 static 12946: 96 h Lepomis macrochirus mg/L LC50 static 7050: 96 h Pimephales promelas mg/L LC50 semi-static	None known	340.7 - 469.2: 48 h Daphnia magna mg/L EC50 Static 1000: 48 h Daphnia magna mg/L EC50
Ammonium chloride	12125-02-9	None known	209: 96 h Cyprinus carpio mg/L LC50 static 725: 24 h Lepomis macrochirus mg/L LC50	None known	202: 24 h Daphnia magna mg/L LC50
Water	7732-18-5	None known	None known	None known	None known

Persistence and degradability No information available.

Bioaccumulation/Accumulation No information available.

Chemical name	CAS-No	Log Pow
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	None known
Sodium phosphate dibasic	7558-79-4	None known
Acetic acid	64-19-7	-0.31
Citric acid	77-92-9	-1.72
Sodium chloride USP	7647-14-5	None known
Ammonium chloride	12125-02-9	None known
Water	7732-18-5	None known

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method Dispose according to federal, state, and local regulations.

Contaminated packaging Dispose of in accordance with local regulations.

Chemical name	CAS-No	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	None known	None known	None known	None known
Sodium phosphate dibasic	7558-79-4	None known	None known	None known	None known
Acetic acid	64-19-7	None known	None known	None known	None known
Citric acid	77-92-9	None known	None known	None known	None known
Sodium chloride USP	7647-14-5	None known	None known	None known	None known
Ammonium chloride	12125-02-9	None known	None known	None known	None known
Water	7732-18-5	None known	None known	None known	None known

Chemical name	California Hazardous Waste Status
Copper (II) sulfate pentahydrate (1:1:5) 7758-99-8	-
Sodium phosphate dibasic 7558-79-4	-
Acetic acid 64-19-7	-
Citric acid 77-92-9	-
Sodium chloride USP 7647-14-5	-
Ammonium chloride 12125-02-9	-
Water 7732-18-5	-

14. TRANSPORT INFORMATION

DOT Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

International Inventories

Chemical name	CAS-No	TSCA	DSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	TSCA	DSL	EINECS/ELINCS	ENCS	X	KECL	X	X
Sodium phosphate dibasic	7558-79-4	Present	X	X	Present	X	KE-12344	X	X
Acetic acid	64-19-7	Present	X	X	Present	X	KE-00013	X	X
Citric acid	77-92-9	Present	X	X	Present	X	KE-20831	X	X
Sodium chloride USP	7647-14-5	Present	X	X	Present	X	KE-31387	X	X
Ammonium chloride	12125-02-9	Present	X	X	Present	X	KE-01645	X	X
Water	7732-18-5	Present	X	X	ENCS	X	KE-35400	X	X

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product 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 %
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	<0.1	1.0
Sodium phosphate dibasic	7558-79-4	<0.5	None known
Acetic acid	64-19-7	1-5	None known
Citric acid	77-92-9	1-5	None known
Sodium chloride USP	7647-14-5	5-15	None known
Ammonium chloride	12125-02-9	10-20	1.0
Water	7732-18-5	to 100%	None known

SARA 311/312 Hazard Categories

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

Clean Water Act

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

Chemical name	CAS-No	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	None known	X	None known	None known
Sodium phosphate dibasic	7558-79-4	5000 lb	None known	None known	X
Acetic acid	64-19-7	5000 lb	None known	None known	X
Citric acid	77-92-9	None known	None known	None known	None known
Sodium chloride USP	7647-14-5	None known	None known	None known	None known
Ammonium chloride	12125-02-9	5000 lb	None known	None known	X
Water	7732-18-5	None known	None known	None known	None known

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

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:.

Chemical name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	<0.1	None known	None known	None known	None known
Sodium phosphate dibasic	7558-79-4	<0.5	None known	None known	None known	None known
Acetic acid	64-19-7	1-5	None known	Group II	None known	None known
Citric acid	77-92-9	1-5	None known	None known	None known	None known
Sodium chloride USP	7647-14-5	5-15	None known	None known	None known	None known
Ammonium chloride	12125-02-9	10-20	None known	None known	None known	None known
Water	7732-18-5	to 100%	None known	None known	None known	None known

CERCLA

Chemical name	CAS-No	Hazardous Substances RQs	CERCLA/SARA RQ
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	10 lb	None known
Sodium phosphate dibasic	7558-79-4	5000 lb	None known
Acetic acid	64-19-7	5000 lb	None known
Citric acid	77-92-9	None known	None known
Sodium chloride USP	7647-14-5	None known	None known
Ammonium chloride	12125-02-9	5000 lb	None known
Water	7732-18-5	None known	None known

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

Chemical name	CAS-No	California Prop. 65
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	None known
Sodium phosphate dibasic	7558-79-4	None known
Acetic acid	64-19-7	None known
Citric acid	77-92-9	None known
Sodium chloride USP	7647-14-5	None known
Ammonium chloride	12125-02-9	None known
Water	7732-18-5	None known

U.S. State Right-to-Know Regulations

Chemical name	CAS-No	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	X	X	X	None known	None known
Sodium phosphate dibasic	7558-79-4	X	X	X	None known	None known
Acetic acid	64-19-7	X	X	X	None known	X
Citric acid	77-92-9	None known	None known	None known	None known	None known
Sodium chloride USP	7647-14-5	None known	None known	None known	None known	None known
Ammonium chloride	12125-02-9	X	X	X	None known	X
Water	7732-18-5	None known	None known	X	None known	None known

International Regulations

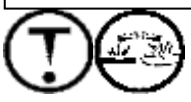
Mexico - Grade

Chemical name	CAS-No	Carcinogen Status	Exposure Limits
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	None known	None known
Sodium phosphate dibasic	7558-79-4	None known	None known
Acetic acid	64-19-7	None known	Mexico: TWA 10 ppm Mexico: TWA 25 mg/m³ Mexico: STEL 15 ppm Mexico: STEL 37 mg/m³
Citric acid	77-92-9	None known	None known
Sodium chloride USP	7647-14-5	None known	None known
Ammonium chloride	12125-02-9	None known	Mexico: TWA 10 mg/m³ Mexico: STEL 20 mg/m³
Water	7732-18-5	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
information downloaded from http://ccinfoweb.ccohs.ca/whmis/search.html

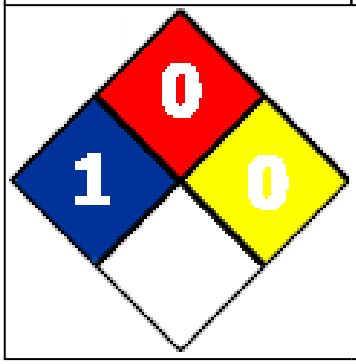
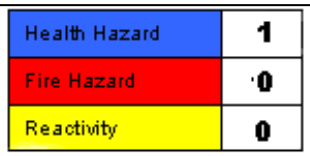
Component	CAS-No	WHMIS Hazard Class
Copper (II) sulfate pentahydrate (1:1:5) 7758-99-8 (<0.1)	7758-99-8	1 % D2B
Sodium phosphate dibasic 7558-79-4 (<0.5)	7558-79-4	Not Determined
Acetic acid 64-19-7 (1-5)	64-19-7	1 % B3,E D2B
Citric acid 77-92-9 (1-5)	77-92-9	1 % E
Sodium chloride USP 7647-14-5 (5-15)	7647-14-5	Uncontrolled product according to WHMIS classification criteria
Ammonium chloride 12125-02-9 (10-20)	12125-02-9	1 % D2B
Water 7732-18-5 (to 100%)	7732-18-5	Uncontrolled product according to WHMIS classification criteria



Chemical name	CAS-No	NPRI

Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	
Sodium phosphate dibasic	7558-79-4	
Acetic acid	64-19-7	
Citric acid	77-92-9	
Sodium chloride USP	7647-14-5	
Ammonium chloride	12125-02-9	
Water	7732-18-5	

16. OTHER INFORMATION

NFPA	HMIS	PPE	Transport Symbol
			

Prepared by Regulatory Affairs Department
Issuing Date Oct-24-2011
Revision Date Oct-21-2014
Revision note No changes. MSDS was reviewed per Canada request - Canada requires MSDS to be dated within 3 years of the request.

Disclaimer

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

End of MSDS

Safety Data Sheet

OSHA format

Issuing Date Apr-30-2015 **Revision Number** 0

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

Product identifier

Product name **Nitrate Reducing Reagent**

Other means of identification

Product Code(s) **V-6279**

UN-No 2570

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

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
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Serious eye damage/eye irritation	Category 2
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 1A
Reproductive toxicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1

EMERGENCY OVERVIEW

DANGER

Hazard statements

Harmful if swallowed. Harmful if inhaled. Causes serious eye irritation. Suspected of causing genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure.

Appearance Gray **Physical state** powder **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. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke

when using this product. Use only outdoors or in a well-ventilated area. Wear eye/face protection. Do not breathe dust/fume/gas/mist/vapors/spray.

Precautionary Statements - Response
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: 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: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

Precautionary Statements - Storage
Store locked up.

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

Other Hazards
Very toxic to aquatic life with long lasting effects

Unknown Acute Toxicity
34.69% of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS*

Chemical name	CAS No	Weight-%
N-(1-Naphthyl)ethylenediamine dihydrochloride	1465-25-4	<1
Cadmium	7440-43-9	3
Manganese sulfate monohydrate	10034-96-5	10
Ammonium chloride	12125-02-9	45-55

4. FIRST AID MEASURES

First Aid Measures

General advice — Show this safety data sheet to the doctor in attendance. 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. Call a physician immediately.

Skin contact — Wash off immediately with soap and plenty of water for at least 15 minutes. Take off contaminated clothing and wash before reuse. If symptoms persist, call a physician.

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 without medical advice. Rinse mouth. Drink plenty of water. Never give anything by mouth to an unconscious person. Immediate medical attention is required.

Self-protection of the first aider — 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
Dry chemical or CO_2.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of toxic and corrosive gases/vapors.

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. Wear respiratory protection. If you have not donned special protective clothing approved for this material, do not expose yourself to any risk of this material touching you. Evacuate personnel to safe areas.

Other Information Ventilate the area.

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Do not flush to sewer. Prevent dust cloud. 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 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. Avoid contact with skin, eyes or clothing. Do not taste or swallow. Do not breathe vapors/dust.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Do not allow contact with air. Store away from incompatible materials. Keep out of the reach of children.

Incompatible Products Strong acids. Strong oxidizing agents. Strong bases. Finely powdered metals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	-	-	Not Established
Cadmium 7440-43-9	TWA: 0.01 mg/m³ TWA: 0.002 mg/m³ respirable fraction TWA: 0.01 mg/m³ Cd TWA: 0.002 mg/m³ Cd respirable fraction	TWA: 0.1 mg/m³ fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect TWA: 0.2 mg/m³ dust applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect TWA: 5 µg/m³ (vacated) STEL: 0.3 ppm fume Ceiling: 0.3 mg/m³ fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect	IDLH: 9 mg/m³ dust IDLH: 9 mg/m³ Cd dust and fume

		Ceiling: 0.6 mg/m³ dust applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect	
Manganese sulfate monohydrate 10034-96-5	TWA: 0.02 mg/m³ Mn TWA: 0.1 mg/m³ Mn	(vacated) Ceiling: 5 mg/m³ Ceiling: 5 mg/m³ Mn	IDLH: 500 mg/m³ Mn TWA: 1 mg/m³ Mn STEL: 3 mg/m³ Mn
Ammonium chloride 12125-02-9	STEL: 20 mg/m³ fume TWA: 10 mg/m³ fume	(vacated) TWA: 10 mg/m³ fume (vacated) STEL: 20 mg/m³ fume	TWA: 10 mg/m³ fume STEL: 20 mg/m³ fume

NIOSH IDLH: Immediately Dangerous to Life or Health

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). If splashes are likely to occur:. Face protection shield.

Skin and body protection Gloves & Lab Coat. Wear protective gloves/clothing. Protective gloves. Nitrile rubber.

Respiratory protection Handle in an enclosing hood with exhaust ventilation. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hygiene Measures Use only with adequate ventilation. Wear suitable gloves and eye/face protection. Avoid contact with eyes, skin and clothing. Wash hands and face before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state powder
Appearance Gray **Odor** Slight

Property	**Values**	**Remarks • Method**
pH	7	(0.1g/10mL water)
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	No information available	
Water solubility	Partly 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 recommended storage conditions.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Exposure to air or moisture over prolonged periods. Excessive heat. Incompatible Products.
Incompatible materials	Strong acids. Strong oxidizing agents. Strong bases. Finely powdered metals.
Hazardous decomposition products	May emit toxic fumes under fire conditions. Cadmium oxides. Ammonia. Carbon oxides (COx). Nitrogen oxides (NOx). Sodium oxides. Hydrogen chloride gas.

11. TOXICOLOGICAL INFORMATION

Product Information Harmful if swallowed, inhaled, or absorbed through skin

Information on likely routes of exposure

Component identification

Chemical name	ATEmix (oral)	ATEmix (dermal)	Inhalation LC50
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	Not Established	Not Established	Not Established
Cadmium 7440-43-9	= 1140 mg/kg (Rat)	Not Established	= 25 mg/m³ (Rat) 30 min
Manganese sulfate monohydrate 10034-96-5	= 782 mg/kg (Rat)	Not Established	Not Established
Ammonium chloride 12125-02-9	= 1650 mg/kg (Rat)	Not Established	Not Established

Information on toxicological effects

Chemical name	ACGIH	IARC	NTP	OSHA
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	Not Established	Not Established	Not Established	Not Established
Cadmium 7440-43-9	A2	Group 1	Known	X
Manganese sulfate monohydrate 10034-96-5	Not Established	Not Established	Not Established	Not Established
Ammonium chloride 12125-02-9	Not Established	Not Established	Not Established	Not Established

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 Toxicology Program)
Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

ATEmix (oral)	1,403.00 mg/kg
ATEmix (dermal)	26,806.00 mg/kg
ATEmix (inhalation-dust/mist)	1.22 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Unknown Aquatic Toxicity 2.54 % 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)
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	Not Established	Not Established	Not Established
Cadmium 7440-43-9	Not Established	0.0004 - 0.003: 96 h Pimephales promelas mg/L LC50 0.002: 96 h Cyprinus carpio mg/L LC50 0.003: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.006: 96 h Oncorhynchus mykiss mg/L LC50 static 0.016: 96 h Oryzias latipes mg/L LC50 0.24: 96 h Cyprinus carpio mg/L LC50 static 21.1: 96 h Lepomis macrochirus mg/L LC50 flow-through 4.26: 96 h Cyprinus carpio mg/L LC50 semi-static	0.0244: 48 h Daphnia magna mg/L EC50 Static
Manganese sulfate monohydrate 10034-96-5	Not Established	Not Established	Not Established
Ammonium chloride 12125-02-9	Not Established	209: 96 h Cyprinus carpio mg/L LC50 static 725: 24 h Lepomis macrochirus mg/L LC50	202: 24 h Daphnia magna mg/L LC50

Persistence and degradability

No information available.

Bioaccumulation/Accumulation

No information available.

Chemical name	Log Pow
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	Not Established
Cadmium 7440-43-9	Not Established
Manganese sulfate monohydrate 10034-96-5	Not Established
Ammonium chloride 12125-02-9	Not Established

13. DISPOSAL CONSIDERATIONS

Disposal Methods Dispose of waste product or used containers according to local regulations. Should not be released into the environment.

Contaminated packaging Dispose of waste product or used containers according to local regulations.

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	Not Established	-	Not Established	Not Established
Cadmium 7440-43-9	Not Established	Included in waste streams: F006, F039, K061, K069, K100	1.0 mg/L regulatory level	Not Established
Manganese sulfate monohydrate 10034-96-5	Not Established	-	Not Established	Not Established
Ammonium chloride 12125-02-9	Not Established	-	Not Established	Not Established

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
N-(1-Naphthyl)ethylenediami	Not Established	Not Established	Not Established	Not Established

ne dihydrochloride 1465-25-4				
Cadmium 7440-43-9	Not Established	Not Established	Not Established	Not Established
Manganese sulfate monohydrate 10034-96-5	Not Established	Not Established	Not Established	Not Established
Ammonium chloride 12125-02-9	Not Established	Not Established	Not Established	Not Established

Chemical name	California Hazardous Waste Status
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	-
Cadmium 7440-43-9	-
Manganese sulfate monohydrate 10034-96-5	-
Ammonium chloride 12125-02-9	-

14. TRANSPORT INFORMATION

DOT

Proper shipping name CADMIUM COMPOUNDS
UN-No 2570
Hazard Class 6.1
Packing group III

IATA

Proper shipping name CADMIUM COMPOUNDS
UN-No 2570
Hazard Class 6.1
Packing group III

IMDG/IMO

Proper shipping name CADMIUM COMPOUNDS
UN-No 2570
Hazard Class 6.1
Packing group III

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL/NDSL Does not comply
EINECS/ELINCS Does not comply
ENCS Does not comply
IECSC Complies
KECL Does not comply
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 %
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	Not Established
Cadmium 7440-43-9	0.1
Manganese sulfate monohydrate 10034-96-5	1.0
Ammonium chloride 12125-02-9	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	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
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	Not Established	Not Established	Not Established	Not Established
Cadmium 7440-43-9	Not Established	X	X	Not Established
Manganese sulfate monohydrate 10034-96-5	Not Established	Not Established	Not Established	Not Established
Ammonium chloride 12125-02-9	5000 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
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	-	Not Established	-
Cadmium 7440-43-9	10 lb	Not Established	RQ 10 lb final RQ RQ 4.54 kg final RQ
Manganese sulfate monohydrate 10034-96-5	-	Not Established	-
Ammonium chloride 12125-02-9	5000 lb	Not Established	RQ 5000 lb final RQ RQ 2270 kg final RQ

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

Chemical name	California Proposition 65
N-(1-Naphthyl)ethylenediamine dihydrochloride	Not Established

1465-25-4	
Cadmium 7440-43-9	Carcinogen Developmental Male Reproductive
Manganese sulfate monohydrate 10034-96-5	Not Established
Ammonium chloride 12125-02-9	Not Established

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	Not Established	Not Established	Not Established
Cadmium 7440-43-9	X	X	X
Manganese sulfate monohydrate 10034-96-5	X	Not Established	X
Ammonium chloride 12125-02-9	X	X	X

CPSC (Consumer Product Safety Commission) - Specially Regulated Substances

Chemical name	CPSC (Consumer Product Safety Commission) - Specially Regulated Substances
Cadmium 7440-43-9	Regulated, CPSIA Section 106

16. OTHER INFORMATION

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

Health hazard 3

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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