



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 disperse 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/m ³	None known	IDLH: 100 mg/m ³ TWA: 1 mg/m ³
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/m ³	IDLH: 50 ppm TWA: 10 ppm TWA: 25 mg/m ³ STEL: 15 ppm STEL: 37 mg/m ³
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/m ³ STEL (fume) TWA: 10 mg/m ³	None known	TWA: 10 mg/m ³ STEL: 20 mg/m ³
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	Odor	vinegar
Physical state	liquid	pH	2-3 (0.1g/10mL water)
Flash point	Not Applicable	Autoignition temperature	Not Applicable
Boiling Point/Range	> 100°C/212°F	Explosion Limits	No data available
Flammability Limits in Air	No data available	Molecular weight	No data available
Specific gravity	No data available	Vapor pressure	No information available
Water solubility	Soluble in water		
Solubility	Soluble		
Vapor density	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/m ³ (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/m ³ Mexico: STEL 15 ppm Mexico: STEL 37 mg/m ³
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/m ³ Mexico: STEL 20 mg/m ³
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>

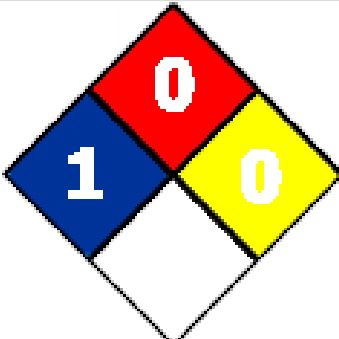

Component	CAS-No	WHMIS Hazard Class
Copper (II) sulfate pentahydrate (1:1:5) 7758-99-8 (<0.1)	7758-99-8	1 % D2B
Sodium phosphate dibasic 7558-79-4 (<0.5)	7558-79-4	Not Determined
Acetic acid 64-19-7 (1-5)	64-19-7	1 % B3,E D2B
Citric acid 77-92-9 (1-5)	77-92-9	1 % E
Sodium chloride USP 7647-14-5 (5-15)	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
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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						
	<table border="1"> <tr> <td>Health Hazard</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Fire Hazard</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Reactivity</td> <td style="text-align: center;">0</td> </tr> </table>	Health Hazard	1	Fire Hazard	0	Reactivity	0		
Health Hazard	1								
Fire Hazard	0								
Reactivity	0								

<p>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.</p>

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



Issuing Date 2/9/2012

Revision date 07-23-2013

Revision Number no data available

1. PRODUCT AND COMPANY IDENTIFICATION

Product name NITRATE REDUCING POWDER
Product Code(s) V-6279
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

DANGER

EMERGENCY OVERVIEW
May be fatal if inhaled or swallowed
Harmful if swallowed, inhaled, or absorbed through skin
Irritating to eyes, respiratory system, and skin

Appearance Gray **Physical state** powder **Odor** Slight

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

Potential health effects
Principle Routes of Exposure Eye Contact, Inhalation, skin contact, and ingestion.

Acute toxicity
EYES Irritating to eyes.
skin Irritating to skin. HARMFUL IF ABSORBED THROUGH SKIN.
Inhalation Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. MAY BE FATAL IF INHALED. Irritating to respiratory system.
Ingestion MAY BE FATAL IF SWALLOWED.

Chronic effects This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No	Weight %
N-(1-Naphthyl)ethylenediamine dihydrochloride	1465-25-4	<1
Sulfanilamide	63-74-1	<2
Cadmium and compounds (as Cd)	7440-43-9	2.68
Manganese sulfate monohydrate	10034-96-5	10
Sodium citrate, dihydrate	6132-04-3	30-40
Ammonium chloride	12125-02-9	45-55

4. FIRST AID MEASURES

General advice	Show this safety data sheet to the doctor in attendance. Consult a physician.
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. Remove and wash contaminated clothing before re-use. Consult a physician.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and contact emergency personnel. Call a physician immediately.
Ingestion	Immediate medical attention is required. Do not induce vomiting without medical advice. Drink plenty of water. Clean mouth with water. Never give anything by mouth to an unconscious person.
Notes to Physician	See MSDS (material safety data sheet) for additional information.
Protection of First-aiders	Use personal protective equipment. See Section 8 for more detail. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

5. FIRE-FIGHTING MEASURES

Flammable properties	Not flammable.
Flash point	Not Applicable
Suitable extinguishing media	Dry chemical or CO ₂ .
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.

NFPA	Health hazard 3	flammability 0	stability 0	Physical and Chemical Hazards N/A
HMIS	Health hazard 3	flammability 0	stability 0	

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Use personal protective equipment. Ensure adequate ventilation. 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.
Methods for containment	Sweep up in a manner that does not disperse dust and shovel into suitable containers for disposal. Dike to collect large liquid spills. Do not flush to sewer.
Methods for cleaning up	Clean contaminated surface thoroughly. After cleaning, flush away traces with water.
OTHER INFORMATION	Ventilate the area.

7. HANDLING AND STORAGE

Handling	Handle in accordance with good industrial hygiene and safety practice. Prevent contact with skin, eyes, and clothing. Do not ingest. Do not breathe vapors/dust.
Storage	Keep containers tightly closed in a dry, cool, and well-ventilated place. Protect from moisture. Do not allow contact with air. Keep away from heat and incompatibles. Keep out of the reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	None known	None known	None known
Sulfanilamide 63-74-1	None known	None known	None known
Cadmium and compounds (as Cd) 7440-43-9	TWA: 0.002 mg/m ³ TWA: 0.01 mg/m ³	TWA: 0.1 mg/m ³ TWA: 0.2 mg/m ³ TWA: 5 µg/m ³	IDLH: 9 mg/m ³
Manganese sulfate monohydrate 10034-96-5	TWA: 0.2 mg/m ³	None known	IDLH: 500 mg/m ³ TWA: 1 mg/m ³ STEL: 3 mg/m ³
Sodium citrate, dihydrate 6132-04-3	None known	None known	None known
Ammonium chloride 12125-02-9	= 20 mg/m ³ STEL TWA: 10 mg/m ³	None known	TWA: 10 mg/m ³ STEL: 20 mg/m ³

NIOSH IDLH: Immediately Dangerous to Life or Health

Engineering Measures	Showers Eyewash stations Ventilation systems.
Personal protective equipment	
Eye/face Protection	Safety glasses with side-shields. If splashes are likely to occur, wear: Face-shield. Maintain eye wash and quick drench shower facilities in work area.
Skin and body protection	Wear protective gloves/clothing. Neoprene and nitrile rubber are recommended materials.
Respiratory protection	Use mechanical ventilation (fume hood). 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 skin, eyes and clothing. Wash hands and face before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Gray	Odor	Slight
Physical state	powder	pH	7 (0.1g/10mL water)
Flash point	Not Applicable	Autoignition temperature	no data available
Boiling Point/Range	no data available	freezing point	No information available

solubility	Partly soluble	evaporation rate	Not Applicable
Vapor pressure	no data available		

10. STABILITY AND REACTIVITY

stability	Stable under normal conditions of use and storage.
Incompatible Products	Strong acids. Strong oxidizing agents. Strong bases. Finely powdered metals.
Conditions to avoid	Exposure to air or moisture over prolonged periods. Excessive heat. Incompatible products.
Hazardous decomposition products	Hazardous decomposition products formed under fire conditions - carbon oxides (COx), nitrogen oxides (NOx), sodium oxides, hydrogen chloride gas. Cadmium oxides. Ammonia.
Hazardous polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product Information	Harmful if swallowed, inhaled, or absorbed through skin.
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Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known	None known
Sulfanilamide	3900 mg/kg (Rat)	None known	None known
Cadmium and compounds (as Cd)	2330 mg/kg (Rat)	None known	None known
Manganese sulfate monohydrate	None known	None known	None known
Sodium citrate, dihydrate	None known	None known	None known
Ammonium chloride	1410 mg/kg (Rat)	None known	None known

Chronic toxicity

Chronic toxicity	This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).
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Chemical name	ACGIH	IARC	NTP	OSHA
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known	None known	None known
Sulfanilamide	None known	None known	None known	None known
Cadmium and compounds (as Cd)	A2	Group 1	Known	X
Manganese sulfate monohydrate	None known	None known	None known	None known
Sodium citrate, dihydrate	None known	None known	None known	None known
Ammonium chloride	None known	None known	None known	None known

ACGIH: (American Conference of Governmental Industrial Hygienists)

A2 - Suspected Human Carcinogen

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

OSHA: (Occupational Safety & Health Administration)

X - Present

Endocrine Disruptor Information

Chemical name	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known	None known
Sulfanilamide	None known	None known	None known
Cadmium and compounds (as Cd)	None known	None known	None known
Manganese sulfate monohydrate	None known	None known	None known
Sodium citrate, dihydrate	None known	None known	None known
Ammonium chloride	None known	None known	None known

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Chemical name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known	None known	None known
Sulfanilamide	None known	None known	None known	None known
Cadmium and compounds (as Cd)	None known	LC50= 0.0013 mg/L Oncorhynchus mykiss 96 h	None known	EC50 = 9.9 µg/L 96 h
Manganese sulfate monohydrate	None known	None known	None known	None known
Sodium citrate, dihydrate	EC50 1800 - 3200 mg/L 96 h	LC50= 18000 mg/L Poecilia reticulata 96 h	None known	None known
Ammonium chloride	None known	LC50= 209 mg/L Cyprinus carpio 96 h	None known	EC50 = 202 mg/L 24 h
Chemical name	Log Pow			
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known			
Sulfanilamide	None known			
Cadmium and compounds (as Cd)	None known			
Manganese sulfate monohydrate	None known			
Sodium citrate, dihydrate	None known			
Ammonium chloride	None known			

13. DISPOSAL CONSIDERATIONS**Waste Disposal Method**

Dispose of in accordance with local regulations. Should not be released into the environment.

Contaminated packaging

Dispose of in accordance with local regulations.

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
N-(1-Naphthyl)ethylenediamine dihydrochloride - 1465-25-4	None known	None known	None known	None known
Sulfanilamide - 63-74-1	None known	None known	None known	None known
Cadmium and compounds (as Cd) - 7440-43-9	None known	None known	None known	None known
Manganese sulfate monohydrate - 10034-96-5	None known	None known	None known	None known

Sodium citrate, dihydrate - 6132-04-3	None known	None known	None known	None known
Ammonium chloride - 12125-02-9	None known	None known	None known	None known

14. TRANSPORT INFORMATION

DOT

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

IATA

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

IMDG/IMO

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

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4 (<1)	Present	X	X	ENCS	X	KECL	X	X
Sulfanilamide 63-74-1 (<2)	Present	X	X	3-1913; 3-1973; 3-2179	X	KE-01188	X	X
Cadmium and compounds (as Cd) 7440-43-9 (2.68)	Present	X	X	ENCS	X	KE-04397	X	X
Manganese sulfate monohydrate 10034-96-5 (10)	TSCA	DSL	EINECS/ELINCS	ENCS	X	KECL	X	X
Sodium citrate, dihydrate 6132-04-3 (30-40)	TSCA	DSL	EINECS/ELINCS	ENCS	X	KECL	X	X
Ammonium chloride 12125-02-9 (45-55)	Present	X	X	1-218	X	KE-01645	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 %
N-(1-Naphthyl)ethylenediamine dihydrochloride	1465-25-4	<1	None known
Sulfanilamide	63-74-1	<2	None known

Cadmium and compounds (as Cd)	7440-43-9	2.68	0.1
Manganese sulfate monohydrate	10034-96-5	10	1.0
Sodium citrate, dihydrate	6132-04-3	30-40	None known
Ammonium chloride	12125-02-9	45-55	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

Clean Water Act

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

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4 (<1)	None known	None known	None known	None known
Sulfanilamide 63-74-1 (<2)	None known	None known	None known	None known
Cadmium and compounds (as Cd) 7440-43-9 (2.68)	None known	X	X	None known
Manganese sulfate monohydrate 10034-96-5 (10)	None known	None known	None known	None known
Sodium citrate, dihydrate 6132-04-3 (30-40)	None known	None known	None known	None known
Ammonium chloride 12125-02-9 (45-55)	5000 lb	None known	None known	X

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

Chemical name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
N-(1-Naphthyl)ethylenediamine dihydrochloride	1465-25-4	<1	None known	None known	None known	None known
Sulfanilamide	63-74-1	<2	None known	None known	None known	None known
Cadmium and compounds (as Cd)	7440-43-9	2.68	Present (includes any unique chemical substance that contains Cadmium as part of its infrastructure)	None known	None known	None known
Manganese sulfate monohydrate	10034-96-5	10	Present (includes any unique chemical substance that contains Manganese as part of its infrastructure)	None known	None known	None known
Sodium citrate, dihydrate	6132-04-3	30-40	None known	None known	None known	None known
Ammonium chloride	12125-02-9	45-55	None known	None known	None known	None known

CERCLA

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known
Sulfanilamide	None known	None known
Cadmium and compounds (as Cd)	10 lb	None known
Manganese sulfate monohydrate	None known	None known
Sodium citrate, dihydrate	None known	None known
Ammonium chloride	5000 lb	None known

U.S. State Regulations

California Proposition 65

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

Chemical name	CAS-No	California Prop. 65
N-(1-Naphthyl)ethylenediamine dihydrochloride	1465-25-4	None known
Sulfanilamide	63-74-1	None known
Cadmium and compounds (as Cd)	7440-43-9	Carcinogen Developmental Male Reproductive
Manganese sulfate monohydrate	10034-96-5	None known
Sodium citrate, dihydrate	6132-04-3	None known
Ammonium chloride	12125-02-9	None known

Chemical name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known	None known	None known	None known
Sulfanilamide	None known	None known	None known	None known	None known
Cadmium and compounds (as Cd)	X	X	X	X	X
Manganese sulfate monohydrate	None known	X	X	X	None known
Sodium citrate, dihydrate	None known	None known	None known	None known	None known
Ammonium chloride	X	X	X	None known	X

International Regulations

Mexico - Grade

Chemical name	Carcinogen Status	Exposure Limits
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known
Sulfanilamide	None known	None known
Cadmium and compounds (as Cd)	A2	Mexico: TWA= 0.002 mg/m ³
Manganese sulfate monohydrate	None known	Mexico: TWA= 0.2 mg/m ³
Sodium citrate, dihydrate	None known	None known
Ammonium chloride	None known	Mexico: TWA= 10 mg/m ³

CANADA

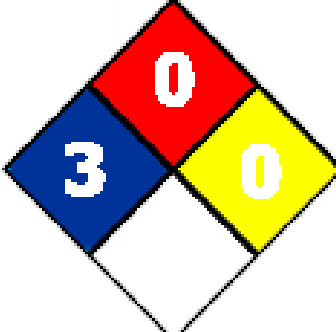


This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

Component	WHMIS Hazard Class
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4 (<1)	Not Determined
Sulfanilamide 63-74-1 (<2)	Not Determined
Cadmium and compounds (as Cd) 7440-43-9 (2.68)	0.1 % D1A D2A
Manganese sulfate monohydrate 10034-96-5 (10)	1 % D2B
Sodium citrate, dihydrate 6132-04-3 (30-40)	Uncontrolled product according to WHMIS classification criteria
Ammonium chloride 12125-02-9 (45-55)	1 % D2B



Chemical name	NPRI
Cadmium and compounds (as Cd)	X

16. OTHER INFORMATION

NFPA	HMIS	PPE	Transport Symbol						
	<table border="1"> <tr> <td data-bbox="509 275 727 317">Health Hazard</td> <td data-bbox="730 275 808 317">3</td> </tr> <tr> <td data-bbox="509 321 727 363">Fire Hazard</td> <td data-bbox="730 321 808 363">0</td> </tr> <tr> <td data-bbox="509 367 727 409">Reactivity</td> <td data-bbox="730 367 808 409">0</td> </tr> </table>	Health Hazard	3	Fire Hazard	0	Reactivity	0		
Health Hazard	3								
Fire Hazard	0								
Reactivity	0								

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 Disclaimer

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

End of MSDS