

Issuing Date 4/25/2011

Revision Number 0

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Hardness Buffer Reagent
Product Code(s)	4255
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! POISON!****Emergency Overview**

Corrosive

Liquid and mist cause severe burns to all body tissue
Inhalation may cause coughing, chest pains, damage to lungs
May be fatal if inhaled or swallowed

Appearance Clear, colorless**Physical State** Liquid**Odor** Pungent, Ammonia

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	Corrosive to the eyes and may cause severe damage including blindness. Vapor may cause irritation.
Skin	Contact with skin causes irritation and burns.
Inhalation	Inhalation of vapors can cause coughing, choking, inflammation of the upper respiratory tract; in higher concentrations, burns pulmonary edema, and death. Brief exposure to 5000ppm can be fatal.
Ingestion	May be fatal if swallowed. Swallowing may cause severe burns of mouth, throat, and stomach. Scarring of tissues and death may result. Symptoms may include pain in mouth, chest, abdomen, coughing, vomiting, and collapse.
Chronic Effects	
	Repeated exposure may cause damage to the tissues of the mucous membranes, respiratory tract, eyes, and skin
Aggravated Medical Conditions	Respiratory disorders.
Environmental Hazard	See Section 12 for additional Ecological Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Ammonium chloride	12125-02-9	7
Ammonium hydroxide	1336-21-6	<57
Water, distilled	7732-18-5	to 100%

4. FIRST AID MEASURES

General Advice	Do not get in eyes, on skin, or on clothing. Do not breathe dust/fume/gas/mist/vapors/spray. Take off contaminated clothing and shoes immediately. Immediate medical attention is required.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Seek immediate medical attention/advice.
Skin Contact	Remove material from skin immediately. 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. Seek immediate medical attention/advice.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and contact emergency personnel. Call a physician immediately.
Ingestion	DO NOT INDUCE VOMITING. Drink plenty of water. Clean mouth with water. Never give anything by mouth to an unconscious person. Immediate medical attention is required.
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	Vapors are flammable.			
Flash Point	Not applicable			
Suitable Extinguishing Media	Water spray, dry chemical, carbon dioxide (CO ₂), or foam.			
Explosion Data				
Specific Hazards Arising from the Chemical	Closed containers may explode when heated.			
NFPA	Health Hazard 3	Flammability 1	Stability 0	Physical and Chemical Hazards N/A
HMIS	Health Hazard 3	Flammability 0	Stability 1	

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	Dike to collect large liquid spills. 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). Do not flush to sewer.
Methods for Cleaning Up	Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Keep in suitable and closed containers for disposal.
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 or spray mist. Do NOT mix with acids.
Storage	Keep containers tightly closed in a dry, cool, and well-ventilated place. Store below 25°C (77°F). Keep away from heat and incompatibles. Protect from sunlight. Keep out of the reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
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
Ammonium hydroxide 1336-21-6	None Known	None Known	None Known
Water, distilled 7732-18-5	None Known	None Known	None Known

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). If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection with *Ammonia* cartridges should be worn.

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	Clear, colorless	Odor	Pungent, Ammonia
Physical State	Liquid	pH	11
Flash Point	Not applicable	Autoignition Temperature	651°C (1204°F) for Ammonium Hydroxide
Boiling Point/Range	ca. 36°C / 97°F for Ammonium Hydroxide	Freezing Point	No information available
		Flammability Limits in Air	For Ammonium Hydroxide
		Upper	16%
		Lower	25%
Solubility	Soluble	Evaporation Rate	No data available
Vapor Pressure	No data available	Vapor Density	0.60 NH ₃ (Air = 1)

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions of use and storage.
Incompatible Products	Strong acids. Metals. Sodium hypochlorite.
Conditions to Avoid	Ignitions sources - heat, sparks and open flames. Direct sunlight. Incompatible products.
Hazardous Decomposition Products	Burning may produce: Ammonia. Nitrogen oxides (NOx).
Hazardous Polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

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

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ammonium chloride	1410 mg/kg (Rat)	None Known	None Known
Ammonium hydroxide	350 mg/kg (Rat)	None Known	None Known
Water, distilled	None Known	None Known	None Known

Chronic Toxicity

Chronic Toxicity Repeated exposure may cause damage to the tissues of the mucous membranes, respiratory tract, eyes, and skin.

Chemical Name	ACGIH	IARC	NTP	OSHA
Ammonium chloride	None Known	None Known	None Known	None Known
Ammonium hydroxide	None Known	None Known	None Known	None Known
Water, distilled	None Known	None Known	None Known	None Known

Chemical Name	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Ammonium chloride	None Known	None Known	None Known
Ammonium hydroxide	None Known	None Known	None Known
Water, distilled	None Known	None Known	None Known

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Ammonium chloride	None Known	LC50= 209 mg/L Cyprinus carpio 96 h	None Known	EC50 = 202 mg/L 24 h
Ammonium hydroxide	None Known	LC50= 8.2 mg/L Pimephales promelas 96 h	None Known	EC50 = 0.66 mg/L 48 h
Water, distilled	None Known	None Known	None Known	None Known

Bioaccumulation/Accumulation This material is not expected to significantly bioaccumulate.

Chemical Name	Log Pow
Ammonium chloride	None Known
Ammonium hydroxide	None Known
Water, distilled	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
Ammonium chloride - 12125-02-9	None Known	None Known	None Known	None Known
Ammonium hydroxide - 1336-21-6	None Known	None Known	None Known	None Known
Water, distilled - 7732-18-5	None Known	None Known	None Known	None Known

14. TRANSPORT INFORMATION**DOT**

Proper Shipping Name	AMMONIA SOLUTION (With >10% - <35% AMMONIA)
Hazard Class	8
UN-No	2672
Packing Group	III
Reportable Quantity (RQ)	1000lb for Ammonium hydroxide, 5000lb Ammonium chloride

IATA

UN-No	2672
Proper Shipping Name	AMMONIA SOLUTION (With >10% - <35% AMMONIA)
Hazard Class	8
Packing Group	III

IMDG/IMO

Proper Shipping Name	AMMONIA SOLUTION (With >10% - <35% AMMONIA)
Hazard Class	8
UN-No	2672
Packing Group	III

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Ammonium chloride 12125-02-9 (7)	Present	X	X	1-218	X	KE-01645	X	X
Ammonium hydroxide 1336-21-6 (<57)	Present	X	X	1-314	X	KE-01688	X	X
Water, distilled 7732-18-5 (to 100%)	Present	X	X	ENCS	X	KE-35400	X	X

U.S. Federal Regulations**SARA 313**

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

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Ammonium chloride	12125-02-9	7	1.0
Ammonium hydroxide	1336-21-6	<57	1.0
Water, distilled	7732-18-5	to 100%	None Known

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

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

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ammonium chloride 12125-02-9 (7)	5000 lb	None Known	None Known	X
Ammonium hydroxide 1336-21-6 (<57)	1000 lb	None Known	None Known	X
Water, distilled 7732-18-5 (to 100%)	None Known	None Known	None Known	None Known

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

This product does not contain any HAPs.

Chemical Name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Ammonium chloride	12125-02-9	7	None Known	None Known	None Known	None Known
Ammonium hydroxide	1336-21-6	<57	None Known	None Known	None Known	None Known
Water, distilled	7732-18-5	to 100%	None Known	None Known	None Known	None Known

CERCLA

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Ammonium chloride	5000 lb	None Known
Ammonium hydroxide	1000 lb	None Known

Water, distilled	None Known	None Known
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U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

Chemical Name	CAS-No	California Prop. 65
Ammonium chloride	12125-02-9	None Known
Ammonium hydroxide	1336-21-6	None Known
Water, distilled	7732-18-5	None Known

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ammonium chloride	X	X	X	None Known	X
Ammonium hydroxide	X	X	X	None Known	None Known
Water, distilled	None Known	None Known	None Known	None Known	None Known

International Regulations

Mexico - Grade

Chemical Name	Carcinogen Status	Exposure Limits
Ammonium chloride	None Known	Mexico: TWA= 10 mg/m ³
Ammonium hydroxide	None Known	None Known
Water, distilled	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.

Component	WHMIS Hazard Class
Ammonium chloride 12125-02-9 (7)	1 % D2B
Ammonium hydroxide 1336-21-6 (<57)	1 % E
Water, distilled 7732-18-5 (to 100%)	Uncontrolled product according to WHMIS classification criteria



16. OTHER INFORMATION

NFPA	HMIS	PPE	Transport Symbol						
	<table border="1"> <tr> <td>Health Hazard</td> <td>3</td> </tr> <tr> <td>Fire Hazard</td> <td>0</td> </tr> <tr> <td>Reactivity</td> <td>1</td> </tr> </table>	Health Hazard	3	Fire Hazard	0	Reactivity	1		
Health Hazard	3								
Fire Hazard	0								
Reactivity	1								

Prepared By Regulatory Affairs Department

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Revision Note
Initial Release

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