Safety data sheet according to U.S.A. Federal Hazcom 2012

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Code: **A0064**
Product name **Ammonium Chloride/ Ammonium Hydroxide Buffer**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use **For Laboratory Use Only**

1.3. Details of the supplier of the safety data sheet

Name **EXAXOL CHEMICAL CORPORATION**
Full address **14325,60 TH ST N**
District and Country **33760 CLEARWATER - FLORIDA**
US
Tel. 1-727-524-7732
Fax 1-727-532-8221
e-mail address **info@exaxol.com**

1.4. Emergency telephone number

For urgent inquiries refer to **1-800-255-3924**
ChemTel Inc.

SECTION 2. Hazards identification.

2.1. Classification of the substance or mixture.

The product is classified as hazardous pursuant to the provisions set forth in OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200).
The product thus requires a safety datasheet.
Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Classification and Hazard Statement.

Skin corrosion, category 1B	Causes severe skin burns and eye damage.
Serious eye damage, category 1	Causes serious eye damage.
Specific target organ toxicity - single exposure, category 3	May cause respiratory irritation.

Hazard pictograms:

Signal words: Danger

Hazard statements:

H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.

Precautionary statements:
Prevention:

P260	Do not breathe dust / fume / gas / mist / vapours / spray.
P264	Wash . . . thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves / protective clothing / eye protection / face protection.

Response:

P301+P330+P331	IF SWALLOWED: rinse mouth. Do not induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): take off immediately all contaminated clothing. Rinse skin with water / shower.
P304+P340	IF INHALED: remove person to fresh air and keep comfortable for breathing.

EXAXOL CHEMICAL CORPORATION

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SECTION 2. Hazards identification. ... / >>

P305+P351+P338	IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER / doctor / . . .
P321	Specific treatment (see . . . on this label).
P363	Wash contaminated clothing before reuse.

Storage:

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal:

P501	Dispose of contents / container to . . .

2.2. Other hazards.

Environmental classification as for Reg. (EU) 1272/2008 (CLP):

The product is classified as hazardous for environment pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP).

Classification and Hazard Statement.

Hazardous to the aquatic environment, acute toxicity, category 1	Very toxic to aquatic life.

Hazard pictograms:

Signal words: Warning

Hazard statements:

H400	Very toxic to aquatic life.

Precautionary statements:
Prevention:

P273	Avoid release to the environment.

Response:

P391	Collect spillage.
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Storage:

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Disposal:

P501	Dispose of contents / container to . . .
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Additional hazards.

SECTION 3. Composition/information on ingredients.

3.1. Substances.

Information not relevant.

3.2. Mixtures.

Contains:

Identification.	**Conc. %.**	**Classification:**
AMMONIA		
CAS. 1336-21-6	50 - 100	Skin corrosion, category 1B H314, Specific target organ toxicity - single exposure, category 3 H335, Hazardous to the aquatic environment, acute toxicity, category 1 H400 M=1
WATER		
CAS. 7732-18-5	30 - 50	

SECTION 3. Composition/information on ingredients. ... / >>

AMMONIUM CHLORIDE
CAS. 12125-02-9 5 - 9 Acute toxicity, category 4 H302, Eye irritation, category 2 H319

Note: Upper limit is not included into the range.
The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures.

4.1. Description of first aid measures.
EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.
INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.
INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

4.2. Most important symptoms and effects, both acute and delayed.
For symptoms and effects caused by the contained substances, see chap. 11.

4.3. Indication of any immediate medical attention and special treatment needed.
Information not available.

SECTION 5. Firefighting measures.

5.1. Extinguishing media.
SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
None in particular.

5.2. Special hazards arising from the substance or mixture.
HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Do not breathe combustion products.

5.3. Advice for firefighters.
GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health.
Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures.

6.1. Personal precautions, protective equipment and emergency procedures.
Block the leakage if there is no hazard.
Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions.
The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up.
Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.
Make sure the leakage site is well aired. Check incompatibility for container material in section 7. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections.
Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage.

7.1. Precautions for safe handling.
Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities.
Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s).
Information not available.

SECTION 8. Exposure controls/personal protection.

8.1. Control parameters.

Regulatory References:

USA	NIOSH-REL	NIOSH publication No. 2005-149, 3th printing, 2007.
USA	CAL/OSHA-PEL	California Division of Occupational Safety and Health (Cal-OSHA) Permissible Exposure Limits (PELs).
	TLV-ACGIH	ACGIH 2014

AMMONIA

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
TLV-ACGIH	-	17	25	24	35

AMMONIUM CHLORIDE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
TLV-ACGIH	-	10		20	
CAL/OSHA	USA	10		20	
NIOSH	USA	10		20	

8.2. Exposure controls.

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your chemical substance supplier for advice.
Personal protective equipment must comply with current regulations.
Provide an emergency shower with face and eye wash station.
HAND PROTECTION
Protect hands with category III work gloves (OSHA 29 CFR 1910.138).
The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.
The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.
SKIN PROTECTION
Wear category II professional long-sleeved overalls and safety footwear (see Directive 89/686/EEC and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.
EYE PROTECTION
Wear airtight protective goggles (OSHA 29 CFR 1910.133).
RESPIRATORY PROTECTION
If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a NIOSH certified filter, whose class must be chosen according to the limit of use concentration (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

SECTION 8. Exposure controls/personal protection. ... / >>

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus or external air-intake breathing apparatus. For a correct choice of respiratory protection device, see standard NIOSH 42 CFR 84 and OSHA 29 CFR 1910.134.
ENVIRONMENTAL EXPOSURE CONTROLS.
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.
Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

SECTION 9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance		Not available.	
Colour		Not available.	
Odour		Not available.	
Odour threshold.		Not available.	
pH.		Not available.	
Melting point / freezing point.		Not available.	
Initial boiling point.		Not available.	
Boiling range.		Not available.	
Flash point.	>	93 °C.	(199.4 °F)
Evaporation Rate		Not available.	
Flammability of solids and gases		Not available.	
Lower inflammability limit.		Not available.	
Upper inflammability limit.		Not available.	
Lower explosive limit.		Not available.	
Upper explosive limit.		Not available.	
Vapour pressure.		Not available.	
Vapour density		Not available.	
Relative density.		Not available.	
Solubility		Not available.	
Partition coefficient: n-octanol/water		Not available.	
Auto-ignition temperature.		Not available.	
Decomposition temperature.		Not available.	
Viscosity		Not available.	
Explosive properties		Not available.	
Oxidising properties		Not available.	

9.2. Other information.
Information not available.

SECTION 10. Stability and reactivity.

10.1. Reactivity.
There are no particular risks of reaction with other substances in normal conditions of use.

AMMONIA: corrodes aluminium, iron, zinc, copper and their alloys.

10.2. Chemical stability.
The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions.
No hazardous reactions are foreseeable in normal conditions of use and storage.

AMMONIA: risk of explosion on contact with strong acids and iodine. Can react dangerously with strong bases .

10.4. Conditions to avoid.
None in particular. However the usual precautions used for chemical products should be respected.

AMMONIUM CHLORIDE: moisture and sources of heat.

10.5. Incompatible materials.
AMMONIA: silver, lead, zinc and their salts; hydrochloric acid, nitric acid, oleum, halogens, acrolein, nitromethane and acrylic acid.
AMMONIUM CHLORIDE: Water, bromine trifluoride and pentafluoride, iodine heptafluoride, potassium chlorate, alkalis, alkaline carbonates, acids, lead and silver salts.

SECTION 10. Stability and reactivity. ... / >>

10.6. Hazardous decomposition products.
AMMONIA: nitric oxides.
AMMONIUM CHLORIDE: nitric oxide, ammonia and hydrochloric acid.

SECTION 11. Toxicological information.

11.1. Information on toxicological effects.
In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

This product is corrosive and causes serious burns and vesicles on the skin, which can arise even after exposure. Burns are very stinging and painful. Upon contact with eyes, it may cause serious harm, such as cornea opacity, iris lesions, irreversible eye coloration. The vapors and/or powders are caustic for the respiratory system and may cause pulmonary edema, whose symptoms sometimes arise only after some hours.
Exposure symptoms may include: sting, cough, asthma, laryngitis, respiratory disorders, headache, nausea and sickness.
If swallowed, it may cause mouth, throat and oesophagus burns, sickness, diarrhoea, edema, larynx swelling and, consequently, asphyxia.
Perforation of the gastro-intestinal tract is also possible.
This product may cause serious ocular lesions, cornea opacity, iris lesions, irreversible eye coloration.
Acute effects: inhalation of this product may irritate the lower and upper respiratory tract and cause cough and respiratory disorders; at higher concentrations it can also cause pulmonary edema. Ingestion may cause health problems, including stomach pain and sting, nausea and sickness.

AMMONIA
LD50 (Oral). 350 mg/kg Rat

AMMONIUM CHLORIDE
LD50 (Oral). 1410 mg/kg Rat

SECTION 12. Ecological information.

This product is dangerous for the environment and highly toxic for aquatic organisms.

12.1. Toxicity.

AMMONIA
LC50 - for Fish. 47 mg/l/96h Channa punctata
EC50 - for Crustacea. 20 mg/l/48h Daphnia magna

12.2. Persistence and degradability.

AMMONIA
Biodegradability: Information not available.

AMMONIUM CHLORIDE
Solubility in water. > 10000 mg/l
Biodegradability: Information not available.

12.3. Bioaccumulative potential.
Information not available.

12.4. Mobility in soil.
Information not available.

12.5. Results of PBT and vPvB assessment.

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects.

Information not available.