



TETRA AMMONIUM CHLORIDE SOLUTION

This MSDS complies with the style format specified by ANSI Z400 1-1993

SECTION 1: CHEMICAL PRODUCT - COMPANY IDENTIFICATION

TETRA Technologies, Inc. (281) 367-1983
25025 I-45 North (800) 327-7817
The Woodlands, Texas 77380

(800) 424-9300 CHEMTREC (24-Hour Emergency Response)
(800) 222-1222 POISON CONTROL

SUBSTANCE: Ammonium Chloride Solution
TRADE NAME/SYNONYM: Sal Ammoniac
CHEMICAL FAMILY: Inorganic Salt
MSDS CREATION DATE: 07 MAR 96
MSDS REVISION DATE: 10 MAR 04

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	RTECS NUMBER	PERCENTAGE
Ammonium Chloride	12125-02-9	BP4550000	1-27%
Water	7732-18-5		73-99%

PROBABLE CONTAMINANT: Trace Sodium Chloride

SECTION 3: HAZARDS IDENTIFICATION

NFPA RATINGS: (SCALE 0-4): HEALTH=1 FIRE=0 REACTIVITY=0

EMERGENCY OVERVIEW: Odorless, colorless liquid. Causes respiratory tract and eye irritation. Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation.

POTENTIAL HEALTH EFFECTS:

INHALATION: May cause irritation.
SKIN CONTACT: May cause irritation.
EYE CONTACT: May cause irritation.
INGESTION: May cause nausea and vomiting.

CARCINOGEN STATUS:

OSHA: No **NTP:** No **IARC:** No

SECTION 4: FIRST AID MEASURES

INHALATION: Remove to fresh air immediately. Get medical attention.
SKIN CONTACT: Remove contaminated clothing. Wash affected area with large amounts of soap and water.
EYE CONTACT: Flush with large amounts of water. Get medical attention.
INGESTION: If conscious, give large amounts of water. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARD: Negligible fire hazard when exposed to heat or flame.

EXTINGUISHING MEDIA: Extinguish using agent suitable for type of surrounding fire.

FIREFIGHTING: No acute hazard. Move container from fire area if you can do it without risk. Avoid breathing



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vapors or dusts; keep upwind.

HAZARDOUS COMBUSTION PRODUCTS: Thermal decomposition products may include toxic fumes of ammonia, hydrogen chloride, chlorine, and nitrogen oxides.

SECTION 6: ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL SPILL: Do not touch spilled material. Stop leak if you can do it without risk. For small spills, take up with sand or other absorbent material and place into containers for disposal. For larger spills, dike ahead of spill for later disposal. Restrict entry.

REPORTABLE QUANTITY (RQ): 5,000 pounds (2,270 kg) of ammonium chloride (100%)

If the release of this substance is reportable under CERCLA Section 103, the National Response Center must be notified immediately at (800) 424-8802 or (202) 426-2675 in the metropolitan Washington, D.C. area (40 CFR 302.6).

SOIL SPILL: Dig a holding area for containment. Dike flow of spilled material using soil or sandbags or concrete. Use cement powder or fly ash to absorb liquid mass. Neutralize spill with suitable agent.

WATER SPILL: Add suitable agent to neutralize spilled material to pH 7. Use mechanical dredges or lifts to extract immobilized masses of pollution and precipitates.

SECTION 7: HANDLING AND STORAGE

Observe all federal, state, and local regulations when storing this substance. Protect against physical damage. Store in a cool, dry location in a tightly closed container away from incompatible substances.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS: AMMONIUM CHLORIDE

Established by OSHA/ACGIH/NIOSH:

ACGIH TWA (fume) / NIOSH 10 hr TWA (fume)	ACGIH STEL (fume) / NIOSH STEL (fume)
10 mg/m ³	20 mg/m ³

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

VENTILATION: Provide local exhaust ventilation system to meet published exposure limits.

EYE PROTECTION: Safety glasses/goggles with splash shields.

EMERGENCY WASH FACILITIES: Where there is possibility of exposure, the employer should provide an eye wash fountain and a safety shower within the immediate work area for emergency use

GLOVES/CLOTHING: Chemical resistant gloves and clothing.

RESPIRATOR: None required where adequate ventilation conditions exists. If airborne concentration is high, use an appropriate respirator.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in positive pressure mode.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

DESCRIPTION:

Odorless, clear liquid

MOLECULAR WEIGHT:

53.49 for pure ammonium chloride

MOLECULAR FORMULA:

NH₄Cl in water

SPECIFIC GRAVITY:

1.01 - 1.12 @ 20° C

WATER SOLUBILITY:

Miscible with water in all proportions

pH:

5.5 @ 1% solution

SOLVENT SOLUBILITY:

Miscible with methanol, ethanol, glycerol



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SECTION 10: STABILITY AND REACTIVITY

REACTIVITY: Stable under normal temperatures and pressures.

CONDITIONS TO AVOID: Moisture and heat.

INCOMPATIBILITIES: strong oxidizing agents, strong bases, most common metals, lead and silver compounds.

HAZARDOUS DECOMPOSITION: Thermal decomposition products may include toxic fumes of ammonia, hydrogen chloride, chlorine, and nitrogen oxides.

POLYMERIZATION: Has not been reported to occur under normal temperatures and pressures.

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICITY DATA: No data are available for Ammonium Chloride solution. The data listed below are for pure ammonium chloride and for reference only..

Ammonium Chloride 100%

LD₅₀: 1,650 mg/kg, oral, rat

LD₅₀: 485 mg/kg, ipr, mouse

CARCINOGEN STATUS: None

LOCAL EFFECTS: Irritant - inhalation, eye, skin

ACUTE TOXICITY LEVEL: Moderately toxic by ingestion

SECTION 12: ECOLOGICAL INFORMATION

Ammonium Chloride 100% - Highly toxic to aquatic life.

SECTION 13: DISPOSAL INFORMATION:

Observe all federal, state and local regulations when disposing of this liquid.

SECTION 14: TRANSPORT INFORMATION

Shipping Class 9: Not regulated by DOT as hazardous material in containers less than 5000 lbs of 100% Ammonium Chloride

Shipping Name-ID: RQ, Environmentally Hazardous Substance, Liquid, n.o.s. (contains Ammonium Chloride), UN 3082

Packing Group: III

Labeling Requirements: Environmental Hazardous Substance, Liquid, n.o.s. (contains Ammonium Chloride)

US DOT Vessel Stowage Requirements: A

US DOT Emergency Guide Number: 31

SECTION 15: REGULATORY INFORMATION

TSCA STATUS: Yes

EINECS STATUS: Yes

CERCLA SECTION 102a/103: Yes (5,000 pounds RQ-pure Ammonium Chloride)

SARA SECTIONS 302, 304, 313: No

SARA HAZARD CATEGORIES, SECTIONS 311/312

ACUTE HAZARD: Yes

OSHA Process Safety: No

California Proposition 65: No

SECTION 16: OTHER INFORMATION



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Individuals handling this product should be informed of the recommended safety precautions and should have access to this information.

This information relates to the specific product designated and may not be valid for such product used in combination with any other materials or in any other processes. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability, or completeness. It is the users' responsibility to satisfy themselves as to the suitability and completeness of such information for their own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.

TETRA Technologies, Inc. reserves the right to refuse shipment of this product to any consumer who fails to demonstrate the ability to consistently handle and use it safely and in compliance with all applicable laws, rules and regulations. Such demonstration may require on-site inspection of any or all storage, processing, packaging and other handling systems that come in contact with it.

Customers are responsible for compliance with local, state and federal regulations that may be pertinent in the storage, application and disposal of this product.