Ammonium Chloride Solution

Safety Data Sheet

SECTION 1: Identification

1.1. Product identifier

Product name : Ammonium Chloride Solution

1.2. Recommended use and restrictions on use

Manufacturing

1.3. Supplier

Zaclon LLC
2981 Independence Road
Cleveland, OH 44115
T 800-356-7327

1.4. Emergency telephone number

Emergency number : Chemtrec 1 800 424 9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS CAN/US)

Acute toxicity (oral) Category 4	H302
Serious eye damage/eye irritation Category 2	H319

2.2. GHS Label elements, including precautionary statements

GHS CAN/US labeling

Hazard pictograms :

Signal word : Warning

Hazard statements : H302 - Harmful if swallowed
H319 - Causes serious eye irritation

Precautionary statements : P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330 - Rinse mouth.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%
Water	CAS-No.: 7732-18-5	75 – 80
Ammonium chloride	CAS-No.: 12125-02-9	20 – 25

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If large amounts are inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

First-aid measures after skin contact : The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable.

First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

First-aid measures after ingestion : If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call a physician.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : None anticipated.

Symptoms/effects after skin contact : Causes severe burns.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : May be harmful if swallowed. May cause nausea, vomiting or acidosis if large amounts are ingested.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media : As appropriate for combustibles in area (Foam, Dry Chemical, and CO2). Water spray will reduce irritating fumes and gases.

5.2. Unsuitable extinguishing media

Unsuitable extinguishing media : None.

5.3. Specific hazards arising from the hazardous product

Fire hazard : If evaporated and overheated, 260-315°C (500-600°F), hydrogen chloride and ammonia gases may be released.

Explosion hazard : None known.

5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Evacuate personnel to a safe area. Cool tank/container with water spray.

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

6.2. Methods and materials for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Confine spill and soak up with absorbent. Place in an approved container and dispose in accordance with local, state and federal regulations.

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid breathing fumes. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a tightly closed container in a dry place.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ammonium chloride (12125-02-9)	
Canada (Alberta) - Occupational Exposure Limits	
OEL TWA	10 mg/m³ (fume)
OEL STEL	20 mg/m³ (fume)
Canada (Quebec) - Occupational Exposure Limits	
VECD (OEL STEV)	20 mg/m³ (fume)
VEMP (OEL TWAEV)	10 mg/m³ (fume)
Canada (British Columbia) - Occupational Exposure Limits	
OEL TWA	10 mg/m³ (fume)
OEL STEL	20 mg/m³ (fume)
Canada (Manitoba) - Occupational Exposure Limits	
OEL TWA	10 mg/m³ (fume)
OEL STEL	20 mg/m³ (fume)
Canada (New Brunswick) - Occupational Exposure Limits	
OEL TWA	10 mg/m³ (fume)
OEL STEL	20 mg/m³ (fume)
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
OEL TWA	10 mg/m³ (fume)
OEL STEL	20 mg/m³ (fume)

Canada (Nova Scotia) - Occupational Exposure Limits	
OEL TWA	10 mg/m³ (fume)
OEL STEL	20 mg/m³ (fume)
Canada (Nunavut) - Occupational Exposure Limits	
OEL TWA	10 mg/m³ (fume)
OEL STEL	20 mg/m³ (fume)
Canada (Northwest Territories) - Occupational Exposure Limits	
OEL TWA	10 mg/m³ (fume)
OEL STEL	20 mg/m³ (fume)
Canada (Ontario) - Occupational Exposure Limits	
OEL TWAEV	10 mg/m³ (fume)
	20 mg/m³ (fume)
Canada (Prince Edward Island) - Occupational Exposure Limits	
OEL TWA	10 mg/m³ (fume)
OEL STEL	20 mg/m³ (fume)
Canada (Saskatchewan) - Occupational Exposure Limits	
OEL TWA	10 mg/m³ (fume)
OEL STEL	20 mg/m³ (fume)
Canada (Yukon) - Occupational Exposure Limits	
OEL TWA	10 mg/m³ (fume)
OEL STEL	20 mg/m³ (fume)
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	10 mg/m³ (fume)
ACGIH OEL STEL	20 mg/m³ (fume)

8.2. Appropriate engineering controls

Appropriate engineering controls : Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

8.3. Individual protection measures/Personal protective equipment

Hand protection:
Use acid resistant gloves.

Eye protection:
Use safety glasses.

Skin and body protection:
Wear suitable working clothes

Respiratory protection:
If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Clear
Color	:	White
Odor	:	Odorless
Odor threshold	:	No data available
pH	:	3 – 6
Relative evaporation rate (butyl acetate=1)	:	No data available
Relative evaporation rate (ether=1)	:	No data available
Melting point	:	No data available
Freezing point	:	10°F (for 20%)/50°F (for 25%)
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	1.058 – 1.073
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Viscosity, kinematic	:	No data available
Explosion limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

Reactivity	:	No additional information available
Chemical stability	:	The product is stable at normal handling and storage conditions.
Possibility of hazardous reactions	:	Will not occur.
Conditions to avoid	:	None.
Incompatible materials	:	Incompatible with alkalis, strong oxidants, potassium chlorate.
Hazardous decomposition products	:	If evaporated, will decompose with heat, releasing hydrogen chloride and ammonia gases which partially reform ammonium chloride as a dust cloud or smoke.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Harmful if swallowed. Higher ingestion exposures may lead to non-specific discomfort, such as nausea or vomiting; or profound acidosis.
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

Ammonium Chloride Solution	
ATE CA (oral)	500 mg/kg body weight

Water (7732-18-5)	
LD50 oral rat	> 90 ml/kg

Ammonium chloride (12125-02-9)	
LD50 oral rat	1650 mg/kg

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Tests for mutagenic activity in bacterial or mammalian cell cultures have been inconclusive with positive results in some studies and negative results in others.

STOT-single exposure : Not classified

The compound is not a skin irritant and is not an eye irritant in animals. Toxic effects described in animals from short exposures by ingestion include effects on acid-base balance and water metabolism. Toxic effects in animals occurring only with inhalation exposures are lower respiratory irritation.

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short–term (acute) : Not classified

Hazardous to the aquatic environment, long–term (chronic) : Not classified

Ammonium chloride (12125-02-9)	
LC50 - Fish [1]	209 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])

12.2. Persistence and degradability

Ammonium Chloride Solution	
Persistence and degradability	Rapidly degradable

Water (7732-18-5)	
Persistence and degradability	Rapidly degradable

Ammonium chloride (12125-02-9)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

In accordance with TDG / DOT / IMDG / IATA

14.1. UN number

UN-No. (TDG) : UN3082
UN-No. (DOT) : UN3082
UN-No. (IMDG) : 3082
UN-No. (IATA) : 3082

14.2. UN proper shipping name

Proper Shipping Name (TDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains Ammonium Chloride)
Proper Shipping Name (DOT) : Environmentally hazardous substances, liquid, n.o.s. (Contains Ammonium Chloride)
Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Proper Shipping Name (IATA) : Environmentally hazardous substance, liquid, n.o.s.

14.3. Transport hazard class(es)

TDG

Transport hazard class(es) (TDG) : 9
Hazard labels (TDG) : 9
:

DOT

Transport hazard class(es) (DOT) : 9
Hazard labels (DOT) : 9
:

IMDG

Transport hazard class(es) (IMDG) : 9
Hazard labels (IMDG) : 9
:

IATA

Transport hazard class(es) (IATA) : 9
Hazard labels (IATA) : 9

: 

14.4. Packing group

Packing group (TDG)	:	III
Packing group (DOT)	:	III
Packing group (IMDG)	:	III
Packing group (IATA)	:	III

14.5. Environmental hazards

Dangerous for the environment	:	No
Other information	:	No supplementary information available.

14.6. Special precautions for user

TDG

UN-No. (TDG) : UN3082

TDG Special Provisions : 16 - (1) The technical name of at least one of the most dangerous substances that predominantly contributes to the danger or dangers posed by the dangerous goods must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(ii)(A). The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3).
(2) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical name:
(a) UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S;
(b) UN1851, MEDICINE, LIQUID, TOXIC, N.O.S;
(c) UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S;
(d) UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S; or
(e) UN3249, MEDICINE, SOLID, TOXIC, N.O.S.
(3) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a small means of containment:
(a) UN2814, INFECTIOUS SUBSTANCE, AFFECTING HUMANS; or
(b) UN2900, INFECTIOUS SUBSTANCE, AFFECTING ANIMALS,99 - (1) Mixtures of solids that are not dangerous goods and liquids or solids that are UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, or UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, may be offered for transport, handled or transported as UN3077 if there is no visible liquid when the dangerous goods are loaded into a means of containment and during transport.
(2) These Regulations, except for Parts 1 and 2, do not apply to the offering for transport, handling or transport of less than 450 kg of UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, or less than 450 L of UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, on a road vehicle or a railway vehicle. The dangerous goods must be contained in one or more small means of containment designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no release of the dangerous goods that could endanger public safety.

Explosive Limit and Limited Quantity Index : 5 L

Excepted quantities (TDG) : E1

DOT

UN-No. (DOT) : UN3082

DOT Special Provisions (49 CFR 172.102)	:	8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description “Other regulated substances, liquid or solid, n.o.s.”, as appropriate. In addition, for solid materials, special provision B54 applies. 146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination. 173 - An appropriate generic entry may be used for this material. 335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as “Environmentally hazardous substances, solid, n.o.s,” UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	155
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	203
DOT Packaging Bulk (49 CFR 173.xxx)	:	241
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	No limit
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	No limit
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.

IMDG

Special provision (IMDG)	:	274, 335, 969
Limited quantities (IMDG)	:	5 L
Excepted quantities (IMDG)	:	E1
Packing instructions (IMDG)	:	P001, LP01
Packing provisions (IMDG)	:	PP1
IBC packing instructions (IMDG)	:	IBC03
Tank instructions (IMDG)	:	T4
Tank special provisions (IMDG)	:	TP2, TP29
EmS-No. (Fire)	:	F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage)	:	S-F - SPILLAGE SCHEDULE Foxtrot - WATER-SOLUBLE MARINE POLLUTANTS
Stowage category (IMDG)	:	A

IATA

PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y964
PCA limited quantity max net quantity (IATA)	:	30kgG
PCA packing instructions (IATA)	:	964
PCA max net quantity (IATA)	:	450L
CAO packing instructions (IATA)	:	964
CAO max net quantity (IATA)	:	450L

Special provision (IATA)	:	A97, A158, A197
ERG code (IATA)	:	9L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Canada National regulations

Water (7732-18-5)

Listed on the Canadian DSL (Domestic Substances List)

Ammonium chloride (12125-02-9)

Listed on the Canadian DSL (Domestic Substances List)

15.2. US Federal regulations

Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ammonium chloride (12125-02-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.3. US State regulations

Component	State or local regulations
Ammonium chloride(12125-02-9)	U.S. - Massachusetts - Right To Know List; U.S. - Minnesota - Hazardous Substance List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.