

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

GHS-US/CAN classification

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

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US/CAN labelling

Hazard pictograms :



Signal word : Warning

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

Precautionary statements : P264 - Wash 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/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 in accordance with local/regional/national/international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-CAN classification	GHS-US classification
Water	(CAS No) 7732-18-5	75 - 80	Not classified	Not classified
Ammonium chloride	(CAS No) 12125-02-9	20 - 25	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Comb. Dust	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Comb. Dust

Full text of classification categories and H statements : see section 16

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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, both acute and delayed

- Symptoms/injuries after inhalation : None anticipated.
- Symptoms/injuries after skin contact : Causes severe burns.
- Symptoms/injuries after eye contact : Causes serious eye irritation.
- Symptoms/injuries after ingestion : May be harmful if swallowed. May cause nausea, vomiting or acidosis if large amounts are ingested.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : As appropriate for combustibles in area (Foam, Dry Chemical, and CO₂). Water spray will reduce irritating fumes and gases.
- Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : If evaporated and overheated, 260-315°C (500-600°F), hydrogen chloride and ammonia gases may be released.
- Explosion hazard : None known.

5.3. Advice for firefighters

- Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material 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.

6.4. Reference to other sections

No additional information available

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.

7.3. Specific end use(s)

Manufacturing

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ammonium chloride (12125-02-9)

USA - ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³ (fume)
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Ammonium chloride (12125-02-9)		
USA - ACGIH	ACGIH STEL (mg/m ³)	20 mg/m ³ (fume)
Canada (Quebec)	VECD (mg/m ³)	20 mg/m ³ (fume)
Canada (Quebec)	VEMP (mg/m ³)	10 mg/m ³ (fume)
Alberta	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
Alberta	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
British Columbia	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
British Columbia	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
Manitoba	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
Manitoba	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
New Brunswick	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
New Brunswick	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
New Foundland & Labrador	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
New Foundland & Labrador	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
Nova Scotia	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
Nova Scotia	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
Nunavut	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
Nunavut	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
Northwest Territories	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
Northwest Territories	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
Ontario	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
Ontario	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
Prince Edward Island	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
Prince Edward Island	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
Saskatchewan	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
Saskatchewan	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
Yukon	OEL STEL (mg/m ³)	20 mg/m ³ (fume)
Yukon	OEL TWA (mg/m ³)	10 mg/m ³ (fume)

8.2. Exposure controls

Appropriate engineering controls	: Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.
Hand protection	: None required during normal handling conditions.
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 (butylacetate=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
Self 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

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Specific gravity	: 1.058 - 1.073
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

None

10.5. Incompatible materials

Incompatible with alkalis, strong oxidants, potassium chlorate.

10.6. 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

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ATE (oral)	500.000 mg/kg bodyweight
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Water (7732-18-5)

LD50 oral rat	> 90 ml/kg
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Ammonium chloride (12125-02-9)

LD50 oral rat	1650 mg/kg
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Skin corrosion/irritation : Not classified

pH: 3 - 6

Serious eye damage/irritation : Causes serious eye irritation.

pH: 3 - 6

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.

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Specific target organ toxicity (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.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity : Not classified

Chronic aquatic toxicity : Not classified

Ammonium chloride (12125-02-9)

LC50 fish 1	209 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])
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12.2. Persistence and degradability

No additional information available

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

14.1. Basic shipping description

In accordance with TDG

TDG

UN-No. (TDG) : UN3082

Packing group : III - Minor Danger

TDG Primary Hazard Classes : 9 - Class 9 - Miscellaneous Products, Substances or Organisms

Transport document description : UN3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains Ammonium Chloride), 9, III

Proper Shipping Name (TDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Contains Ammonium Chloride

Hazard labels (TDG) : 9 - Miscellaneous dangerous substances and articles



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TDG Special Provisions

: 16 - 1) The technical name of the most dangerous substance related to the primary class must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(i)(A) of Part 3, Documentation. 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) of Part 4, Dangerous Goods Safety Marks.
2) 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: 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. An example in Canada is the "Food and Drugs Act".
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 handled, offered for transport or transported as UN3077 if there is no visible liquid when the dangerous goods are loaded into a means containment and during transport. (2) These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to the handling, offering for transport or transporting 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 accidental release of the dangerous goods that could endanger public safety. SOR/2014-306 UN3077, UN3082 SOR/2014-306

Explosive Limit and Limited Quantity Index : 5 L
Excepted quantities (TDG) : E1

14.2. Transport information/DOT

DOT

DOT NA no. : UN3082
UN-No.(DOT) : 3082
Packing group (DOT) : III - Minor Danger
DOT Symbols : G - Identifies PSN requiring a technical name
Transport document description : UN3082 Environmentally hazardous substances, liquid, n.o.s. (Contains Ammonium Chloride), 9, III
Proper Shipping Name (DOT) : Environmentally hazardous substances, liquid, n.o.s. (Contains Ammonium Chloride)
Contains Statement Field Selection (DOT) :
Class (DOT) : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140
Division (DOT) : 9
Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



Marine pollutant : • Marine pollutant
Dangerous for the environment : No

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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 leakproof 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.
Other information	: No supplementary information available.

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	: 3082
Proper Shipping Name (IMDG)	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport document description (IMDG)	: UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III
Class (IMDG)	: 9 - Miscellaneous dangerous substances and articles
Packing group (IMDG)	: III - substances presenting low danger

IATA

UN-No. (IATA)	: 3082
Proper Shipping Name (IATA)	: Environmentally hazardous substance, liquid, n.o.s.
Transport document description (IATA)	: UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III
Class (IATA)	: 9 - Miscellaneous Dangerous Goods
Packing group (IATA)	: III - Minor Danger

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

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15.3. US State 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

Full text of H-statements:

H302	Harmful if swallowed
H319	Causes serious eye irritation

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