

1. IDENTIFICATION

Product Name	Ammonium chloride
Other Names	Amchlor, Ammoneric; Ammonium muriate; Salmiac, Sal ammoniac
Uses	Industrial use.
Chemical Family	No Data Available
Chemical Formula	(NH ₄)Cl
Chemical Name	Ammonium chloride
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Not Scheduled

Globally Harmonised System

Hazard Classification	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
Hazard Categories	Acute Toxicity (Oral) - Category 4 Serious Eye Damage/Irritation - Category 2A



Pictograms



Signal Word

Warning

Hazard Statements

H302

Harmful if swallowed.

H319

Causes serious eye irritation.

Precautionary Statements

Prevention

P280

Wear eye protection/face protection.

P270

Do not eat, drink or smoke when using this product.

P264

Wash hands thoroughly after handling.

Response

P337 + P313

If eye irritation persists: Get medical advice/attention.

P301 + P312

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P330

Rinse mouth.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disposal

P501

Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification

NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Ammonium chloride	(NH ₄)Cl	12125-02-9	<=100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed

IF SWALLOWED: Rinse mouth, then drink plenty of water. Call a Poison Centre or doctor/physician if you feel unwell.

Eye

IF IN EYES: Rinse cautiously with water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.

Skin

IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.

Inhaled

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention.

Advice to Doctor

Treat symptomatically.

Medical Conditions Aggravated by Exposure

No information available.



5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with flooding quantities of water until well after fire is out.
Flammability Conditions	Non-combustible; Material does not burn.
Extinguishing Media	If material is involved in a fire, use dry chemical, Carbon dioxide, foam or water spray for extinction.
Fire and Explosion Hazard	In case of fire and/or explosion do not breathe fumes.
Hazardous Products of Combustion	Fire or heat will produce irritating, toxic and/or corrosive gases, including Nitrogen oxides, ammonia, Hydrogen chloride.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may pollute waterways. Contaminated extinguishing water must be disposed of in accordance with official regulations.
Personal Protective Equipment	Wear self-contained breathing apparatus (SCBA) in combination with normal firefighting clothing (fire kit).
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. Do not touch or walk through spilled material. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing.
Clean Up Procedures	Sweep/shovel up material and place it into suitable, closed containers for later disposal (see SECTION 13). Avoid raising dust.
Containment	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas.
Decontamination	Wash away remainder with plenty of water.
Environmental Precautionary Measures	Avoid release to the environment; Prevent entry into drains and waterways.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away; Keep upwind.
Personal Precautionary Measures	Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid handling which leads to dust formation. Avoid breathing dust and contact with eyes, skin and clothing. Use personal protective equipment as required (see SECTION 8).
Storage	Store in a cool, dry and well-ventilated place. Keep container tightly closed when not in use - Check regularly for leaks. Protect against moisture. Keep away from incompatible materials (nitrites, nitrates, oxidising agents, strong acids, bases).
Container	Keep in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	Ammonium chloride (fume): - Safe Work Australia Exposure Standard: TWA = 10 mg/m ³ ; STEL = 20 mg/m ³ . - New Zealand WES: TWA = 10 mg/m ³ ; STEL = 20 mg/m ³ . - OSHA PEL/NIOSH REL: TWA = 10 mg/m ³ ; STEL = 20 mg/m ³ .
Exposure Limits	No Data Available



Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	Respiratory protection: For nuisance exposures, use type P1 particulate respirator; For higher level protection, use combination type ABEK-P2 respirator cartridges. Use respirators and components tested and approved under appropriate government standards. Eye/face protection: Wear eye protection/face protection. Recommended: Safety glasses with side-shields. Use equipment for eye protection tested and approved under appropriate government standards. Use respirators and components tested and approved under appropriate government standards. Hand protection: Handle with gloves. Recommended: Chemical-resistant gloves, e.g. rubber, plastic. Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Apron, protective boots; chemical-protective suit (in case of splashes/dust). Body protection must be chosen depending on activity and possible exposure.
Special Hazards Precautions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of workday. Wash contaminated clothing and other protective equipment before storage or re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystalline powder, granules
Odour	Almost odourless
Colour	White
pH	4.7 (200 g/L) (25 °C)
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	Decomposes
Melting Point	338 °C (decomposes)
Freezing Point	No Data Available
Solubility	372 g/L water 20°C
Specific Gravity	No Data Available
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	600 - 900 kg/m ³
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	1.53 g/cm ³
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	Hygroscopic: absorbs moisture or water from surrounding air. The solution in water is a weak acid.
Potential for Dust Explosion	No information available.



Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible; Material does not burn.
Reactions That Release Gases or Vapours	Fire or heat will produce irritating, toxic and/or corrosive gases, including Nitrogen oxides, ammonia, Hydrogen chloride.
Release of Invisible Flammable Vapours and Gases	Reacts violently with ammonium nitrate and potassium chlorate causing fire and explosion hazard.

10. STABILITY AND REACTIVITY

General Information	Reacts violently with oxidising agents, ammonium nitrate and potassium chlorate causing fire and explosion hazard.
Chemical Stability	Stable under recommended storage conditions.
Conditions to Avoid	To avoid thermal decomposition, do not overheat. Avoid dust formation. Protect from moisture.
Materials to Avoid	Incompatible/reactive with strong acids, strong bases, strong oxidizing agents, nitrites, nitrates. Attacks copper and its compounds.
Hazardous Decomposition Products	Fire or heat will produce irritating, toxic and/or corrosive gases, including Nitrogen oxides, ammonia, Hydrogen chloride.
Hazardous Polymerisation	No information available.

11. TOXICOLOGICAL INFORMATION

General Information	<p>Information on possible routes of exposure:</p> <ul style="list-style-type: none"> - Ingestion: Harmful if swallowed. Swallowing can result in nausea, vomiting, diarrhoea, and gastrointestinal irritation. - Inhalation: Dust may cause respiratory irritation, cough, sore throat. When used at elevated temperatures, vapours/fume may cause irritation of the respiratory tract (mucous membranes), headache, nausea. - Skin contact: May cause skin irritation, redness. Not sensitising to the skin. - Eye contact: Causes serious eye irritation, redness, pain. <p>Chronic/CMR effects: Not expected to be carcinogenic; Not genotoxic (weight of evidence); Not expected to be a reproductive or developmental toxin.</p>
Acute	
Ingestion	<p>Acute toxicity (Oral):</p> <ul style="list-style-type: none"> - LD50, Rat: 1,410 mg/kg - LD50, Rat: 1,650 mg/kg
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	<p>Aquatic toxicity:</p> <ul style="list-style-type: none"> - LC50, Fish (Oncorhynchus mykiss): 42.91 mg/L (96 h). - LC50, Fish (Prosopium williamsoni): 46.27 mg/L (96 h). - EC50, Invertebrates (Daphnia magna): 136.6 mg/L (48 h) [static]. <p>The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.</p> <ul style="list-style-type: none"> - EC50, Invertebrates: (Ceriodaphnia dubia): 98.5 mg/L (48 h) [static].
Persistence/Degradability	Inorganic product which cannot be eliminated from water by biological purification processes. Can be oxidized to nitrate, or reduced to nitrogen, by microorganisms.
Mobility	<p>Adsorption to solid soil phase is possible.</p> <p>Avoid release to the environment; Prevent entry into drains and waterways.</p>



Environmental Fate

Bioaccumulation Potential Accumulation in organisms is not to be expected.

Environmental Impact No Data Available

13. DISPOSAL CONSIDERATIONS

General Information Dispose of contents/container in accordance with local/regional/national regulations. Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Special Precautions for Land Fill Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name	AMMONIUM CHLORIDE
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Sea Transport

IMDG Code

Proper Shipping Name	AMMONIUM CHLORIDE
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No

Air Transport

IATA DGR

Proper Shipping Name	AMMONIUM CHLORIDE
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available



National Transport Commission (Australia)

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Dangerous Goods Classification

NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information No Data Available
Poisons Schedule (Aust) Not Scheduled

National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	235-186-4
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes

AMCHLF1000, AMCHLF1001, AMCHLF1002, AMCHLF1003, AMCHLF1004, AMCHLF2000, AMCHLF3000, AMCHLF3010, AMCHLF4000, AMCHLF5000, AMCHLF5100, AMCHLF6000, AMCHLF6003, AMCHLF6004, AMCHLF6100, AMCHLF6200, AMCHLF6201, AMCHLF6500, AMCHLO0200, AMCHLO0300, AMCHLO0400, AMCHLO0401, AMCHLO0500, AMCHLO0501, AMCHLO0600, AMCHLO0700, AMCHLO0800, AMCHLO0900, AMCHLO1000, AMCHLO1001, AMCHLO1002, AMCHLO1003, AMCHLO1004, AMCHLO1005, AMCHLO1006, AMCHLO1007, AMCHLO1008, AMCHLO1009, AMCHLO1010, AMCHLO1011, AMCHLO1012, AMCHLO1013, AMCHLO1014, AMCHLO1015, AMCHLO1016, AMCHLO1017, AMCHLO1018, AMCHLO1019, AMCHLO1020, AMCHLO1021, AMCHLO1022, AMCHLO1023, AMCHLO1024, AMCHLO1025, AMCHLO1026, AMCHLO1027, AMCHLO1028, AMCHLO1029, AMCHLO1030, AMCHLO1031, AMCHLO1035, AMCHLO1036, AMCHLO1038, AMCHLO1039, AMCHLO1040, AMCHLO1043, AMCHLO1044, AMCHLO1045, AMCHLO1100, AMCHLO1101, AMCHLO1102, AMCHLO1200, AMCHLO1201, AMCHLO1202, AMCHLO1300, AMCHLO1301, AMCHLO1400,



AMCHLO1401, AMCHLO1500, AMCHLO1501, AMCHLO1502, AMCHLO1503, AMCHLO1510, AMCHLO1511, AMCHLO1550, AMCHLO1600, AMCHLO1601, AMCHLO1602, AMCHLO1700, AMCHLO1701, AMCHLO1702, AMCHLO1710, AMCHLO1715, AMCHLO1717, AMCHLO1800, AMCHLO1801, AMCHLO1802, AMCHLO1803, AMCHLO1804, AMCHLO1805, AMCHLO1806, AMCHLO1807, AMCHLO1808, AMCHLO1809, AMCHLO1810, AMCHLO1811, AMCHLO1812, AMCHLO1813, AMCHLO1814, AMCHLO1815, AMCHLO1816, AMCHLO1900, AMCHLO1901, AMCHLO1902, AMCHLO1903, AMCHLO1904, AMCHLO2000, AMCHLO2001, AMCHLO2002, AMCHLO2003, AMCHLO2004, AMCHLO2005, AMCHLO2006, AMCHLO2007, AMCHLO2008, AMCHLO2009, AMCHLO2010, AMCHLO2011, AMCHLO2012, AMCHLO2013, AMCHLO2014, AMCHLO2015, AMCHLO2016, AMCHLO2017, AMCHLO2018, AMCHLO2019, AMCHLO2020, AMCHLO2021, AMCHLO2022, AMCHLO2023, AMCHLO2100, AMCHLO2101, AMCHLO2200, AMCHLO2300, AMCHLO2301, AMCHLO2302, AMCHLO2303, AMCHLO2304, AMCHLO2305, AMCHLO2400, AMCHLO2500, AMCHLO2501, AMCHLO2502, AMCHLO2503, AMCHLO2504, AMCHLO2505, AMCHLO2506, AMCHLO2600, AMCHLO2700, AMCHLO2800, AMCHLO2900, AMCHLO3000, AMCHLO3001, AMCHLO3010, AMCHLO3100, AMCHLO3200, AMCHLO3300, AMCHLO3400, AMCHLO3500, AMCHLO3501, AMCHLO3502, AMCHLO3600, AMCHLO3700, AMCHLO3800, AMCHLO3900, AMCHLO4000, AMCHLO4001, AMCHLO4002, AMCHLO4003, AMCHLO4004, AMCHLO4005, AMCHLO4100, AMCHLO4101, AMCHLO4102, AMCHLO4200, AMCHLO4201, AMCHLO4202, AMCHLO4210, AMCHLO4250, AMCHLO4255, AMCHLO4256, AMCHLO4257, AMCHLO4258, AMCHLO4259, AMCHLO4300, AMCHLO4301, AMCHLO4302, AMCHLO4303, AMCHLO4304, AMCHLO4305, AMCHLO4306, AMCHLO4307, AMCHLO4308, AMCHLO4310, AMCHLO4311, AMCHLO4313, AMCHLO4400, AMCHLO4500, AMCHLO4501, AMCHLO4502, AMCHLO4503, AMCHLO4504, AMCHLO4600, AMCHLO4700, AMCHLO4800, AMCHLO4900, AMCHLO5000, AMCHLO5001, AMCHLO5100, AMCHLO5200, AMCHLO5300, AMCHLO5400, AMCHLO5500, AMCHLO5501, AMCHLO5600, AMCHLO5700, AMCHLO5800, AMCHLO5900, AMCHLO6000, AMCHLO6001, AMCHLO6002, AMCHLO6003, AMCHLO6004, AMCHLO6010, AMCHLO6020, AMCHLO6040, AMCHLO6050, AMCHLO6100, AMCHLO6101, AMCHLO6200, AMCHLO6210, AMCHLO6300, AMCHLO6500, AMCHLO6600, AMCHLO6700, AMCHLO6701, AMCHLO6710, AMCHLO6711, AMCHLO7001, AMCHLO9000, AMCHLO9001, AMCHLO9100, AMCHLO9101, AMCHLO9102, AMCHLO9103, AMCHLO9104, AMCHLO9105, AMCHLO9200, AMCHLO9201, AMCHLO9202, AMCHLO9203, AMCHLO9204, AMCHLO9205, AMCHLO9300, AMCHLO9301, AMCHLO9302, AMCHLO9303, AMCHLO9400, AMCHLO9500, AMCHLO9501, AMCHLO9502, AMCHLO9504, AMCHLO9532, AMCHLO9550, AMCHLO9552, AMCHLO9553, AMCHLO9600, AMCHLO9602, AMCHLO9603, AMCHLO9604, AMCHLO9605, AMCHLO9607, AMCHLO9608, AMCHLO9650, AMCHLO9700, AMCHLO9701, AMCHLO9705, AMCHLO9800, AMCHLO9900, AMCHLO9901, AMCHLO9902, AMCHLO9903, AMCHLO9904, AMCHLO9905, AMCHLO9906, AMCHLO9907, AMCHLO9908, AMCHLO9909, AMCHLO9910, AMCHLO9911, AMCHLO9912

Revision

3

Revision Date

24 Nov 2017

Key/Legend

< Less Than

> Greater Than

AICS Australian Inventory of Chemical Substances

atm Atmosphere

CAS Chemical Abstracts Service (Registry Number)

cm² Square Centimetres

CO₂ Carbon Dioxide

COD Chemical Oxygen Demand

deg C (°C) Degrees Celcius

EPA (New Zealand) Environmental Protection Authority of New Zealand

deg F (°F) Degrees Farenheit

g Grams

g/cm³ Grams per Cubic Centimetre

g/l Grams per Litre

HSNO Hazardous Substance and New Organism

IDLH Immediately Dangerous to Life and Health

immiscible Liquids are insoluable in each other.

inHg Inch of Mercury

inH₂O Inch of Water

K Kelvin

kg Kilogram

kg/m³ Kilograms per Cubic Metre

lb Pound

LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.

LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

ltr or **L** Litre

m³ Cubic Metre

mbar Millibar

mg Milligram

mg/24H Milligrams per 24 Hours

mg/kg Milligrams per Kilogram

mg/m³ Milligrams per Cubic Metre

Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

mm Millimetre

mmH₂O Millimetres of Water

mPa.s Millipascals per Second

N/A Not Applicable



NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Health and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight

