Material Safety Data Sheets

Revision 2

1. IDENTIFICATION

Product Name	**Ammonium Chloride Extra pure**
Other Names	AMMONIUM CHLORIDE ((NH4)Cl); Sal Ammoniac; Salmiac
Code No	200-AC-2
Uses	Food additive(s)
Chemical Family	No Data Available
Chemical Formula	ClH_4N
Chemical Name	Ammonium Chloride
Product Description	No Data Available
Company	Arman sina.co
Contact Information	info@armansina.com www.armansina.com

2. HAZARD IDENTIFICATION

Hazard Categories	Harmful
Risk Phrases	Harmful if swallowed. Irritating to eyes. Harmful to aquatic organisms; may cause long term adverse effects in aquatic environment.
Safety Phrases	Do not breathe dust. Avoid release to the environment. Refer to special instructions/Material Safety Data Sheets.

Symbol

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Ammonium Chloride	ClH_4N	12125-02-9	>=98.0 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	**Rinse mouth immediately and then drink plenty of water, seek medical attention.**
Eye	**Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.**
Skin	**Remove contaminated clothing. Wash thoroughly with soap and water.**
Inhaled	**After inhalation of decomposition products: Keep patient calm, remove to fresh air, seek medical attention.**
Advice to Doctor	**Treat according to symptoms (decontamination, vital functions), no known specific antidote.**
Medical Conditions Aggravated by Exposure	**Overexposure may cause:, vomiting, lethargy, confusion, hyperventilation, nausea, headache**

5. FIRE FIGHTING MEASURES

General Measures	**Fire extinguishing method of surrounding areas must be considered. In case of fire and/or explosion do not breathe fumes. Large quantities of extinguishing water containing dissolved product should be contained. Contaminated extinguishing water must be disposed of in accordance with official regulations. Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk.**
Flammability Conditions	**Product itself is non-combustible**
Extinguishing Media	**In case of fire, use water spray.**
Hazardous Products of Combustion	**Ammonia, and hydrogen chloride can be released if the product is involved in a fire.**
Special Fire Fighting Instructions	**Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.**
Personal Protective Equipment	**Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves).**
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	**Use personal protective clothing. Avoid accidents, clean up immediately. Slippery when spilt. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Stop leak if safe to do so. Isolate the danger area. Use clean, non-sparking tools and equipment.**
Clean Up Procedures	**Contain and sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Transfer to a suitable, labelled container and dispose of promptly.**
Containment	**Stop leak if safe to do so. Isolate the danger area.**
Environmental Precautionary Measures	**Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.**
Evacuation Criteria	**Evacuate all unnecessary personnel.**

7. HANDLING AND STORAGE

Handling	**Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product dust/fumes. Handle in accordance with good industrial hygiene and safety practice.**
Storage	**Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Segregate from alkalies and alkalizing substances. Segregate from nitrites. Segregate from oxidants. Do not store with: sodium nitrate. Protect against moisture. This product is not classified dangerous for transport according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.**
Container	**Store in original packaging as approved by manufacturer.**

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	**The following exposure standard has been established by The Australian Safety and Compensation Council (ASCC); Ammonium Chloride (fine), CAS 12125-02-9: TWA = 10 mg/m3 STEL = 20 mg/m3 Other components with occupational exposure limits: Hydrogen Chloride, CAS 7647-01-0: Peak limitation 7.5 mg/m3 ; 5 ppm (OEL (AU)) Ammonia, CAS 7664-41-7: TWA = 17 mg/m3; 25 ppm (OEL (AU)) STEL = 24 mg/m3; 35 ppm (OEL (AU)) NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.**
Exposure Limits	**No Data Available**
Biological Limits	**No information available on biological limit values for this product.**
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	**RESPIRATOR: Breathing protection if dusts are formed. Particle filter with low efficiency for solid particles (Type P1 or FFP1) (AS1715/1716). EYES: Safety glasses with side-shields (frame goggles) (AS1336/1337). HANDS: Chemical resistant protective gloves: Recommended protective index 6, corresponding >480 minutes of permeation time such as nitrile rubber (NBR) - 0.4 mm coating thickness or polyvinylchloride (PVC) - 0.7 mm coating thickness (AS2161). Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing. Manufacturer's directions for use should be observed because of great diversity of types. CLOTHING: Long-sleeved protective clothing and safety footwear (AS3765/2210).**
Work Hygienic Practices	**Handle in accordance with good industrial hygiene and safety practice.**

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	**Solid**
Appearance	**Crystalline Powder**
Odour	**Almost Odourless**
Colour	**White**
pH	**4.7 (DIN ISO 976) 200 g/L (25 deg C)**
Vapour Pressure	**No Data Available**
Relative Vapour Density	**No Data Available**
Boiling Point	**No Data Available**
Melting Point	**335ºC**
Freezing Point	**No Data Available**
Solubility	**No Data Available**
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/m3 (DIN ISO 697)**
Corrosion Rate	**No Data Available**
Decomposition Temperature	**No Data Available**
Density	**1.53 g/cm3**
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	**Sublimation point: 338 deg C. The substance / product decomposes.** **Ignition temperature: The substance / product decomposes therefore not determined.** **Self ignition: not applicable (Test type: Self-ignition at high temperatures).** **Not self-igniting (Test type: Spontaneous self- ignition at room-temperature).** **Fire promoting properties: Based on its structural properties the product is not classified as oxidizing.** **Hygroscopy: hygroscopic** **Partitioning coefficient n-octanol/water (log Pow): The value has not been determined because the substance is inorganic.** **Surface tension: Based on chemical structure, surface activity is not to be expected.**
Potential for Dust Explosion	**Explosion hazard: Based on the chemical structure there is no indicating of explosive properties.**
Fast or Intensely Burning Characteristics	**No Data Available**
Flame Propagation or Burning Rate of Solid Materials	**No Data Available**
Non-Flammables That Could Contribute Unusual Hazards to a Fire	**No Data Available**
Properties That May Initiate or Contribute to Fire Intensity	**No Data Available**
Reactions That Release Gases or Vapours	**No Data Available**
Release of Invisible Flammable Vapours and Gases	**No Data Available**

10. STABILITY AND REACTIVITY

Chemical Stability	**Product is stable under normal conditions of use, storage and temperature.**
Conditions to Avoid	**Avoid heat. Avoid moisture. See MSDS section 7 - Handling and storage. To avoid thermal decomposition, do not overheat.**
Materials to Avoid	**Substances to avoid: nitrites, nitrates, oxidizing agents. Incompatible with bases. Violent reaction under influence of oxidizing agents. Reacts with nitrites.**
Hazardous Decomposition Products	**Hazardous decomposition products include hydrogen chloride, ammonia.**
Hazardous Polymerisation	**Hazardous reactions: Violent reaction under influence of oxidizing agents. Reacts with nitrites.**

11. TOXICOLOGICAL INFORMATION

General Information	**Assessment of acute toxicity: Of moderate toxicity after single ingestion. Virtually non-toxic after a single skin contact. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.** **LD50 rat (oral): 1,410 mg/kg (BASF-Test)** **(by inhalation): Study scientifically not justified.** **LD50 rat (dermal): > 2,000 mg/kg. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.**

	Assessment of irritating effects: Not irritating to the skin. Eye contact causes irritation. **Primary skin irritation rabbit: non-irritant (Draize test)** **Primary irritations of the mucous membrane rabbit: Irritant. (BASF-Test)** **Assessment other acute effects: Apart from effects causing lethality, no specific target organ toxicity was observed in experimental studies.** **Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.** **Guinea pig maximization test guinea pig: Non-sensitizing.** **Assessment of repeated dose toxicity: Repeated oral uptake of the substance did not cause substance-related effects.** **Assessment of mutagenicity: In the majority of studies performed with microorganisms and in mammalian cell culture, a mutagenic effect was not found. A mutagenic effect was also not observed in in vivo tests.** **Assessment of carcinogenicity: In long-term studies in rats in which the substance was given by feed, a carcinogenic effect was not observed.** **Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.**
EyeIrritant	**Irritating to eyes.**
Ingestion	**Harmful if swallowed.**
Carcinogen Category	**No Data Available**

12. ECOLOGICAL INFORMATION

Ecotoxicity	**Assessment of aquatic toxicity: Acutely harmful for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.** **Toxicity to fish:** **LC50 (96 h) 42,91 mg/l Ammonium chloride, Oncorhynchus mykiss** **LC50 (96 h) 46,27 mg/l Ammonium chloride, Prosopium williamsoni** **Aquatic invertebrates:** **EC50 (48 h) 98,5 mg/l Ammonium chloride, Ceriodaphnia dubia (static)** **EC50 (48 h) 136,6 mg/l Ammonium chloride, Daphnia magna (static)** **Aquatic plants:** **EC50 (5 d) 1,300 mg/l (growth rate), Chlorella vulgaris (static) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.** **EC50 (18 d) 2,700 mg/l, Chlorella vulgaris (static) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.** **Microorganisms/Effect on activated sludge:** **EC20 (0.5 h) approx. 850 mg/l, activated sludge, domestic (OECD Guideline 209, aquatic)** **Chronic toxicity to fish:** **EC10 (30 d) 4,28 mg/l ammonium chloride, Lepomis macrochirus (Flow through)** **Chronic toxicity to aquatic invertebrates:** **EC10 (70 d), 2,52 mg/l ammonium chloride (semistatic)** **Soil living organisms:** **LC50 (14 d) 163 mg/kg, Eisenia foetida (artificial soil)** **Terrestrial plants:** **No observed effect concentration (84 d) 626 mg/l. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.** **Other terrestrial non-mammals:** **Study scientifically not justified.**
Persistence/Degradability	**Assessment biodegradation and elimination (H2O): Inorganic product which cannot be eliminated from water by biological purification processes. Can be oxidized to nitrate, or be reduced to nitrogen, by microorganisms.** **Assessment of stability in water:** **Study scientifically not justified.**
Mobility	**Assessment transport between environmental compartments:** **Study scientifically not justified.**

	Adsorption to solid soil phase is possible.
Environmental Fate	Add. remarks environm. fate & pathway: The product has not been tested. The statements on environmental fate and pathway have been derived from the properties of the individual components.
Bioaccumulation Potential	Assessment bioaccumulation potential: Accumulation in organisms is not to be expected. Bioaccumulation potential: Accumulation in organisms is not to be expected.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of in accordance with all local regulations. All empty packaging should be disposed of in accordance with Local Regulations or recycled/reconditioned at an approved facility.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice.

14. TRANSPORT INFORMATION

Land Transport

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

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

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

15. OTHER INFORMATION

Revision	**2**
Key/Legend	**< Less Than** **> Greater Than** **atm Atmosphere** **CAS Chemical Abstracts Service (Registry Number)** **cm Square Centimetres** **CO2 Carbon Dioxide** **COD Chemical Oxygen Demand** **Degrees Celsius** **EPA (New Zealand) Environmental Protection Authority of New Zealand** **Degrees Fahrenheit** **g Grams** **g/cm 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/m 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** **m Cubic Metre** **mbar Millibar** **mg Milligram** **mg/24H Milligrams per 24 Hours** **mg/kg Milligrams per Kilogram** **mg/m 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 Heath 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**