SAFETY DATA SHEET: AMMONIUM CHLORIDE

1. IDENTIFICATION

Product Name: AMMONIUM CHLORIDE
Synonyms: Sal ammoniac; Ammonium muriate
Formula and Formula Weight: NH₄Cl 53.50
Integra numbers beginning with: A629.10; A629.50; A630.50
Recommended Use: Commercial/industrial use
Restrictions on Use: No information available

INTEGRA Chemical Company
24 Hour Emergency Response: CHEMTREC 800-424-9300 (Outside USA 703-527-3887)
1216 6th Ave N
Kent WA 98032
Phone: 253-479-7000

2. HAZARDS IDENTIFICATION

OSHA Classification: Hazard Category: Hazard Statement:
Acute Toxicity - Oral 4 Harmful if swallowed.
Eye Damage/Irritation 2A Causes serious eye irritation.

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Signal Word: Warning

Precautionary Statements
Prevention:
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear eye protection, face protection.

Response
If swallowed: Rinse mouth. Call a poison center, doctor if you feel unwell.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice, attention.

Disposal
Dispose of contents, container in accordance with all governmental regulations.

Hazards Not Otherwise Classified: No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Synonyms</th>
<th>CAS #</th>
<th>% Weight</th>
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</thead>
<tbody>
<tr>
<td>Ammonium chloride</td>
<td>Sal ammoniac; Ammonium muriate</td>
<td>12125-02-9</td>
<td>100</td>
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</tbody>
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4. FIRST AID MEASURES

Inhalation: Remove person to fresh air.
Eye Contact: Flush eyes with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek immediate medical attention.
Skin Contact: Wash with soap and water. Seek medical attention if irritation develops.
Ingestion: If conscious, rinse mouth and give victim large amounts of water. Seek medical attention.
Additional notes: Symptoms and effects include irritation.

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Material is not flammable. Use extinguishing media suitable to surrounding materials.
Special Equipment and Precautions: Use water to cool nearby containers and structures. Wear full protective equipment, including suitable respiratory protection.
Specific Hazards: Fire conditions may liberate toxic and noxious fumes.

6. ACCIDENTAL RELEASE MEASURES

Spill Procedures: Prevent spread of spill. Wear suitable protective equipment. Sweep or scoop into clean, dry disposal container. Flush spill area with water.

7. HANDLING AND STORAGE

Incompatible Materials: Incompatible with strong oxidizers. Alkalis & their carbonates, lead and silver salts, ammonium nitrate, potassium chloride, bromine trifluoride, cyanides
Storage and Handling: Store in a cool, dry, well-ventilated area away from incompatible materials. Keep containers tightly closed and protect them from physical damage. Hygroscopic material. Protect from exposure to moisture and moist air.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear eye protection, face protection.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA & ACGIH Exposure Limits:
Ammonium chloride        ACGIH TWA: 10 mg/m³ (as fume)  ACGIH STEL: 20 mg/m³ (as fume)

Engineering Controls: Use general or local exhaust ventilation to meet TLV and PEL requirements.
Respiratory Protection: Respiratory protection required if airborne concentrations exceed PEL or TLV. Use a NIOSH approved respirator with a particulate filter.
Skin/Eye Protective Equipment: Safety goggles, protective clothing and gloves appropriate for the risk of exposure.
Facilities storing or utilizing this material should have readily accessible eyewash stations and safety showers. Select respirators and other safety equipment in accordance with regulations and based upon the particular conditions of use and risk of exposure. Always use safe chemical-handling and good industrial hygiene practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless crystals or white granular powder
Odor: Odorless
Odor Threshold: Not available
pH: 5.0 (10% solution)
Melting/Freezing Point: Sublimes: 340 °C
Initial Boiling Point and Boiling Range: Not available
Flash Point: Not available
Evaporation Rate: Not available
Flammability: Not flammable
Flammable or Explosive: Upper: Not available
  Lower: Not available
Vapor Pressure: Not available
Vapor Density: 1.9
Relative Density: 1.53 Water=1
Solubility: Approximately 37g/100 mL water at 20°C
Partition Coefficient: n-octanol/water Not available
Auto-Ignition Temperature: Not available
Decomposition Temperature: Not available
Viscosity: Not available

10. STABILITY AND REACTIVITY

Reactivity: No information available
Stability: Stable
Possibility of Hazardous Reactions: Hazardous polymerization will not occur
Conditions to Avoid: Excessive heat.
Incompatibles: Incompatible with strong oxidizers. Alkalis & their carbonates, lead and silver salts, ammonium nitrate, potassium chloride, bromine trifluoride, cyanides
Decomposition Products: Oxides of nitrogen. May generate toxic ammonia and HCl gases.

11. TOXICOLOGICAL INFORMATION

Effects of Over Exposure:
Inhalation: Inhalation may irritate the nose, throat and upper respiratory tract. May cause cough, difficulty breathing.
Skin Contact: Contact may cause skin irritation.
Eye Contact: May irritate or burn the eyes.
Ingestion: May be irritating to the mouth, throat and gastrointestinal tract if swallowed. May cause nausea, vomiting, thirst.
Chronic Effects: None identified
Target Organs: Eyes, skin, respiratory system.
Additional Effects: May aggravate pre-existing skin disorders, eye disorders, respiratory system disease
Reproductive Effects: None identified
Carcinogenicity: None identified

Toxicity Data:
Ammonium chloride
  LD₅₀ (skin, mouse)  500 mg/kg
  LD₅₀ (oral, rat)  1650 mg/kg

12. ECOLOGICAL INFORMATION

Aquatic Toxicity Data:
Ammonium chloride  LC₅₀ Cyprinus carpio: 209 mg/L - 96h; LC₅₀  No information available

Persistence and degradability: No information available
Bioaccumulative potential: No information available
13. DISPOSAAL CONSIDERATIONS
Disposal Procedures: Dispose of material and containers in accordance with all local, state and federal regulations.

14. TRANSPORTATION INFORMATION
This product is not a regulated material for domestic ground transporation.

   Environmental hazards: No information available
   Special precautions: No information available
   Bulk transport: No information available

15. REGULATORY INFORMATION
Ammonium chloride is listed in the TSCA inventory.

16. OTHER INFORMATION
OSHA SDS #: 25100 rev 101 3/27/2015

NE = Not established, NA = Not applicable or Not available

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***** END OF SDS *****