SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier
Product code: A1165
Product Name: AMMONIUM CHLORIDE, GRANULAR, REAGENT, ACS

Other means of identification
Synonyms:
- Sal ammonia
- Sal ammoniac
- Ammonium muriate
- Amchlor
- Ammonergetic

CAS #: 12125-02-9
RTECS #: BP4550000
Ci#: Not available

Recommended use of the chemical and restrictions on use
Recommended use:
- Fertilizer compositions
- Electroplating agent
- Diuretics
- Expectorants
Uses advised against:
- No information available

Supplier:
Spectrum Chemicals and Laboratory Products, Inc.
14422 South San Pedro St.
Gardena, CA  90248
(310) 516-8000

Order Online At: https://www.spectrumchemical.com

Emergency telephone number: Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Acute toxicity - Oral</th>
<th>Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 2A</td>
</tr>
</tbody>
</table>

Label elements

Product code: A1165
Product name: AMMONIUM CHLORIDE, GRANULAR, REAGENT, ACS
Warning

Hazard statements
Harmful if swallowed
Causes serious eye irritation

Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
Causes mild skin irritation

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear eye/face protection

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

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
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<tr>
<td>Ammonium Chloride</td>
<td>12125-02-9</td>
<td>100</td>
<td>*</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First aid measures

General Advice: Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126). First aider needs to protect himself. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation develops. If skin irritation persists, call a physician.

Eye Contact: Flush eye with water for 15 minutes. Get medical attention.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Product code: A1165  Product name: AMMONIUM CHLORIDE, GRANULAR, REAGENT, ACS
Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed
Symptoms
Irritating to eyes. May cause skin irritation. May cause digestive (gastrointestinal) tract irritation. May cause nausea and vomiting. May cause metabolic acidosis. Central nervous system effects. May cause cardiovascular effects. May affect respiration. May affect the urinary system. It may affect the kidneys.

Indication of any immediate medical attention and special treatment needed
Notes to Physician: Treat symptomatically

Protection of first-aiders
First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media: The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical
Hazardous Combustion Products: Nitrogen oxides, ammonia, hydrogen chloride gas
Specific hazards: The substance itself does not burn, but may decompose upon heating

Special Protective Actions for Firefighters
Specific Methods: No information available.
Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Personal Precautions: Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Avoid dust formation.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Do not let this chemical enter the environment. Prevent entry into waterways, sewers.

Methods and material for containment and cleaning up
Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.
Methods for cleaning up Sweep up and shovel into suitable containers for disposal. Avoid creating dust. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Product code: A1165
Product name: AMMONIUM CHLORIDE, GRANULAR, REAGENT, ACS
7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:
Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice:
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Do not ingest. Do not breathe vapours/dust. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:
Hygroscopic. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials:

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
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<tbody>
<tr>
<td>Ammonium Chloride - 12125-02-9</td>
<td>None</td>
<td>10 mg/m³ TWA</td>
<td>20 mg/m³ STEL fume</td>
<td>None</td>
</tr>
</tbody>
</table>

Canada

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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</thead>
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<td>10 mg/m³ TWA fume</td>
<td>10 mg/m³ TWA fume</td>
<td>10 mg/m³ TWA fume</td>
<td>10 mg/m³ TWAEV fume</td>
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Australia and Mexico

<table>
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<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
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</thead>
<tbody>
<tr>
<td>Ammonium Chloride 12125-02-9</td>
<td>20 mg/m³ STEL</td>
<td>10 mg/m³ TWA</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering measures to reduce exposure:
Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles.

Skin and body protection: Long sleeved clothing. Chemical resistant apron. Gloves.
Respiratory protection: Wear respirator with dust filter.

Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Appearance:</th>
<th>Color:</th>
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</thead>
<tbody>
<tr>
<td>Solid</td>
<td>Granular, Crystalline, Crystals, Crystalline block.</td>
<td>White.</td>
</tr>
</tbody>
</table>

**Odor:** Odorless.

**Molecular/Formula weight:** 53.49

**Flash point (°C):** No data available

**Flash Point Tested according to:** Not applicable

**Decomposition temperature (°C/°F):**
- 338-340 °C/640.4-644 °F (sublimation)

**Specific gravity:** 1.5274 – 1.567 @ 20 deg. C

**Molecular/Formula weight:** 53.49

**Density (g/cm³):** No information available

**Bulk density:** No information available

**Vapor pressure @ 20°C (kPa):** No information available

**Evaporation rate:** No information available

**Vapor density:**
- 1.8-1.9

**Odor threshold (ppm):** No information available

**Partition coefficient (n-octanol/water):** No information available

**Miscibility:** No information available

**Solubility:**
- Insoluble in Acetone
- Insoluble in Ether
- Insoluble in Ethyl acetate
- Soluble in Methanol
- Soluble in Water
- Solubility in Water:
  - 29.7 g/100ml water at 0 deg. C
  - 75.8 g/100 ml water at 100 deg. C
  - 37.8 lbs./100 lbs. water at 70 deg. F
  - 28.3% (w/w) in water at 25 deg. C
  - 39.5 g/100 ml @ 25 deg. C
- Soluble in liquid ammonia

### 10. STABILITY AND REACTIVITY

**Reactivity**

**Product code:** A1165

**Product name:** AMMONIUM CHLORIDE, GRANULAR, REAGENT, ACS
10. STABILITY AND REACTIVITY

Reactive with acids
Reactive with oxidizing agents
Can react violently or explosively with ammonium nitrate bromine pentafluoride, iodine heptafluoride bromine trifluoride, alkalis and their carbonates, and potassium chlorate
Attacks copper and copper compounds

Chemical stability
Stability: Stable at normal conditions
Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Other Information
Corrosivity: No information available
Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Principal Routes of Exposure:
Ingestion. Inhalation.

Acute Toxicity

Component Information

Ammonium Chloride - 12125-02-9
LD50/oral/rat = 1410 mg/kg Oral LD50 Rat (LOLI; European Chemicals Bureau ( IUCLID Dataset)
1650 mg/kg (RTECS; European Chemicals Bureau ( IUCLID Dataset)
LD50/oral/mouse = 1300 mg/kg (RTECS)
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information
LD50/oral/rat =
VALUE- Acute Tox Oral = 1410 mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = 1300 mg/kg

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

Product code: A1165
Product name: AMMONIUM CHLORIDE, GRANULAR, REAGENT, ACS
LD50/dermal/rat
VALUE - Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE - Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

LC50/inhalation/mouse
VALUE - Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

**Skin Contact:**
May cause skin irritation. Mild skin irritation.

**Eye Contact:**
Causes eye irritation. Moderately irritating to the eyes. It may cause Salt Cataract, increased ocular pressure, and degeneration of the retina.

**Inhalation**
May cause irritation of respiratory tract.

**Ingestion**
Harmful if swallowed. May cause digestive (gastrointestinal) tract irritation. Ingestion may cause nausea, vomiting. May cause thirst. May affect behavior/central nervous system (headache, somnolence, confusion, drowsiness, tremor, convulsions, coma), eyes (Mydriasis), cardiovascular system (bradycardia), respiration (respiratory stimulation, apnea, hyperventilation, pulmonary edema). May cause serious metabolic acidosis with hypokalemia. Transient hyperglycemia and glycosuria may also occur. May cause hyperchloremia.

**Aspiration hazard**
No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Chronic Toxicity**
Prolonged or repeated ingestion may cause metabolic acidosis and affect the urinary system (kidneys).
Inhalation: Prolonged or repeated inhalation may cause asthma-like allergy. Symptoms may include bronchospasm, shortness of breath, wheezing, cough, and/or chest tightness.

**Sensitization:**
No information available

**Mutagenic Effects:**
No information available

**Carcinogenic effects:**
Not considered carcinogenic.

<table>
<thead>
<tr>
<th>Components</th>
<th>ACGIH - Carcinogens</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
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<tr>
<td>Ammonium Chloride</td>
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<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
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</tbody>
</table>

**Reproductive toxicity**
No data is available

**Reproductive Effects:**
No information available

**Developmental Effects:**
No information available

**Teratogenic Effects:**
No information available

**Product code:** A1165

**Product name:** AMMONIUM CHLORIDE, GRANULAR, REAGENT, ACS
Specific Target Organ Toxicity

STOT - single exposure  No information available
STOT - repeated exposure No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

*Ammonium Chloride - 12125-02-9*

Freshwater Fish Species Data: 209 mg/L LC50 Cyprinus carpio 96 h static 1

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products: Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging: Empty containers should be taken for local recycling, recovery or waste disposal

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<tbody>
<tr>
<td>Ammonium Chloride</td>
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<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

UN-No: Not regulated (although listed Table 1 to Appendix A - Hazardous Substances Other Than Radionuclides, it is not regulated for transport in sold quantities, which are below the Reportable Quantity (RQ))

Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: Not applicable
Packing Group: None
Marine Pollutant: No data available
ERG No: No information available
DOT RQ (lbs): 5000 lbs./2270 kg

TDG (Canada)
UN-No: Not Regulated

Product code: A1165
Product name: AMMONIUM CHLORIDE, GRANULAR, REAGENT, ACS
## 14. TRANSPORT INFORMATION

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<tr>
<th>Proper Shipping Name:</th>
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<tbody>
<tr>
<td>Hazard Class:</td>
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<td>Subsidiary Risk:</td>
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<td>Packing Group:</td>
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<td>Description:</td>
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**ADR**

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<tr>
<td>Subsidiary Risk:</td>
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<td>Description:</td>
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<td>CEFIC Tremcard No:</td>
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**IMO / IMDG**

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<td>IMDG Page:</td>
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<td>Marine Pollutant:</td>
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<td>Maximum Quantity:</td>
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**RID**

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<td>Subsidiary Risk:</td>
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**ICAO**

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**IATA**

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<td>Description:</td>
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</table>

## 15. REGULATORY INFORMATION

**Product code:** A1165

**Product name:** AMMONIUM CHLORIDE, GRANULAR, REAGENT, ACS
15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>KOREA KECL</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
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</thead>
<tbody>
<tr>
<td>Ammonium Chloride</td>
<td>Present</td>
<td>Present KE-01645</td>
<td>Present</td>
<td>Present (1)-218</td>
<td>Present</td>
<td>Present</td>
<td>Present 235-186-4</td>
</tr>
</tbody>
</table>

U.S. Regulations

Ammonium Chloride

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: Present
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List: Present
RI RTK - Hazardous Substances List: Present
Minnesota - Hazardous Substance List: Present
New York Release Reporting - List of Hazardous Substances:
5000 lb RQ
100 lb RQ

Louisiana Reportable Quantity List for Pollutants:
5000lbfinal RQ
2270kgfinal RQ

California Directors List of Hazardous Substances: Present

FDA - Food Additives Generally Recognized as Safe (GRAS): 21 CFR 184.1138


Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
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<td>Ammonium Chloride</td>
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<td>Not Listed</td>
<td>Not Listed</td>
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</table>

CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
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</thead>
<tbody>
<tr>
<td>Ammonium Chloride</td>
<td>5000 lb final RQ 2270 kg final RQ</td>
<td>None</td>
<td>None</td>
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U.S. TSCA

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
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</thead>
<tbody>
<tr>
<td>Ammonium Chloride</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
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</tbody>
</table>

Canada

WHMIS hazard class:
D2B  Toxic materials

Ammonium Chloride
D2B

Product code: A1165  Product name: AMMONIUM CHLORIDE, GRANULAR, REAGENT, ACS
Ammonium Chloride

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

### Components

| WHMIS Ingredient Disclosure List - | 
|-----------------|----------------|
| Ammonium Chloride | 1 % |

### Inventory

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<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
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<tbody>
<tr>
<td>Ammonium Chloride</td>
<td>Not listed</td>
<td>Not listed</td>
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</table>

### EU Classification

#### R-phrase(s)
R22 - Harmful if swallowed.
R36 - Irritating to eyes.

#### S-phrase(s)
S2 - Keep out of the reach of children.
S22 - Do not breathe dust.

<table>
<thead>
<tr>
<th>Components</th>
<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Chloride</td>
<td>Xn; R22 Xi; R36</td>
<td>No information</td>
<td>S2 S22</td>
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</tbody>
</table>

The product is classified in accordance with Annex VI to Directive 67/548/EEC

### Indication of danger:
Xi - Irritant.
Xn - Harmful.

### 16. OTHER INFORMATION
16. OTHER INFORMATION

**NFPA**

**HMIS**

**Personal Protective Equipment**

<p>| | | |</p>
<table>
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</tr>
</tbody>
</table>

**See Section 8.**

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**Prepared by:** Sonia Owen

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End of Material Safety Data Sheet