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AMMONIUM CHLORIDE
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MATERIAL SAFETY DATA SHEET

FISHER SCIENTIFIC
 CHEMICAL DIVISION
 1 REAGENT LANE
 FAIR LAWN NJ 07410
 (201) 796-7100

EMERGENCY NUMBER: (201) 796-7100
 CHEMTREC ASSISTANCE: (800) 424-9300

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SUBSTANCE IDENTIFICATION

SUBSTANCE: **AMMONIUM CHLORIDE** CAS-NUMBER 12125-02-9

TRADE NAMES/SYNONYMS:

AMCHLOR; AMMONERIC; AMMONIUM MURIATE; DARAMMON; SAL AMMONIA; SALAMMONITE;
 SALMIAC; SAL AMMONIAC; STCC 4986316; AMMONIUM CHLORIDE (NH4CL);
 AMMONIUM CHLORIDE ((NH4)CL); A649; A661; CLH4N; ACC01170

CHEMICAL FAMILY:
 Inorganic salt

MOLECULAR FORMULA: N-H4-CL

MOLECULAR WEIGHT: 53.50

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=0 REACTIVITY=0 PERSISTENCE=0
 NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=0 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: AMMONIUM CHLORIDE PERCENT: 100.0
 CAS# 12125-02-9

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:

AMMONIUM CHLORIDE:

10 mg/m3 OSHA TWA (fume); 20 mg/m3 OSHA STEL (fume)
 10 mg/m3 ACGIH TWA (fume); 20 mg/m3 ACGIH STEL (fume)
 10 mg/m3 NIOSH recommended TWA (fume);
 20 mg/m3 NIOSH recommended STEL (fume)

5000 pounds CERCLA Section 103 Reportable Quantity

OSHA revoked the final rule limits of January 19, 1989 in response to the 11th Circuit Court of Appeals decision (AFL-CIO v. OSHA) effective June 30, 1993. See 29 CFR 1910.1000 (58 FR 35338)

PHYSICAL DATA

DESCRIPTION: Odorless, colorless crystals or crystalline masses, or white granular powder, cooling saline taste, hygroscopic with a tendency to cake.

MELTING POINT: 644 F (340 C) sublimes SPECIFIC GRAVITY: 1.5

VAPOR PRESSURE: 1 mmHg @ 160 C PH: 5.0 (10% sol @ 25 C)

SOLUBILITY IN WATER: 28.3% @ 25 C VAPOR DENSITY: 1.9

SOLVENT SOLUBILITY: Soluble in methanol, ethanol, glycerol, liquid ammonia; almost insoluble in ether, acetone, ethyl acetate.

OTHER PHYSICAL DATA:

strongly endothermic.
 taste threshold- in water 4.00e-03 moles/liter.

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
 Negligible fire hazard when exposed to heat or flame.

FIREFIGHTING MEDIA:

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Dry chemical, carbon dioxide, water spray or regular foam
 (1993 Emergency Response Guidebook, RSPA P 5800.6).

For larger fires, use water spray, fog or regular foam
 (1993 Emergency Response Guidebook, RSPA P 5800.6).

FIREFIGHTING:

Move container from fire area if you can do it without risk. Do not scatter spilled material with high-pressure water streams. Dike fire-control water for later disposal (1993 Emergency Response Guidebook, RSPA P 5800.6, Guide Page 31).

Use agents suitable for type of surrounding fire. Avoid breathing hazardous vapors, keep upwind.

TOXICITY

AMMONIUM CHLORIDE:

IRRITATION DATA: 500 mg/24 hours eye-rabbit mild; 100 mg eye-rabbit severe.
 TOXICITY DATA: 1650 mg/kg oral-rat LD50; 1300 mg/kg oral-mouse LD50;
 1000 mg/kg oral-rabbit LDLo; 600 mg/kg oral-dog LDLo; 1500 mg/kg oral-domestic animal LDLo; 200 mg/kg subcutaneous-rabbit LDLo; 500 mg/kg subcutaneous-mouse LDLo; 72 mg/kg subcutaneous-guinea pig LDLo; 358 mg/kg intravenous-mouse LD50; 220 mg/kg intravenous-guinea pig LDLo; 78 mg/kg intravenous-rabbit LDLo; 1439 mg/kg intraperitoneal-mouse LD50; 30 mg/kg intramuscular-rat LD50; mutagenic data (RTECS).

CARCINOGEN STATUS: None.

LOCAL EFFECTS: Irritant: inhalation, eye.

ACUTE TOXICITY LEVEL: Moderately toxic by ingestion.

TARGET EFFECTS: No data available.

AT INCREASED RISK FROM EXPOSURE: Persons with impaired liver and kidney function. Interactions with medications have been reported.

HEALTH EFFECTS AND FIRST AID

INHALATION:

AMMONIUM CHLORIDE:

IRRITANT

ACUTE EXPOSURE- Inhalation of the dust may cause irritation with coughing, sore throat and difficult breathing. Laboratory animals exposed to 50 mg/m3 for 6 hours showed no signs of intoxication. However, post mortem examination showed congestion of the trachea and bronchial mucosa; the lungs were distended and emphysematous with petechial hemorrhaging and hyperemia. Changes were evident in the liver, spleen and adrenal medulla.
 CHRONIC EXPOSURE- No data available.

FIRST AID- Remove from exposure area to fresh air immediately. Perform artificial respiration if necessary. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.

SKIN CONTACT:

AMMONIUM CHLORIDE:

ACUTE EXPOSURE- May cause irritation.

CHRONIC EXPOSURE- Repeated or prolonged contact may cause dermatitis.

FIRST AID- Remove contaminated clothing and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention immediately.

EYE CONTACT:

AMMONIUM CHLORIDE:

IRRITANT

ACUTE EXPOSURE- May cause irritation with redness and pain. Solutions less than 10% are generally well tolerated by the eye.

CHRONIC EXPOSURE- Repeated or prolonged contact may cause conjunctivitis.

FIRST AID- Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains (at least 15-20 minutes). Get medical attention immediately.

INGESTION:

AMMONIUM CHLORIDE:

ACUTE EXPOSURE- May cause irritation of mouth and stomach with nausea or vomiting. Large doses may cause diuresis, systemic acidosis and ammonia poisoning.

CHRONIC EXPOSURE- Repeated ingestion may cause nausea, vomiting, acidosis, hypoproteinemia, demineralization of bony structures, and coma. Rabbits with damaged livers, and adrenals removed, were fed ammonium chloride for 120 days, resulting in permanent changes in the electroretinogram and degeneration of the ganglion cell layer of the retina.

FIRST AID- If vomiting occurs, keep head lower than hips to help prevent aspiration. Treat symptomatically and supportively. Get medical attention if needed.

ANTIDOTE:

No specific antidote. Treat symptomatically and supportively.

REACTIVITY

REACTIVITY:

Stable under normal temperatures and pressures.

INCOMPATIBILITIES:

AMMONIUM CHLORIDE:

ACIDS (STRONG): Evolves corrosive hydrogen chloride gas.
ALKALIS AND THEIR CARBONATES: Incompatible.
AMMONIUM NITRATE: Violent decomposition.
BASES (STRONG): Evolves corrosive ammonia gas.
BROMINE PENTAFLUORIDE: Violent reaction with ignition.
BROMINE TRIFLUORIDE: May cause explosion.
COPPER AND ITS COMPOUNDS: May be attacked.
HYDROGEN CYANIDE: Formation of explosive nitrogen trichloride.
IODINE HEPTAFLUORIDE: Violent reaction.
LEAD SALTS: Incompatible.
METALS: May be corroded in the presence of moisture.
POTASSIUM CHLORATE: Violent reaction or explosion.
SILVER SALTS: Formation of explosive silver compounds.

DECOMPOSITION:

Thermal decomposition products may include toxic fumes of ammonia, chlorides and the oxides of nitrogen.

POLYMERIZATION:

Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

STORAGE AND DISPOSAL

Observe all federal, state and local regulations when storing or disposing of this substance.

****Storage****

Protect against physical damage. Store in dry location. Separate from acids and alkalis. Separate from silver salts (NFPA 49, Hazardous Chemicals Data, 1975).

Store in a cool, dry place; keep container tightly closed when not in use.

Store away from incompatible substances.

CONDITIONS TO AVOID

May burn but does not ignite readily. Avoid contact with strong oxidizers, excessive heat, sparks, or open flame.

SPILL AND LEAK PROCEDURES

SOIL SPILL:

Dig a pit, pond, lagoon or holding area to contain liquid or solid material. Cover solids with a plastic sheet to prevent dissolving in rain or firefighting water.

WATER SPILL:

Add suitable agent to neutralize spilled material to pH-7.

OCCUPATIONAL SPILL:

Sweep up and place in suitable clean, dry containers for reclamation or later disposal. Do not flush spilled material into sewer. Keep unnecessary people away.

Reportable Quantity (RQ): 5000 pounds

The Superfund Amendments and Reauthorization Act (SARA) Section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local emergency planning committee and the state emergency response commission (40 CFR 355.40). If the release of this substance is reportable under CERCLA Section 103, the National Response Center must be notified immediately at (800) 424-8802 or (202) 426-2675 in the metropolitan Washington, D.C. area (40 CFR 302.6).

PROTECTIVE EQUIPMENT

VENTILATION:

Provide local exhaust ventilation system to meet published exposure limits.

RESPIRATOR:

The following respirators are recommended based on information found in the physical data, toxicity and health effects sections. They are ranked in order from minimum to maximum respiratory protection. The specific respirator selected must be based on contamination levels found

in the work place, must be based on the specific operation, must not exceed the working limits of the respirator and must be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

Any dust and mist respirator.

Any air-purifying respirator with a high-efficiency particulate filter.

Any powered air-purifying respirator with a dust and mist filter.

Any powered air-purifying respirator with a high-efficiency particulate filter.

Any type 'C' supplied-air respirator operated in the pressure-demand or other positive pressure or continuous-flow mode.

Any self-contained breathing apparatus.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

CLOTHING:

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

GLOVES:

Protective gloves are not required but recommended.

EYE PROTECTION:

Employee must wear splash-proof or dust-resistant safety goggles to prevent eye contact with this substance.

Emergency eye wash: Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain within the immediate work area for emergency use.

AUTHORIZED - FISHER SCIENTIFIC, INC.
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