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----------ISO 9001: 2015----------

MATERIAL SAFETY DATA SHEET

1.Identification
1.1GHS Product identifier
Ammonium chloride, GR 99%+
Code A 2087

2.Hazard identification
2.1Classification of the substance or mixture
Acute toxicity - Oral, Category 4
Eye irritation, Category 2
2.2GHS label elements, including precautionary statements
Pictogram(s)

Signal word	Warning
Hazard statement(s)	H302 Harmful if swallowed H319 Causes serious eye irritation
Precautionary statement(s)	
Prevention	P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/protective clothing/eye protection/face protection.
Response	P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/\u2026if 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. P337+P313 If eye irritation persists: Get medical advice/attention.
Storage	none
Disposal	P501 Dispose of contents/container to ...

2.3Other hazards which do not result in classification
none

3.Composition/information on ingredients
3.1Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
ammonium chloride	ammonium chloride	12125-02-9	none	100%

4.First-aid measures
4.1Description of necessary first-aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled
Fresh air, rest. Refer for medical attention.
In case of skin contact
Remove contaminated clothes. Rinse skin with plenty of water or shower.
In case of eye contact
First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
If swallowed
Rinse mouth. Give one or two glasses of water to drink. Rest. Refer for medical attention .
4.2Most important symptoms/effects, acute and delayed
Inhalation of fumes irritates respiratory passages. Ingestion irritates mouth and stomach. Fumes are irritating to eyes. Contact with skin may cause irritation. (USCG, 1999)
4.3Indication of immediate medical attention and special treatment needed, if necessary
Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary.

Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Ammonia and related compounds/

5.Fire-fighting measures
5.1Extinguishing media
Suitable extinguishing media
Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
5.2Specific hazards arising from the chemical
Special Hazards of Combustion Products: Toxic and irritating ammonia and hydrogen chloride gases may form in fire. Behavior in Fire: May volatilize and condense on cool surfaces. (USCG, 1999)
5.3Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures
6.1Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.
6.2Environmental precautions
Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. Wash away remainder with plenty of water.
6.3Methods and materials for containment and cleaning up
Accidental release measures. Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.; Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.; Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7.Handling and storage
7.1Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.
7.2Conditions for safe storage, including any incompatibilities
Separated from ammonium nitrate and potassium chlorate. Dry.Keep container tightly closed in a dry and well-ventilated place. Hygroscopic.

8.Exposure controls/personal protection
8.1Control parameters
Occupational Exposure limit values
Recommended Exposure Limit: 10-hour Time-Weighted Average: 10 mg/cu m. /Ammonium chloride fume/
Recommended Exposure Limit: 15-minute Short-Term Exposure Limit: 20 mg/cu m. /Ammonium chloride fume/
Biological limit values
no data available
8.2Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
8.3Individual protection measures, such as personal protective equipment (PPE)
Eye/face protection
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Respiratory protection
Wear dust mask when handling large quantities.
Thermal hazards
no data available

9.Physical and chemical properties

Physical state	white crystalline solid
Colour	Colorless crystals or crystalline masses, or white, granular powder
Odour	Odorless
Melting point/ freezing point	338\u00b0C(dec.)(lit.)
Boiling point or initial boiling point and boiling range	520\u00b0C(lit.)
Flammability	Noncombustible SolidNot combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion	Not flammable

limit / flammability limit	
Flash point	75\u00b0C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	338\u00b0C
pH	pH of aqueous solution (25\u00b0C): 1% 5.5; 3% 5.1; 10% 5.0
Kinematic viscosity	no data available
Solubility	In water:soluble
Partition coefficient n-octanol/water (log value)	no data available
Vapour pressure	1 mm Hg (160.4 \u00b0C)
Density and/or relative density	1.527
Relative vapour density	1.9 (vs air)
Particle characteristics	no data available

10.Stability and reactivity
10.1Reactivity
no data available
10.2Chemical stability
Stable under recommended storage conditions.
10.3Possibility of hazardous reactions
Acidic salts, such as AMMONIUM CHLORIDE, are generally soluble in water. The resulting solutions contain moderate concentrations of hydrogen ions and have pH's of less than 7.0. They react as acids to neutralize bases. These neutralizations generate heat, but less or far less than is generated by neutralization of inorganic acids, inorganic oxoacids, and carboxylic acid. They usually do not react as either oxidizing agents or reducing agents but such behavior is not impossible. Many of these compounds catalyze organic reactions.
10.4Conditions to avoid
no data available
10.5Incompatible materials
Incompatible materials: Strong acids, strong bases, strong oxidizing agents.
10.6Hazardous decomposition products
Melting point: 338\u00b0C (sublimes)

11.Toxicological information
Acute toxicity
Oral: LD50 Rat oral 1650 mg/kg
Inhalation: no data available
Dermal: no data available
Skin corrosion/irritation
no data available
Serious eye damage/irritation
no data available
Respiratory or skin sensitization
no data available
Germ cell mutagenicity
no data available
Carcinogenicity
no data available
Reproductive toxicity
no data available
STOT-single exposure
no data available
STOT-repeated exposure
no data available
Aspiration hazard
no data available

12.Ecological information
12.1Toxicity
Toxicity to fish: LC50; Species: Lepomis macrochirus (Bluegill); Conditions: static; Concentration: 725 mg/L for 24-96 hr
Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water flea); Conditions: static; Concentration: 202 mg/L for 24 hr
Toxicity to algae: EC50; Species: Anabaena azotica (Blue-green Algae) Exponential Growth Phase Strain FACHB 118; Conditions: freshwater, static, 25\u00b0C, pH 8.3; Concentration: 2.448 mmol/L for 96 hr (95% confidence interval: 2.071-2.893 mmol/L); Effect: decreased population growth rate
Toxicity to microorganisms: no data available
12.2Persistence and degradability
no data available
12.3Bioaccumulative potential
no data available

12.4Mobility in soil
no data available
12.5Other adverse effects
no data available

13.Disposal considerations
13.1Disposal methods
Product
The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.
Contaminated packaging
Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14.Transport information
14.1UN Number
ADR/RID: UN3077 IMDG: UN3077 IATA: UN3077
14.2UN Proper Shipping Name
ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
14.3Transport hazard class(es)
ADR/RID: 9 IMDG: 9 IATA: 9
14.4Packing group, if applicable
ADR/RID: III IMDG: III IATA: III
14.5Environmental hazards
ADR/RID: no IMDG: no IATA: no
14.6Special precautions for user
no data available
14.7Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
no data available

15.Regulatory information
15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
ammonium chloride	ammonium chloride	12125-02-9	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

Section 16: Other Information
This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.