SAFETY DATA SHEETS

According to the UN GHS revision 8

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

YATAI CHEMICAL CORP

1. SECTION 1: Identification

1.1. GHS Product identifier

Product name Ammonium chloride

1.2. Other means of identification

Other names Ammonium chloride;ammonia chloride;amine hydrochloride

1.3. Recommended use of the chemical and restrictions on use

Identified uses Food additives -> Flavoring Agents
Uses advised against no data available

1.4. Supplier's details

Company Yatai Chemical Corp
Address Room 20A5, No.585, Longhua West Road, Shanghai, China
Telephone 0086-21-64563115

1.5. Emergency phone number

Emergency phone number 0086-21-64563115
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2. SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Acute toxicity - Category 4, Oral
Eye irritation, Category 2

2.2. GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning
Hazard statement(s) H302 Harmful if swallowedH319 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/hearing protection/...
Response	P301+P317 IF SWALLOWED: Get medical help.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.
Storage	none
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3. Other hazards which do not result in classification

no data available

3. SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Ammonium chloride	Ammonium chloride	12125-02-9	235-186-4	100%

4. SECTION 4: First-aid measures

4.1. Description of necessary first-aid measures

Medical attention is required. Consult a doctor. Show this safety data sheet (SDS) to the doctor in attendance.

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Rest. Refer for medical attention .

4.2. Most 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)

4.3. Indication 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. SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2. Specific 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)

5.3. Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

6. SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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.

6.2. Environmental 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.

6.3. Methods 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. SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2. Conditions 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. SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure limit values

TLV: 10 mg/m3, as TWA; 20 mg/m3 as STEL

Biological limit values

no data available

8.2. Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation (not if powder), local exhaust or breathing protection.

Thermal hazards

no data available

9. SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid. Fine crystalline powder, homogeneous.
Colour	White.
Odour	Odorless
Melting point/freezing point	338 °C.
Boiling point or initial boiling point and boiling range	520°C(lit.)
Flammability	Noncombustible Solid
Lower and upper explosion limit/flammability limit	Not flammable
Flash point	75°C(lit.)
Auto-ignition temperature	no data available

Decomposition temperature	338°C
pH	pH of aqueous solution (25 deg C): 1% 5.5; 3% 5.1; 10% 5.0
Kinematic viscosity	no data available
Solubility	37 % (NIOSH, 2016)
Partition coefficient n-octanol/water	log Pow = -3.2. Temperature:25 °C.
Vapour pressure	1.3 hPa. Temperature:160 °C.
Density and/or relative density	1.53. Temperature:25 °C.
Relative vapour density	1.9 (vs air)
Particle characteristics	no data available

10. SECTION 10: Stability and reactivity

10.1. Reactivity

Decomposes on heating. This produces toxic and irritating fumes (nitrogen oxides, ammonia and hydrogen chloride). The solution in water is a weak acid. Reacts violently with ammonium nitrate and potassium chlorate. This generates fire and explosion hazard. Attacks copper and its compounds.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility 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.

10.4. Conditions to avoid

no data available

10.5. Incompatible materials

Incompatible materials: Strong acids, strong bases, strong oxidizing agents.

10.6. Hazardous decomposition products

Melting point: 338 deg C (sublimes)

11. SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male/female) - 1 410 mg/kg bw. Remarks:Slope factor = 1.36.
- Inhalation: no data available
- Dermal: LD50 - rat (male/female) - > 2 000 mg/kg bw.

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

The substance is irritating to the eyes, skin and respiratory tract.

STOT-repeated exposure

no data available

Aspiration hazard

Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly.

12. SECTION 12: Ecological information

12.1. Toxicity

- Toxicity to fish: LC50 - Oncorhynchus mykiss (previous name: Salmo gairdneri) - 42.91 mg/L - 96 h. Remarks:Ammonium chloride.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Ceriodaphnia acanthina - 98.5 mg/L - 48 h. Remarks:Ammonium chloride.
- Toxicity to algae: EC50 - Chlorella vulgaris - 2 700 mg/L - 18 d.
- Toxicity to microorganisms: EC20 - activated sludge, domestic - 850 mg/L - 30 min. Remarks:Respiration rate.

12.2. Persistence and degradability

no data available

12.3. Bioaccumulative potential

no data available

12.4. Mobility in soil

no data available

12.5. Other adverse effects

no data available

13. SECTION 13: Disposal considerations

13.1. Disposal 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. SECTION 14: Transport information

14.1. UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)

14.2. UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)

14.3. Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)

14.4. Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)

14.5. Environmental hazards

ADR/RID: Yes	IMDG: Yes	IATA: Yes

14.6. Special precautions for user

no data available

14.7. Transport in bulk according to IMO instruments

no data available

15. SECTION 15: Regulatory information

15.1. Safety, 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	235-186-4
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.
Korea Existing Chemicals List (KECL)	Listed.

16. SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Any questions regarding this SDS, Please send your inquiry to ydcl@yataichemical.com

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