

SAFETY DATA SHEET

Version 8.2
Revision Date 03/21/2023
Print Date 04/11/2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifiers**

Product name : Ammonium chloride extra pure Ph
Eur,BP,USP

Product Number : 1.00924
Catalogue No. : 100924
Brand : Millipore
Index-No. : 017-014-00-8
CAS-No. : 12125-02-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Pharmaceutical production, Cosmetic raw material

1.3 Details of the supplier of the safety data sheet

Company : EMD Millipore Corporation
400 Summit Drive
BURLINGTON MA 01803
UNITED STATES

Telephone : +1 800-645-5476

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-
527-3887 CHEMTREC (International) 24
Hours/day; 7 Days/week

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Warning

Hazard statement(s)

H302

Harmful if swallowed.

H319

Causes serious eye irritation.

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Precautionary statement(s)	
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. 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.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	: NH ₄ Cl
Molecular weight	: 53.49 g/mol
CAS-No.	: 12125-02-9
EC-No.	: 235-186-4
Index-No.	: 017-014-00-8

Component	Classification	Concentration
ammonium chloride		
	Acute Tox. 4; Eye Irrit. 2A; H302, H319	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Nitrogen oxides (NO_x)

Hydrogen chloride gas

Not combustible.

Fire may cause evolution of:

nitrogen oxides, Hydrogen chloride gas

Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Dry. Tightly closed. Dry.

Recommended storage temperature see product label.

Storage class

Storage class (TRGS 510): 13: Non Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
ammonium chloride	12125-02-9	TWA	10 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
		STEL	20 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
		TWA	10 mg/m ³	USA. NIOSH Recommended Exposure Limits
		ST	20 mg/m ³	USA. NIOSH Recommended Exposure Limits
		PEL	10 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	20 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other

substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

Body Protection

protective clothing

Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|--|---|
| a) Appearance | Form: Crystalline powder
Color: white |
| b) Odor | odorless |
| c) Odor Threshold | Not applicable |
| d) pH | 5 - 5.5 at 25 °C (77 °F) |
| e) Melting point/freezing point | Melting point: 338 °C (640 °F) - (sublimed) |
| f) Initial boiling point and boiling range | 520 °C 968 °F |
| g) Flash point | No data available |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | The product is not flammable. - Flammability (solids) |
| j) Upper/lower flammability or | No data available |

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explosive limits

- | | | |
|----|---|--|
| k) | Vapor pressure | 1.3 hPa at 160.4 °C (320.7 °F)
1.3 hPa at 30 °C (86 °F) |
| l) | Vapor density | No data available |
| m) | Density | 1.53 g/cm ³ at 25 °C (77 °F) |
| | Relative density | No data available |
| n) | Water solubility | 372 g/l at 20 °C (68 °F) |
| o) | Partition coefficient:
n-octanol/water | Not applicable for inorganic substances |
| p) | Autoignition
temperature | > 400 °C (> 752 °F) - Relative self-ignition temperature for
solids does not ignite |
| q) | Decomposition
temperature | Not applicable |
| r) | Viscosity | No data available |
| s) | Explosive properties | No data available |
| t) | Oxidizing properties | none |

9.2 Other safety information

- | | |
|---------------|---------------------------------|
| Bulk density | ca. 600 - 900 kg/m ³ |
| Particle size | 0.116 mm - Mean particle size |

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Violent reactions possible with:

alkali hydroxides

acids

Risk of ignition or formation of inflammable gases or vapours with:

halogen-halogen compounds

alkalines

alkaline substances

Risk of explosion with:

nitrites

chlorates

Heavy metal salts

nitrites

Hydrogen cyanide (hydrocyanic acid)

Chlorine

silver salt

Strong oxidizing agents

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

Aluminum, Lead, Iron, Copper, copper compounds

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - 1,410 mg/kg
(OECD Test Guideline 401)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Inhalation: No data available

Symptoms: Possible damages: , mucosal irritations

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

Remarks: (ECHA)

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 24 h

(Draize Test)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Eye irritation

Remarks: (ECHA)

Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster lung cells

Metabolic activation: without metabolic activation

Method: OECD Test Guideline 473

Result: positive

Test Type: Micronucleus test

Species: Mouse

Cell type: Bone marrow

Application Route: Intraperitoneal injection

Method: OECD Test Guideline 474

Result: negative

Carcinogenicity

- IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 1,695.7 mg/kg
Remarks: Subchronic toxicity

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

The following applies to ammonium salts in general: after swallowing: local irritation symptoms, nausea, vomiting, diarrhoea. Systemic effect: after the uptake of very large quantities: drop in blood pressure, collapse, CNS disorders, spasms, narcotic conditions, respiratory paralysis, haemolysis.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	semi-static test LC50 - Cyprinus carpio (Carp) - 209.00 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 101 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test ErC50 - Chlorella vulgaris (Fresh water algae) - 1,300 mg/l - 5 d Remarks: (ECHA)
Toxicity to bacteria	static test EC50 - activated sludge - 1,310 mg/l - 0.5 h

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(OECD Test Guideline 209)

Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) semi-static test NOEC - Daphnia magna (Water flea) - 14.6 mg/l - 21 d
Remarks: (ECHA)

12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

Further information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
ammonium chloride	12125-02-9	1994-04-01

Massachusetts Right To Know Components

	CAS-No.	Revision Date
ammonium chloride	12125-02-9	1994-04-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
ammonium chloride	12125-02-9	1994-04-01

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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