

## SAFETY DATA SHEET

Version 6.8  
Revision Date 08/07/2024  
Print Date 08/08/2024**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Ammonium chloride

Product Number : A9434

Brand : Sigma

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 : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765

Fax : +1 800 325-5052

**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.

Sigma - A9434

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## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Warning

Hazard Statements

H302

Harmful if swallowed.

H319

Causes serious eye irritation.

Precautionary Statements

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

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### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

Synonyms : Salmiac

Formula : H<sub>4</sub>CIN

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
<b>ammonium chloride</b>		
	Acute Tox. 4; Eye Irrit. 2A; H302, H319	<= 100 %

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

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### SECTION 4: First aid measures

#### 4.1 Description of first-aid measures

No data available

#### **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

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### **SECTION 5: Firefighting measures**

#### **5.1 Extinguishing media**

No data available

#### **5.2 Special hazards arising from the substance or mixture**

Nitrogen oxides (NO<sub>x</sub>)

Hydrogen chloride gas

Not combustible.

#### **5.3 Advice for firefighters**

No data available

#### **5.4 Further information**

No data available

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### **SECTION 6: Accidental release measures**

#### **6.1 Personal precautions, protective equipment and emergency procedures**

For personal protection see section 8.

#### **6.2 Environmental precautions**

No data available

#### **6.3 Methods and materials for containment and cleaning up**

No data available

#### **6.4 Reference to other sections**

For disposal see section 13.

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### **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**

Hygroscopic.

##### **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 <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
		STEL	20 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
		TWA	10 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		ST	20 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		PEL	10 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	20 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

### 8.2 Exposure controls

#### Personal protective equipment

##### 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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://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

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Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

**Control of environmental exposure**  
Prevent product from entering drains.

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**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

a) Appearance	Form: solid 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	( )Not applicable
h) Evaporation rate	No data available
i) Flammability (solid, gas)	The product is not flammable. - Flammability (solids)
j) Upper/lower flammability or explosive limits	No data available
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 <sup>3</sup> 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**

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

No data available

### 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:

nitrates

chlorates

Heavy metal salts

nitrites

Hydrogen cyanide (hydrocyanic acid)

Chlorine

silver salt

Strong oxidizing agents

### 10.4 Conditions to avoid

Exposure to moisture may affect product quality.

### 10.5 Incompatible materials

Aluminum, Lead, Iron, Copper, copper compounds

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## 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**

In vivo tests did not show mutagenic effects

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

RTECS: BP4550000

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.

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## 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  
(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

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

No data available

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## SECTION 14: Transport information

### DOT (US)

UN number: 3077 Class: 9

Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (ammonium chloride)

Reportable Quantity (RQ): 5000 lbs

Poison Inhalation Hazard: No

### IMDG

Not dangerous goods

### IATA

Not dangerous goods

### Further information

Not classified as dangerous in the meaning of transport regulations.

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## SECTION 15: Regulatory information

### CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
ammonium chloride	12125-02-9	5000	5000

### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

## **SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

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

**SARA 311/312 Hazards** : Acute Health Hazard

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

ammonium chloride	12125-02-9	>= 90 - <= 100 %
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## **US State Regulations**

### **Massachusetts Right To Know**

ammonium chloride	12125-02-9
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### **Pennsylvania Right To Know**

ammonium chloride	12125-02-9
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### **Maine Chemicals of High Concern**

Product does not contain any listed chemicals

### **Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

### **Washington Chemicals of High Concern**

Product does not contain any listed chemicals

## **The ingredients of this product are reported in the following inventories:**

TSCA : All substances listed as active on the TSCA inventory

### **TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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## **SECTION 16: Other information**

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact [mlsbranding@sial.com](mailto:mlsbranding@sial.com).

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