

# SAFETY DATA SHEET

according to the OSHA  
Hazard Communication Standard

Version 6.11  
Revision Date 07/14/2026  
Print Date 07/15/2026

## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Ammonium-<sup>15</sup>N nitrate

Product Number : 488046  
Brand : Aldrich  
CAS-No. : 31432-48-1

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

Identified uses : Laboratory chemicals, Synthesis of substances

Restrictions on use : Not Available

### 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 number

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

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## SECTION 2. HAZARDS IDENTIFICATION

### GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

#### Hazards for the product as supplied

Oxidizing solids : Category 3

Eye irritation : Category 2A

### Other hazards

None known.

### GHS label elements

Hazard pictograms



Signal word

: Warning

Hazard statements

: H272 May intensify fire; oxidizer.  
H319 Causes serious eye irritation.

Precautionary statements

#### Prevention:

P210 Keep away from heat.  
P220 Keep/ Store away from clothing/ combustible materials.  
P221 Take any precaution to avoid mixing with combustibles.  
P264 Wash skin thoroughly after handling.  
P280 Wear protective gloves/ eye protection/ face protection.

#### Response:

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.  
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

#### Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture

: Substance

CAS-No.

: 31432-48-1

### Components

| Chemical name        | CAS No./Unique ID | Concentration (% w/w) | Trade secret |
|----------------------|-------------------|-----------------------|--------------|
| Ammonium-15N nitrate | 31432-48-1*       | >= 90 - <= 100        | -            |

\* Indicates that the identifier is a CAS No.

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#### SECTION 4. FIRST AID MEASURES

|                                                             |                                                                                                                                        |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| General advice                                              | : Show this 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.<br>Call in ophthalmologist.<br>Remove contact lenses.                             |
| If swallowed                                                | : After swallowing: immediately make victim drink water (two glasses at most).<br>Consult a physician.                                 |
| Most important symptoms and effects, both acute and delayed | : The most important known symptoms and effects are described in the labelling (see section 2 GHS label elements) and/or in section 11 |
| Protection of first-aiders                                  | : For personal protection see section 8.                                                                                               |
| Notes to physician                                          | : No data available                                                                                                                    |

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#### SECTION 5. FIREFIGHTING MEASURES

|                                       |                                                                                                           |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------|
| 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.                            |
| Specific hazards during fire fighting | : Not combustible.                                                                                        |

Has a fire-promoting effect due to release of oxygen.

Ambient fire may liberate hazardous vapours.

|                                                |                                                                                                                                                                      |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hazardous combustion products                  | : Nitrogen oxides (NO <sub>x</sub> )                                                                                                                                 |
| Specific extinguishing methods                 | : No data available                                                                                                                                                  |
| Further information                            | : Suppress (knock down) gases/vapours/mists with a water spray jet.<br>Prevent fire extinguishing water from contaminating surface water or the ground water system. |
| Special protective equipment for fire-fighters | : In the event of fire, wear self-contained breathing apparatus.                                                                                                     |

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

|                                                                     |                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions, protective equipment and emergency procedures | : Advice for non-emergency personnel:<br>Avoid inhalation of dusts.<br>Avoid substance contact.<br>Ensure adequate ventilation.<br>Evacuate the danger area, observe emergency procedures, consult an expert.<br>Advice for emergency responders:<br>Wear appropriate personal protective equipment, as indicated in Section 8. |
| Environmental precautions                                           | : Do not let product enter drains.                                                                                                                                                                                                                                                                                              |
| Methods and materials for containment and cleaning up               | : Cover drains. Collect, bind, and pump off spills.<br>Observe possible material restrictions (see sections 7 and 10).<br>Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.                                                                                                                  |

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2 GHS label elements

|                                                 |                                                                     |
|-------------------------------------------------|---------------------------------------------------------------------|
| Advice on protection against fire and explosion | : Keep away from open flames, hot surfaces and sources of ignition. |
| Further information on storage conditions       | : Tightly closed.<br>Away from combustible materials and sources of |

ignition and heat.  
TRGS 511 must be observed.

Storage class : 5.1C, Ammonium nitrate and ammonium nitrate  
containing preparations

Recommended storage temperature : Recommended storage temperature see product label.

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

**Engineering measures** : No data available

### Personal protective equipment

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.

Recommended Filter type: : Filter type P2

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### Hand protection

Material : Nitrile rubber  
Break through time : 480 min  
Glove thickness : 0.11 mm  
Protective index : Full contact  
Manufacturer : KCL 741 Dermatril® L

Material : Nitrile rubber  
Break through time : 480 min  
Glove thickness : 0.11 mm  
Protective index : Splash contact  
Manufacturer : KCL 741 Dermatril® L

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Remarks                  | : Handle with impervious gloves.<br>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: <a href="http://www.kcl.de">www.kcl.de</a> ). |
| Eye protection           | : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).<br>Safety glasses                                                                                                                                                                                                                                                                               |
| Skin and body protection | : protective clothing                                                                                                                                                                                                                                                                                                                                                                                                           |
| Hygiene measures         | : Change contaminated clothing. Wash hands after working with substance.                                                                                                                                                                                                                                                                                                                                                        |

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                                     |                                   |
|-----------------------------------------------------|-----------------------------------|
| Appearance                                          | : crystalline                     |
| Colour                                              | : white                           |
| Odour                                               | : No data available               |
| Odour Threshold                                     | : No data available               |
| pH                                                  | : No data available               |
| Melting point/ range                                | : 336 °F / 169 °C<br>Method: lit. |
| Boiling point/boiling range                         | : 410 °F / 210 °C<br>Method: lit. |
| Flash point                                         | : Not applicable                  |
| Evaporation rate                                    | : No data available               |
| Flammability (solid, gas)                           | : No data available               |
| Flammability (liquids)                              | : No data available               |
| Burning rate                                        | : No data available               |
| Upper explosion limit /<br>Upper flammability limit | : No data available               |

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|                                                     |                                                                               |
|-----------------------------------------------------|-------------------------------------------------------------------------------|
| Lower explosion limit /<br>Lower flammability limit | : No data available                                                           |
| Vapour pressure                                     | : No data available                                                           |
| Relative vapour density                             | : No data available                                                           |
| Relative density                                    | : No data available                                                           |
| Density                                             | : 1.720 g/cm <sup>3</sup> (77 °F / 25 °C)                                     |
| Water solubility                                    | : No data available                                                           |
| Partition coefficient: n-<br>octanol/water          | : Not applicable for inorganic substances                                     |
| Autoignition temperature                            | : No data available                                                           |
| Decomposition<br>temperature                        | : No data available                                                           |
| Viscosity, dynamic                                  | : No data available                                                           |
| Viscosity, kinematic                                | : No data available                                                           |
| Flow time                                           | : No data available                                                           |
| Explosive properties                                | : No data available                                                           |
| Oxidizing properties                                | : The substance or mixture is classified as oxidizing<br>with the category 3. |
| Molecular weight                                    | : 80.14 g/mol                                                                 |
| Particle characteristics<br>Particle size           | : No data available                                                           |

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## SECTION 10. STABILITY AND REACTIVITY

|                                       |                                                                                                 |
|---------------------------------------|-------------------------------------------------------------------------------------------------|
| Reactivity                            | : No data available                                                                             |
| Chemical stability                    | : The product is chemically stable under standard<br>ambient conditions (room temperature) .    |
| Possibility of hazardous<br>reactions | : Violent reactions possible with:<br>strong reducing agents<br>Strong acids<br>Powdered metals |

Conditions to avoid : no information available

Incompatible materials : No data available

Hazardous decomposition : In the event of fire: see section 5 products

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male and female - 2,950 mg/kg  
(OECD Test Guideline 401)

Remarks: The value is given in analogy to the following substances: Ammonium nitrate

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

LC50 Inhalation - Rat - 4 h - > 88.8 mg/l - dust/mist

Remarks: (IUCLID)

The value is given in analogy to the following substances: Ammonium nitrate

Symptoms: Symptoms may be delayed., mucosal irritations

LD50 Dermal - Rat - male and female - > 5,000 mg/kg

(OECD Test Guideline 402)

Remarks: The value is given in analogy to the following substances: Ammonium nitrate

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Remarks: The value is given in analogy to the following substances: Ammonium nitrate

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irritating to eyes. - 24 h

(OECD Test Guideline 405)

Remarks: The value is given in analogy to the following substances: Ammonium nitrate

#### Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

Remarks: The value is given in analogy to the following substances: Nitric acid ammonium calcium salt (1:?:?)

#### Germ cell mutagenicity

Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Remarks: The value is given in analogy to the following substances: Ammonium nitrateTest

Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Remarks: The value is given in analogy to the following substances: Ammonium nitrate

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Remarks: The value is given in analogy to the following substances: Ammonium nitrate

### **Carcinogenicity**

IARC: No component 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 component 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 - No observed adverse effect level - 256 - 284 mg/kg

Remarks: The value is given in analogy to the following substances: ammonium sulphate

Gastrointestinal disturbance, Blood disorders

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

After absorption of large quantities:

Methaemoglobinaemia with headache, cardiac arrhythmia, drop in blood pressure, dyspnoea, and spasms, key symptom: cyanosis (blue colouration of the blood).

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.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

##### **Ammonium-15N nitrate:**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 490 mg/l  
Exposure time: 48 h  
Remarks: (ECHA)

The value is given in analogy to the following substances:

The value is given in analogy to the following substances: potassium nitrate

Toxicity to algae/aquatic plants : ErC50 (diatoms): > 1,700 mg/l  
Exposure time: 10 Days

Test Type: static test

Analytical monitoring: yes

Remarks: (ECHA)

The value is given in analogy to the following substances:

The value is given in analogy to the following substances: potassium nitrate

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l  
Exposure time: 3 h

Method: OECD Test Guideline 209

GLP: yes

Remarks: The value is given in analogy to the following substances:

The value is given in analogy to the following substances: sodium nitrate

### Persistence and degradability

#### Components:

##### **Ammonium-15N nitrate:**

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

## Bioaccumulative potential

### Components:

#### Ammonium-15N nitrate:

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

## Mobility in soil

No data available

## Other adverse effects

### Components:

#### Ammonium-15N nitrate:

Additional ecological information : Biological effects:

Hazard for drinking water supplies.

Fertilising effect possible.

Discharge into the environment must be avoided.

## Endocrine disrupting properties

No data available

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## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : 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.

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## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### IATA-DGR

UN/ID No. : UN 1942  
Proper shipping name : Ammonium nitrate  
Class : 5.1  
Packing group : III  
Labels : Division 5.1 - Oxidizing substances  
Packing instruction (cargo aircraft) : 563  
Packing instruction (passenger aircraft) : 559

**IMDG-Code**

UN number : UN 1942  
Proper shipping name : AMMONIUM NITRATE

Class : 5.1  
Packing group : III  
Labels : 5.1  
EmS Code : F-H, S-Q  
Marine pollutant : no

**Transport in bulk according to IMO instruments**

Not applicable for product as supplied.

**National Regulations****49 CFR**

UN/ID/NA number : UN 1942  
Proper shipping name : Ammonium nitrate

Class : 5.1

Packing group : III  
Labels : Division 5.1 - Oxidizing substances  
ERG Code : 140  
Marine pollutant : no  
Poison Inhalation Hazard : No

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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**SECTION 15. REGULATORY INFORMATION****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**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** : Reactivity Hazard  
Acute Health Hazard  
Chronic Health Hazard

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

Ammonium- 31432-48- >= 90 - <= 100 %  
15N nitrate 1

## **US State Regulations**

### **Massachusetts Right To Know**

Ammonium-15N nitrate 31432-48-1

### **Pennsylvania Right To Know**

Ammonium-15N nitrate 31432-48-1

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

US TSCA : Product contains substance(s) not listed on 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**

### **Full text of other abbreviations**

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a

test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. 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](http://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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