

# SAFETY DATA SHEETS

According to the UN GHS revision 10

Version: 1.1  
Creation Date: July 15, 2024  
Revision Date: January 03, 2025

## SECTION 1: Identification

### 1.1 GHS Product identifier

Product name Ammonium nitrate, 5%

### 1.2 Other means of identification

Product number C1789611  
Other names Ammonium nitrate;

### 1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.  
Uses advised against no data available

### 1.4 Supplier's details

Company CATO Research Chemicals Inc.  
Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou  
Telephone +86-20-81960175

### 1.5 Emergency phone number

Emergency phone number +86-20-81960175  
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Oxidizing solids, Category 3  
Eye irritation, Category 2

### 2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Warning  
Hazard statement(s) H272 May intensify fire; oxidizer  
H319 Causes serious eye irritation

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P220 Keep away from clothing and other combustible materials.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P264 Wash ... thoroughly after handling.  
P370+P378 In case of fire: Use ... to extinguish.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
none  
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.

Response

Storage

Disposal

### 2.3 Other hazards which do not result in classification

no data available

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

| Chemical name        | Common names and synonyms | CAS number | EC number | Concentration |
|----------------------|---------------------------|------------|-----------|---------------|
| Ammonium nitrate, 5% | Ammonium nitrate          | 6484-52-2  | 229-347-8 | ≈ 99%         |

## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

#### If inhaled

Fresh air, rest. Seek medical attention if you feel unwell.

#### Following skin contact

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

#### 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. Refer for medical attention .

### 4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 140 [Oxidizers]: Inhalation, ingestion or contact (skin, eyes) with vapors or substance may cause severe injury, burns or death. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

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Excerpt from ERG Guide 112 [Explosives\* - Division 1.1, 1.2, 1.3 or 1.5]: Fire may produce irritating, corrosive and/or toxic gases. (ERG, 2016)

Liquid irritates eyes, particularly those grades that contain a little free ammonia. (USCG, 1999)

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

Emergency and Supportive Measures: Maintain an open airway and assist ventilation if necessary. Administer supplemental oxygen. Treat hypotension with supine positioning, intravenous crystalloid fluids, and low-dose pressors if needed. Monitor vital signs and ECG for 4-6 hours. Nitrates and nitrites

## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

Cool exposed containers with water. Continue cooling after fire has been extinguished.

### 5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 140 [Oxidizers]: These substances will accelerate burning when involved in a fire. Some may decompose explosively when heated or involved in a fire. May explode from heat or contamination. Some will react explosively with hydrocarbons (fuels). May ignite combustibles (wood, paper, oil, clothing, etc.). Containers may explode when heated. Runoff may create fire or explosion hazard. (ERG, 2016)

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Excerpt from ERG Guide 112 [Explosives\* - Division 1.1, 1.2, 1.3 or 1.5]: MAY EXPLODE AND THROW FRAGMENTS 1600 METERS (1 MILE) OR MORE IF FIRE REACHES CARGO. For information on "Compatibility Group" letters, refer to Glossary section. (ERG, 2016)

Behavior in Fire: Water of solution may evaporate, and remaining solids may then explode. (USCG, 1999)

### 5.3 Special protective actions for fire-fighters

Use water in large amounts. NO other agents. In case of fire in the surroundings, use appropriate extinguishing media. In case of fire: keep drums, etc., cool by spraying with water. Combat fire from a sheltered position.

## 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 non-combustible containers. Store and dispose of according to local regulations. 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 non-combustible containers. Store and dispose of according to local regulations. Wash away remainder with plenty of water.

## 6.3 Methods and materials for containment and cleaning up

Prompt cleanup and removal are necessary in order to prevent contamination with combustible materials.

# SECTION 7: Handling and storage

## 7.1 Precautions for safe handling

NO contact with combustible substances or reducing agents. See Notes. 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 combustible substances and reducing agents. Dry. Well closed. Closed containers may rupture violently when heated.

# SECTION 8: Exposure controls/personal protection

## 8.1 Control parameters

### Occupational Exposure limit values

no data available

### 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 goggles.

### Skin protection

Protective gloves.

### Respiratory protection

Use local exhaust or breathing protection.

### Thermal hazards

no data available

# SECTION 9: Physical and chemical properties and safety characteristics

|                                                          |                                                                                                                        |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Physical state                                           | Solid. Orthorhombic crystals.                                                                                          |
| Colour                                                   | White.                                                                                                                 |
| Odour                                                    | Odorless                                                                                                               |
| Melting point/freezing point                             | Remarks: Mostly into H <sub>2</sub> O and N <sub>2</sub> O.;                                                           |
| Boiling point or initial boiling point and boiling range | 210°C                                                                                                                  |
| Flammability                                             | Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire. |
| Lower and upper explosion limit/flammability limit       | no data available                                                                                                      |
| Flash point                                              | 210°C                                                                                                                  |
| Auto-ignition temperature                                | Not flammable (USCG, 1999)                                                                                             |
| Decomposition temperature                                | > 210°C                                                                                                                |
| pH                                                       | 5.43. Remarks: Solution in water.                                                                                      |
| Kinematic viscosity                                      | no data available                                                                                                      |
| Solubility                                               | 213 g/100 g water at 25 deg C                                                                                          |
| Partition coefficient n-octanol/water                    | no data available                                                                                                      |
| Vapour pressure                                          | 2.3 kPa at 20 deg C in water solution; 1.5 kPa at 20 deg C in saturated NH <sub>4</sub> NO <sub>3</sub> solution       |
| Density and/or relative density                          | 1.72 g/cm <sup>3</sup> .                                                                                               |

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|                          |                   |
|--------------------------|-------------------|
| Relative vapour density  | no data available |
| Particle characteristics | no data available |

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Heating may cause violent combustion or explosion. Decomposes on heating. This produces toxic fumes. The substance is a strong oxidant. It reacts with acids and combustible and reducing materials.

### 10.2 Chemical stability

Stability during transport: If heated strongly, decomposes, giving off toxic gases and gases which support combustion. Undergoes detonation if heated under confinement.

### 10.3 Possibility of hazardous reactions

AMMONIUM NITRATE is a strong oxidizing agent. Intimate contact with combustible materials creates a fire or explosion hazard. Closed containers may rupture violently or detonate if heated. May detonate if subjected to strong shocks, such as from an explosion. Ammonium nitrate of any grade, including fertilizer grade should be considered, especially when mixed with oil, charcoal, or other organic materials, an explosive capable of detonation by the combustion or explosion of adjacent materials. Emits oxides of nitrogen and ammonia when heated to decomposition.

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

With ammonium chloride, (barium nitrate), water, zinc: Addition of water to an intimate mixture of zinc powder and the salts causes spontaneous ignition and a mixture of ammonium nitrate and ammonium chloride...sprinkled with zinc dust ignites vigorously when moistened.

### 10.6 Hazardous decomposition products

Decomposes @ 210 deg C, with evolution of nitrous oxide.

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## SECTION 11: Toxicological information

#### Acute toxicity

- Oral: LD50 Rat oral 2217 mg/kg bw
- Inhalation: LC50 - rat - > 88.8 mg/L.
- Dermal: LD50 - rat (male/female) - > 5 000 mg/kg.

#### 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. The substance may cause effects on the blood. This may result in the formation of methaemoglobin. The effects may be delayed.

#### STOT-repeated exposure

no data available

#### Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed, especially if powdered.

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## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: LC50 - Cyprinus carpio - 447 mg/L - 48 h.

- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 490 mg/L - 48 h.
- Toxicity to algae: EC50 - several benthic diatoms; see results - > 1 700 mg/L - 10 d.
- Toxicity to microorganisms: EC10 - activated sludge of a predominantly domestic sewage - 180 mg/L - 180 min. Remarks: Respiration rate.

## 12.2 Persistence and degradability

Ammonium nitrate will be taken up by bacteria. Nitrate is more persistent in water than /the/ ammonium ion; nitrate degradation is fastest in anaerobic conditions.

## 12.3 Bioaccumulative potential

no data available

## 12.4 Mobility in soil

When spilled on soil, the liquid form of ammonium nitrate will spread on the surface and penetrate into the soil at a rate dependent on the soil type and its water content.

## 12.5 Other adverse effects

no data available

# 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.

# SECTION 14: Transport information

## 14.1 UN Number

ADR/RID: UN0222 (For reference only, please check.)      IMDG: UN0222 (For reference only, please check.)      IATA: UN0222 (For reference only, please check.)

## 14.2 UN Proper Shipping Name

ADR/RID: AMMONIUM NITRATE (For reference only, please check.)      IMDG: AMMONIUM NITRATE (For reference only, please check.)      IATA: AMMONIUM NITRATE (For reference only, please check.)

## 14.3 Transport hazard class(es)

ADR/RID: 1.1D (For reference only, please check.)      IMDG: 1.1D (For reference only, please check.)      IATA: 1.1D (For reference only, please check.)

## 14.4 Packing group, if applicable

ADR/RID: (For reference only, please check.)      IMDG: (For reference only, please check.)      IATA: (For reference only, please check.)

## 14.5 Environmental hazards

ADR/RID: No      IMDG: No      IATA: No

## 14.6 Special precautions for user

no data available

## 14.7 Transport in bulk according to IMO instruments

no data available

# 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 nitrate                                                       | Ammonium nitrate          | 6484-52-2  | 229-347-8 |
| 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                              |                           |            | 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. |

## SECTION 16: Other information

### Information on revision

Creation Date July 15, 2024  
Revision Date January 03, 2025

### 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](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/>

### Other Information

UN number 1942 refers to pure ammonium nitrate with not more than 0.2% combustible material. Ammonium nitrate can refer to a range of ammonium nitrate-based fertilizers (with UN number 2067). The physico-chemical properties may vary according to the chemical composition. This ICSC covers pure ammonium nitrate - the properties of fertilizers will be different. Will turn shock-sensitive if contaminated with organic materials. Rinse contaminated clothing with plenty of water because of fire hazard. Depending on the degree of exposure, periodic medical examination is suggested. The storage of pure ammonium nitrate is often regulated - check for local regulations. In the event of a fire, large piles of ammonium nitrate present an explosion hazard. Large piles might need to be dismantled.

**Any questions regarding this SDS, Please send your inquiry to [info@cato-chem.com](mailto:info@cato-chem.com)**

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