

# Material Safety Data Sheet

## J. R. Simplot Company

### AgriBusiness

Trade Name: Ammonium Nitrate 34-0-0  
Registration No: None

**M11030C****SECTION 1****CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Manufacturer or Formulator: J.R. Simplot Company  
P.O. Box 912  
Pocatello, ID 83204  
Emergency Phone - Chemtrec: 1-800-424-9300

Product Name: Ammonium Nitrate 34-0-0  
Common Name: Ammonium Nitrate  $\text{NH}_4\text{NO}_3$   
Chemical Type: Inorganic Salt

**SECTION 2****COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name and Synonyms	C.A.S. No.	Chemical Formula	WT% Hazardous Non-hazardous	TLV	PEL
Ammonium Nitrate	6484-52-2	$\text{NH}_4\text{NO}_3$	98.5 1.5	10 mg/ $\text{M}^3$ - Nuisance Dust	Not available
Non-hazardous coating agent					Not available

**SECTION 3****HAZARDS IDENTIFICATION**

**Ingestion:** Oral toxicity is listed as slight to moderate. Large amounts taken by mouth may have serious or even fatal effects from ammonia and nitrate salts. 10 ppm of nitration is considered a safe upper limit.

**Inhalation:** Minimal hazard under normal conditions. The Threshold Limit Value (TLV) for nitrogen is 5 ppm. Concentration of more than 200 ppm may be fatal even after short exposures during extreme conditions.

**Eye Contact:** May cause eye discomfort and aggravation with inflammation with heavy exposure.

**Skin Absorption:** May cause mechanical discomfort and rash with prolonged contact.

**Skin Contact:** Dust may cause inflammation to respiratory membranes. May cause mechanical discomfort and rash to skin with prolonged contact.

**Effects of Overdose:** Ingestion of large amounts may cause dizziness, blueness of skin, abdominal cramps, vomiting, blood diarrhea, weakness, convulsions, collapse. Small repeated doses by mouth may cause headaches and mental impairment.

**SECTION 4****FIRST AID MEASURES**

**Ingestion:** No hazard in normal industrial use. If ingested, give 2-3 glasses of water and induce vomiting. Call a doctor immediately.

**Inhalation:** Minimal hazards under normal conditions. Exposure to thermal decomposition—evacuate person to fresh air, give respiratory support and call a doctor.

**Eyes:** Immediately flush eyes with running water for at least 15 minutes.

**Skin:** Wash skin with mild soap and water.

**SECTION 5****FIRE FIGHTING MEASURES**

**Extinguishing Media:** Flood and cool hot nitrate with straight steam nozzles. Do not use salt water. Water is effective in desensitizing molten or contaminated nitrate.

**Special Fire Fighting Procedures:** Immediately ventilate structure. Do not use spray or fog nozzles. Use straight stream nozzles to cool and desensitize molten nitrate. Respiratory protection required for fire fighting personnel. When any fire is burning out of control and water cannot safely be applied to desensitize, nitrate fire crews should withdraw a safe distance and use unmanned fire lines.

**Unusual Fire and Explosion Hazards:** Decomposes into flammable and hazardous nitrogen oxides. As an oxidizer, it yields nitrous oxide readily to stimulate the combustion of organic matter or ether fuel. In unconfined fire situations, ammonium nitrate fertilizer creates a self-limiting effect as the endothermic effect of its dissociation into ammonia and nitric acid absorbs the heat produced by the exothermic decomposition of nitrous oxide and water vapor. Ammonium nitrate fertilizer is not explosive. Detonation potential under confinement and high temperatures, or when heated with contaminants such as organic or carbonaceous material, metallic powders, acids, or combination with copper, produces tetramine cupric hydrate, a salt with high sensitivity. Zonal decomposition a possibility.

**SECTION 6****ACCIDENTAL RELEASE MEASURES**

**Environmental Precautions:** Keep out of all waterways and all bodies of water. Do not contaminate drinking water.

**Steps to be taken in case material is released or spilled:**  
Advise local agencies if substance has entered water course or sewer. Take measures to minimize the effects of ground water.

**SECTION 7****HANDLING AND STORAGE**

**Precautions to be taken in handling and storing:**  
Avoid contact with incompatible materials. Avoid exposure to heat sources. Avoid contamination with organic matter (i.e., oil, etc.). If it becomes contaminated, treat as you would a blasting agent and avoid sources of high impact such as gunfire and blasting caps. Do not store near food stuff. Shipping regulations are restricted in various parts of the world. Consult local authorities to ensure conformity to regulations.



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## SECTION 8

## EXPOSURE CONTROLS/PERSONAL PROTECTION

**Ventilation Protection:** Adequate to control dust.  
**Respiratory Protection:** Dust mask for normal nuisance dust respiratory protection.  
**Protective Clothing:** Clean clothing and conventional work gloves.  
**Eye Protection:** Safety glasses with side shields.  
**Other:** Eyewash fountain in area.

## SECTION 9

## PHYSICAL AND CHEMICAL PROPERTIES

<b>Boiling Point:</b>	Decomposes @ 177°C, 350°F	<b>Solubility in Water:</b>	Complete
<b>Specific Gravity:</b>	1.725	<b>% Volatiles (by volume):</b>	Not applicable
<b>Flashpoint:</b>	Not applicable (solid)	<b>Vapor Pressure, mm Hg:</b>	Not applicable
<b>pH:</b>	10 soln.: 4.5-5.0	<b>Reaction with Water:</b>	None
<b>Appearance:</b>	White granules or prills.		
<b>Extinguishing Media:</b>	Straight stream nozzle to cool hot nitrate. Do not use salt water. Use spray or fog only on surrounding burning structures.		
<b>Decomposition:</b>	Nitrogen oxides-NO <sub>x</sub> . Decomposition of product above 410°F may produce highly toxic gases.		

## SECTION 10

## STABILITY AND REACTIVITY

**Stability (Normal Conditions):** Unstable  
**Conditions to Avoid:** Heat and fire. Insensitive to impact in dry form.  
**Incompatibility (Material to Avoid):** Acetic acids, metals (powdered), chlorides, organic matter, phosphorous, sodium, potassium, sulfur, inorganic zinc, copper. Copper represents the greatest contamination hazard.  
**Hazardous Decomposition Products:** Hazardous oxides of nitrogen. Exposure to high concentrations of decomposition products can be fatal. Rescue workers are at high risk and should wear self-contained breathing apparatus.  
**Hazardous Polymerization:** Will not occur.  
**Conditions to Avoid:** Heat and fire. Can react with certain reducing agents under heat conditions.

## SECTION 11

## TOXICOLOGY INFORMATION

**Aquatic Toxicity Rating:** TLM 96: 1000-100.

## SECTION 12

## ECOLOGICAL INFORMATION

None listed.

## SECTION 13

## DISPOSAL CONSIDERATIONS

**Waste Disposal Procedures:** Sweep up spilled material and place in suitable containers for use or disposal. Use as fertilizer following good agronomic practices.

## SECTION 14

## TRANSPORT INFORMATION

<b>Shipping name:</b>	Ammonium Nitrate Fertilizer, 5.1, NA2072, P.G. III	<b>P.I.N.:</b>	2067
<b>Hazard Class:</b>	5.1	<b>C.A.S. Number:</b>	6484-52-2
<b>Reportable Quantity (RQ):</b>	Not applicable	<b>D.O.T. Number:</b>	NA2072
<b>Labels Required:</b>	Oxidizer	<b>Haz Waste No:</b>	D002
<b>Placard:</b>	Oxidizer	<b>EPA Regist No:</b>	Not applicable
<b>WHMIS Hazard Class:</b>	Oxidizer (C), Toxic (D2B)	<b>WHMIS Labels:</b>	Toxic, Oxidizer

## SECTION 15

## REGULATORY INFORMATION

**Carcinogenicity:** by IARC?: Yes ( ) No (X) by NTP?: Yes ( ) No (X)

## SECTION 16

## OTHER INFORMATION

<b>Flash Point (Test Method):</b>	Not applicable	<b>Flammable Limits</b>	<b>LOWER</b>	<b>UPPER</b>
<b>Autotemperature:</b>	Decomposes @ 350°F, 177°C	<b>(% BY VOLUME)</b>	N/A	N/A
<b>Hazard Rating (N.F.P.A.):</b>	Health: 2 Fire: 0 Reactivity: 3	<b>Specific:</b>	Not applicable	

This product is an inorganic nitrate. It is a "Class 1" oxidizer in accordance with Appendix VI-A, Section 2.1.5 of the 1994 Uniform Fire Code. The definition of a Class 1 is "an oxidizer whose primary hazard is that it slightly increases the burning rate but does not cause spontaneous ignition when it comes in contact with combustible materials."

## SPECIAL FIRE FIGHTING PROCEDURES:

Ammonium nitrate fertilizer is an oxidizer, not an explosive. Under fire conditions it will begin to decompose into nitrous oxide, which will sustain combustion in the absence of oxygen. At high temperatures, and when mixed with certain contaminants, it may undergo a deflagration to detonation transition. Also, at high temperatures, more toxic oxides are produced, creating a severe health hazard. The shock sensitivity of molten AN is a hazard at temperatures above 245°C. This makes it especially dangerous if it is allowed to form large pools, as in the hold of a ship. In such cases, ventilation and the application of water will quickly desensitize and stabilize the hot material.

Contamination of either the AN prills or molten AN with metals, organic fuels, or combustibles will increase the sensitivity of the material and add to the explosion danger. Again, ventilation and the application of water will cool the hot AN and reduce the explosion hazard. Molten AN is a powerful oxidizer capable of igniting some combustible materials.

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Fertilizer compounds containing ammonium nitrate may be heated externally to the point where internal exothermic decomposition can take place and, eventually, self-sustain itself and penetrate deep into fertilizer piles. Large straight-stream nozzles directed to the center of the fire will quickly cool the material and extinguish the fire. If the zone of decomposition is small and easily accessible, it may be removed from the main body of the fertilizer pile by some mechanical means and taken outside, where it can be cooled with water.

Fire fighters should wear self-contained breathing apparatus and protective clothing. This equipment will protect them from the toxic fumes of decomposing ammonium nitrate, and the clothing will guard against molten nitrate splashes.

Immediately ventilate a building or vessel under fire when ammonium nitrate is stored. This will prevent pressure build-up and will allow the endothermic nature of the volatilization reaction to offset the heat produced by the exothermic decomposition of the AN.

Residents downwind should be evacuated to protect them from the toxic vapors. Spectators should be kept away and employees removed from the burning area. Approach the fire from upwind.

Fire fighters should have a twofold objective. They must extinguish the surrounding fire (the source of heat to the ammonium nitrate) and cool down the hot ammonium nitrate piles or molten material with straight streams of water. Water has a powerful endothermic effect when in combination with ammonium nitrate.

Fire fighters should operate from behind protective barriers to protect themselves against molten nitrate splashes when applying water to the fire.

Steam, carbon dioxide, dry chemicals, or other smothering agents should never be used on fires involving ammonium nitrate. Any attempts to smother decomposing AN will simply accelerate the process.

Care should be taken to keep nitrate out of confined spaces. Particularly, molten ammonium nitrate should be kept away from areas such as sewers and drains. Runoff water from a fire should be contained and prevented from entering streams, lakes, or wells.

After a fire or spill involving ammonium nitrate fertilizer, clean up activities should begin. Contaminated material should be properly disposed of; all exposed areas should be scrubbed and washed (especially wood) to ensure that ammonium nitrate residue is dissolved. Wet, empty bags should be removed, permitted to dry, and properly disposed of. Metals in contact with the residues of ammonium nitrate should be thoroughly cleaned with water to prevent corrosion.

If a fire is out of control and the ventilation is inadequate, or there is a suspicion of the presence of contamination or explosive devices in the burning building, the entire area should be evacuated and the firefighting efforts abandoned in anticipation of a possible explosion.

**MSDS Version Number: 4** (revisions to Section 15)

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