












NFPA Classification	DOT / TDG Pictograms	WHMIS Classification	PROTECTIVE CLOTHING
Health  Flammability  Reactivity  Specific Hazard 		 	   

Section I. Chemical Product and Company Identification

PRODUCT NAME/ TRADE NAME	Ammonium Nitrate, Prilled Fertilizer Grade 34.5-0-0		
SYNONYM	34.5-0-0 Prilled Ammonium Nitrate Fertilizer	MSDS NUMBER:	14082
CHEMICAL NAME	Ammonium nitrate.	REVISION NUMBER	3.7
CHEMICAL FAMILY	Nitrate salt. (Oxidizing agent)	MSDS prepared by the Environment, Health and Safety Department on 98/04/07.	
CHEMICAL FORMULA	NH ₄ NO ₃	24 HR EMERGENCY TELEPHONE NUMBER: Transportation: 1-800-792-8311 Medical: 1-888-670-8123	
MATERIAL USES	Agricultural industry: Fertilizer. Industrial applications: Manufacture of chemicals. Manufacture of specialty fertilizers.		
MANUFACTURER	Agrium North American Wholesale Suite 426 10333 Southport Road, S.W. Calgary, Alberta, Canada T2W 3X6	SUPPLIER	Agrium Suite 426, 10333 Southport Rd. SW Calgary, Alberta, Canada, T2W 3X6 Agrium U.S. Inc Suite 1400, 4582 South Ulster St. Denver, Colorado, U.S.A., 80237

Section II. Hazardous Ingredients

NAME	CAS #	Exposure Limits (ACGIH)						% by Weight
		TLV-TWA mg/m ³	TLV-TWA ppm	STEL mg/m ³	STEL ppm	CEIL mg/m ³	CEIL ppm	
Ammonium nitrate	6484-52-2	10						99.8
TOXICOLOGICAL DATA ON INGREDIENTS	Ammonium Nitrate: ORAL (LD50): Acute: 4500 mg/kg (Rat). DERMAL (LD50): Acute: 3000 mg/kg (Rabbit).							

Section III. Hazards Identification.

POTENTIAL ACUTE HEALTH EFFECTS	<p>Dangerous in case of ingestion. May interfere with the circulation and oxygen carrying capacity of the blood. Over-exposure by inhalation may cause respiratory irritation. This product may irritate eyes and skin upon contact but is unlikely to injure tissue.</p> <p>Symptoms of overexposure may include: Cardiovascular: methemoglobinemia, low blood pressure (hypotension), irregular heart beat (arrhythmia), shock (vasodilation) CNS: headache, dizziness, generalized tingling sensation (parasthesia) Gastrointestinal: nausea, vomiting, diarrhea, abdominal pain Eye: redness and inflammation (conjunctivitis) Skin: bluish discoloration (cyanosis) with profuse sweating or flushed skin</p>
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POTENTIAL CHRONIC HEALTH EFFECTS

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CARCINOGENIC EFFECTS: NONE by ACGIH, EPA, IARC, NTP, OSHA. **MUTAGENIC EFFECTS:** NONE by ACGIH, EPA, IARC, NTP, OSHA. **TERATOGENIC EFFECTS:** NONE by ACGIH, EPA, IARC, NTP, OSHA.

The substance is toxic to blood (methemoglobinemia). Repeated or prolonged overexposure to the substance can reduce the oxygen carrying capacity of the blood producing anoxia, especially in infants. Ensure that nitrate containing fertilizers are not applied near wells where contamination may occur. Consult your agronomist regarding the advisability and precautions for use of nitrate fertilizers on fruit or vegetable crops.

Section IV. First Aid Measures

EYE CONTACT	IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Obtain medical attention if irritation persists.
MINOR SKIN CONTACT	May cause skin irritation. Wash contaminated skin with soap and water. Cover irritated skin with an emollient. If irritation persists, seek medical attention.
EXTENSIVE SKIN CONTACT	No additional information.
MINOR INHALATION	Inhalation of dust may produce irritation, burning, sneezing and coughing. Long term exposure may cause headache, nausea or weakness. Loosen tight clothing. Allow to rest in a well ventilated area. Obtain medical attention if irritation persists.
SEVERE INHALATION	In emergency situations use proper respiratory protection to evacuate the victim to a safe area as soon as possible. Loosen tight clothing around the victim's neck and waist. If the victim is not breathing, perform mouth-to-mouth resuscitation. Oxygen may be administered if breathing is difficult. Obtain medical attention.
SLIGHT INGESTION	If conscious, have person drink several glasses of water or milk and induce vomiting. Never give anything by mouth to an unconscious person. Lower the head so that the vomit will not reenter the mouth and throat. Obtain medical attention.
EXTENSIVE INGESTION	No additional information.

Section V. Fire and Explosion Data

THE PRODUCT IS	Non-flammable.
AUTO-IGNITION TEMPERATURE	Not applicable.
FLASH POINT	Not applicable.
FLAMMABILITY LIMITS	Not applicable.
PRODUCTS OF COMBUSTION	Not applicable.
FIRE HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Not applicable.
EXPLOSION HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Oxidizer. Material is an oxidizer which may react readily with other materials, especially upon heating. In the presence of a detonation source, the material can explode when subject to sudden shock, pressure, or high temperature. AVOID temperatures above 210 °C (410 °F) which may cause thermal decomposition or explosion, especially in confined or poorly ventilated spaces. Incompatible with sulfur, chlorides, reducing agents, or other oxidizers. Incompatible with finely powdered metals (cadmium, copper, lead, cobalt, nickel, bismuth, chromium, magnesium, zinc, sodium, potassium and aluminum).
FIRE FIGHTING MEDIA AND INSTRUCTIONS	Oxidizing material. Cool containing vessels with water jet in order to prevent pressure build-up, or explosion. Use flooding quantities of water. Evacuate surrounding area. Material will not burn. Undergoes thermal decomposition at elevated temperatures to release toxic and combustible gases (ammonia, carbon dioxide, and oxides of nitrogen). If fumes or gases may be present, fire fighters should wear SELF-CONTAINED BREATHING APPARATUS.

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SPECIAL REMARKS ON
FIRE HAZARDS

Material supports combustion. Powerful oxidizing agent, supports combustion by liberating oxygen even if smothered. Avoid temperatures above 210°C (410°F) in confined or poorly ventilated spaces. Explosive when exposed to heat or flame under confinement. Thermal decomposition or explosion may result.

SPECIAL REMARKS ON
EXPLOSION HAZARDS

Industry studies have proposed the following rules for blends of ammonium nitrate with phosphate and potassium containing fertilizers:

- Ammonium nitrate fertilizers are reported not to detonate unless the fertilizer contains at least 70% ammonium nitrate, unless ammonium sulphate is present in the blend. Blended ammonium nitrate ammonium sulphate fertilizers may detonate with as little as 45% ammonium nitrate present.
- It has been reported that it is desirable to keep the ammonium to nitrate ratio above 1.5 in fertilizer blends in order to minimize toxic gas release during "cigar burn" fires.
- "Cigar burn" is considered to be a hazard primarily when the ammonium nitrate content of a blend is between 20-40%.

Section VI. Accidental Release Measures

SMALL SPILL

Use appropriate tools or equipment to place the spilled solid in a suitable container for reuse or disposal.

LARGE SPILL

Prevent additional discharge of material, if possible to do so without hazard. Prevent spills from entering sewers, watercourses, wells, etc. Product will promote algae growth and may degrade water quality and taste. Notify downstream water users. Nitrate in potable drinking water should be maintained below 10mg/L. Will dissolve and disperse in water. Use a shovel to put the material into a convenient container for reuse or disposal.

Section VII. Handling and Storage

PRECAUTIONS

Keep away from heat, combustible materials, and reducing agents. Avoid contact with skin and eyes. DO NOT ingest or breathe dust. Take precautions against electrostatic discharges. Keep out of reach of children. Keep away from food, drink and animal feed.

STORAGE

Store in a dry, cool and well ventilated area. Keep away from food, drink and animal feeds. Keep away from combustible materials. Keep away from incompatible materials. Do not blend or store in contact with urea. Dry urea and dry ammonium nitrate will react together to produce a slurry.

Section VIII. Exposure Controls/Personal Protection

ENGINEERING CONTROLS

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, use ventilation to keep exposure to airborne contaminants below the exposure limit.

PERSONAL PROTECTION

Wear appropriate respirator when ventilation is inadequate. Where skin and eye contact may occur as a result of brief periodic exposures, wear long sleeved clothing, coveralls, leather gloves, and safety glasses with side shields.

PERSONAL PROTECTION IN
CASE OF LARGE RELEASE

Where skin and eye contact may occur as a result of prolonged or repeated exposures, wear long sleeved clothing, coveralls, chemical resistant gloves, and safety glasses with side shields. Use a dust respirator if concentrations may exceed the exposure limit.

EXPOSURE LIMITS

TLV-TWA (1996-7): 10 mg/m³ from ACGIH as inhalable dust.
Consult local authorities for acceptable exposure limits.

Section IX. Physical and Chemical PropertiesPHYSICAL STATE AND
APPEARANCE

Solid. (Prills or granules.)

MOLECULAR WEIGHT

Not available.

COLOR

White.

pH (10% SOLN/WATER)

6 [Acidic.]

ODOR

Odorless.

BOILING POINT

Decomposes.

ODOR
THRESHOLD

Not available.

MELTING POINT

170°C (338°F)

TASTE

Disagreeable. Acrid. (Strong.)

CRITICAL TEMPERATURE	Not available.	VOLATILITY	0% (v/v). 0% (w/w).
SPECIFIC GRAVITY g/cc	0.92 (Water = 1)	SOLUBILITY	Easily soluble in cold water, hot water. Soluble in acetone. Partially soluble in methanol. Insoluble in diethyl ether.
BULK DENSITY kg/m ³ ; lbs/ft ³	Loose: 913; 57.7	DISPERSION PROPERTIES	See solubility in water, methanol, acetone.
VAPOR PRESSURE	0 mm of Hg (@ 20°C)	WATER/OIL DIST. COEFF.	Not available.
VAPOR DENSITY	Not available.		

Section X. Stability and Reactivity Data

STABILITY	The product is stable.
INSTABILITY TEMPERATURE	Not available.
CONDITIONS OF INSTABILITY	No additional information.
INCOMPATIBILITY WITH VARIOUS SUBSTANCES	Highly reactive with combustible materials. Reactive with reducing agents, organic materials, metals, moisture. Slightly reactive with alkalis. Non-reactive with acids.
CORROSIVITY	Very slightly to slightly corrosive to aluminum, zinc, and copper. Non-corrosive to steel and stainless steel (304 or 316).
SPECIAL REMARKS ON REACTIVITY	Absorbs moisture from the air. Incompatible with magnesium, zinc, sodium, potassium, and other finely powdered metals. May explode by detonation, heat or shock.
SPECIAL REMARKS ON CORROSIVITY	Avoid contact with moisture. Slow hydrolysis will produce corrosive acids.

Section XI. Toxicological Information

SIGNIFICANT ROUTES OF EXPOSURE	Ingestion. Inhalation.
TOXICITY TO ANIMALS	Acute oral toxicity (LD50): 4500 mg/kg [Rat]. Acute dermal toxicity (LD50): 3000 mg/kg [Rabbit].
SPECIAL REMARKS ON TOXICITY TO ANIMALS	Toxic to livestock, wildlife, and domestic animals if directly ingested. Ensure that all spillage is cleaned up and that top dressing on pasture lands is applied uniformly. Allow 2 - 4 days to pass after application before returning livestock to pasture. The product itself and its products of degradation are not harmful under normal conditions of careful and responsible use.
OTHER EFFECTS ON HUMANS	Recent studies undertaken by the U.S. Government using Canadian and American databases have determined that ammonium nitrate fertilizer does not demonstrate any risk of gastrointestinal cancer.
SPECIAL REMARKS ON CHRONIC EFFECTS ON HUMANS	Exposure can cause headache, stomach pains, vomiting and diarrhea. Produces methemoglobin which reduces oxygen supply in the circulating blood. Although predominantly affecting infants, nitrate induced methemoglobinemia has also been documented in adults.
SPECIAL REMARKS ON OTHER EFFECTS ON HUMANS	ACGIH TLV is based on "Particulates Not Otherwise Classified".

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Section XII. Ecological Information

ECOTOXICITY	Low toxicity for humans or animals under normal conditions of use. May be harmful to livestock and wildlife if ingested. Clean up all spilled material, especially where bulk fertilizer loading of equipment occurs to prevent animal exposure. Aquatic/Marine Toxicity: Will release ammonium ions. Ammonia is a toxic hazard to fish. Avoid spills or release to watercourses. Will disperse with current. Release to watercourses may cause effects down stream from the point of release. U.S. D.O.T.: This material NOT listed as a Marine pollutant.
BOD and COD	Not available.
PRODUCTS OF DEGRADATION	Not applicable.
TOXICITY OF THE PRODUCTS OF DEGRADATION	The product itself and its products of degradation are not harmful under normal conditions of use. Avoid spills or releases to watercourses.
SPECIAL REMARKS ON THE PRODUCTS OF DEGRADATION	Product will promote algae growth and may degrade water quality and taste. Notify downstream water users. Nitrate in potable drinking water should be maintained below 10mg/L. Will dissolve and disperse in water.

Section XIII. Disposal Considerations

WASTE DISPOSAL OR RECYCLING	Recycle to process, if possible. Recover and place material in a suitable container for intended use or disposal. Call for assistance on disposal. Ensure disposal is in compliance with government requirements and local regulations.
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Section XIV. Transport Information

DOT / TDG CLASSIFICATION	TDG/DOT CLASS 5.1: Oxidizing substance.
PIN	Proper Shipping Name: Ammonium Nitrate UN1942 PG: III
SPECIAL PROVISIONS FOR TRANSPORT	Exempt under Canadian TDGR Sec 2.32.4 2(a)(b)(c)and (d): Retail deliveries of less than 13.6 tonnes of ammonium nitrate fertilizers (PIN #s: 1942, 2067, 2069, 2070, or 2072) are exempt from Sections IV, V, and 9.2 to 9.7 of the TDGR if carrying a record sheet identifying the Proper Shipping Name, PIN #, and quantity of fertilizer transported.
DOT (U.S.A) (Pictograms)	

Section XV. Other Regulatory Information and Pictograms

OTHER REGULATIONS	U.S. Allowable Tolerances (FIFRA Requirements): 1. Ammonium nitrate is exempted from the requirement of a tolerance when used as a desiccant or defoliant in the production of cottonseed, grain sorghum, peppers, potatoes, sweet potatoes. 40 CFR 180.1018 (7/1/91) 2. Ammonium nitrate is exempted from the requirement of a tolerance when used as an adjuvant/intensifier for herbicides in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. 40 CFR 180.1001(d) (7/1/91) FDA Requirements: 1. Bottled water shall, when a composite of analytical units of equal volume from a sample is examined by the methods described in paragraph (d)(1)(ii) of this section, meet the standards of chemical quality and shall not contain nitrate, as nitrogen, in excess of 10.0 mg/l. /Nitrate, as nitrogen. 21 CFR 103.35 (4/1/91) CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): This product or its ingredients is on the
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Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA.

OTHER CLASSIFICATIONS

HCS (U.S.A.) HCS CLASS: Oxidizer.

DSCL (EEC) R2- Risk of explosion by shock, friction, fire or other sources of ignition.
R8- Contact with combustible material may cause fire.
R9- Explosive when mixed with combustible material.

National Fire Protection Association (U.S.A.)

Hazards presented under acute emergency conditions only:

Health



Fire Hazard
Reactivity

Specific Hazard

TDG (Pictograms - Canada)



DSCL (Europe) (Pictograms)



ADR (Europe) (Pictograms)



Section XVI. Other Information

REFERENCES

- Transportation of Dangerous Goods Act (1992) and Regulations.
- Canada Gazette Part II, Vol. 122, No. 2 Registration SOR/88-64 31 December, 1987 Hazardous Products Act "Ingredient Disclosure List".
- Domestic Substances List, Canadian Environmental Protection Act.
- 29 CFR Part 1910
- 40 CFR Parts 300-399
- 49 CFR Parts 1-199
- American Conference of Governmental Industrial Hygienists, Threshold Limit Values for Chemical Substances, 1996-1997.
- Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers.
- Fire Protection Guide to Hazardous Materials, (NFPA49, 325M, 491M, and 704), National Fire Protection Association, 10th Ed, 1991.
- TOMES Plus®, Vol 32, Jan 1997, Micromedex Inc.

OTHER SPECIAL CONSIDERATIONS

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): This product is on the Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA.

CERCLA/SUPERFUND, 40 CFR 117,302: This product contains no Reportable Quantity (RQ) Substances.

SARA HAZARD CATEGORY: This product has been revised according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following category(ies):

Immediate Health, Fire, Reactive

The following product is listed in SARA Section 313:

Ammonium nitrate, CAS # 6484-52-2 (if in solution).

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

This product is not considered as a priority pollutant as regulated under the Clean Water Act.

TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.

FOR FURTHER SAFETY, HEALTH, OR ENVIRONMENTAL INFORMATION ON THIS PRODUCT, CONTACT

AGRIUM
Environment, Health and Safety Department
Telephone (403) 998-6134 or Fax (403) 998-6143

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