

NFPA Classification	DOT / TDG Pictograms	WHMIS Classification	HMIS	PROTECTIVE CLOTHING
			Health 1 Flammability 0 Reactivity 1 PPE E	

Section I. Chemical Product and Company Identification

PRODUCT NAME/ TRADE NAME		Ammonium Nitrate, Prilled Industrial Grade	
SYNONYM	Prilled Ammonium Nitrate	MSDS NUMBER:	14271
CHEMICAL NAME	Ammonium nitrate.	REVISION NUMBER	1.1
CHEMICAL FAMILY	Nitrate salt. (Oxidizing agent)	MSDS prepared by	January 8, 2007
CHEMICAL FORMULA	NH ₄ NO ₃	the Environment, Health and Safety Department on:	
MATERIAL USES	Industrial applications: Manufacture of chemical specialties.	24 HR EMERGENCY TELEPHONE NUMBER: Transportation: 1-800-792-8311 Medical: 1-888-670-8123	
MANUFACTURER		SUPPLIER	
Agrium North American Wholesale 13131 Lake Fraser Drive, S.E. Calgary, Alberta, Canada, T2J 7E8 Agrium U.S. Inc. Suite 1700, 4582 South Ulster St. Denver, Colorado, U.S.A., 80237		Agrium North American Wholesale 13131 Lake Fraser Drive, S.E. Calgary, Alberta, Canada, T2J 7E8 Agrium U.S. Inc. Suite 1700, 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	---						99.8
ACGIH TLV notations: --- No assigned TLV (C) - Ceiling - the concentration not to be exceeded at any time (I) - measured as the Inhalable fraction of the aerosol (R) - measured as the Respirable fraction of the aerosol (T) - measured as the Thoracic fraction of the aerosol								
TOXICOLOGICAL DATA ON INGREDIENTS Ammonium Nitrate: ^								
Rat oral LD50: 4500 mg/kg. [Peer Reviewed] [Environment Canada; Tech Info for Problem Spills: Ammonium Nitrate (Draft) p.59 (1981)] Rat oral LD50: 2217 mg/kg (Rat) [Gigiena i Sanitariya. For English translation, see HYSAAV. (V/O Mezhdunarodnaya Kniga, 113095 Moscow, USSR) V.1- 1936- (52(8),25,1987)] Huntingdon Research Center Testing Results (3 studies), OECD Guide 401: 2462- 2900 mg/kg (rat oral) TFI Product Testing Results, OECD Guideline 402: > 5,000 mg/kg acute dermal LD ₅₀ , rat, Bacterial reverse mutation assay: negative, with and without metabolic activation, (Salmonella) Developmental teratogenicity: Not teratogenic to rats. NOAEL >57 mg/kg								
Ecotoxicity Values: Acute fish toxicity: Chinook salmon, rainbow trout, bluegill: 96hr LC ₅₀ = 420-1360 mg NO ₃ /L								

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Acute toxicity to aquatic invertebrates: *Daphnia magna* EC₅₀ = 555mg/L
 Acute toxicity to aquatic plants (algae): *Scenedesmus quadricauda* EC₅₀ = 83mg/L
 LD50 *Aspergillus niger* (fungus) 15 mg/l/40 hr (36 deg C). [Peer Reviewed] [Environment Canada; Tech Info]

Section III. Hazards Identification.

POTENTIAL ACUTE HEALTH EFFECTS

May interfere with the oxygen carrying capacity of the blood if ingested in large quantities or over a prolonged period of time. Persons with anemia, bowel diseases, or infants, are more likely to develop effects. Over-exposure by ingestion is unlikely under normal working conditions. Inhalation of dusts may cause respiratory irritation. This product may irritate eyes and skin upon contact but is unlikely to injure tissue.

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 following ingestion or irritation and flushed skin following contact with moist skin surfaces.

POTENTIAL CHRONIC HEALTH EFFECTS

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.

Repeated or prolonged overexposure by ingestion can reduce the oxygen carrying capacity of the blood producing anoxia in infants or individuals with preexisting bowel or blood diseases.

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 dry or irritated skin with a good quality skin lotion. 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 affected persons to rest in a well ventilated area. Obtain medical attention if irritation persists.

SEVERE INHALATION

In emergency situations use proper respiratory protection to evacuate affected individuals to a safe area as soon as possible. Loosen tight clothing around the person's neck and waist. Oxygen may be administered if breathing is difficult. If the person is not breathing, perform artificial respiration. Obtain immediate 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.

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PRODUCTS OF COMBUSTION	Material will not burn, but thermal decomposition may result in flammable/toxic gases being formed. These products are nitrogen oxides and ammonia (NO, NO ₂ , NH ₃).
FIRE HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Not applicable.
EXPLOSION HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	<p>Oxidizer: Material is an oxidizer which may react readily with other materials, especially upon heating.</p> <p>In confinement and in the presence of a strong 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.</p> <p>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).</p>
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. Melts and undergoes thermal decomposition at elevated temperatures to release visible clouds of 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.
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 <u>under confinement</u> . Avoid pressure build-up. Thermal decomposition or explosion may result. Ventilate to cool and flood with water to stop decomposition reaction. Contain and collect all runoff for treatment. Prevent fire water from reaching water courses or aquifers.
SPECIAL REMARKS ON EXPLOSION HAZARDS	Industry studies have identified that "Cigar burn" is considered to be a hazard primarily when the ammonium nitrate content of a chemical blend is between 20-40%. Cigar burn is a rare phenomenon which requires the combustion of a separate combustible material such as sulfur which can cause the thermal decomposition of ammonium nitrate.

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	In the event of a 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 which may degrade water quality and taste. Notify downstream water users. Nitrate in potable drinking water should be maintained below 10 mg/L. Will dissolve and disperse in water. Put the material into a suitable 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.

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	

The selection of personal protective equipment varies, depending upon conditions of use. Under well controlled conditions where contact with the substance is limited and exposures are below the occupational exposure limit, normal work clothing may suffice. Where skin and eye contact may occur as a result of brief periodic exposures, wear long sleeved clothing or coveralls and safety glasses with side shields.

Wear appropriate respirator when ventilation is inadequate. A filtering facepiece dust mask is adequate for most applications. A NIOSH approved full facepiece or half mask dust respirator with N-100 or P-100 filters should be used under conditions where airborne concentrations may exceed occupational exposure limits. A respiratory protection program that meets OSHA 29 CFR 1910.134 requirements must be followed whenever workplace conditions warrant a respirator's use.

PERSONAL PROTECTION IN CASE OF LARGE RELEASE

No additional recommendations.

EXPOSURE LIMITS

Alberta TWA: 10 mg/m³ Inhalable, 3 mg/m³ Respirable, for Particulate Not Otherwise Regulated.

Fed OSHA PEL: 15 mg/m³ Total dust, 5 mg/m³ Respirable fraction, for Particulates Not Otherwise Regulated.

Federal, State or Provincial exposure limits may vary by jurisdiction. Consult local authorities for acceptable exposure limits in your area.

Section IX. Physical and Chemical Properties

PHYSICAL STATE AND APPEARANCE	Solid prills		
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.
BULK DENSITY kg/m³ ; lbs/ft³	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.
INCOMPATABILITY WITH VARIOUS SUBSTANCES	Reactive with combustible materials. Slightly reactive to reactive with reducing agents, organic materials, metals, moisture. Very slightly to slightly reactive with alkalis. Non-reactive with acids.
CORROSIVITY	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.

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SPECIAL REMARKS ON CORROSIVITY

Avoid contact with moisture. Slow hydrolysis will produce acids which may slowly corrode metals. Contact your sales representative or a metallurgical specialist to ensure compatibility with system equipment.

Section XI. Toxicological Information**SIGNIFICANT ROUTES OF EXPOSURE**

Ingestion. Inhalation.

TOXICITY TO ANIMALS

See Section II.

SPECIAL REMARKS ON TOXICITY TO ANIMALS

Non-persistent and non-cumulative. May be harmful to livestock and wildlife if ingested. Clean up all spilled material, especially where bulk loading 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.

OTHER EFFECTS ON HUMANS

Recent studies undertaken by the U.S. Government using Canadian and American databases have determined that ammonium nitrate 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

No additional remark.

Section XII. Ecological Information**ECOTOXICITY**

Non-persistent. Non-cumulative when applied using normal agricultural practises. 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 which 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. Ensure disposal complies with government requirements and local regulations.

Section XIV. Transport Information

DOT / TDG CLASSIFICATION	TDG/DOT CLASS 5.1: Oxidizing substance.
PIN and Shipping Name	Proper shipping name: Ammonium nitrate PIN #: UN1942 PG III
SPECIAL PROVISIONS FOR TRANSPORT	U.S. DOT: A1, A29, IB8, IP3
DOT (U.S.A) (Pictograms)	

Section XV. Other Regulatory Information and Pictograms

OTHER REGULATIONS	<p>U.S. Allowable Tolerances (FIFRA Requirements):</p> <ol style="list-style-type: none"> 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) <p>FDA Requirements:</p> <ol style="list-style-type: none"> 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) <p>TSCA - Sect. 8(b) Inventory: XU</p> <p>California - Air Bill 2588 (Air Toxics Hot Spots) Appendix A-I: 6/91; ADOA 100.0 lbs/yr California - Toxic Air Contaminant List Category III (AB 1807, AB 2728) Massachusetts RTK List - Present NJ Department of Health RTK List: sn 0106 NJ Special Hazardous Substances: (reactive - third degree) Pennsylvania RTK List: environmental hazard Rhode Island Hazardous Substance List - Present</p> <p>CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): This product or its ingredients is on the Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA.</p> <p>CERCLA/SUPERFUND, 40 CFR 117, 302: This product contains no Reportable Quantity (RQ) Substances.</p> <p>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</p> <p>The following product is listed in SARA Section 313 (40 CFR Part 372): Ammonium nitrate, CAS # 6484-52-2 (if in solution and dissociated). Refer to EPA guidance document 745-R-00-006 for information on TRI reporting for nitrates.</p> <p>This product is not considered as a priority pollutant as regulated under the Clean Water Act. OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations. Canada - WHMIS Classification of Substances: C; D2B</p>				
OTHER CLASSIFICATIONS	<table border="1"> <tr> <td>HCS (U.S.A.)</td> <td>HCS CLASS: Oxidizer.</td> </tr> <tr> <td>DSCL (EEC)</td> <td>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.</td> </tr> </table>	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.
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National Fire Protection Association (U.S.A.)

Hazards presented under acute emergency conditions only:

Health



Fire Hazard

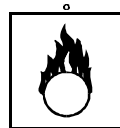
Reactivity

Specific Hazard

TDG (Pictograms - Canada)



DSCL (Europe) (Pictograms)



ADR (Europe) (Pictograms)



Section XVI. Other Information

REFERENCES

- Transportation of Dangerous Goods Act and Clear Language Regulations, current revision.
- 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
- 33 CFR Parts 151, 153, 154, 156
- 40 CFR Parts 1-799
- 46 CFR Part 153
- 49 CFR Parts 1-199
- American Conference of Governmental Industrial Hygienists, Threshold Limit Values for Chemical Substances, 2006.
- NFPA 704, National Fire Codes Online, National Fire Protection Association, current edition at time of MSDS preparation.
- Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers
- TOMES® System: Heitland G & Hurlbut KM (Eds) (electronic version): MICROMEDEX, Greenwood Village, Colorado, USA. Available at: <http://csi.micromedex.com> (2007). The TOMES® System includes MEDITEXT® Medical Management; HAZARDTEXT® Hazard Management; INFOTEXT® Documents; ERG2000 Emergency Response Guidebook Documents; REPROTEXT®: Heitland G & Hurlbut KM (Eds); CHRIS Hazardous Chemical Data: U.S. Department of Transportation, U.S. Coast Guard, Washington, D.C. (2007); HSDB: Hazardous Substances Data Bank. National Library of Medicine, Bethesda, Maryland (2007); IRIS: Integrated Risk Information System. U.S. Environmental Protection Agency, Washington, D.C. (2007); NIOSH: Pocket Guide to Chemical Hazards. National Institute for Occupational Safety and Health, Cincinnati, Ohio (2007); OHM/TADS: Oil and Hazardous Materials Technical Assistance Data System. U.S. Environmental Protection Agency, Washington, D.C. (2007); REPROTOX®: Scialli A.R. Georgetown University Medical Center and Reproductive Toxicology Center, Columbia Hospital for Women Medical Center, Washington, D.C. (2007); RTECS®: Registry of Toxic Effects of Chemical Substances. National Institute for Occupational Safety and Health, Cincinnati, Ohio (2007); and SHEPARDS: Shepard T.H.: Shepard's Catalog of Teratogenic Agents (2007).
- The Fertilizer Institute Product Testing Program Results, March 2003
- Alberta Workplace Health and Safety, Occupational Health and Safety Code

OTHER SPECIAL CONSIDERATIONS

HMIS information added in this revision.

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

**AGRIUM
Wholesale Environment, Health and Safety
Telephone (780) 998-6906 or Fax (780) 998-6677**

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