





NFPA Classification	DOT / TDG Pictograms	WHMIS Classification	HMIS		PROTECTIVE CLOTHING
 <p>Health 0 Flammability 1 Reactivity 1 Specific Hazard</p>			Health Flammability Reactivity PPE	1 0 1 B	

Section I. Chemical Product and Company Identification

PRODUCT NAME/ TRADE NAME Ammonium Nitrate Solutions (30-60%)

SYNONYM This MSDS applies to all ammonium nitrate in water solutions with a formulation of 30-0-0 or less, including but not limited to:

17.5-0-0
20-0-0

MSDS NUMBER: 16011

CHEMICAL NAME Not applicable.

REVISION NUMBER 1.2

CHEMICAL FAMILY Nitrate salt solution.

MSDS prepared by February 1, 2010
the Environment,
Health and Safety
Department on:

CHEMICAL FORMULA Not applicable.

24 HR EMERGENCY TELEPHONE NUMBER:

MATERIAL USES Agricultural use: Fertilizer solutions blend component.

Transportation: 1-800-792-8311
Medical: 1-888-670-8123

MANUFACTURER

Agrium
North American Wholesale
13131 Lake Fraser Drive, S.E.
Calgary, Alberta, Canada, T2J 7E8

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

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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	----						30-60

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 LD₅₀, rat,

Continued on Next Page

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 LC₅₀ = 420-1360 mg NO₃/L

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

Dangerous in case of ingestion. May interfere with oxygen carrying capacity of the blood (Methemoglobinemia). Over-exposure by inhalation 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 or flushed skin

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. 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

May cause eye irritation. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Obtain medical attention.

MINOR SKIN CONTACT

May cause skin irritation. Wash contaminated skin with soap and water. Cover irritated skin with a good quality hand lotion. If irritation persists, obtain medical attention.

EXTENSIVE SKIN CONTACT

No additional information.

MINOR INHALATION

Repeated or prolonged inhalation of spray mist may produce irritation of the respiratory tract. Loosen tight clothing. Allow to rest in a well ventilated area. Obtain medical attention.

SEVERE INHALATION

In emergency situations use proper respiratory protection to evacuate the person to a safe area as soon as possible. May cause headache, nausea or weakness in case of prolonged or repeated exposure. Loosen tight clothing around the person's neck and waist. If the person is not breathing, perform artificial respiration. Oxygen may be administered if breathing is difficult. Obtain medical attention.

SLIGHT INGESTION

Have conscious person drink several glasses of water or milk. Induce vomiting. Lower the head so that the vomit will not reenter the mouth and throat. NEVER give an unconscious person anything to drink. 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	Material will not burn, but thermal decomposition may result in flammable/toxic gases being formed after material evaporates to dryness. These products are nitrogen oxides and ammonia (NO, NO ₂ , NH ₃).
FIRE HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Dangerous if evaporated to near dryness. Dry residue may form explosive mixtures with organic materials. Avoid temperatures above 100°C (212°F) which may result in evaporation, thermal decomposition or explosion.
EXPLOSION HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	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). Solution may detonate if subjected to heat and pressure if evaporated to near dryness, or allowed to freeze or salt out.
FIRE FIGHTING MEDIA AND INSTRUCTIONS	If evaporated to dryness, acts as an oxidizing agent, supports combustion by liberating oxygen even if smothered. Cool containing vessels with flooding quantities of water until well after fire is out. A self contained breathing apparatus should be used to avoid inhalation of toxic fumes. When heated to decomposition it emits toxic fumes (NH ₃ , NO, NO ₂ ...). Water runoff can cause environmental damage. Dike and collect water used to fight fire.
SPECIAL REMARKS ON FIRE HAZARDS	Dangerous in contact with organic materials. Material supports combustion. Evolves toxic fumes when heated to the decomposition state. Avoid temperatures above 100°C (212°F). On evaporation to dryness thermal decomposition or explosion may result. Emergency responders should use self contained breathing apparatus and protective clothing.
SPECIAL REMARKS ON EXPLOSION HAZARDS	Unconfirmed industry reports indicate a possibility that ammonium nitrate containing solutions may detonate if subjected to extreme heat while under pressure or if allowed to evaporate to near dryness.

Section VI. Accidental Release Measures

SMALL SPILL	Stop leak if possible to do so without risk. Dike and contain spilled material. Ensure that the spilled material does not enter sewers, wells, or watercourses. Product will promote algae growth which may degrade water quality and taste. Will disperse in water. Notify downstream water users. Nitrate in potable drinking water should be maintained below 10mg/L. Pump up spilled material and place in suitable containers for reuse or disposal. Ensure disposal complies with local regulations.
LARGE SPILL	No additional information in case of a spill and/or a leak of the product.

Section VII. Handling and Storage

PRECAUTIONS	Keep away from incompatible materials such as reducing agents, or combustible materials. Avoid contact with skin and eyes. Do not breathe mists. Keep out of reach of children.
STORAGE	Keep at temperatures not exceeding 100°C (212°F). Keep away from incompatible materials. Keep from freezing or salting out.

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 fume or mist, 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. Wear appropriate respiratory protection for dust/mist when ventilation is inadequate. A filtering facepiece dust mask is suitable for most applications, if necessary. Where skin and eye contact may occur as a result of brief periodic exposures, wear long sleeved clothing, coveralls, chemical resistant 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 brief, periodic exposures, wear long sleeved clothing, coveralls or splash apron, chemical resistant gloves, and safety glasses with side shields.
EXPOSURE LIMITS	Fed OSHA PEL: 15 mg/m ³ Total dust, 5 mg/m ³ 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	Liquid. (Clear to slightly hazy liquid.)		
MOLECULAR WEIGHT	Not applicable.	COLOR	Clear
pH (10% SOLN/WATER)	4-7	ODOR	Odorless.
BOILING POINT	Decomposes.	ODOR THRESHOLD	Not available.
MELTING POINT	Variable depending on concentration	TASTE	Acrid. Burning. Disagreeable.
CRITICAL TEMPERATURE	Not applicable.	VOLATILITY	Variable depending on concentration
SPECIFIC GRAVITY g/cc	1.2-1.3 (Water = 1)	SOLUBILITY	Easily soluble in cold water, hot water.
BULK DENSITY kg/m³ ; lbs/ft³	Variable depending on concentration	DISPERSION PROPERTIES	See solubility in water.
VAPOR PRESSURE	17.2 mm Hg (vapor pressure of water @ 20°C.)	WATER/OIL DIST. COEFF.	Completely soluble and dispersable in water.
VAPOR DENSITY	Not applicable.		

Section X. Stability and Reactivity Data

STABILITY	The product is stable.
INSTABILITY TEMPERATURE	Not available.
CONDITIONS OF INSTABILITY	No additional remark.
INCOMPATABILITY WITH VARIOUS SUBSTANCES	Slightly reactive with reducing agents, combustible materials, organic materials, metals. Very slightly reactive with acids, alkalis.
CORROSIVITY	Corrosive to zinc, copper, and aluminum. Non-corrosive to mild steel, or stainless steel (304 or 316). Consult your sales representative for further information on storage and handling system requirements.
SPECIAL REMARKS ON REACTIVITY	Incompatible with sulfur, chlorides, or other oxidizers. Incompatible with finely powdered metals (cadmium, copper, lead, cobalt, nickel, bismuth, chromium, magnesium, zinc, sodium, potassium and aluminum). May be sensitive to explosion by detonation, heat or shock when evaporated to near dryness, if frozen or if salted out.

Continued on Next Page

SPECIAL REMARKS ON CORROSIVITY

Incompatible with copper alloys. Corrosive to ferrous metals and alloys. Corrosive to brass. Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment.

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

Ingestion. Inhalation.

TOXICITY TO ANIMALS

See Section II.

SPECIAL REMARKS ON TOXICITY TO ANIMALS

Will slowly release ammonia. Ammonia is a toxic hazard to fish. 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.

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. Under prolonged or repeated overexposure, may produce 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**

May be harmful to fish, livestock, and wildlife. Dissolved mineral salts may cause irritation of the digestive tract. Non-persistent. Non-cumulative when applied using normal agricultural practices. The product itself and its products of degradation are not harmful under normal conditions of careful and responsible use.

Aquatic/Marine Toxicity: Will release ammonium ions. Ammonia is a toxic hazard to fish. Avoid spills or release to watercourses. Highly soluble. Will disperse with current. Release to watercourses may cause effects down stream from the point of release. U.S. D.O.T.: This material is NOT listed as a Marine pollutant.

BOD and COD

Not available.

PRODUCTS OF DEGRADATION

Ammonia, nitrogen oxides (NO, NO₂...)

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.

Section XIV. Transport Information

DOT / TDG CLASSIFICATION	Not controlled under DOT (U.S.) or TDG (Canada) only if kept as a non-segregating solution during shipment. The material is subject to transport regulations if frozen or if allowed to salt out.
PIN and Shipping Name	Not applicable.
SPECIAL PROVISIONS FOR TRANSPORT	Not applicable.
DOT (U.S.A) (Pictograms)	

Section XV. Other Regulatory Information and Pictograms

OTHER REGULATIONS

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

This product may be subject to special provisions under Department of Homeland Security rules.

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

This material contains the following chemicals subject to the reporting requirements of SARA Section 313 and 40 CFR 372:

Ammonia	7664-41-7
Water dissociable nitrate,	-----

Refer to the specific product analysis for your product to determine your reporting requirements under this regulation.

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). This product is not considered as a priority pollutants as regulated under the Clean Water Act.


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

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986 (CA Health and Safety Code Sec 25249.5):

This product contains no chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

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.

OTHER CLASSIFICATIONS	HCS (U.S.A.)	HCS CLASS: May be toxic for the blood. HCS CLASS: Oxidizer.
	DSCL (EEC)	44- Risk of explosion if heated under confinement.

National Fire Protection Association (U.S.A.)	Dried product residue can act as an oxidizer. Hazards presented under acute emergency conditions only:		
			Fire Hazard
			Reactivity
		Specific Hazard	

TDG (Pictograms - Canada)	
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DSCL (Europe)
(Pictograms) Not Available
 No Disponible
 Pas Disponible

ADR (Europe)
(Pictograms) Not Available
 No Disponible
 Pas Disponible

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, 2009.
- 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
- ERG2000 Emergency Response Guidebook
- CHRIS Hazardous Chemical Data: U.S. Coast Guard, Washington, D.C.
- HSDB: Hazardous Substances Data Bank. National Library of Medicine, Bethesda, Maryland
- IRIS: Integrated Risk Information System. U.S. Environmental Protection Agency, Washington, D.C.
- NIOSH: Pocket Guide to Chemical Hazards. National Institute for Occupational Safety and Health, Cincinnati, Ohio
- OHM/TADS: Oil and Hazardous Materials Technical Assistance Data System U.S. Environmental Protection Agency, Washington, D.C.
- RTECS®: Registry of Toxic Effects of Chemical Substances. National Institute for Occupational Safety and Health, Cincinnati, Ohio
- The Fertilizer Institute Product Testing Program Results, March 2003
- Alberta Workplace Health and Safety, Occupational Health and Safety Code

OTHER SPECIAL CONSIDERATIONS Three year review. References updated 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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