

Material Safety Data Sheet

Revision Issued: 12/31/06	Supercedes: 6/28/03	First Issued: 11/30/1985
---------------------------	---------------------	--------------------------

Section I – Product and Company Identification

Product Name: Ammonium Nitrate Solution	PotashCorp MSDS No.: 33 ERG No.: 140
<div style="display: flex; align-items: center;"> <div> <p>1101 Skokie Blvd., Northbrook, IL 60062 Phone (800) 241-6908 / (847) 849-4200</p> <p>Suite 500, 122 – 1st Avenue South Saskatoon, Saskatchewan Canada S7K7G3 Phone (800) 667-0403 from Canada (800) 667-3930 from USA</p> <p>Emergencies (800) 424-9300 (CHEMTREC) Web Site www.potashcorp.com Health Emergencies, Contact Your Local Poison Center</p> </div> </div>	<p>Flammability</p> <p>Health Reactivity</p> <p>Specific Hazard</p> <p>NFPA Code</p>

Common Name:	Ammonium Nitrate Solution	Formula:	NH ₄ NO ₃ / H ₂ O ₄	Synonym:	Aqueous Solutions of Ammonium Nitrate	Uses:	Industrial
---------------------	---------------------------	-----------------	---	-----------------	---------------------------------------	--------------	------------

Section II – Composition / Information On Ingredients

Chemical Name	CAS No.	Exposure Limits								% by Weight
		OSHA PEL		TLV – TWA		STEL		CEIL		
		mg/m ³	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³	ppm	
Ammonium Nitrate	6484-52-2									40-87

15 mg/m³ nuisance dust total 5 mg/m³ respirable fraction

Section III – Hazard Identification

Potential Acute Health Effects:	Large amounts, 15 to 25 grams, may have serious or even fatal effects. Symptoms of over exposure, acute cyanosis, nausea, vertigo, collapse, vomiting/abdominal pain, and tachycardia (rapid heartbeat), coma, convulsion and death can occur.						
Eyes and Skin:	Eyes: Liquid contact may irritate slightly. If mist is formed, this may also irritate slightly. Skin: Prolonged or repeated liquid contact may irritate slightly. Ammonium Nitrate solutions that are shipped at or above 212°F are labeled "Hot" and will cause thermal burns.						
Inhalation:	In the unlikely event that mist is formed, this could irritate the respiratory tract.						
Ingestion:	Large amounts, 15 to 25 grams, may have serious or even fatal effects. Small repeated doses may lead to weakness, general depression, headache and mental impairment. Symptoms of over exposure, acute cyanosis, nausea, vertigo, collapse, vomiting/abdominal pain, and tachycardia (rapid heartbeat), coma, convulsion and death can occur. Note to Physician: Ammonium Nitrate has been used as a diuretic, (oral dose, 2-4 grams). Average or large doses may cause nausea and vomiting. Acidosis may occur in presence of impaired renal function; also during prolonged use in persons with normal kidney function. Nitrate formation in intestine may cause methemoglobinemia.						
Potential Chronic Health Effects:	Small repeated doses may lead to weakness, general depression, headache and mental impairment.						
CARCINOGENICITY LISTS	<table style="width: 100%; border: none;"> <tr> <td style="border: none;">IARC Monograph:</td> <td style="border: none;">No</td> <td style="border: none;">NTP:</td> <td style="border: none;">No</td> <td style="border: none;">OSHA:</td> <td style="border: none;">No</td> </tr> </table>	IARC Monograph:	No	NTP:	No	OSHA:	No
IARC Monograph:	No	NTP:	No	OSHA:	No		

Section IV – First Aid Measures	
Eyes:	Immediately flush with water for at least 15 minutes. If irritation persists, get prompt medical attention.
Skin:	Immediately flush with water. Wash using mild soap and water. If irritation develops, get prompt medical attention.
Ingestion:	If conscious, immediately give two (2) to four (4) glasses of water and induce vomiting by touching finger to back of throat. Get prompt medical attention.
Inhalation:	Remove to fresh air. Get prompt medical attention.

Section V – Fire Fighting Measures			
Flash Point:	Not Applicable	Autoignition Temperature:	Not Applicable
Lower Explosive Limit:	Not Applicable	Upper Explosive Limit:	Not Applicable
Unusual Fire and Explosion Hazards:	Nitrogen Oxide gases emitted on decomposition are extremely toxic. Consideration must be given to avoid contamination of Ammonium Nitrate with organic materials, oil, charcoal, sulfur, metal fines or other combustible substances with possible explosion of entire mass. If an explosion is expected, evacuate area.		
Extinguishing Media:	Fire extinguishing agents recommended: Use flooding quantities of water. Use a direct stream of water. Fire extinguishing agents to avoid: Do not use salt water, carbon dioxide, dry chemicals or foam extinguishers.		
Special Firefighting Procedures and Equipment:	Remove fuel source. Never attempt to smother fire. Ammonium Nitrate does not have the property of spontaneous combustion. In advanced stages of fire, place unmanned hose nozzles on fixed portable turrets at remote positions.		

Section VI – Accidental Release Measures	
Small Spill:	Floor drains and recesses should be plugged or eliminated to prevent entrapment of flowing solution during a fire. Contain and mop up spilled material into metal or plastic drums to minimize contamination.
Large Spill:	Contain and mop up spilled material into metal or plastic drums to minimize contamination.
Release Notes:	If spill could potentially enter any waterway, including intermittent dry creeks, contact the local authorities. If in the U.S., contact the US COAST GUARD NATIONAL RESPONSE CENTER toll free number 800-424-8802. In case of accident or road spill notify: CHEMTREC IN USA at 800-424-9300; CANUTEC in Canada at 613-996-6666 CHEMTREC in other countries at (International code)+1-703-527-3887.
Comments:	See Section XIII for disposal information and Section XV for regulatory requirements. Large and small spills may have a broad definition depending on the user's handling system. Therefore, the spill category must be defined at the point of release by technically qualified personnel.

Section VII – Handling and Storage	
Ventilation:	Unless heated, sprayed or agitated to produce mist, natural ventilation is generally adequate.
Handling:	Minimize contact with skin, eyes and clothing. Do not evaporate in enclosed spaces. Concentrated solutions (above 65%) will be hot. Protect against thermal burns. Do not allow solution to exceed 290°F. Avoid welding on pipes or tanks that have contained Ammonium Nitrate Solution until they have been thoroughly washed out with water. Residual Ammonium Nitrate may explode under conditions of confinement and high temperature. Avoid containers, piping, or fittings made of brass, bronze or other copper containing alloys or galvanized metals. Do not run pumps with the discharge or suction valves closed; pump must be on circulation. If material is evaporated to dryness, special hazards are involved and special firefighting precautions and methods are recommended. Ammonium nitrate is a strong oxidizer. It is capable of undergoing detonation if heated under confinement, or is subjected to very strong shocks.
Storage:	Store separate from flammable liquids, oils and other organic-reducing agents. Do not expose to fire. Store in well ventilated area. It is incompatible with most inorganic and organic acids, strong alkalis, chloride salts, metals, organic fuels and reducing agents.

Section VIII – Exposure Controls/ Personal Protection

Engineering Controls:	Avoid welding on pipes or tanks which have contained ammonium nitrate solution until they have been thoroughly washed out with water. Residual ammonium nitrate may explode under conditions of organic contamination, confinement, and high temperature. Avoid containers, piping or fittings made of brass, bronze, other copper containing alloys or galvanized metal. Do not run pumps with the discharge valve or suction valve closed, pump must be on circulation.
Personal Protection:	
Eye Protection:	Wear chemical safety goggles. Do not wear contact lenses.
Protective Clothing:	Wear rubber gloves and protective clothing if there is prolonged or repeated contact with liquid.
Respiratory Protection:	Respirators are not required for normal ventilation. If a misty condition prevails due to heat spraying or agitation, a mist respirator approved by NIOSH should be worn. If heated to decomposition or in fire situation, utilize a self-contained breathing apparatus.
Other Protective Clothing or Equipment:	Provide safety shower/eye wash facility at sites of handling or storage.

Section IX – Physical and Chemical Properties

Appearance/Color/Odor:	This material at normal conditions is a liquid with a clear solution and odorless.	Boiling Point:	242.5°F for 60% Solution
Melting Point/Range:	60% Solution Salts out at 51°F	Boiling Point Range:	Not Applicable
Solubility in Water:	100%	Vapor Pressure (mmHg):	15 hPa at 20°C
Specific Gravity:	1.28 @ 60°F for 60% solution	Molecular Weight:	80.05% (100%)
Vapor Density:	Not Applicable	% Volatiles:	Not Applicable
Bulk Density:	10.44 lbs/gal @ 60°F (19%, 54%) 11.33 lbs/gal @ 158°F (81%) 11.58 lbs/gal @ 175°F (83%) 11.34 lbs/gal @ 200°F (82.5%)	Evaporation Rate:	Not Applicable
pH:	4.5 at 10% Solution	Freezing Point:	Not Applicable
Viscosity:	Not Applicable	Density:	Not Applicable

Section X – Stability and Reactivity

Stability:	This product is stable under normal ambient conditions of temperature and pressure.
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	Contamination with easily oxidizable matter. Avoid uncontrolled conditions, which may lead to evaporation of this solution to dryness.
Materials to Avoid (Incompatibles):	Avoid mixing ammonium nitrate with wood chips, organic materials, sulfur, chlorides, phosphorus, acids, flammable and combustible liquids, and charcoals.
Hazardous Decomposition Products:	Can include Ammonia, Nitric Acid, Nitrogen Dioxide and Nitric Oxide at high temperatures (approximately 575°F) and Nitric Acid at low temperatures.

Section XI – Toxicological Information

Significant Routes of Exposure:	Eyes, Digestive System, Respiratory System, Skin	
Toxicity to Animals:	Acute Oral Toxicity:	(rat) LD ₅₀ = 2,800 – 4,500 mg/kg bw.
	Acute Inhalation Toxicity:	4-h: (rat) LC ₅₀ = >88.8 mg/L.
	Acute Toxicity: Other Routes:	Minimum lethal dose (rat): 0.065mg NH ₄ NO ₃ -N.
	Acute Dermal Toxicity:	(Sprague-Dawley rat, albino) LD ₅₀ = > 5,000 mg/kg.
	Repeated Dose Toxicity:	Inhalation: 2 weeks: NOAEL(rat) 185 mg/m ³ . Inhalation: 4 weeks: NOAEL = 1 mg/m ³ .
	Eye & Skin Irritation/Corrosion:	Skin Irritation/Corrosion: 48 hr (rabbit) : Moderately irritating
Special Remarks on Toxicity to Animals:	Not found to be toxic by oral, dermal and inhalation exposure as defined by OSHA	
	Developmental Toxicity/Teratogenicity:	Not teratogenic to rats at 57 mg/kg bw (NOAEL > 97 mg/kg/day).

	Bacterial Genetic Toxicity In-Vitro: Gene Mutation:	(<i>Salmonella typhimurium</i>): Bacterial reverse mutation assay: Negative
	Non-Bacterial Genetic Toxicity In-Vitro: Chromosomal Aberration:	No data available
	Toxicity to Reproduction:	No data available
	Carcinogenicity:	No data available
Other Effects on Humans:	No other effects known.	
Special Remarks on Chronic Effects on Humans	Large amounts, 15 to 25 grams, may have serious or even fatal effects. Small repeated doses may lead to weakness, general depression, headache and mental impairment. Symptoms of over exposure, acute cyanosis, nausea, vertigo, collapse, vomiting/abdominal pain, and tachycardia (rapid heartbeat), coma, convulsion and death can occur.	
Special Remarks on Other Effects on Humans:	No other effects known.	

Section XII – Ecological Information

Ecotoxicity	EPA Ecological Toxicity rating :	
	Acute Toxicity to Fish:	(<i>Cyprinus carpio</i> L): 48-h: LC ₅₀ = 1.15 – 1.72 mg un-ionized NH ₃ /L; (Chinook Salmon, rainbow trout, bluegill) 96-h: LC ₅₀ = 420 – 1360 mg NO ₃ /L
	Chronic Toxicity to Fish:	No data available
	Acute Toxicity to Aquatic Invertebrates:	(<i>Daphnia magna</i>) EC ₅₀ = 555 mg/L
	Chronic Toxicity to Aquatic Invertebrates:	(<i>Bullia digitalis</i>) Up to 7 days: NOEC = 300 mg/L. Based on the standard Federal Insecticide Fungicide and Rodenticide Act (FIFRA) acute toxicity ratings for fish and Daphnia, the compounds in this category are considered practically non-toxic. Ammonium nitrate is a plant nutrient; however, large spills can kill vegetation. It should be reported to the proper authorities.
	Acute Toxicity to Aquatic Plants:	No data available
	Toxicity to Soil Dwelling Organisms:	No data available
	Toxicity to Terrestrial Plants:	No data available
Environmental Fate:	Stability in Water:	Stable to hydrolytic degradation.
	Stability in Soil:	Ammonium ions bind to clay particles and leach slowly or not at all to ground water, whereas the nitrate can leach significantly. Monitoring Data: NH ₄ background: 0.01 - 10mg N/L. NO ₃ background: 0.3 - 100 mg N/L.
	Transport and Distribution:	Transport: Worldwide loss after application 0.004 - 1.2 Tg/yr. Distribution: 0.251% to air; 45.4% to water; 54.2% to soil; 0.0757% to sediment.
Toxicity:	No data available	
Degradation Products:	Biodegradation:	Readily Biodegradable; Does not bioaccumulate.
	Photodegradation:	Does not photodegrade.

Section XIII – Disposal Considerations

Product Disposal:	If uncontaminated, recover and reuse as product. Consult federal, state and local environmental agencies for acceptable disposal procedures.
General Comments:	Users of this product should review their operations in terms of applicable federal, state and local laws and regulations, then consult with appropriate regulatory agencies before discharging or disposing of waste material.

Section XIV – Transportation Information		
	USDOT	TDG - Canada
Proper Shipping Name:	Ammonium Nitrate, Liquid	Ammonium Nitrate, Liquid
Hazard Class:	5.1	5.1
Identification Number:	UN2426	UN2426
Packing Group (Technical Name):	II	II
Labeling / Placarding:	Oxidizer	Oxidizer
Authorized Packaging:	Rail: DOT 103, 104, 105, 109, 111, 112, 114 or 115, 120 fusion-welded tank car tanks; and Class 106 or 110 multi-unit tank car tanks. Trucks: MC 307, 312, DOT 407, 412	
Notes:	US: Only Ammonium Nitrate liquids with concentrations of 65% or greater need to be placarded. Solutions shipped at 212 – 240°F must also be placarded "HOT". ("HOT" notation must precede the proper name on shipping papers). Maximum loading temperature is 240°F. Canada: Only Ammonium Nitrate liquids with concentrations of 65% or greater need to be placarded. Solutions shipped at 212 – 240°F must also be placarded "HOT". Maximum loading temperature is 240°F	

Section XV – Regulatory Information										
UNITED STATES: SARA Hazard Category:	This product has been reviewed according to the EPA Hazard Categories promulgated under Section 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 categories:									
	Fire:	No	Pressure Generating:	No	Reactivity:	No	Acute:	Yes	Chronic:	No
	40 CFR Part 355 - Extremely Hazardous Substances:						None			
	40 CFR Part 370 - Hazardous Chemical Reporting:						Applicable			
All intentional ingredients listed on the TSCA inventory.										
SARA Title III Information:	This product contains the following substances subject of the reporting requirements of Title III (EPCRA) of the Superfund amendments and Reauthorization Act of 1986 and 40 CFR Part 372:									
	Chemical	CAS NO.	Percent by Weight	CERCLA RQ (lbs)*	SARA (1986) Reporting					
					311	312	313			
	Ammonium Nitrate	6484-52-2	40-87	See note ⁽¹⁾	Yes	Yes	See Note ⁽²⁾			
	Aqueous Ammonia	1336-21-6	8.51-18.59	NA	NA	NA	Yes			
	Nitrate Compounds	N/A	31.0-67.49	NA	NA	NA	Yes			
	⁽¹⁾ This product is not an EPA Hazardous Substance per 40 CFR 116-117. Ammonium Nitrate Solutions contain alkalinity as high as 0.5% by weight (as ammonia). Any spill that exceeds 97,000 lbs. may exceed the 1000 lb. RQ for ammonium hydroxide.									
	⁽²⁾ Ammonium Nitrate contains aqueous ammonia and water dissociable nitrate compounds subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986.									
CERCLA/Superfund, 40 CFR Parts 117, 302:	If this product contains components subject to substances designated as CERCLA reportable Quantity (RQ) Substances, it will be designated in the above table with the RQ value in pounds. If there is a release of RQ Substance to the environment, notification to the National response Center, Washington D.C. (1-800-424-8802) is required.									
CANADA:	WHMIS Hazard Symbol and Classification: This product is WHMIS controlled.									
	Ingredient Disclosure List:		Category C,D2b This product does contain ingredient(s) on this list.							
	Environmental Protection:		All intentional ingredients are listed on the DSL (Domestic Substance List).							
EINECS#:	(Ammonium Nitrate) 229-347-8									
California: Prop 65:	This is not a chemical known to cause cancer, nor is it listed.									

Section XVI – Other Information				
NFPA Hazard Ratings:	Health: 1	Fire: 0	Reactivity: 3	Special Hazards:
	0 = Insignificant	1 = Slight	2 = Moderate	3 = High 4 = Extreme
COMMENTS:				
Section(s) changed since last revision:	New Format, I, XIV			
Although the information contained is offered in good faith, SUCH INFORMATION IS EXPRESSLY GIVEN WITHOUT ANY WARRANTY (EXPRESS OR IMPLIED) OR ANY GUARANTEE OF ITS ACCURACY OR SUFFICIENCY and is taken at the user's sole risk. User is solely responsible for determining the suitability of use in each particular situation. PCS Sales specifically DISCLAIMS ANY LIABILITY WHATSOEVER FOR THE USE OF SUCH INFORMATION, including without limitation any recommendation which user may construe and attempt to apply which may infringe or violate valid patents, licenses, and/or copyright.				