
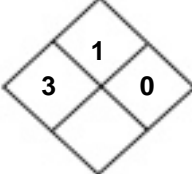


Material Safety Data Sheet

Revision Issued: 10/23/09	Supercedes: 12/21/06	First Issued: 7/1989
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Section I – Product and Company Identification

Product Name: Aqua Ammonia	PotashCorp MSDS No.: 31 ERG No.: 154
 <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>	<p>Flammability</p> <p>Health  Instability</p> <p>Specific Hazard</p> <p>NFPA Code</p>

Common Name:	Aqua Ammonia/ Ammonium Hydroxide	Formula:	NH ₄ OH/H ₂ O	Synonym:	Aqueous Ammonia, Ammoniacal Liquid	Uses:	Industrial
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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	
Aqua Ammonia/ Ammonium Hydroxide	1336-21-6		25 ⁽¹⁾		25 ⁽¹⁾		35 ⁽¹⁾			18-30 ⁽¹⁾

Section III – Hazard Identification

Potential Acute Health Effects:	Inhalation of 500 PPM Ammonia considered immediately dangerous to life and health (OSHA).
Eyes and Skin:	EYES: Liquid: Intensely irritating; in extreme, corneal ulceration or blindness. SKIN: Liquid: Corrosive burns or blister formation. Gas: Irritates moist skin.
Inhalation:	Ammonia vapors are highly irritating to throat at approximately 400 PPM. Causes edema, dyspnoea, bronchospasm, chest pain, pink frothy sputum. Inhalation of 500 PPM Ammonia considered immediately dangerous to life and health (OSHA).
Ingestion:	As with other corrosive alkalis: Severe burning of gullet, stomach, mouth, and throat. Possible death from shock or asphyxia. Human lethal dose not established: Any amount can be dangerous.
Potential Chronic Health Effects:	No other potential chronic health effects known.
CARCINOGENICITY LISTS	IARC Monograph: No NTP: No OSHA:

Section IV – First Aid Measures

Eyes:	Immediately flood with large amounts of water for at least 15 minutes. Seek prompt medical attention.
Skin:	Quickly remove contaminated clothing Immediately wash area with large amounts of water for at least 15 minutes. Seek prompt medical attention. Wash clothing before re-use.
Ingestion:	Do not induce vomiting. Encourage victim to drink large amounts of water, substituting as available, diluted vinegar or citrus juices. Seek prompt medical attention.
Inhalation:	Use respiratory protection as necessary and remove to fresh air at once. If breathing stops, give artificial respiration. Seek prompt medical attention.

Section V – Fire Fighting Measures			
Flash Point:	Not Flammable	Autoignition Temperature:	Not Applicable
Lower Explosive Limit:	Not Applicable	Upper Explosive Limit:	Not Applicable
Unusual Fire and Explosion Hazards:	(Based on ammonia). Ammonia increases the fire hazard from other combustible materials, including oil. Flammable limits are broadened by increasing temperature. Ammonia vapor in the range of 16-25% in air can explode on contact with ignition sources.		
Extinguishing Media:	Fire extinguishing agents recommended: Water spray Fire extinguishing agents to avoid: CO ₂ may react violently		
Special Firefighting Procedures and Equipment:	Wear full protective clothing. Stop flow of gas before extinguishing fire. Use water spray to keep fire-exposed containers cool.		

Section VI – Accidental Release Measures	
Small Spill:	Remain upwind of spill or leak. Evacuate immediate areas and wear appropriate protective equipment depending on the concentration of ammonia in immediate area.
Large Spill:	In unknown concentrations SCBA must be worn. Keep ignition sources away.
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:	Provide ventilation sufficient to maintain exposure below TWA/TLV/PEL (based on ammonia).
Handling:	Avoid all contact of liquid with the body. Minimize gas contact. Good maintenance to prevent leaks. Keep away from heat and open flames. Use good process control.
Storage:	Preferably stored outside, otherwise in cool, dry well-ventilated non-combustible location, away from all possible sources of ignition and oxidizers. Protect containers from heat, corrosion. Storage and physical damage – in locating storage areas, consideration should be given to health and fire hazards, population density, and proximity of water supplies. Also, closed containers should be provided with safety relief valves, as necessary.

Section VIII – Exposure Controls/ Personal Protection	
Engineering Controls:	Provide ventilation sufficient to maintain exposure below TWA/TLV/PEL (based on ammonia).
Personal Protection:	
Eye Protection:	Wear hard hat, chemical safety goggles, full-face shield if eyes are not covered by respiratory device. Do not wear contact lenses
Protective Clothing:	Wear rubber apron, impervious protective clothing and rubber boots for routine product use. Specialized handling – alkali-resistant gloves. For leak or spill or other emergency, use full protective clothing.
Respiratory Protection:	Use an approved NIOSH ammonia respirator. (Special: refers to a specific cartridge or canister for NH ₃ gas.) Up to 100 PPM chemical cartridge respirator, special, supplied-air respirator, or self-contained breathing apparatus. 100 to 300 PPM, chemical cartridge respirator, special with full-face piece. Supplied air respirator (gas mask, special supplied-air respirator, or self-contained breathing apparatus) required for exposure of 300 ppm or greater. Latter two types should have full-face piece.
Other Protective Clothing or Equipment:	Provide safety shower and eye wash facility at sites of handling and storage.

Section IX – Physical and Chemical Properties			
Appearance/Color/Odor:	This material at normal conditions is a clear liquid with a strong pungent ammonia odor.	Boiling Point:	119°F (19%) 85°F (29%)
Melting Point/Range:	-77°C	Boiling Point Range:	Not Applicable
Solubility in Water:	Miscible	Vapor Pressure (mmHg):	(at 25°C (77°F) 276 mmHg (19%) 629 mmHg (29%)
Specific Gravity:	0.897 (28-30%) at 60° F	Molecular Weight:	35.05
Vapor Density:	0.045 lb/cf @ 60°F and 1atm	% Volatiles:	(at 20° C) 100%
Bulk Density:	Not Applicable	Evaporation Rate:	Not Applicable
pH:	11.6 in a 1.0 normal solution	Freezing Point:	-24° F (19%) and -104° F (29%)
Viscosity:	Not Applicable	Density:	(at 20°C) 0.926 g/ml (19%) 0.895 g/ml (29%)

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:	Heating increases vapor pressure. Ammonia gas may be released when aqua ammonia is heated.
Materials to Avoid (Incompatibles):	Oxidizing materials, strong acids, halogens; avoid use of non-ferrous metals. Boron, chlorites, chromium trioxide, dimethyl sulfate, ethylene oxide, gold, mercury, nitrogen tetroxide, oleum, phosphorus pentoxide, sulfuric acid, and water.
Hazardous Decomposition Products:	Gaseous ammonia on heating. Normal combustion products of ammonia vapor are nitrogen (*N ₂) and water. Oxides of nitrogen may be produced under certain conditions.

Section XI – Toxicological Information		
Significant Routes of Exposure:	Eyes, Digestive Tract, Respiratory Tract, Skin	
Toxicity to Animals:	Acute Oral Toxicity:	LD ₅₀ = 350 mg/kg bw. (cat) = 750 mg/kg bw.
	Acute Inhalation Toxicity:	No data available.
	Acute Toxicity: Other Routes:	(rabbit):LD _{L0} = 10 mg/kg bw
	Acute Dermal Toxicity:	No data available.
	Repeated Dose Toxicity:	No data available.
	Eye & Skin Irritation/Corrosion:	Rabbit-Corrosive at 20%, but not 10% Eye Irritation/Corrosion: Rabbit - Irritating
	Developmental Toxicity/Teratogenicity:	No data available.
	Bacterial Genetic Toxicity In-Vitro: Gene Mutation:	(<i>E. coli</i>)Negative
	Non-Bacterial Genetic Toxicity In-Vitro: Chromosomal Aberration:	No evidence of mutagenicity
	Toxicity to Reproduction:	No data available.
Carcinogenicity:	No data available.	
Other Effects on Humans:	No effects known.	
Special Remarks on Chronic Effects on Humans	Human lethal dose not established: Any amount can be dangerous.	
Special Remarks on Other Effects on Humans:	No data available.	

Section XII – Ecological Information

Ecotoxicity	EPA Ecological Toxicity rating :	Slightly toxic to aquatic organisms as defined by USEPA.
	Acute Toxicity to Fish:	(<i>Cyprinus carpio</i>): 48-hr semi-static – LC ₅₀ = 1.34 – 1.70 mg un-ionized NH ₃ /L.
	Chronic Toxicity to Fish:	(<i>Ictalurus punctatus</i>) - 8 days – LC ₅₀ = 37.5 ppm total ammonia.
	Acute Toxicity to Aquatic Invertebrates:	(<i>Daphnia magna</i>) : 48-hr static – LC ₅₀ = 32 mg NH ₄ OH/L
	Chronic Toxicity to Aquatic Invertebrates:	No data available
	Acute Toxicity to Aquatic Plants:	Ammonia is used by algae and aquatic macrophytes as a source of nitrogen for protein synthesis. Algal assimilation may be a significant sink for ammonia in freshwater environments. It is estimated that 34% of ammonia may be removed via algal assimilation. Ceratophyllum demersum, a non-rooted macrophyte can remove ammonia at the rate ammonia is released through decomposition in a pond.
	Toxicity to Soil Dwelling Organisms:	No data available
	Toxicity to Terrestrial Plants:	Can cause inhibition of photosynthesis
Environmental Fate:	Stability in Water:	Miscible in water
	Stability in Soil:	No data available
	Transport and Distribution:	No data available
Toxicity:	No known toxicity	
Degradation Products:	Biodegradation:	Miscible in water and readily degrades.
	Photodegradation:	Does not bioaccumulate.

Section XIII – Disposal Considerations

Product Disposal:	Disposal of ammonium hydroxide may be subject to federal, state and local regulations..
General Comments:	Users of the product should review their operations in terms of applicable laws and regulations. Consult with appropriate regulatory agencies before discharging or disposing of waste material of the product.

Section XIV – Transportation Information

	USDOT	TDG - Canada
	For solutions with more than 10%, but not more than 35%	
Proper Shipping Name:	Ammonia Solutions	Ammonia Solutions
Hazard Class:	8	8
Identification Number:	UN 2672	UN 2672
Packing Group (Technical Name):	III	III
Labeling / Placarding:	Corrosive	Corrosive
Authorized Packaging:	DOT103,104,105,109,111,112,114,115,120 Trucks: DOT 51, MC 306,307, 312,330,331, 407, 412	
Notes:	If product exceeds the CERCLA Reportable Quantity, the notation "RQ" shall be added before or after the basic shipping description	
European Transportation:	No data available	

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:	Yes	Pressure Generating:	Yes	Reactivity:	Yes	Acute:	Yes	Chronic:	No
	40 CFR Part 355 - Extremely Hazardous Substances:						None Applicable			
	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 Hydroxide (see Note ⁽¹⁾)	1336-21-6	37.0-61.7 (as NH ₄ OH)	see Note ⁽¹⁾ 1000 lbs. (100% Basis) 2700 lbs (18% wt. Solution As NH ₃) 1620 lbs. (30% wt. Solution As NH ₃)			Yes	Yes	NA	
	⁽¹⁾ CERCLA reports Aqua Ammonia as Ammonium Hydroxide (CAS 1336-21-6) ⁽²⁾ Reported as Aqueous Ammonia (CAS 7664-41-7) 18-30% (for SARA reporting)									
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 not WHMIS controlled						
	Ingredient Disclosure List:			This product is not WHMIS controlled						
	Environmental Protection:			All intentional ingredients are listed on the DSL (Domestic Substance List).						
EINECS#:	(Aqua Ammonia) 215-647-6									
California: Prop 65:	This is not a chemical known to cause cancer, nor is it listed.									
Chemical Facility Anti-terrorism Standards (CFATS)	If the Aqua Ammonia you receive exceeds a concentration of 20% or greater, this product is listed as a Chemical of Interest in 6 CFR 27. Please determine if your use of this product meets the Screening Threshold Quantity as identified in Appendix A to this regulation. If so, you will be required to submit a Top Screen under DHS's Chemical Security Assessment Tool.									
Section XVI – Other Information										
NFPA Hazard Ratings:	Health: 3	Flammability: 1	Instability: 0	Special Hazards: Corrosive						
	0 = Insignificant		1 = Slight	2 = Moderate	3 = High	4 = Extreme				
COMMENTS:	There are no animal constituents used in the manufacture of Aqua Ammonia. Our product is created through a chemical process.									
Section(s) changed since last revision:	I, XIII, XIV, XV, XVI									
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