



# Safety Data Sheet Anhydrous Ammonia



## 1. Identification

<b>Product identifier</b>	Anhydrous Ammonia
<b>Product code</b>	N.Av.
<b>Other means of identification</b>	Nitro-sil. Esprit de Hartshorn.
<b>Recommended use of the chemical and restrictions on use</b>	Fertilizer.
<b>Manufacturer</b>	Sylvite 3221 North Service Road, Suite 200 Burlington, Ontario Canada L7N 3G2 Tel. 1-800-229-0602 Fax 905-315-2083 <a href="http://www.sylvite.ca">www.sylvite.ca</a>
<b>Emergency phone number</b>	Quebec Poison Center: 1-800-463-5060 (toll free in QC) Ontario and Manitoba Poison Centres: 1-800-268-9017 or 419-813-5900 BC Drug and Poison Information Centre: 1-800-567-8911 (toll free in BC) or contact your local poison control centre in the state/province or territory where you live. Canutec: 613-996-6666 (for transportation)

## 2. Hazard identification

<b>Summary</b>	LIQUIFIED GAS. CONTENT UNDER PRESSURE ! CORROSIVE! Keep away from heat, sparks and open flame. Do not breathe gas and make sure to keep them under exposure limits. Avoid all contact with the skin, eyes and clothing. Wear eye protection, gloves and other protective clothing that are adapted to the task being performed and the risks involved.
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### WHMIS 2015/GHS/OSHA HCS 2012



Flammable gases (Category 1)  
Gases under pressure (Liquefied gas)  
Acute toxicity, inhalation (Category 3)  
Skin corrosion/irritation (Category 1B)  
Serious eye damage (Category 1)  
Health hazards not otherwise classified (HHNOC)

#### DANGER

H220: Extremely flammable gas  
H280: Contains gas under pressure; may explode if heated  
H331: Toxic if inhaled  
H314: Causes severe skin burns and eye damage.  
H3xx: May cause burns and serious injury to the respiratory tract.  
H400: Very toxic to aquatic life  
P210: Keep away from heat, sparks, open flames and other ignition sources. No smoking.  
P260: Do not breathe gases  
P264: Wash face, hands and any exposed skin thoroughly after handling.  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves, protective clothing, eye protection and/or face protection.

P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
 P303+361+353: IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water and soap or take a shower if necessary.  
 P363: Wash contaminated clothing before reuse.  
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.  
 P310: Immediately call a POISON CENTER or a doctor.  
 P321: Specific treatment (see section 4 of SDS or on this label).  
 P377: Leaking gas fire: Do not extinguish unless leak can be stopped safely.  
 P381: In case of leakage, eliminate all ignition sources.  
 P403+233: Store in a well ventilated place. Keep container tightly closed.  
 P405: Store locked up.  
 P410: Protect from sunlight.  
 P501: Dispose of contents and container to an approved waste disposal plant.

**Other hazards which do not result in classification**

Acute hazard to the aquatic environment (Category 1).

### 3. Composition/information on ingredients

Common name	CAS	Weight % content
Ammonia	7664-41-7	95 - 100 %

### 4. First-aid measures

<b>Inhalation</b>	Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen by trained personnel. Do not use mouth-to-mouth resuscitation unless you use a buccal protective device. Seek medical attention immediately.
<b>Skin contact</b>	Flush with water for at least 15 minutes. Remove contaminated clothing if it can be done without causing further damage. Carefully cut any part of the clothing that adheres to the skin. Avoid touching eyes with contaminated body parts. Apply wet compresses on burns. Seek medical attention immediately. Wash contaminated clothing before reuse.
<b>Eye contact</b>	IMMEDIATELY flush with plenty of water. Remove contact lenses if easy to do. Flush with water for at least 15 minutes. Hold eyelids apart to rinse properly. Seek medical attention immediately. Have an ophthalmologist make an evaluation of eye injury.
<b>Ingestion</b>	If victim is conscious wash out mouth with water and give 1-2 glasses of water to drink. As this product is a gas, refer to the inhalation section. Seek medical attention or contact a Poison Centre immediately. Never give anything by mouth if victim is unconscious or convulsing.
<b>Other</b>	No information available.
<b>Symptoms</b>	May cause skin burns and eye damage. Contact with liquefied gas may cause frostbite. Can cause damage to nasal and respiratory passages. Symptoms of lung edema (mainly cough and difficulty breathing) often occur after some hours and they are aggravated by physical effort.
<b>Notes to the physician</b>	For severe exposures, monitor for delayed onset of pulmonary edema. Provide medical observation for at least 48 hours after the accident. For severe exposure, immediately seek medical attention and monitor breathing and treat for shock.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Dry chemicals, water spray, chemical foam, carbon dioxide (CO <sub>2</sub> ).

<b>Specific hazards arising from the chemical</b>	Flammable Gas. Content under pressure, containers may explode under fire conditions. The risk of fire caused by ammonia is relatively low; it must be brought into contact with materials or a surface having a temperature of 651 °C prior to ignite itself. However, the presence of oil or other combustible materials may increase the risk of fire by lowering the self-ignition temperature. Contact with oxidizers may cause fire and/or explosion.
<b>Special protective equipment</b>	Firefighters must wear self contained breathing apparatus with full face mask. Firefighting suit may not be efficient against chemicals.
<b>Special protective actions for fire-fighters</b>	Use water spray to cool fire-exposed containers. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply.

## 6. Accidental release measures


<b>Personal precautions, protective equipment and emergency procedures</b>	Do not touch spilled material. Make sure to wear personal protective equipment mentioned in this Safety Data Sheet.
<b>Environmental precautions</b>	Prevent entry into sewers, closed areas and release to the environment. For a large spill, consult the Department of Environment or the relevant authorities.
<b>Methods and materials for containment and cleaning up</b>	No action shall be taken involving any personal risk or without suitable training. Evacuate all personnel. Restrict access until the complete cleaning of the places. Immediately contact emergency personnel. Ventilate the area well. Eliminate all ignition sources. Stop leak, if it's possible to do so without risk. If the leak can't be stopped, move the cylinders in an isolated area that has no ignition source, and let the gas out very slowly.

## 7. Handling and storage

<b>Precautions for safe handling</b>	This product must be manipulated by qualified personnel. Never use this product when working alone. Content under pressure, do not puncture, cut, heat or throw container into the flames. Keep away from heat, sparks and open flame. Use only in well ventilated area. Do not breathe gas and make sure to keep them under exposure limits. Avoid all contact with the skin, eyes and clothing. DO NOT wear contact lenses. Wear eye protection, gloves and other protective clothing that are adapted to the task being performed and the risks involved. Avoid contact with incompatible materials. Keep containers tightly closed when not in use. Use a suitable hand truck for cylinder movement. Use a pressure regulator when connecting cylinder to lower pressure piping or systems. The compressed gas cylinders must be protected from strong shocks and you should never use a damaged bottle. Do not eat, do not drink and do not smoke during use. Wash hands, forearms and face thoroughly after handling this compound and before eating, drinking or using toiletries. Remove contaminated clothing and wash before reuse.
<b>Conditions for safe storage, including any incompatibilities</b>	Flammable gas storage and handling should follow the NFPA Code and the National Fire Code of Canada (NFCC). Store in accordance with local regulations, in a container clearly labeled and designed for ammonia (usually stainless steel). Keep away from direct sunlight and heat. Store away from oxidizing materials and incompatible materials (see section 10).
<b>Storage temperature</b>	<49 °C (120.2 °F)

## 8. Exposure controls/personal protection

<b>Immediately Dangerous to Life or Health</b>	Ammonia: 300 ppm.
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Ammonia	STEL	35 ppm		ACGIH , BC, ON
		35 ppm	24 mg/m <sup>3</sup>	RSST
		35 ppm	27 mg/m <sup>3</sup>	NIOSH
	TWA (8h)	25 ppm		ACGIH , BC, ON
		25 ppm	17 mg/m <sup>3</sup>	RSST
		25 ppm	18 mg/m <sup>3</sup>	NIOSH
<b>Appropriate engineering controls</b>	Provide sufficient mechanical (general and/or local exhaust) to keep the airborne concentrations of gas below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are close to the workstation.			
<b>Individual protection measures</b>				
<b>Eye</b>	DO NOT wear contact lenses. Wear chemical splash goggles. If respiratory hazards exist, a full face respirator may be required instead.			
<b>Hands</b>	Chemical-resistant, impervious gloves should be worn at all times when handling this chemical product. Wear butyl rubber or nitrile gloves. Before using, user should confirm impermeability. Discard gloves with tears, pinholes, or signs of wear. Gloves must only be worn on clean hands. Wash gloves with water before removing them. After using gloves, hands should be washed and dried thoroughly.			
<b>Skin</b>	Personal protective equipment for the body should be selected based on the task being performed and the risks involved. Wear a lab coat in synthetic fabrics. If necessary, wear an apron or long-sleeve protective coverall suit.			
<b>Respiratory</b>	Where the conditions in the workplace require a respirator, it is necessary to follow a respiratory protection program. Moreover, respiratory protection equipment (RPE) must be selected, fitted, maintained and inspected in accordance with regulations and standard 29 CFR 1910.134 (OSHA), ANSI Z88.2 or CSA Z 94.11 (Canada) and approved by NIOSH/MSHA. In case of insufficient ventilation or in enclosed area until maximum 100 times of exposure limit, wear full face mask respirator with cartridges providing protection against the compound of concern. In case of high concentration wear self contained breathing apparatus.			
<b>Feet</b>	Not required in normal use.			
 Goggles      Nitrile gloves				

## 9. Physical and chemical properties

<b>Physical state</b>	Gas or liquified gas	<b>Flammability</b>	Non-flammable
<b>Colour</b>	Colourless	<b>Flammability limits</b>	15 to 28%
<b>Odour</b>	Ammonia	<b>Flash point</b>	N/Ap.
<b>Odour threshold</b>	16.7 ppm	<b>Auto-ignition temperature</b>	651 °C (1203.8 °F)
<b>pH</b>	12 @ 10%	<b>Sensibility to electrostatic charges</b>	No
<b>Melting point</b>	-78 °C (-108.4 °F)	<b>Sensibility to sparks and/or friction</b>	No
<b>Freezing point</b>	-78 °C (-108.4 °F)	<b>Vapour density</b>	0.6 (Air = 1)
<b>Boiling point</b>	-33.4 °C (-28.1 °F)	<b>Relative density</b>	0.68 kg/L @ -33.3 °C (-27.9 °F) (Water = 1)
<b>Solubility</b>	Soluble in water. 530 g/L @ 20 °C	<b>Partition coefficient n-octanol/water</b>	N/Ap.

<b>Evaporation rate</b>	N/Ap.	<b>Decomposition temperature</b>	N/Av.
<b>Vapour pressure</b>	861kPa (6457.5 mm Hg) @ 20°C (68°F)	<b>Viscosity</b>	N/Ap.
<b>Percent Volatile</b>	100%	<b>Molecular mass</b>	17.03
N/Av.: Not Available    N/Ap.: Not Applicable    Und.: Undetermined    N/E: Not Established			

## 10. Stability and reactivity

<b>Reactivity</b>	Reacts with acids to produce heat. Contact with oxidizers may cause fire and/or explosion. Hygroscopic (absorb humidity). Ammonia formed upon contact with water a corrosive substance (ammonium hydroxide). In presence of moisture, it becomes corrosive to zinc, copper and their alloys.
<b>Chemical stability</b>	Stable under recommended storage conditions.
<b>Possibility of hazardous reactions (including polymerizations)</b>	A dangerous reaction will not occur.
<b>Conditions to avoid</b>	Avoid contact with incompatible materials. Avoid heat, flame and sparks. Avoid temperatures over 49 °C.
<b>Incompatible materials</b>	Strong oxidants, peroxides, calcium, silver salts, mercury, halogens, boron halides tellurium halides, the supporting combustion gas such as chlorine, fluorine, nitric oxide, nitrous oxide, nitrogen tetroxide, oxygen and compressed air, strong acids (sulfuric acid, hydrochloric acid).
<b>Hazardous decomposition products</b>	None reported.

## 11. Toxicological information


<b>Numerical measures of toxicity</b>	Ammonia Ingestion 350 mg/kg    Rat LD50 Inhalation 2000 ppm/4h    Rat LC50
<b>Likely routes of exposure</b>	Inhalation.
<b>Delayed, immediate and chronic effects</b>	<p><b>Eye contact</b>            May cause severe eye irritation or eye damage. The severity of symptoms may vary depending on exposure conditions. Contact with liquefied gas may cause frostbite.</p> <p><b>Skin contact</b>            Causes skin burns. Skin Irritation/Corrosion, Rabbit : 20% aqueous ammonia solution was applied on the skin for 5 min; Corrosive. The severity of symptoms may vary depending on exposure conditions. Contact with liquefied gas may cause frostbite. Ammonia formed upon contact with water a corrosive substance (ammonium hydroxide).</p> <p><b>Inhalation</b>                May cause irritation to nose, throat and respiratory tract. Exposure to high concentrations may cause coughing, burns of the respiratory system, chest pain. breathing difficulties, chronic bronchitis. pulmonary oedema. Symptoms of lung edema (mainly cough and difficulty breathing) often occur after some hours and they are aggravated by physical effort. Inhalation in large amounts may cause asphyxiation.</p> <p><b>Ingestion</b>                 Ingestion of an aqueous solution of this chemical may cause severe burns, vomiting.</p> <p><b>Respiratory or skin sensitization</b>    Ingredients present at levels greater than or equal to 0.1% of this product are not skin or respiratory sensitizers.</p> <p><b>IARC/NTP Classification</b>                No ingredients listed.</p> <p><b>Carcinogenicity</b>            Ingredients present at levels greater than or equal to 0.1% of this product are not listed as a carcinogen by IARC, ACGIH, NIOSH, NTP or OSHA.</p>

	<p><b>Mutagenicity</b> Ingredients in this product present at levels greater than or equal to 0.1% are not known to cause mutagenic effects.</p> <p><b>Reproductive toxicity</b> Ingredients in this product present at levels greater than or equal to 0.1% are not known to cause reproduction effects.</p> <p><b>Specific target organ toxicity - single exposure</b> Respiratory system.</p> <p><b>Specific target organ toxicity - repeated exposure</b> Lungs.</p>
<b>Interactive effects</b>	No information available.
<b>Other information</b>	No additional information.



## 12. Ecological information

<b>Ecological toxicity</b>	<p>Fish - Fathead minnow, Pimephales promelas - fresh water LC50 0.24-3.44 mg NH3 gas/L; 96hr (OECD SIDS)</p> <p>Fish - Bluegill (Lepomis macrochirus), fresh water LC50 0.26-2.97 mg NH3 gas/L; 96hr (OECD SIDS)</p> <p>Fish - Oncorhynchus mykiss - Rainbow trout LC50 0.16-1.09 mg NH3 gas/L; 96hr (OECD SIDS)</p> <p>Aquatic Invertebrate - Crustaceans, Daphnia Magna EC50 25 mg NH3 gas/L; 48hr (pH 8.2) (OECD SIDS)</p>
<b>Persistence</b>	May persist in the environment.
<b>Degradability</b>	The gas ammonia reacts with ozone, hydroxyl radicals, and atomic oxygen in air. When ammonia is dissolved in water under normal conditions (aerobic), it is rapidly converted to nitrate by nitrification. The pH in water is increased by the presence of ammonium ion, in the form of hydroxide salts. Bacteria convert ammonia into nitrates creating a biochemical oxygen demand (BOD) several days after its introduction into the environment.
<b>Bioaccumulative potential</b>	Ammonia is incorporated into the food chain.
<b>Mobility in soil</b>	Ammonia is mainly present in water and soil as ammonium salts. Only a small amount is in the form of ammonia gas, which can evaporate into the atmosphere. As pH increases, more alkaline soil, the fraction of the ammonia gas increases.
<b>Other adverse effects</b>	Ammonia (gas) is the primary cause of toxicity in aquatic systems. This chemical does not deplete the ozone layer.

## 13. Disposal considerations

<p><b>Container</b></p> 	Important! Prevent waste generation. Use in full. DO NOT puncture, cut, heat or burn container, even after use. DO NOT dispose residue in sewers, streams or drinking water supply. Return bottle properly labeled to supplier.
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## 14. Transport information

<b>UN Number</b>	UN 1005
<b>UN Proper Shipping Name</b>	ANHYDROUS AMMONIA
<b>Environmental hazards</b>	Marine pollutant.
<b>Special precautions for user</b>	Permit required for transportation with proper DANGER placards displayed on vehicle.
<b>TDG - Transportation of Dangerous Goods (Canada)</b>	
<b>Transport hazard class(es)</b>	  Class 2.3 Class 8
<b>Packing group</b>	
<b>Emergency response guidebook 2016</b>	<u>125</u>
<b>IMO/IMDG - International Maritime Transport</b>	
<b>Classification</b>	Class 2.3 (8). ANHYDROUS AMMONIA. . Passenger Cargo: Forbidden. Emergency schedules (EmS-No) F-C, S-U
<b>IATA - International Air Transport Association</b>	
<b>Classification</b>	Class 2.3 (8). ANHYDROUS AMMONIA. . Passenger aircraft: Forbidden.
<p>These transportation classifications are provided as a customer service. As the shipper YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. In addition, if a domestic exemption exists, it is the responsibility of the shipper to define the application of it.</p>	

## 15. Regulatory information

### CANADA

Common name	CAS	CEPA	DSL	NDSL	NPRI
Ammonia	7664-41-7	X	X		X

- CEPA: List of Toxic Substances Managed Under Canadian Environmental Protection Act
- DSL: Domestic Substances List Inventory
- NDSL: Non-Domestic Substances List Inventory
- NPRI: National Pollutant Release Inventory Substances

### UNITED STATE OF AMERICA

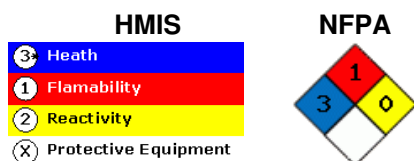
Common name	CAS	TSCA	CER CLA	EPCRA 313	EPCRA 302/304	CAA 112(b) HON	CAA 112(b) HAP	CAA 112(r)	CWA 311	CWA Prio.
Ammonia	7664-41-7	X	X		X			X	X	

- TSCA: Toxic Substance Control Act
- CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act list of hazardous substances
- EPCRA 313: Emergency Planning and Community Right-to-Know Act, Section 313 Toxic Chemicals
- EPCRA 302/304: Emergency Planning and Community Right-to-Know Act, Section 302/304 Extremely Hazardous Substances
- CAA 112(b) HON: Clean Air Act - Hazardous Organic National Emission Standard for Hazardous Air Pollutant
- CAA 112(b) HAP: Clean Air Act - Hazardous Air Pollutants lists pollutants
- CAA 112(r): Clean Air Act - Regulated Chemicals for Accidental Release Prevention
- CWA 311: Clean Water Act - List of Hazardous Substances

## California Proposition 65

No ingredients listed.

### Other regulations



## 16. Other information

**Date**  
(YYYY-MM-DD)

Sylvite 2016-02-17

**Version**

02

**Other information**

**REFERENCES:**

- OECD Existing Chemicals Database, Chemicals Screening Information DataSet (SIDS) for High Volume Chemicals, UNEP publications, <http://webnet.oecd.org/HPV/UI/Search.aspx>
  - Service du répertoire toxicologique de la Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST), <http://www.reptox.csst.qc.ca>
  - IPCS INCHEM, Chemical Safety Information from Intergovernmental Organizations, Canadian Centre for Occupational Health and Safety (CCOHS), Copyright International Programme on Chemical Safety (IPCS), <http://www.inchem.org>
  - Database, Institut National de Recherche et de Sécurité, <http://www.inrs.fr/accueil/produits/bdd.html>
  - NIOSH Pocket Guide to Chemical Hazards, Centers for Disease Control and Prevention, NIOSH Publications, 2007, <http://www.cdc.gov/niosh/npg/npg.html>
  - Ammonia, The Registry of Toxic Effects of Chemical Substances, RTECS #: BO0875000.
  - Toxicological Review, Integrated Risk Information System (IRIS), USA Environment Protection Agency, [www.epa.gov/iris](http://www.epa.gov/iris)
  - Haz-Map, Information on Hazardous Chemicals and Occupational Diseases, <http://hazmap.nlm.nih.gov/index.php>
  - TOXNET Databases, Toxicology Data Network, NIH U.S. National Library of Medicine, <http://toxnet.nlm.nih.gov/>
- DATE OF FIRST VERSION OF SDS:  
2013-06-17.
- CHANGES MADE IN THE VERSION 02:  
sections 2, 4, 8, 11 and 15.

ACGIH: American Conference of Governmental Industrial Hygienists  
AIHA: American Industrial Hygiene Association  
HMIS: Hazardous Materials Identification System  
NFPA: National Fire Protection Association  
OSHA: Occupational Safety and Health Administration (USA)  
NIOSH: National Institute for Occupational Safety and Health  
NTP: National Toxicology Program  
RSST: Règlement sur la santé et la sécurité du travail (Québec)  
GHS: Globally Harmonized System  
IARC: International Agency for Research on Cancer  
IDLH: Immediately Dangerous to Life or Health  
STEL: Short Term Exposure Limit (15 min)  
TWA: Time Weighted Averages  
WHMIS: Workplace Hazardous Materials Information System



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