

SAFETY DATA SHEET

Section 1: Identification

1.1 Product identifier:

Anhydrous Ammonia

Alternate names: Anhydrous Ammonia Fertilizer 82-0-0

1.2 Recommended use of the chemical and restrictions on use:

Agriculture Industry: Fertilizer

Industrial Applications: Manufacture of chemicals, synthetic fibres, specialty fertilizers, refrigerant, cleaning solutions.

Restrictions on Use: Uses at industrial sites, uses by professional workers and approved agricultural uses only.

1.3 Supplier:

Sherritt International Corporation

P.O. Box 3388

Fort Saskatchewan, Alberta

Canada T8L 2T3

(780) 992-7000

e-mail address: sdsinfo@sherrittmetals.com

1.4 24-Hour Emergency telephone number:

In Canada: +001-780-992-7444

International: +44 (0) 1235-239-670

Section 2: Hazards Identification

2.1 Classification (WHMIS 2015):

Flammable gas - Category 2

Gas under pressure - Liquefied gas

Acute toxicity (Inhalation) - Category 3

Skin corrosion - Category 1B

Serious eye damage - Category 1

Health Hazard Not Otherwise Classified (HHNOC) - Category 1

Hazardous to the aquatic environment, Acute - Category 1 M=1, Chronic – Category 1

2.2 Label elements:



Danger.

Flammable gas.

Contains gas under pressure; may explode if heated.

Toxic if inhaled.

Causes severe skin burns and eye damage.

Causes serious damage to respiratory tract.

Very toxic to aquatic life with long lasting effects.

Prevention

Keep away from heat, sparks, open flames, and hot surfaces. – No smoking.

Do not breathe gas, vapours, spray.

Wash hands and skin thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

Avoid release to the environment.

Response

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

In case of leakage, eliminate all ignition sources.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash contaminated clothing before reuse.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTRE or doctor.

Collect spillage.

SAFETY DATA SHEET**Section 2: Hazards Identification, continued**

Storage:

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal:

Dispose of contents and container in accordance with local, regional, national and international regulations.

2.3 Other hazards:

Health Hazards Not Otherwise Classified (HHNOC): Exposure to ammonia gas in air causes serious damage to respiratory tract.

Contact with water forms corrosive ammonium hydroxide.

Section 3: Composition/Information on Ingredients

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Wt. %</u>
Ammonia, anhydrous	7664-41-7	99.5 – 99.9
Water	7732-18-5	0.1 – 0.5

Section 4: First-aid Measures**4.1 Description of first aid measures:**

Take precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment).

Take precautions to prevent a fire (e.g. remove sources of ignition).

Inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by Poison Centre or doctor. DO NOT move about unnecessarily. Symptoms of pulmonary edema may be delayed up to 48 hours after exposure. Emergency medical attention is urgently required.

Eye Contact: Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing until medical aid is available. Neutral saline solution may be used as soon as it is available. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately call a poison center or doctor.

Skin Contact: Avoid direct contact. Wear chemical protective clothing if necessary. Take off immediately contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Rinse skin with lukewarm, gently flowing water or shower. (NOTE: It may be necessary to store contaminated clothing underwater until it can be safely decontaminated or discarded). Immediately call a poison center or doctor and follow their advice.

Ingestion: Ingestion is not a likely route of exposure due to the physical state of the substance (i.e. Compressed, liquefied gas). If swallowed: Rinse mouth. Do not induce vomiting. If vomiting occurs naturally, lie on your side in the recovery position. Immediately call a poison center or doctor and follow their advice. Emergency medical treatment is urgently required.

4.2 Most important symptoms and effects, both acute and delayed:

If inhaled: can cause severe irritation of the nose and throat. Can cause lung injury. Symptoms may include coughing, shortness of breath, difficult breathing and tightness in the chest. Irritating to entire respiratory tract. Symptoms of exposure may include coughing, wheezing, shortness of breath, difficult breathing and convulsions. Severe exposure may lead to pulmonary edema; symptoms of pulmonary edema include chest pain and shortness of breath and can be delayed up to 24 or 48 hours after exposure.

If in eyes: may cause serious eye damage. May irritate or burn the eyes. Permanent damage including blindness may result. Corrosive liquid and vapour; causes eye damage. Contact causes severe eye irritation and burns with corneal injury and permanent vision impairment. Serious damage, even blindness, may result if treatment is delayed.

If on skin: corrosive liquid and vapour; causes burns. Contact causes severe irritation, chemical burns and blistering. Contact with vapourizing liquid may cause frostbite due to rapid evaporative cooling. Cooling effect may mask the extent of corrosive injury received.

4.3 Immediate medical attention and special treatment:

Special Instructions: Emergency medical attention is urgently required following acute inhalation exposures, or contact with eyes and skin.

Medical Conditions Aggravated by Exposure: Not available

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Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Stopping the flow of gas rather than extinguishing the fire is usually the best procedure to follow when escaping gas is burning.

Use extinguishing media appropriate to surrounding fire conditions. If ammonia gas is burning, use dry chemical powder or carbon dioxide for small fires and water spray, fog or foam for large fires.

In case of fire: keep cylinder cool by spraying with water.

Unsuitable Extinguishing Media: Do not get water inside containers.

5.2 Specific hazards arising from the substance:

Flammable gas. Slightly flammable in the presence of open flames and sparks.

Narrow lower to upper flammability limits (16%-25%) makes ignition difficult.

Can form explosive mixture with air at room temperature.

Heat from fire can cause a rapid build-up of pressure inside cylinders. Explosive rupture and a sudden release of large amounts of toxic and corrosive gas may result. Ruptured cylinders may rocket.

Toxic, may be fatal if inhaled. Vapors are extremely irritating and corrosive.

Runoff from fire control may cause pollution.

Vapors from liquefied gas are initially heavier than air and spread along ground.

Cylinders exposed to fire may vent and release toxic and corrosive gas through pressure relief devices.

Combustion will generate Nitrogen oxides (NO, NO₂).

May be an explosion hazard in a confined space.

5.3 Special Protective Equipment and Precautions for Fire-fighters:

Ammonia is a toxic and corrosive gas. Do not enter without wearing specialized protective equipment suitable for the situation. Firefighter's normal protective clothing (Bunker Gear) will not provide adequate protection. A full-body encapsulating, chemical protective suit with positive pressure self-contained breathing apparatus (NIOSH approved or equivalent) may be necessary.

In case of fire: keep cylinder cool by spraying with water to prevent pressure buildup, autoignition or explosion. Move containing vessels from fire, if without risk. If Anhydrous Ammonia catches fire, stop flow of gas or liquid, if it may be done safely. Use water spray or fog to extinguish flames and suppress vapours. Do not direct water into spilled ammonia. Cryogenic liquid. Ammonia will cool with evaporation. Fire water will increase ammonia temperature resulting in greater evaporation. Contain run-off water.

If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.

- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

Section 6: Accidental Release Measures**6.1 Personal precautions, protective equipment and emergency procedures:**

A dangerous concentration of this gas in the air will be reached very quickly on loss of containment.

Evacuate danger area, keep all unprotected people away from the spill area. Consult an expert.

Ventilate the danger area. NEVER direct water jet on liquid. Stop or control the leak, if this can be done without risk.

Use water spray to cool, absorb, and disperse vapors, and protect personnel.

Do not approach liquid or vapour cloud without gas-tight chemical protection suit including self-contained breathing apparatus.

Approach the release from upwind. Extinguish or remove all sources of ignition and heat. Ensure clean-up is conducted by trained personnel only. Do not touch the spilled material. Spilled material in contact with water may be a corrosive hazard.

6.2 Environmental precautions:

Ammonia is very toxic to aquatic organisms. Prevent material from contaminating soil and from entering sewers or waterways.

As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.

- Keep unauthorized personnel away.
- Stay upwind.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Keep out of low areas.
- Ventilate closed spaces before entering.

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6.3 Methods and materials for containment and cleaning up:

Releases may require isolation or evacuation. Stop or control the leak, if this can be done without undue risk. Use water spray to cool, absorb and disperse vapours and protect personnel. Do not direct water into spilled liquid. Anhydrous Ammonia will auto-refrigerate reducing vapour release. Addition of water will warm cryogenic liquid, resulting in greater gasification. Contain any run-off water.

6.4 Other Information:

Call emergency number on this SDS for assistance.
See Section 8 for information on selection of personal protective equipment.
See Section 13 for information on disposal of spilled product and contaminated absorbents.

Section 7: Handling and Storage

7.1 Precautions for safe handling:

Manufacture and use takes place under strictly controlled conditions. Anhydrous Ammonia production and use is rigorously controlled and appropriate risk management measures must be applied.

Keep ammonia handling facilities locked. Keep storage vessels away from direct heat. Ground all equipment.

Keep away from incompatible materials such as oxidizing agents, reducing agents, metals and acids.

Keep children away from ammonia storage and handling equipment.

Do not breathe gas/vapours. Use only outdoors or in a well-ventilated area.

Keep away from heat/ sparks/open flames/hot surfaces. — No smoking.

Avoid release to the environment. Collect spillage.

Wash hands thoroughly after handling. Wear protective gloves, protective clothing and eye protection or full-face protection.

Do not eat, drink or smoke when using this product.

Safety shower and eyewash fountain should be provided in the ammonia handling area.

7.2 Conditions for safe storage:

Protect from sunlight. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Use dedicated containers - do not rinse containers.

Keep away from combustible materials, heat and incompatible materials, especially dry or liquid bleach. Ensure facilities are well maintained and emergency response and first aid equipment is readily available. Always ensure there is a nearby source of water for first aid purposes and spill response. Facilities storing or handling ammonia should be equipped with an eyewash and safety shower.

Section 8: Exposure Controls / Personal Protection

8.1 Control parameters:

Occupational Exposure Limits: Consult local authorities for acceptable exposure limits and biological monitoring requirements.

Substance	Limit value type (country of origin)	Occupational exposure limit value
Ammonia, anhydrous	Alberta (Canada) (8-hr. TWA)	17 mg/m ³ (25 ppm) 24 mg/m ³ STEL (35 ppm) (ACGIH®)
	British Columbia (Canada) (8-hr. TWA)	17 mg/m ³ (25 ppm) 24 mg/m ³ STEL (35 ppm) (ACGIH®)
	Ontario (Canada) (8-hr. TWA)	17 mg/m ³ (25 ppm) 24 mg/m ³ STEL (35 ppm) (ACGIH®)
	Quebec VEMP (8-hr. TWA)	17 mg/m ³ (25 ppm) 24 mg/m ³ VECD (35 ppm)
	U.S.A. ACGIH® TLV (8-hr. TWA)	17 mg/m ³ (25 ppm) 24 mg/m ³ STEL (35 ppm)
	U.S.A. OSHA PEL (8-hr. TWA)	35 mg/m ³ (50 ppm)

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<p>Other Exposure Limits: NIOSH IDLH (Immediately dangerous to life and health) = 300 ppm</p> <p>AIHA Emergency Response Planning Guidelines:</p> <ul style="list-style-type: none">- ERPG-1: < 25 ppm for 1 hour without objectionable odour- ERPG-2: 25 – 200 ppm for 1 hour will create strong objectionable odour, some eye, nose and throat irritation.- ERPG-3: 200 – 1,000 ppm for 1 hour will cause severe eye and respiratory irritation without the development of life threatening health effects. <p>National Academy of Sciences 1987 Emergency Exposure Guidance Levels: Up to 24 hour continuous exposure: 100 ppm</p>

8.2 Exposure controls:

Engineering Controls: Workers must be trained in the safe handling and use of ammonia. Adequate, well-engineered systems must be provided for storage, transfer and use. Process block valves, equipment enclosures and other isolation facilities may be necessary. Provide adequate general or local exhaust system to maintain concentrations within exposure guidelines.

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection. Have appropriate equipment available for use in emergencies such as spills or fire.

8.3 Individual Protection Measures:

Eye/Face Protection: Contact lenses should not be worn when handling aqueous ammonia. Wear chemical goggles and a face shield or full face-piece air purifying or air-supplied respirator.

Skin Protection: Skin protection is required for exposure to liquid, mist and >1000 ppm of ammonia gas or vapours. Wear neoprene or rubber gauntlet-type gloves, and ammonia resistant clothing (overalls, jacket and appropriate footwear) appropriate to the level of hazard. Some handling conditions may require workers to wear cold insulating gloves.

Under emergency conditions or where contact with aqua ammonia or high concentration gas is likely, wear a chemically resistant, gastight totally encapsulating suits with 60 minute positive pressure SCBA.

Chemical protective materials: Neoprene rubber, natural rubber, butyl rubber.

Respiratory Protection: NIOSH Recommendations for ammonia concentrations in air:

Up to 250 ppm: Chemical cartridge respirator with cartridge(s) to protect against ammonia; or SAR (Supplied-Air Respirator).

Up to 300 ppm: SAR operated in a continuous-flow mode; or powered air-purifying respirator with cartridge(s) to protect against ammonia; or full-facepiece chemical cartridge respirator with cartridge(s) to protect against ammonia; or gas mask with canister to protect against ammonia; or full-facepiece SCBA (Self-contained breathing apparatus); or full-facepiece SAR.

Emergency or planned entry into unknown concentrations or IDLH conditions: Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.

Escape: Gas mask with canister to protect against ammonia; or escape-type SCBA.

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Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties:

Appearance:	Colourless gas.
Odour:	Pungent (Ammonia gas), sharp and irritating.
Odour threshold:	17 ppm
pH:	12 (10% solution)
Freezing point/melting point:	-77.7 °C (freezing) (melting point not applicable)
Initial boiling point and boiling range:	-33.35 °C
Flash point:	No flash point determined in conventional closed cup tester. Aqueous solutions of ammonia of various concentrations do not show any flash point.
Evaporation rate:	Not available. Liquefied gas will rapidly return to the gaseous state at room temperature and pressure.
Flammability (solid/gas):	Flammable gas
Upper/lower flammability or explosive limits:	25% (upper); 16% (lower) for Ammonia gas
Vapour pressure:	6610 mm Hg (881 kPa) at 20°C Ammonia gas
Vapour density:	0.6 (air=1)
Relative density:	0.63
Solubility (ies):	52.9 g/100 mL @ 25°C. Very soluble (more than 50 g/100 mL)
Partition coefficient (n-octanol/water):	Not available
Auto-ignition temperature:	651°C
Decomposition temperature:	~450°C decomposes to release hydrogen
Viscosity:	0.255 mPa.s (0.255 centipoise) @ -33.5°C (liquid)
9.2 Other information:	
Physical state:	Gas

Section 10: Stability and Reactivity

10.1 Reactivity:

Not reactive under normal conditions of use.

10.2 Chemical stability:

This is a stable material; hazardous polymerization will not occur.
Unstable under certain conditions - see Conditions to Avoid.

10.3 Possibility of hazardous reactions:

Decomposes in the presence of heat; may cause a fire. Exposure to fire may cause containers to rupture/explode.
The substance is a strong base; it reacts violently with acid and is corrosive.
Dissolves in water forming corrosive ammonium hydroxide solutions and heat.
Reacts violently with strong oxidants.

10.4 Conditions to avoid:

Heat, sparks, welding, electrical discharges and other ignition sources. Avoid contact with Incompatible materials.

10.5 Incompatible materials:

Ammonia has potentially explosive or violent reactions with interhalogens, strong oxidisers, nitric acid, fluorine and nitrogen oxide. Ammonia forms sensitive explosive mixtures with air and hydrocarbons, ethanol and silver nitrate and Chlorine. Explosive products are formed by the reaction of ammonia with silver chloride, silver oxide, bromine, iodine, gold, mercury and tellurium halides.

Ammonia is incompatible or has potentially hazardous reactions with silver, acetaldehyde, acrolein, boron, halogens, perchlorate, chloric acid, chlorine monoxide, chlorites, nitrogen tetroxide, tin and sulphur.

Attacks copper, aluminum, zinc and their alloys. Do not use copper, brass, bronze or galvanized steel in contact with ammonia. Do not use brazed joints in ammonia service.

10.6 Hazardous decomposition products:

Decomposes into highly flammable hydrogen gas and nitrogen at about 450-500°C. Decomposition will occur at lower temperatures in the presence of metals such as iron, nickel and zinc and, to a lesser extent, catalytic surfaces, such as porcelain and pumice. In the presence of catalysts, decomposition begins as low as 300°C and is complete at 500-600°C.

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Section 11: Toxicological Information

11.1 Likely routes of exposure: Inhalation; skin contact; eye contact.

11.2 Acute toxicity:

<u>Ingredient</u>	<u>LD₅₀ Oral</u>	<u>LD₅₀ Dermal</u>	<u>LC₅₀ Inhalation</u>
Ammonia, anhydrous	350 mg/kg (rat) Aqueous ammonium hydroxide	Not available	3670 ppm (rat) 4 hour 4230 ppm (mouse) 1 hour

11.3 Skin corrosion / irritation:

Corrosive liquid and vapour will burn skin severely. Ammonia gas and solutions in water can cause severe irritation, chemical burns and blistering. Contact with vapourizing liquid may cause frostbite due to rapid evaporative cooling. Cooling effect may mask the extent of corrosive injury received.

11.4 Serious eye damage / irritation:

Corrosive liquid and vapour will burn eyes severely. Ammonia gas and solutions in water can cause severe eye irritation and burns with corneal injury and permanent vision impairment.

11.5 STOT (Specific Target Organ Toxicity) – Single Exposure:

Causes damage to organs severe nose and throat irritation, lung injury. Irritating to entire respiratory tract. Excessive over-exposure may cause severe irritation to the respiratory tract and potential lung damage. Symptoms of exposure include pulmonary edema and convulsions.

11.6 STOT (Specific Target Organ Toxicity) – Repeated Exposure:

Inhalation: Repeated exposures to ammonia may cause decreased lung function. The substance is harmful to the lungs and mucus membranes. Repeated or prolonged exposure to the substance can cause damage to the lungs and upper respiratory tract. Exposure can cause coughing, chest pains and difficulty in breathing. Repeated significant exposure can cause permanent lung function damage, edema and chemical pneumonitis.

11.7 Aspiration hazard:

Contact with water forms corrosive ammonium hydroxide solutions. Risk of pulmonary aspiration during swallowing or vomiting of corrosive solutions.

11.8 Respiratory and / or skin sensitization:

Not known to be a respiratory sensitizer. Not known to be a skin sensitizer.

11.9 Carcinogenicity:

No ingredients of this product have been evaluated for carcinogenicity by the International Agency for Research on Cancer (IARC), the American Conference of Governmental Industrial Hygienists (ACGIH®) or the US National Toxicology Program (NTP).

Animal studies in mice: Life-time exposure to ammonium hydroxide in drinking water did not produce any carcinogenic effects.

11.10 Reproductive toxicity:

Fertility: Data for diammonium phosphate, screening study in rats:

NOAEL: 1,500 mg/kg/day (reproduction/developmental toxicity)

LOAEL: >1,500 mg/kg/day (reproduction/developmental toxicity)

Two generation reproductive study using ammonium perchlorate in male and female rats; administration in the drinking water did not have an adverse effect on reproduction in the rat.

Development (teratogenicity / embryotoxicity): From animal studies in pigs: Aerial ammonia exposure up to ~35 ppm for 6 weeks prior to breeding and continuing until day 30 of gestation did not appear to be toxic to the developing foetus.

Maternal toxicity as evidenced by a reduction in weight gain was apparent at exposures to 35 ppm, but not exposures to 7 ppm.

Effects on or via lactation: No information was located.

11.11 Germ cell mutagenicity

Limited evidence from in-vitro and in-vivo test systems indicate that ammonia and ammonium ion at acutely toxic doses, may have clastogenic and mutagenic properties.

Conclusions cannot be drawn from the limited studies available.

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11.12 Interactive effects:

Contact with vapourizing liquid may cause frostbite due to rapid evaporative cooling. Cooling effect may mask the extent of corrosive injury received.

Workers in large-scale confinement facilities for poultry and livestock with long-term exposure to ammonia, organic dust, endotoxin and carbon dioxide have an increase in respiratory effects (decreased lung function, bronchial reactivity, inflammation, cough, wheezing or shortness of breath). The effect of ammonia combined with the dust exposure was greater than additive.

Section 12: Ecological Information

12.1 Ecotoxicity:

Ammonium hydroxide solutions: Very toxic to aquatic life.

96 Hr LC50 *Cyprinus carpio*: 0.44 mg/L;

96 Hr LC50 *Lepomis macrochirus*: 0.26 - 4.6 mg/L;

96 Hr LC50 *Lepomis macrochirus*: 1.17 mg/L [flow-through];

96 Hr LC50 *Pimephales promelas*: 0.73 - 2.35 mg/L;

96 Hr LC50 *Pimephales promelas*: 5.9 mg/L [static];

96 Hr LC50 *Poecilia reticulata*: >1.5 mg/L;

96 Hr LC50 *Poecilia reticulata*: 1.19 mg/L [static]

48 Hr LC50 *Daphnia magna*: 25.4 mg/L

12.2 Persistence and degradability:

Degrades rapidly based on quantitative tests.

Ammonia in the soil is an important intermediate in the assimilation of nitrogen from the soil by plants.

As nitrification is an energy-yielding process, the rates of conversion are rapid, so that ammonium rarely accumulates in soil while bacteria are active.

12.3 Bioaccumulative potential:

Ammonia and its degradation products are not known to bioaccumulate.

12.4 Mobility in soil:

Will dissolve and disperse in water.

Ammonia is strongly adsorbed on soil, sediment particles and colloids in water. This adsorption results in high concentrations of sorbed ammonia in oxidized sediments.

12.5 Other adverse effects:

Ammonia may degrade water quality and taste.

Section 13: Disposal Considerations

13.1 Disposal methods:

The required hazard evaluation of the waste and compliance with the applicable hazardous waste laws are the responsibility of the user.

Store product for disposal as described under Storage in Section 7 of this safety data sheet.

Dispose of contents and container in accordance with local, regional, national and international regulations.

Contact local environmental authorities for approved disposal or recycling methods in your jurisdiction.

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Section 14: Transport Information

- 14.1 UN Number:**
Canadian Transportation of Dangerous Goods (TDG): UN1005, AMMONIA, ANHYDROUS, Class 2.3 (8)
 Inhalation hazard.
- ICAO/IATA Classification:** Forbidden for transport by air.
- 14.2 UN proper shipping name:**
 AMMONIA, ANHYDROUS
- 14.3 Transport hazard class(es):**
 2.3 (8)
- 14.4 Packing group:**
 Not applicable
- 14.5 Environmental hazards:**
 Very toxic to aquatic life. M=1
- 14.6 Special precautions for user:**
 Inhalation hazard.
 Emergency Response Guide No. 125
- 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:**
 Not applicable

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL): Listed on the DSL.

CEPA - National Pollutant Release Inventory (NPRI): Part 1A
 Priority substance list 2
 Reporting of air pollutants, GHG and other substances
 Schedule 1 List of toxic substances
 Tailings and Waste Rock Reporting

USA

Toxic Substances Control Act (TSCA) Section 8(b): Listed on the TSCA Inventory.

SARA Title III - Section 302: 100 lb final RQ (45.4 kg); 500 lb TPQ
 SARA Title III - Section 313: 1.0% de minimis

Clean Air Act: 10000 lb threshold quantity (Anhydrous)

European Classification:

Classification according to Regulation (EC) No 1272/2008
 Flammable gases - Flam. Gas 2: H221 Flammable gas.
 Gases under pressure: H280 Contains gas under pressure; may explode if heated.
 Acute toxicity - Inhalation - Acute Tox. 3: H331 Toxic if inhaled. (Minimum classification)
 Skin corrosion/irritation - Skin Corr. 1B: H314 Causes severe skin burns and eye damage.
 Hazardous to aquatic environment - acute hazard - Aquatic Acute 1: H400 Very toxic to aquatic life.
 EUH 071: Corrosive to the respiratory tract.

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Section 16: Other Information**Date of preparation:**

November 9, 2015

Date of last revision:

April 13, 2010

Revision indicators: Revised to comply with WHMIS 2015 classifications and SDS requirements.

References and sources for data:

CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).

HSDB® database. US National Library of Medicine.

NIOSH Pocket Guide database. National Institute for Occupational Safety and Health.

Registry of Toxic Effects of Chemical Substances (RTECS®) database.

Legend to abbreviations:

ACGIH – American Conference of Governmental Industrial Hygienists

GHS- Globally Harmonised System for Classification and Labeling.

LD₅₀- Median lethal dose; the dose causing 50 % lethality

LOAEL- Low Observable Adverse Effect Level

NOAEL- No Observed Adverse Effect Level

OEL– Occupational exposure limit

STEL – Short term exposure limit

TWA – Time weighted average

TLV - Threshold Limit Value

WEL – Workplace exposure limit

NIOSH - US National Institute for Occupational Health and Safety

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