# Material Safety Data Sheet

## Section I. Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>PRODUCT NAME/TRADE NAME</th>
<th>Anhydrous Ammonia, Agricultural Grade, 82-0-0</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYNONYM</td>
<td>This Material Safety Data Sheet applies to the following Agrium products: Anhydrous Ammonia, Agricultural Grade 82-0-0 Borger Production Anhydrous Ammonia, Agricultural Grade 82-0-0 Carseland Production Anhydrous Ammonia, Agricultural Grade 82-0-0 Fort Saskatchewan Production Anhydrous Ammonia, Agricultural Grade 82-0-0 Joffre Production Anhydrous Ammonia, Agricultural Grade 82-0-0 Kenai Production Anhydrous Ammonia, Agricultural Grade 82-0-0 Redwater Production Synonyms: 82-0-0 Anhydrous Ammonia Liquified ammonia Ammonia, Anhydrous, Standard Grade</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>Ammonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEMICAL FAMILY</td>
<td>Alkali</td>
</tr>
<tr>
<td>CHEMICAL FORMULA</td>
<td>NH₃</td>
</tr>
<tr>
<td>MATERIAL USES</td>
<td>Agricultural industry: Fertilizer. Industrial applications: Manufacture of chemicals, synthetic fibers, cleaning solutions, and specialty fertilizers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MANUFACTURER</th>
<th>Agrium [Link to website] North American Wholesale 13131 Lake Fraser Drive, S.E. Calgary, Alberta, Canada, T2J 7E8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPPLIER</td>
<td>Agrium [Link to website] North American Wholesale 13131 Lake Fraser Drive, S.E. Calgary, Alberta, Canada, T2J 7E8</td>
</tr>
</tbody>
</table>


| 24 HR EMERGENCY TELEPHONE NUMBER: |
| Transport: 1-800-792-8311 |
| Medical: 1-888-670-8123 |

*MSDS prepared by the Environment, Health and Safety Department on: March 15, 2003*
Section II. Hazardous Ingredients

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS #</th>
<th>TLV-TWA mg/m³</th>
<th>TLV-TWA ppm</th>
<th>STEL mg/m³</th>
<th>STEL ppm</th>
<th>CEIL mg/m³</th>
<th>CEIL ppm</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia anhydrous</td>
<td>7664-41-7</td>
<td>17</td>
<td>25</td>
<td>24</td>
<td>35</td>
<td></td>
<td></td>
<td>99.8</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.2</td>
</tr>
</tbody>
</table>

TOXICOLOGICAL DATA ON INGREDIENTS

Anhydrous Ammonia 82-0-0:

TFI Product Testing Program Results:
GAS LC₅₀ Acute: 4,230-19,960 ppm Rat, Mouse 1 hour.
Subacute and chronic exposure, human: >100 ppm nasal and pulmonary irritation
100-200 ppm - moderate to severe eye irritation
200-1,000 ppm - eye damage

Ecotoxicity: Acute fish toxicity, LC₅₀, 96 hr, various species, 0.09-3.51 mg un-ionized ammonia/L;
Acute aquatic invertebrate toxicity, Daphnia magna, 48 hr ASTM E-729-80 protocol, LC₅₀, 2.94 mg un-ionized ammonia N/L
Chronic fish toxicity, various species, 12d-5yr, NOEC: 0.025-1.2mg un-ionized ammonia/L;
Chronic aquatic invertebrate toxicity, Daphnia magna and others, 21d-76wk NOEC: 0.163-0.42 mg un-ionized ammonia/L
Acute toxicity to terrestrial plants, various species, 4 min-16hrs, foliar injury: LOEC 3-250 ppm, species dependent.

Section III. Hazards Identification.

POTENTIAL ACUTE HEALTH EFFECTS

Anhydrous ammonia gas or liquid is very corrosive to body tissues, reacting with body moisture on contact.

The odour recognition threshold for ammonia is on average 17 PPM although the range of sensitivity ranges from 0.7 PPM for persons with an acute sense of smell to 50 PPM for acclimatized individuals. Generally, concentrations of up to 25 PPM are tolerated although unpleasant and pungent. Above this concentration, irritation of the eyes, nose and throat may begin. The extent of irritation increases with increasing ammonia concentration.

Eye and throat irritation is more pronounced between 100 and 400 PPM. Above 400 PPM, skin irritation is noticable and immediate throat irritation and coughing will result. NIOSH has established 300 PPM as the concentration immediately dangerous to life and health (IDLH), which is defined as the concentration above which self-rescue may be difficult or impossible due to physiological effects. At concentrations between 1000 PPM and 2500 PPM increasing chest tightness, bronchospasm and severe eye and skin irritation will result. Delayed effects such as chemical pneumonitis and pulmonary edema may develop several hours after exposure. At concentrations above 2500 PPM, laryngeal spasm may occur resulting in rapid asphyxia. Effects may be more pronounced at lower concentrations in children, the elderly, and persons with impaired lung function.

Eyes:

Eye irritant. May cause severe eye irritation with corneal injury and permanent vision impairment.

Skin:

Skin irritant. Contact may cause severe skin irritation, chemical burns, and blistering. Contact with vaporizing liquid may cause frosbite due to rapid evaporative cooling. Cooling effect may mask the extent of corrosive injury received.

Inhalation:

Irritating to entire respiratory tract. Excessive overexposure may cause severe irritation to the upper respiratory tract and potential lung damage.

Ingestion:

Ingestion is not a likely route of exposure due to the physical state of the substance (a compressed, liquified gas).

POTENTIAL CHRONIC HEALTH EFFECTS

Continued on Next Page
Section IV. First Aid Measures

**EYE CONTACT**
IMMEDIATELY FLUSH EYES WITH WATER for at least 30 minutes, keeping eyelids open. OBTAIN MEDICAL ATTENTION IMMEDIATELY.

**MINOR SKIN CONTACT**
Flush skin with large amounts of water for at least 30 minutes while removing contaminated clothing and shoes. Obtain immediate medical attention.

**EXTENSIVE SKIN CONTACT**
No additional information.

**MINOR INHALATION**
Loosen tight clothing. Allow to rest in a well ventilated area. Give artificial respiration if breathing has stopped. Obtain immediate medical attention.

**SEVERE INHALATION**
If gases or vapors are present, rescuers must wear self-contained breathing apparatus and an impervious (Level A) encapsulating suit if subject to US OSHA requirements. (29CFR 1910.120 has been deemed to overrule the lesser protection requirements given in 1910.111) In other jurisdictions or if responding under D.O.T. rules (49CFR) full bunker gear or Level B clothing may suffice.

Evacuate affected persons to a safe area as soon as possible. Loosen tight clothing around the neck and waist. If the person is not breathing, perform artificial respiration. If breathing is difficult, administer oxygen. Maintain an open airway. Obtain immediate medical attention. Observation may be warranted. Pulmonary edema may occur several hours after exposure.

**SLIGHT INGESTION**
If anhydrous ammonia has entered the mouth or throat, begin resuscitation or artificial respiration and continue until victim is breathing. Administer oxygen if available. Obtain immediate medical attention. Do not induce vomiting. Careful removal of the substance from the stomach by medical personnel is required. Call a physician or poison control center immediately. Get immediate medical attention.

No more than 1 cup of milk or water to rinse the mouth and throat and dilute the stomach contents. No more than 8 ounces (1 cup) in adults and 4 ounces (1/2 cup) in children is recommended to minimize the risk of vomiting.

**EXTENSIVE INGESTION**
No additional information.

Section V. Fire and Explosion Data

**THE PRODUCT IS**
Combustible. Product will burn with difficulty if kept between the LEL of 16% and UEL of 25%. This gas is generally regarded as non-flammable due to the difficulty of ignition.

**AUTO-IGNITION TEMPERATURE**
651.1°C (1204°F)

**FLASH POINT**
Not applicable. Material exists as a gas unless confined under pressure.

**FLAMMABILITY LIMITS**
LOWER: 16%
UPPER: 25%

**PRODUCTS OF COMBUSTION**
Nitrogen oxides (NO, NO₂ ...).

**FIRE HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES**
May ignite in the presence of open flames and sparks. Narrow lower to upper flammability limits (16-25%) makes ignition difficult but not impossible.

**EXPLOSION HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES**
Slightly explosive in the presence of reducing materials (hypochlorites or other halogenated compounds). Non-explosive in the presence of open flames and sparks, shocks, heat, oxidizing materials, combustible materials, organic materials, metals, acids, alkalis, or moisture unless with the very narrow flammability range.
FIRE FIGHTING MEDIA AND INSTRUCTIONS

Corrosive. If gases or vapours are present, rescuers must wear self-contained breathing apparatus and an imperious (Level A) encapsulating suit if subject to US OSHA requirements. (29CFR 1910.120 has been deemed to overrule the lesser protection requirements given in 1910.111) In other jurisdictions or if responding under D.O.T. rules (49CFR) full bunker gear or Level B clothing may suffice.

Approach from upwind. If anhydrous ammonia catches fire, stop flow of gas or liquid if it may be done safely. Cool containing vessels with water in order to prevent pressure build-up, autoignition or explosion. Move containing vessels from fire if without risk. Use water fog to suppress vapors. Do not direct water into spilled ammonia. Ammonia is a cryogenic liquid which will cool with evaporation thereby limiting vapour release. Fire water at supply temperature will increase liquid ammonia’s temperature resulting in greater evaporation. Contain run-off water for treatment.

SPECIAL REMARKS ON FIRE HAZARDS

When heated to decomposition it emits toxic fumes. Hazardous Combustion Products:

Nitrogen oxides

SPECIAL REMARKS ON EXPLOSION HAZARDS

 Explosive when mixed with chlorinated materials such as hypochlorites. Forms nitrogen trichloride which explodes spontaneously in air. Reacts similarly with other halogenated materials.

Section VI. Accidental Release Measures

SMALL SPILL

Warn personnel to move away. Keep unprotected personnel upwind of spill area. DO NOT APPROACH LIQUID OR VAPOR CLOUD WITHOUT ENCAPSULATING SUIT AND SCBA. If possible to do so without hazard, isolate leak by shutting off supply of ammonia from containing vessel. Use water fog to suppress airborne vapors from leak or spill. DO NOT DIRECT WATER INTO SPILLED LIQUID! ANHYDROUS AMMONIA WILL AUTOREFRIGERATE REDUCING VAPOR RELEASE. ADDITION OF WATER WILL WARM CRYOGENIC LIQUID RESULTING IN GREATER GASIFICATION. Contain run-off water for later recovery and treatment. Call emergency number on this MSDS sheet for assistance.

LARGE SPILL

Corrosive gas. Material will autorefrigerate under accidental release presenting a cold dense heavier than air vapor cloud or fog. Warn personnel to move away. Keep unprotected personnel upwind of spill area. Evacuate any unprotected personnel who are downwind of spills. Consider an exclusion zone of 1500 metres or 5000 feet around the incident area. Incident Commander may adjust size of exclusion zone based on the circumstances of the emergency and analysis of the threat presented by the release. See Exposure Limits Section for Evacuation Guidelines.

Community Emergency Response Instructions:

* Stay indoors (unless evacuation has been called)
* Close all windows and doors
* Shut off furnace, exhaust fans, and air conditioners
* Wait for and follow advice from local police or authorities
* If smell is very strong, breath through a wet cloth

Eliminate all sources of ignition. DO NOT APPROACH LIQUID OR VAPOR CLOUD WITHOUT ENCAPSULATING SUIT AND SCBA. If possible, and personnel are protected by appropriate personal protective equipment, turn leaking container so that gas escapes rather than liquid, or isolate leak by shutting off supply of ammonia from containing vessel. If possible, apply patch or otherwise restrict size of leak. Use water fog to suppress airborne vapors from leak or spill. DO NOT DIRECT WATER INTO SPILLED LIQUID! ANHYDROUS AMMONIA WILL AUTOREFRIGERATE REDUCING VAPOR RELEASE. ADDITION OF WATER WILL WARM CRYOGENIC LIQUID RESULTING IN GREATER GASIFICATION. Contain run-off water for later recovery and treatment. Call Emergency Number on this MSDS sheet for assistance.
### Section VII. Handling and Storage

**PRECAUTIONS**

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.

**STORAGE**

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, or other equipment for emergency decontamination. See requirements under 29 CFR 1910.111.

### Section VIII. Exposure Controls/Personal Protection

**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 systems to maintain concentrations within exposure guidelines.

**PERSONAL PROTECTION**

The selection of personal protective equipment varies, depending upon conditions of use.

- **Respiratory Protection:**
  - Use a NIOSH approved chemical cartridge respirator with full facepiece for ammonia concentrations up to 300 PPM. Use a positive pressure (pressure demand) SCBA for concentrations above 300 PPM, for emergency response, or for entry into unknown concentrations.

- **Eye Protection:**
  - Contact lenses should not be worn when handling anhydrous ammonia. Use chemical goggles and a face shield or full facepiece air purifying or air supplied respirator.

- **Skin Protection:**
  - Where chemical contact is unlikely, wear butyl rubber, nitrile, or polyvinyl chloride boots, gloves, rain jacket and pants.

**PERSONAL PROTECTION IN CASE OF LARGE RELEASE**

Under emergency conditions, where contact with liquid anhydrous ammonia or high concentration gas is probable, chemically resistant, gastight totally encapsulating suits with 60 minute positive pressure SCBA are required. For U.S. work sites where respiratory protection is required, ensure that a respiratory protection meeting 29 CFR 1910.134 is in place.

**EXPOSURE LIMITS**

Consult local authorities for acceptable exposure limits in your jurisdiction.

- ACGIH TLV-TWA: 25 ppm; TLV-STEL: 35 ppm.
- MSHA STANDARD-air:TWA 25 ppm (18 mg/m³)
- U.S. OSHA:
  - OSHA PEL (Gen Industry):8Hr TWA 50 ppm (35 mg/m³) REFERENCE: Code of Federal Regulations 29:1910.1000
  - OSHA PEL (Construction):8Hr TWA 50 ppm (35 mg/m³) REFERENCE: Code of Federal Regulations 29:1926.55
  - OSHA PEL (Shipyard):8Hr TWA 50 ppm (35 mg/m³) REFERENCE: Code of Federal Regulations 29:1915.1000
- NIOSH REL, AMMONIA in air:10Hr TWA 25 ppm; STEL 35 ppm; IDLH 300 ppm
- AIHA Emergency Response Planning Guidelines:
  - ERPG-1: <25 PPM for 1 hour. Objectionable odor.
  - ERPG-2: 25-150 PPM for 1 hour. Strong objectionable odor, some eye, nose and throat irritation.
  - ERPG-3: 150-750 PPM for 1 hour. Severe eye and respiratory irritation, without development of life threatening health effects.

*Continued on Next Page*
### Section IX. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHYSICAL STATE AND APPEARANCE</strong></td>
<td>Colorless cryogenic liquid or gas.</td>
</tr>
<tr>
<td><strong>MOLECULAR WEIGHT</strong></td>
<td>17.03</td>
</tr>
<tr>
<td><strong>pH (10% SOLN/WATER)</strong></td>
<td>12</td>
</tr>
<tr>
<td><strong>BOILING POINT</strong></td>
<td>-33.35°C (-28°F)</td>
</tr>
<tr>
<td><strong>MEETING POINT</strong></td>
<td>-77.7°C (-107.9°F)</td>
</tr>
<tr>
<td><strong>CRITICAL TEMPERATURE</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>SPECIFIC GRAVITY g/cc</strong></td>
<td>0.62 (Water = 1)</td>
</tr>
<tr>
<td><strong>BULK DENSITY kg/m³; lbs/ft³</strong></td>
<td>620 kg/m³; 5.04 lbs/gal (US)</td>
</tr>
<tr>
<td><strong>VAPOR PRESSURE</strong></td>
<td>125 psi at 68°F (20°C)</td>
</tr>
<tr>
<td><strong>VAPOR DENSITY</strong></td>
<td>0.6 (Air = 1)</td>
</tr>
<tr>
<td><strong>COLOR</strong></td>
<td>Colorless.</td>
</tr>
<tr>
<td><strong>ODOR</strong></td>
<td>Ammoniacal. (Strong.)</td>
</tr>
<tr>
<td><strong>ODOR THRESHOLD</strong></td>
<td>17 ppm (recognition)</td>
</tr>
<tr>
<td><strong>TASTE</strong></td>
<td>Burning. (Strong.)</td>
</tr>
<tr>
<td><strong>VOLATILITY</strong></td>
<td>100% (w/w).</td>
</tr>
<tr>
<td><strong>SOLUBILITY</strong></td>
<td>Easily soluble in cold or hot water.</td>
</tr>
<tr>
<td><strong>DISPERSION PROPERTIES</strong></td>
<td>See solubility in water, methanol.</td>
</tr>
<tr>
<td><strong>SPECIAL REMARKS ON CORROSIVITY</strong></td>
<td>Corrosive to brass. Incompatible with copper alloys (stress cracking). Will corrode a wide variety of metals. Contact your sales representative or a metallurgical specialist to ensure compatibility with system equipment.</td>
</tr>
</tbody>
</table>

### Section X. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STABILITY</strong></td>
<td>The product is stable.</td>
</tr>
<tr>
<td><strong>INSTABILITY TEMPERATURE</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>CONDITIONS OF INSTABILITY</strong></td>
<td>No additional information.</td>
</tr>
<tr>
<td><strong>INCOMPATABILITY WITH VARIOUS SUBSTANCES</strong></td>
<td>Extremely reactive or incompatible with acids. Highly reactive with oxidizing agents and reducing agents. Do not use copper, brass, bronze, or galvanized steel in contact with ammonia. Do not use brazed joints in ammonia service. Forms explosive compounds with many heavy metals such as mercury or silver. Reacts explosively with chlorine, hypochlorites (such as bleach or dry chlorinating chemicals) and other halogens (bromine, iodine, fluorine).</td>
</tr>
<tr>
<td><strong>CORROSIVITY</strong></td>
<td>Highly corrosive to copper and its alloys. Slightly corrosive to aluminum and zinc. Very slightly corrosive to mild steel. Non-corrosive to glass or stainless steel (304 or 316).</td>
</tr>
<tr>
<td><strong>SPECIAL REMARKS ON REACTIVITY</strong></td>
<td>Incompatible with halogens, aluminum, copper, brass, and zinc. Incompatible with strong acids.</td>
</tr>
<tr>
<td><strong>SPECIAL REMARKS ON CORROSIVITY</strong></td>
<td>Corrosive to brass. Incompatible with copper alloys (stress cracking). Will corrode a wide variety of metals. Contact your sales representative or a metallurgical specialist to ensure compatibility with system equipment.</td>
</tr>
</tbody>
</table>

### Section XI. Toxicological Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SIGNIFICANT ROUTES OF EXPOSURE</strong></td>
<td>Inhalation. Eye contact. Skin contact.</td>
</tr>
<tr>
<td><strong>TOXICITY TO ANIMALS</strong></td>
<td>See Section II.</td>
</tr>
<tr>
<td><strong>SPECIAL REMARKS ON TOXICITY TO ANIMALS</strong></td>
<td>Hazardous for humans or animal life. Corrosive to skin and eyes on contact. Severe over-exposure can produce lung damage, choking, unconsciousness or death. May cause severe eye irritation.</td>
</tr>
<tr>
<td><strong>OTHER EFFECTS ON HUMANS</strong></td>
<td>Slightly to very dangerous in case of skin contact, eye contact, or inhalation. Material may be irritating or corrosive.</td>
</tr>
<tr>
<td><strong>SPECIAL REMARKS ON CHRONIC EFFECTS ON HUMANS</strong></td>
<td>Exposure can cause coughing, chest pains, difficulty in breathing. Repeated significant overexposure can cause permanent lung function damage, edema and chemical pneumonitis. May cause serious damage to the eyes.</td>
</tr>
</tbody>
</table>

*Continued on Next Page*
**Section XII. Ecological Information**

**ECOTOXICITY**

Hazardous for humans or animal life. Ammonia is a toxic hazard to fish. In low concentrations in water and soil, ammonia acts as a fertilizer to promote plant growth. Under aerobic conditions ammonia will oxidize to nitrate and does not accumulate in the environment. Sub-lethal concentrations in water can have adverse physiological effects on marine species. Free ammonia concentrations of 2.5 mg per litre at pH 7.4 to 8.5 are considered harmful to marine life. In water, free NH₃ is considered to be the primary toxic form while the much more prevalent NH₄OH form is much less harmful.

**BOD and COD**

Not available.

**PRODUCTS OF DEGRADATION**

Nitrogen oxides (NO, NO₂,...), nitrates.

**TOXICITY OF THE PRODUCTS OF DEGRADATION**

The products of degradation are less toxic than the original product.

**SPECIAL REMARKS ON THE PRODUCTS OF DEGRADATION**

Product may degrade water quality and taste. Notify downstream water users. Will dissolve and disperse in water.

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**Section XIII. Disposal Considerations**

**WASTE DISPOSAL OR RECYCLING**

Call for assistance on treatment and disposal.

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**Section XIV. Transport Information**

**DOT / TDG CLASSIFICATION**

Canada:
TDG (Clear Language Regulations) Class 2.2: Non-flammable compressed gas. Subsidiary Class 8 Corrosive.

U.S.
DOT Classification under §172.101 for shipments originating in the United States for U.S. domestic destinations:
DOT Class 2.2: Non-flammable compressed gas.

Shipping documents must have the words "Inhalation Hazard" entered in association with the shipping description, and each bulk package shall have the words "Inhalation Hazard" marked on two opposites sides of the package. Size of the markings must conform to the requirements of §172.302(b).

DOT Classification for Canadian origin shipments and packagings under §171.12a:
(a) Scope and applicability. This section sets forth provisions for the transportation by rail or highway of shipments of hazardous materials which conform to the regulations of the Government of Canada but which may differ from the requirements of this subchapter with regard to hazard communication, classification or packaging. Except as provided in paragraph (b)(5)(iv) of this section, the provisions apply only to shipments which originate in Canada and either terminate in the U.S. or transit the U.S to a Canadian or foreign destination, and to the return to Canada of empty bulk packages containing residues of hazardous materials which originally were imported into the U.S. Reciprocal provisions, applicable to exports from the U.S., appear in the regulations of the Government of Canada.
(b) Conditions and limitations. Notwithstanding the requirements of parts 172, 173, and 178 of this subchapter, and subject to the limitations of paragraph (a) of this section, a hazardous material that is classed, marked, labeled, placarded, described on a shipping paper, and packaged in accordance with the Transportation of Dangerous Goods (TDG) Regulations issued by the Government of Canada may be offered for transportation and transported to or through the United States by motor vehicle or rail car. Copies of the TDG Regulations may be obtained from the Canadian Government Publishing Centre, Ottawa, Ontario K1A 059; Telephone (819) 956-4800. The following conditions and limitations apply:
(b)(5)(iii) ... For shipments of anhydrous ammonia, the shipping paper must contain an
Anhydrous Ammonia, Agricultural Grade, 82-0-0

indication that the markings, labels and placards have been applied in conformance with the TDG Regulations and this paragraph (b)(5).

PIN and Shipping Name

Proper shipping name: Ammonia, anhydrous
PIN: UN1005

SPECIAL PROVISIONS FOR TRANSPORT

49 CFR 172.102: 13, T50

DOT (U.S.A) (Pictograms)

Section XV. Other Regulatory Information and Pictograms

OTHER REGULATIONS

TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): This product is on the Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA.
CERCLA: If the reportable quantity of this product is accidentally spilled, the incident is subject to the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and must be reported to the National Response Centre by calling (800) 424-8802. The reportable spill quantity of this product is 100 lbs.
SARA HAZARD CATEGORY: This product has been revised according to the EPA “Hazard Categories” promulgated under Sections 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:
  Immediate Health, Delayed Health, Fire, Sudden Release of Pressure, Reactive
This product contains the following Section 313 reportable ingredient:
  Ammonia  Cas # 7664-41-7  Maximum %: 100.0
Subject to the provisions of 40 CFR Part 68 Subpart G - Risk Management Plan if stored in quantities in excess of 10,000 lbs.
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.

OTHER CLASSIFICATIONS

HCS (U.S.A.)  HCS CLASS: Toxic.
DSCL (EEC)  R10- Flammable.
  R23- Toxic by inhalation.

National Fire Protection Association (U.S.A.)  Hazards presented under acute emergency conditions only:

  Health  3
  Reactivity  0
  Specific Hazard

TDG (Pictograms - Canada)

DSCL (Europe) (Pictograms)

ADR (Europe) (Pictograms)

Continued on Next Page
### Section XVI. Other Information

**REFERENCES**

- Domestic Substances List, Canadian Environmental Protection Act.
- Canadian Centre for Occupational Health and Safety Infodisk Series
- 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, 2002.
- The Fertilizer Institute Product Testing Program Results, March 2003

**OTHER SPECIAL CONSIDERATIONS**

No additional information.

**FOR FURTHER SAFETY, HEALTH, OR ENVIRONMENTAL INFORMATION ON THIS PRODUCT, CONTACT**

AGRIUM

Environment, Health and Safety Department

Telephone (403) 225-7380 or Fax (403) 225-7608

**NOTICE TO READER**

The buyer assumes all risk in connection with the use of this material. The buyer assumes all responsibility for ensuring this material is used in a safe manner in compliance with applicable environmental, health and safety laws, policies and guidelines. Agrium Inc. assumes no responsibility or liability for the information supplied on this sheet, including any damages or injury caused thereby. Agrium Inc. does not warrant the fitness of this material for any particular use and assumes no responsibility for injury or damage caused directly or indirectly by or related to the use of the material. The information contained in this sheet is developed from what Agrium Inc. believes to be accurate and reliable sources, and is based on the opinions and facts available on the date of preparation.