Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product identifier: **AMMONIA, ANHYDROUS**
Synonyms: Anhydrous Ammonia, Ammonia
Intended use: Industrial use. Use as directed.
Uses Advised Against:

Company Identification

DPC Industries, Inc.
DPC Enterprises, LP
DXI Industries, Inc.
DX Terminals
PO Box 24600
Houston , TX 77229-4600

Emergency
CHEMTREC (USA) (800) 424-9300
24 hour Emergency Telephone No. (281) 457-4888
www.dxgroup.com

2. Hazard identification of the product

Physical hazards	Flammable gas Gases under pressure, may explode if heated	Flammable gas Pressurized gas
Health hazards	Toxic if inhaled Causes severe skin burns and eye damage Causes serious eye damage	Category 3 Category 1B Category 1
Environmental hazards	Very toxic to aquatic life Toxic to aquatic life with long lasting effects	Category 1 Acute Category 2 Chronic

Label elements
Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

Signal Word	**Danger**
Hazard Statements	Contains gas under pressure; may explode if heated. Harmful if inhaled. Causes severe skin burns and eye damage. Causes serious eye damage. Very toxic to aquatic life.
Precautionary Statements	
Prevention	Do not breathe mist / vapors / spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves / eye protection / face protection. Avoid release to the environment.
Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor / physician. IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water/ shower. Wash contaminated clothing before reuse. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor / physician if you feel unwell. IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. Immediately call a POISON CENTER or doctor / physician. Wash contaminated clothing before reuse. Collect spillage.
Storage	Store in a well ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight.
Disposal	Dispose of contents / container in accordance with local / national regulations.

3. Composition/information on ingredients

Substance classified with a health or environmental hazard. Substance with a workplace exposure limit.
Synonyms: Anhydrous Ammonia, Ammonia

Ingredient	CAS Number	Percent (%)
Ammonia	**7664-41-7**	**99.5 - 100**

4. First Aid Measures

General	Move victim to fresh air. Call 911 or emergency medical service. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Remove and isolate contaminated clothing and shoes. In case of contact with liquefied gas, thaw frosted parts with lukewarm water. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Keep victim warm and quiet. Keep victim under observation. Effects of contact or inhalation may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call emergency medical care. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one- way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult.
Eyes	Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart. Remove contact lenses if present and easy to do - continue rinsing. Seek medical attention.
Skin	Remove and isolate contaminated clothing and shoes. In case of contact with liquefied gas, thaw frosted parts with lukewarm water. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Keep victim warm and quiet. Keep victim under observation.
Ingestion	If accidentally swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.
Most important symptoms and effects, both acute and delayed	
Overview	Contact with material will cause burns to skin, eyes and mucous membranes. Contact with rapidly expanding gas may cause burns or frostbite. Try to warm up the frozen tissues and seek medical attention. Repeated or prolonged skin contact may cause dermatitis and irritation. Serious effects may be delayed following exposure..
Indication of immediate medical attention and special treatment needed	Redness and watery eyes. Redness, irritation, blistering to skin. Stomach pains. Symptoms may be delayed.

5. Fire-fighting measures

Recommended Extinguishing media	Carbon dioxide, regular dry chemical.
Unsuitable extinguishing media	Direct water spray.
Special hazards arising from the substance or mixture	Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. Hydrogen and nitrogen at high temperature. Do not breathe mist / vapors / spray.
Advice for fire-fighters	Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. Stop flow of gas if safe to do so. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices. Containers may explode when heated. Ruptured cylinders may rocket. Vapors are extremely irritating and corrosive. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire will produce irritating, corrosive and/or toxic gases. Runoff from fire control may cause pollution. **ERG Guide No. 125**

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch or walk through spilled material. Stop leak if you can do it without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Prevent entry into waterways, sewers, basements or confined areas. Do not direct water at spill or source of leak. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Isolate area until gas has dispersed.
Environmental precautions	Do not allow spills to enter drains or watercourses. Contact local authorities in case of spillage to drain/aquatic environment.
Methods and material for containment and cleaning up	CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed in Section 1. As an immediate precautionary measure, isolate spill or leak area. Stop leak if safe to do so. 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.

7. Handling and storage

Precautions for safe handling	Put on appropriate personal protective equipment. Contains gas under pressure. Do not get in eyes or on skin or clothing. Do not breathe gas. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty.
Conditions for safe storage, including any incompatibilities	Contents under pressure. Protect containers from damage and temperatures exceeding 120 F. Cylinders should be stored upright, with valve protection cap in place and firmly secured to prevent falling or being knocked over. Store away from incompatible materials. Store in well ventilated area.

8. Exposure controls and personal protection

Exposure Control parameters

CAS No.	Ingestion	Source	Value
7664-41-7	Ammonia	OSHA	TWA 50 ppm (35 mg/m3)
		ACGIH	TWA: 25 ppm STEL: 35 ppm
		NIOSH	TWA 25 ppm (18 mg/m3) ST 35 ppm (27 mg/m3)

Individual protection measures, such as personal protective equipment

Respiratory	Use NIOSH/MSHA approved respirator, following manufacturer's recommendations when concentrations exceed permissible exposure limits.
Eyes	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, chemical splash goggles and/or face shield. An eye wash station is suggested as a good workplace practice.
Skin	Chemical resistant clothing such as coveralls/apron boots should be worn. Chemical impervious gloves. Emergency safety shower should be in close proximity.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

9. Physical and chemical properties

Appearance:	Colorless Gas
Odor:	Pungent
Odor threshold:	Not Measured
pH:	11.6
Melting point / freezing point:	-77.7° C (-107.9 °F)
Initial boiling point and boiling range:	-28.1 °F
Flash Point:	Not Applicable
Evaporation rate (Ether = 1):	Rapid @ Ambient Temperature
Flammability (solid, gas):	Not Applicable
Upper/lower flammability or explosive limits:	**Lower Explosive Limit:** Not Applicable
	Upper Explosive Limit: Not Applicable
Vapor pressure (mmHg):	2327 mmHg (@ 60 °F)
Vapor Density:	0.6
Specific Gravity:	0.62
Solubility in Water:	High
Partition coefficient n-octanol/water (Log Kow):	Not Measured
Auto-ignition temperature (°C):	651° C (1203.8 °F)
Decomposition temperature:	Not Measured
Viscosity (cSt):	Not Measured
VOC %:	Not Measured

10. Stability and reactivity

Reactivity	Hazardous Polymerization will not occur.
Chemical stability	Stable under normal circumstances.
Possibility of hazardous reactions	None.
Conditions to avoid	No data available
Incompatible materials	Strong acids, hypochlorites, oxidizing gases, bromine, chlorine, fluorine, halogens, calcium, iodine, gold, silver, copper, zinc, mercury.
Hazardous decomposition products	Hydrogen and nitrogen at high temperature

11. Toxicological information

Acute toxicity

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LD50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm/1hr
Ammonia - (7664-41-7)	350.00, Rat	4,840.00, Rat	No data available	2,000.00, Rat	7,338.00, Rat

POTENTIAL HEALTH EFFECTS:

Information on likely routes of exposure	
Eye contact:	Causes serious eye damage. Liquid exposure may cause frostbite.
Skin contact:	Causes skin burns. Liquid exposure may cause frostbite.
Inhalation:	Toxic if inhaled.
Ingestion:	Causes digestive tract burns.
Signs and symptoms of exposure:	Contact with this material will cause burns to the skin, eyes and mucous membranes. Cough, shortness of breath, headache, nausea, vomiting. May cause lung damage. Unconsciousness.

11. Toxicological information

Acute toxicity (Cont.)

Information on toxicological effects	
Acute toxicity:	Toxic if inhaled. Immediately Dangerous to Life or Health: 300 ppm.
Carcinogenicity:	Not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA.
Reproductive Toxicity:	No data available.
Specific target organ systemic toxicity (single exposure):	Not available.
Specific target organ systemic Toxicity (repeated exposure):	Not available.
Aspiration hazard:	Due to the physical form of the product it is not an aspiration hazard.

12. Ecological information

Toxicity

Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Aquatic Ecotoxicity

Ingredient	LC50/96hr fish, mg/l	EC50/48hr crustacea, mg/l	EC50 algae, mg/l
Ammonia - (7664-41-7)	0.083 Oncorhynchus gorbuscha	0.53 Daphnia magna	29.20 Ulva fasciata

Persistence and degradability:	There is no data available on the preparation itself.
Bioaccumulative potential:	Not Measured
Mobility in soil:	No data available.
Results of PBT and vPvB assessment:	This product contains no PBT/vPvB chemicals.
Other adverse effects:	No data available.

13. Disposal considerations

Waste treatment methods:	Do not allow into drains or water courses. Wastes and emptied containers should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act. Using information provided in this data sheet, advice should be obtained from the Waste Regulation Authority, whether the special waste regulations apply.
Waste from material:	The waste determination should be made in discussion between the user and the waste disposal company**.**
Container Management:	Return empty cylinders, tankcars and cargo tanks containing residual gas and/or liquid to supplier in compliance with applicable DOT regulations.

14. Transport information

UN number:	UN1005
UN proper shipping name:	Ammonia, anhydrous
Transport hazard class(es)	
DOT (Domestic Surface Transportation)	
DOT Proper Shipping Name:	Ammonia, anhydrous
DOT Hazard Class **DOT Label:**	2.2 2.2
UN / NA Number:	UN1005
DOT Packing Group:	Not Applicable
CERCLA/DOT RQ:	19 gal. / 100 lbs.
Environmental hazards:	IMDG Marine Pollutant: Yes (Ammonia)
Special precautions for user:	Not Applicable

15. Regulatory information

Regulatory Overview:	The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented. All ingredients of this product are listed on the TSCA (Toxic Substance Control Act) Inventory.			
WHMIS Classification:	D2B E			
OSHA REGULATORY STATUS:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)			
US EPA Tier II Hazards:	**Fire:**	No	**Immediate (Acute):**	Yes
	Sudden Release of Pressure:	Yes	**Delayed (Chronic):**	No
	Reactive:	No		
SARA 302 Extremely Hazardous Substance / RQs (lbs) :	Yes (100-lbs)			
SARA 311/312 Chemicals and RQs (lbs) (>0.1%) :	Yes (100-lbs)			
SARA 313 (TRI)	Yes			
OSHA PSM (29 cfr 1910.119):	Yes (10,000-lbs)			
TSCA:	Ammonia			

State Regulations:	**N.J. RTK Substances (>1%)**	Listed	**Penn RTK Substances (>1%)**	Listed	**California Prop 65**	Not listed

16. Other information

Revision Information: This is the first revision of this SDS format, changes from previous revision not applicable.

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

THE USER IS CAUTIONED TO PERFORM HIS OWN HAZARD EVALUATION AND TO RELY ON HIS OWN DETERMINATIONS.