

# Precision Gas Products Inc.

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## Ammonia in Nitrogen

0.0001% to 3%

# MATERIAL SAFETY DATA SHEET

### Identification

Revision Date 01-01-15

Products Name: AMMONIA IN NITROGEN 0.0001% TO 3%

Chemical Family: Gas Mixture

Chemical formula: NH<sub>3</sub> 0.0001% to 3% in N<sub>2</sub>

MSDS identification Code/ Number: MSDS 100N

### Composition/ Information on Ingredients

Concentration  
Percent by Weight  
< .0001 to 3

#### Ingredient Name

**AMMONIA** CAS Number: 766-41-7

#### Exposure Limits

- OSHA 8hr TWA: 50 ppm (transitional)
- OSHA PEL-TWA: 35 ppm (final)
- OSHA 8hr STEL: 27mg/M<sup>3</sup> (final)
- OSHA 8hr TWA: 25ppm (final)
- IDLH: 500 ppm

**NITROGEN** Simple Asphyxiant – maintain oxygen level above 19.5%

97.0 to 99.999

CAS Number: 7727-37-9

### Hazard Identification

No data given

### First Aid Measures

#### Eyes

Flush contaminated eyes with copious quantities of water. Part eyelids to assure complete flushing. Continue for 15minutes.

#### Skin

Remove contaminated clothing as rapidly as possible. Flush affected areas with water. In case of frostbite or cryogenic “burns” flush area with lukewarm water. *Do not use hot water.* A physician should see the patient if the cryogenic “burn” has resulted in blistering of the dermal surface or deep tissue freezing.

#### Inhalation

Prompt medical attention is mandatory in all cases of overexposure. Rescue personnel should be equipped with self-contained breathing apparatus.

Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, and if breathing has stopped, administer artificial resuscitation and supplemental oxygen. Keep victim warm and quite. Assure that mucous or vomited material does not obstruct the airway by positional drainage.

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### Fire Fighting Measures

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#### Flammable Properties

**Flash Point:** None

Lower Explosive Limit (%): 16 (Ammonia)

Upper Explosive Limit (%): 25 (Ammonia)

- Fire and Explosion Hazards: The minimum ignition energy for ammonia is very high. It is approximately 500 times greater than the energy required for igniting hydrocarbons and 1000 to 10,000 times greater than required for hydrogen  
Electrical Classification: Class 1, Group D
- Extinguishing Media: Water fog. Use media suitable for surrounding fire.
- Fire Fighting Instructions: If possible, stop flow of gas; use water spray to cool containers.

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### Accidental Release Measures

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Evacuate all personnel from affected areas. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact CHEMTREC location for emergency assistance.

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### Handling and Storage

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- Handling and Storage Precautions

Use only in well – ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure-reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous backflow into the system.

Protect cylinders from physical damage. Store in cool, dry, well – ventilated area of noncombustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Use a “first in, first out” inventory system to prevent full cylinders being stored for excessive periods of time. Post “NO SMOKING OR OPEN FLAMES” signs in the storage area or use area. There should be no sources of ignition in the storage or use area.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, asphyxiation or toxic exposure.

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### Exposure Controls/Personal Protection

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Engineering Controls: Hood with forced ventilation. Use local exhaust to prevent accumulation above the exposure limit.

Eye/Face Protection: Safety goggles or glasses.

Skin Protection: Protective gloves of any material.

Other/General Protection: Safety shoes.

Respiratory Protection: A type C respirator with full face piece or self contained breathing apparatus should be available for emergency use. Air purifying respirators must be equipped with suitable cartridges. Do not exceed maximum use concentration.

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### Physical & Chemical Properties

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Appearance: A colorless gas.

Odor: Odorless gas.

#### Basic Physical Properties

Vapor Density (Air = 1): 0.92 @ 60F

Solubility (H<sub>2</sub>O): Very slightly

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**Stability & Reactivity**

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Stability: Unstable. Conditions to avoid (Stability): None

Incompatible Materials: Reacts vigorously with fluorine, chlorine, HCl, HBr, nitrosyl chloride, chromyl chloride, nitrogen dioxide, trioxxygen difluoride, and nitrogen trichloride.

Hazardous Decomposition Products: Hydrogen at very high temperatures (1544F, 840C)

Hazardous Polymerization: Will not occur

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**Toxicological Information**

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Eye Effects: Mild concentrations of vapor will cause conjunctivitis. Higher concentrations of vapor or liquid contact will cause swelling of the eyes and lesions with a possible loss of vision.

Skin Effects: Mild concentrations of vapor will cause dermatitis or conjunctivitis. Higher concentrations of vapor or liquid contact will cause caustic like dermal burns and inflammation. Rapidly evaporating liquid contacting dermal tissue will cause cryogenic “burns”. Toxic level exposure may cause skin lesions resulting in early necrosis and scarring.

Acute Oral Effects: Since product is a gas at room temperature, ingestion is unlikely. Contact with liquid product may cause freezing of tissue and should be treated as frostbite. Consult a physician for treatment.

Acute Inhalation Effects: Corrosive and irritating to the upper respiratory system and all mucosal type tissue. Depending on the concentration inhaled, it may cause burning sensations, coughing, wheezing, shortness of breathing, headache, nausea, with eventual collapse.

Miscellaneous Toxicological Information

Carcinogenicity – NTP: No            IARC: No            OSHA: No

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**Ecological Information**

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Other Environmental Information

The reportable quantity is the minimum quantity of a material that when released, requires reporting to the appropriate Federal, State and local officials. Notification requirements are found under CERCLA Section 103 (a). Initial notification. May be by telephone, radio, or in person. A written follow-up notice is also required.

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**Disposal Considerations**

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Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secure and valve protection cap in place to Precision Gas Products for proper disposal.

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**Transport Information**

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Proper Shipping Name: Compressed Gas, N.O.S., (Nitrogen, Ammonia)

Hazardous Class: 2.2

CT (DOT) Identification Number: UN 1956

CT (DOT) Shipping Label: Nonflammable gas

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**Regulatory Information**

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**SARA Title III Notifications and Information**

**Reportable Quantity (Pounds): 100 (pure ammonia)**

**SARA Title III – Hazard Class:** Acute Health Hazard

Chronic Health Hazard

Sudden Release of Pressure Hazard

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**Other Information**

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Hazard Rating	Health:	3 High
	Fire:	0 Negligible
	Reactivity:	0 Negligible

MSDS Identification Code/Number: MSDS 100N

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### **Reference Documentation**

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Gaseous or liquid anhydrous ammonia corrodes certain metals at ambient temperature. The presence of oxygen enhances the corrosion of ordinary or semi-alloy steel. The addition of water inhibits this enhancement. Keep anhydrous ammonia systems scrupulously dry.

Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipments of a compressed gas cylinder, which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).

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### **Disclaimer of Expressed & Implied Warranties**

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