

Precision Gas Products Inc.

2455 Cawthra Road, Unit 21 Mississauga, Ontario L5A 3P1

Tel: (905)-949-2626/1-888-730-8196

Fax: (905)-949-2688

Emergency Contact: Chemtrec (800) 424-9300

Ammonia, Anhydrous

99.99 + %

MATERIAL SAFETY DATA SHEET

Identification

Revision Date 01-01-15

Component: Ammonia, Anhydrous

CAS Number: 7664-41-7

Percentage: 99.99%

Hazard Identification

Emergency Overview

Color: Colorless

Physical Form: Gas

Odor: Pungent odor

Major Health Hazards: mucous membrane burns, respiratory irritation, skin irritation, eye irritation.

Physical Hazards: containers may rupture or explode if exposed to heat.

Hazardous Material Information

❖ HEALTH	(Blue)	3
❖ FLAMMABILITY	(Red)	1
❖ REACTIVITY	(Yellow)	0

Potential Health Effects

Inhalation:

- Short term Exposure: irritation, lack of sense of smell, nausea, vomiting, chest pain, difficulty breathing, headache, and lung damage.
- Long Term Exposure: digestive disorder.

Skin Contact:

- Short Term Exposure: irritation, blisters, and frostbite.
- Long Term Exposure: same effects as reported in short term exposure.

Eye Contact:

- Short Term Exposure: irritation, frostbite, tearing, blindness, and glaucoma.
- Long Term Exposure: same effects as reported in short term exposure.

Ingestion:

- Short Term Exposure: irritation, difficulty breathing, and kidney damage.
- Long Term Exposure: same effects as reported in short term exposure.

Carcinogen Status:

OSHA: No

NTP: No

IARC: No

First Aid Measures

Inhalation: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, qualified personnel should administer oxygen. Get immediate medical attention.

- If any adverse symptom develops after over-exposure to this product, remove victim(s) to fresh air as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation if necessary. Victim(s) who experience any adverse effect after over-exposure to this product must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

Skin Contact: If irritation of the skin develops after exposure to this gas mixture, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminated eyes. Victim must seek immediate medical attention.

Eye Exposure: If irritation of the eye develops after exposure to this gas mixture, open victim's eyes under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

Fire Fighting Measures

Auto ignition Temperature: 1204F (651 C)

Lower Flammable Limit: 15%

Upper Flammable Limit: 28%

- Fire Extinguishing Media: Carbon dioxide, regular dry chemical.
Large fires: Use regular foam or flood with fine water spray.
- Fire and Explosion Hazards: Containers, when involved in fire, may rupture or burst in the heat of the fire.
- Special Fire – Fighting Procedures: Do not get water inside the container. Move container away from the fire area if it can be done without risk. Cool container with water spray until well after the fire is out. Structural firefighters must wear Self – Contained Breathing Apparatus and full protective equipment.

Accidental Release Measures

Air Release: reduce vapors with water spray. Collect runoff for disposal as potential hazardous waste.

Soil Release: trap spilled material at the bottom in deep-water pockets, excavated holding areas or within sandbag barriers.

Water Release: collect spilled material using mechanical equipment

Leak Response: stop leak if possible without personal risk. Do not get water directly on the material and inside the container. Keep unnecessary people away. With any chemical release, extreme caution must be used during emergency response procedures. In the event of a release in which the atmosphere is unknown, and in which other chemicals are potentially involved, evacuate immediately area. Proper protective equipment should be used. In case of a leak, clear the affected area, protect people, and respond with trained personnel.

Handling and Storage

- Handling and Storage Precautions

Use only in well – ventilated areas. All work operations should be monitored in such way that emergency personnel can be contacted immediately in the event of a release. Do not attempt to repair, adjust, or in any other way modify cylinders contained with this gas mixture. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Protect cylinders from physical damage. Store in cool, dry, well – ventilated area.

Exposure Controls/Personal Protection

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.

Exposure Control/Personal Protection - Continuation

Exposure Limits:

50ppm (35mg/m3) OSHA TWA
35ppm (27mg/m3) OSHA STEL
25ppm (18mg/m3) NIOSH
35ppm (27mg/m3) NIOSH
25ppm ACGIH TWA
35ppm ACGIH STEL

Physical & Chemical Properties

DENSITY: 0.7067 g/L @ 25 C
BIOLING POINT: -27°F (-33°C)
FREEZING/MELTING POINT -108°F (-78°C)
SPECIFIC GRAVITY: Not applicable
SOLUBILITY IN WATER vol./vol. @ 32°F (0°C) and 1 atm: 0.023
EVAPORATING RATE: Not applicable. pH: 11.6 (1.0 N solution)
ODOR THRESHOLD: 1-5 ppm MOLECULAR WEIGHT: 17.03
VAPOR PRESSURE: 6658 mmHg @ 21C SPECIFIC VOLUME (ft³/lb): 13.8
COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.

Stability & Reactivity

- Reactivity: Stable at normal temperatures and pressure.
 - Polymerization: Will not polymerize.
 - Incompatibilities; acids, combustible materials, metals, oxidizing materials, metal salts, halo carbons, halogens, amines, reducing agents, cyanides, bases.
 - Conditions to Avoid: Contact with materials. Avoid inhalation of materials, metal salts, halocarbons.
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Toxicological Information

Ammonia:

Inhalation-Human LCLO: 5000ppm / 5 min.
Inhalation-Rat LC50: 2000ppm / 4 hours
Inhalation-Mouse LC50: 4230ppm / 1 hour
Inhalation-Cat LC50: 7gm/m3/1h
Inhalation-Rabbit LC50: 7gm/m3/1h

Ecological Information

Data Not Available

Disposal Considerations

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.

Transport Information

Proper Shipping Name:	Ammonia, anhydrous
Hazard Class Number and Description:	2.3 Poison Gas; Corrosive
UN Identification Number:	UN 1005
CT (DOT) Label (s) Required:	Poison Gas; Corrosive

Regulatory Information

Chlorine: 100 pounds.
SARA Section 302 (40CFR355.30): Yes
SARA Section 304 (40CFR355.40): Yes
SARA Section 313 (40CFR372.65): Yes

Other Information

For disposal of used CT 39 (DOT-39) cylinders, it is acceptable to place them in a landfill if local laws permit. Their disposal is no different than that employed with other CT (DOT) containers such as spray paint cans, household aerosols, or disposable cylinders of propane (for camping, torch etc.). When feasible, we recommended recycling for scrap metal content. Precision Gas Products Inc. will do this for any customer that wishes to return cylinders to us prepaid. All that is required is a phone call to make arrangements so we may anticipate arrival. Scrapping cylinders to valued customers who want to participate.

MIXTURES: When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember gases and liquids have properties, which can cause injury or death.