Ammonia 0.0001% to 0.0999% in Nitrogen

1 PRODUCT AND COMPANY IDENTIFICATION

Product Identifier:	**Ammonia 0.0001% to 0.0999% in Nitrogen**
Synonyms:	**Ammonia in Nitrogen, Calibration Gas**
Common Name:	**Ammonia in Nitrogen**
SDS Number:	**NLB 2005**
Revision Date:	**1/12/2023**
Version:	**4**
CAS Number:	**Not Available - Gas Mixture**
EPA Number:	**Not Availble**
Chemical Family:	**Gas Mixture**
Product Use:	**Calibration of analyitical instrumentation**
Supplier Details:	**NorLab a division of Norco 898 W. Gowen Rd. Boise, ID 83705**
Contact:	**Quality Dept.**
Phone:	**208-336-1643**
Internet:	**www.norlab-gas.com**

For Transportation Emergency Contact CHEMTREC: 800-424-9300

2 HAZARDS IDENTIFICATION

Classification of Substance

GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):
Physical, Gases Under Pressure, Compressed Gas
Health, Acute toxicity, 5 Inhalation

GHS Label Elements, Including Precautionary Statements

GHS Signal Word: WARNING

GHS Hazard Pictograms:

GHS Hazard Statements:

H280 - Contains gas under pressure; may explode if heated
H333 - May be harmful if inhaled
OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P262 - Do not get in eyes, on skin, or on clothing.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338 - IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P403+233 - Store in a well ventilated place. Keep container tightly closed.
P410+412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F
CGA-PG05 - Use a back flow preventive device in the piping.
CGA-PG06 - Close valve after each use and when empty.
CGA-PG10 - Use only with equipment rated for cylinder pressure.
CGA-PG12 - Do not open valve until connected to equipment prepared for use.

Hazards not Otherwise Classified (HNOC) or not Covered by GHS

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Route of Entry:	**Inhalation; Skin; Eyes;**
Target Organs:	**Eyes; Respiratory system; Skin;**
Inhalation:	**Effects depend or concentration inhaled. Low concentrations may cause irritation. Higher concentrations may cause more severe irritation with possible corrosion of the upper respiratory system and mucous membranes, chemical pneumonitis and pulmonary edema (lung swelling and fluid retention). Symptoms are dependent upon concentration inhaled and may include burning sensation, coughing, wheezing, shortness of breath, headache, nausea with eventual collapse and death.**
Skin Contact:	**May cause irritation, redness, and dermatitis. Contact with rapidly expanding gas near the point of release may cause frostbite with redness, skin color change to gray or white, and blistering.**
Eye Contact:	**May cause irritation with associated redness, swelling, and tears. Ammonia can cause eye damage with corneal burns if not rinsed promptly. Contact with rapidly expanding gas near the point of release may cause frostbite.**
Ingestion:	**Not anticipated. Product is a gas at normal conditions.**

3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Ingredients:

CAS#	%	Chemical Name:
7664-41-7	0.0001-0.0999%	Ammonia
7727-37-9	99.9001-99.9999%	Nitrogen

4 FIRST AID MEASURES

Inhalation:	**PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO PRODUCT. RESCUE PERSONNEL SHOULD BE EQUIPED WITH SELF-CONTAINED BREATHING APPARATUS. Conscious persons 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, given assisted (artificial) respiration and supplemental oxygen. Further treatment should be symptomatic and supportive. Get immediate medical attention.**
Skin Contact:	**Remove contaminated clothing and flush affected area with large quantities of water. If irritation persists or frostbite is suspected, seek medical attention.**
Eye Contact:	**Immediately flush eyes with large amounts of water for at least 15 minutes opening and closing eyelids to ensure adequate rinsing. Seek medical attention. If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.**
Ingestion:	**Not a direct hazard.**

Most important symptoms and effects, both acute and delayed:
The most important known symptoms and effects are described in the labelling (see Section 2) and/or Section 11.

Indication of any immediate medical attention and special treatment needed:
No data available.

5 FIRE FIGHTING MEASURES

Flammability:	**Not Flammable**
Flash Point:	**None**
Flash Point Method:	**Not Applicable**
Burning Rate:	**Not Determined**
Autoignition Temperature:	**None**

Lower Explosive Limit: None

Upper Explosive Limit: None

Fire and Explosion Hazards:
Nonflammable. Cylinders may rupture violently or vent rapidly from pressure when involved in a fire situation.

Extinguishing Media:
Use water spray to keep cylinders cool.. Use extinguishing agent appropriate for surrounding materials

Fire Fighting Instructions:
Use water spray to knock down vapors. Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear. Continue to cool fire-exposed cylinders until well after flames are extinguished.

Further Information:
If incinerated, may release toxic fumes.
Use water spray to cool unopened containers.
The majority of this product constitutes air. Ammonia is present in concentrations below the lower Explosive limits (LEL). Cylinders may rupture violently from pressure when involved in a fire situation.
See Section 7 for more information on safe handling.
See Section 8 for more information on personal protection equipment.
See Section 13 for disposal information.

6 ACCIDENTAL RELEASE MEASURES

Evacuate all personnel from affected area. Use appropriate protective equipment including respiratory protection for high or unknown concentrations. Personnel should not re-enter hazard area until ammonia is dispersed and adequate atmospheric oxygen is re-established. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container valve, contact the appropriate emergency telephone number listed in Section 1 or call your closest Norco location.

7 HANDLING AND STORAGE

Handling Precautions:

Use only in well-ventilated areas. Valve protection caps must remain in place unless the cylinder 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 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 cylinder.

For additional recommendations, consult Compressed Gas Association Pamphlets P-1.

Never carry a compressed gas cylinder in an enclosed space such as a car trunk, van or station wagon. A leak can result in toxic exposure.

Storage Requirements:

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavy traffic areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125 degrees F (52 degrees C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use local exhaust at filling zones and where leakage and dust formation is probable. Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure Limits in Air below TLV & PEL limits. Maintain atmospheric Oxygen content at or above 19.5%

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Personal Protective Equipment:

Ammonia cas#:(7664-41-7) [0.0001-0.0999%]
Nitrogen cas#:(7727-37-9) [99.9001-99.9999%]

Personal protective equipment

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full contact Material: butyl-rubber Minimum layer thickness: 0.3 mm Break through time: 480 min Material tested:Butoject (KCL 897 / Aldrich Z677647, Size M)

Splash protection: Material: butyl-rubber Minimum layer thickness: 0.3 mm Break through time: 480 min Material tested:Butoject (KCL 897 / Aldrich Z677647, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection: Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection: Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Ammonia cas#:(7664-41-7) [0.0001-0.0999%]
Components with workplace control parameters

TWA 25 ppm USA. ACGIH Threshold Limit Values (TLV)
Upper Respiratory Tract irritation Eye damage

STEL 35 ppm USA. ACGIH Threshold Limit Values (TLV)
Upper Respiratory Tract irritation Eye damage

STEL 35 ppm USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
27 mg/m3

TWA 50 ppm USA. Occupational Exposure Limits (OSHA) - Table Z- 1 - Limits for Air Contaminants
35 mg/m3
The value in mg/m3 is approximate.

TWA 25 ppm USA. NIOSH Recommended Exposure Limits
18 mg/m3
Often used in an aqueous solution.

STEL 35 ppm USA. NIOSH Recommended Exposure Limits
27 mg/m3
Often used in an aqueous solution.

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9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	**Colorless Gas**		
Physical State:	**Gas**	**Odor:**	**Ammonia odor**
Odor Threshold:	**4.68 PPM (Pure NH3 in air)**	**Molecular Formula:**	**NH3 + N2**
Particle Size:	**Not Applicable**	**Solubility:**	**Very slightly soluble**
Specific Gravity or Density:	**Not Available**	**Softening Point:**	**Not Determined**
Viscosity:	**Not Determined**	**Percent Volatile:**	**100%**
Saturated Vapor Concentration:	**Not Determined**	**Heat Value:**	**Not Determined**
Boiling Point:	**-194.3 °C (-317.7 °F) - Ammonia**	**Freezing or Melting Point:**	**Not Determined**
Flammability:	**Not Flammable**	**Flash Point:**	**NA**
Partition Coefficient:	**Not Determined**	**Octanol:**	**Not Determined**
Vapor Pressure:	**Not Determined**	**Vapor Density:**	**(air = 1): Not Determined**
Potentia Hydrogenii:	**Not Determined**	**Volatile organic compound:**	**NA**
Evaporation Rate:	**Not Determined**	**Bulk Density:**	**NA**
Molecular weight:	**MIXTURE**	**Autoignition Temperature:**	**Not Determined**
		Upper Flammability Limit and Lower Flammability Limit:	**NA**

10 STABILITY AND REACTIVITY

Chemical Stability:	**Stable**
Conditions to Avoldentification:	**Ammonia is corrosive to copper, zinc, and many metal surfaces. Ammonia may react with hypochlorite or other halogen sources to form explosive compounds which are pressure and temperature sensitive.**
Materials to Avoldentification:	**Strong oxidizers, acids, hallogens, salts of silver and zinc.**
Hazardous Decomposition:	**Thermal decomposition will produce toxic fumes of Ammonia and Nitrogen Oxides (NOx).**
Hazardous Polymerization:	**Will not occur.**

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11 TOXICOLOGICAL INFORMATION

Ammonia cas#:(7664-41-7) [0.0001-0.0999%]

Information on toxicological effects

Acute toxicity:
Oral LD50 no data available
Inhalation LC50 LC50 Inhalation - rat - 4 h - 2000 ppm
Dermal LD50
Other information on acute toxicity

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: no data available

Teratogenicity: no data available

Specific target organ toxicity - single exposure (Globally Harmonized System):
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System):
no data available

Aspiration hazard: no data available

Potential health effects: Inhalation May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Ingestion May be harmful if swallowed. Skin May be harmful if absorbed through skin. Causes skin burns. Eyes Causes eye burns.

Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects: no data available

Additional Information:

RTECS: BO0875000

12 ECOLOGICAL INFORMATION

Ammonia cas#:(7664-41-7) [0.0001-0.0999%]

Information on ecological effects
Toxicity: no data available
Toxicity to daphnia LC50 - Daphnia magna (Water flea) - 25.4 mg/l - 48 h.
and other aquatic invertebrates
Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life.

Nitrogen cas#:(7727-37-9) [99.9001-99.9999%]
Information on ecological effects
Toxicity: no data available
Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations. Do not attempt to dispose of waste or unused quantities in returnable cylinders. Return in the shipping container, properly labeled, with any valve outlet plugs or caps secure and valve protection cap in place to NorLab for proper disposal. Non-refillable containers should be vented in a well-ventilated area then disposed of in compliance with local regulations, or returned to NorLab.

14 TRANSPORT INFORMATION

UN1956, Compressed gas, n.o.s., 2.2
Proper Shipping Name US:
UN1956, Compressed Gas, N.O.S., (Ammonia, Nitrogen), 2.2

Proper Shipping Name Canada:
UN1956, Compressed Gas, N.O.S., (Ammonia, Nitrogen), 2.2

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15 REGULATORY INFORMATION

[%] RQ (CAS#) Substance - Reg Codes

[0.0001-0.0999%] RQ(100LBS), Ammonia (7664-41-7) CERCLA, CSWHS, EHS302, EPCRAWPC, MASS, NJEHS, NJHS, OSHAPSM, OSHAWAC, PA, SARA313, TSCA, TXAIR

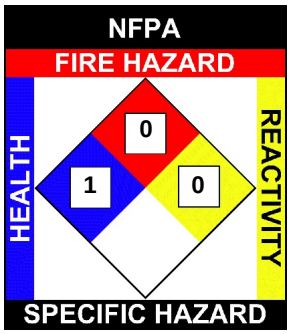
[99.9001-99.9999%] Nitrogen (7727-37-9) MASS, PA, TSCA

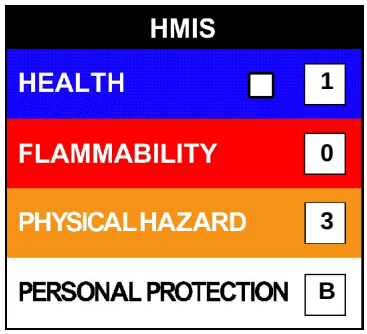
Regulatory Code Legend

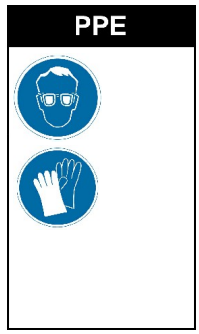
RQ = Reportable Quantity
CERCLA = Superfund clean up substance
CSWHS = Clean Water Act Hazardous substances
EHS302 = Extremely Hazardous Substance
EPCRAWPC = EPCRA Water Priority Chemicals
MASS = MA Massachusetts Hazardous Substances List
NJEHS = NJ Extraordinarily Hazardous Substances
NJHS = NJ Right-to-Know Hazardous Substances
OSHAPSM = OSHA Chemicals Requiring process safety management
OSHAWAC = OSHA Workplace Air Contaminants
PA = PA Right-To-Know List of Hazardous Substances
SARA313 = SARA 313 Title III Toxic Chemicals
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

16 OTHER INFORMATION

NFPA: **Health = 1, Fire = 0, Reactivity = 0, Specific Hazard = n/a**
HMIS III: **Health = 1, Fire = 0, Physical Hazard = 3**
HMIS PPE: **B - Safety Glasses, Gloves**







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