ILMO specialty gases

7 Eastgate Dr. • P.O. Box 790 • Jacksonville, IL 62651-0790
217-245-2183 • Fax: 217-243-7634 • www.ilmoproducts.com

Certificate of Analysis

Certificate ID: 13813

Part #: BAC105L080T
Cylinder Size: 105L
Lot Number: 08121080A1
Expiration: 5/5/2023

0.080 BAC (For the calibration of instruments used to determine breath alcohol concentration)

Contents: 105 Liters @ 1000 psig 70°F (21°C)

Component:	Reported Concentration:	Analytical Accuracy (U, k=2):	Analytical Method:
Ethanol	208 ppm	+/-0.002 BAC(G/210L) [5.2 ppm]	NDIR
Nitrogen	Balance		

Distributed by:

CMI Inc.
316 East Ninth Street
Owensboro, KY 42303
Phone 866-835-0690
www.alcoholtest.com

*Traceable to:
Certified Reference Material - 262.4 µmol/mol
Ethanol in Nitrogen - Serial No. GN0015026 Lot No. 050319E11

Store in dry area, away from sources of heat, ignition and direct sunlight. Do not allow storage area to exceed 52 °C (125 °F).

Specialty Gas Lab Tech

04-22-2021
Issuance Date

PJLA
Calibration and Testing
Accreditation #61895

The calibration results within this certificate were obtained using equipment and standards capable of producing analytical results traceable to NIST, and apply only to the items contained on this certificate. ILMO Products Company makes no warranty or representation as to the suitability of the use of any information provided for any particular purpose. The information use is at the sole discretion and risk of the user. Liability shall be limited to established replacement cost of this material or service.

ISO/IEC 17025:2017 Accredited Laboratory

ILMO products company

Safety Data Sheet
Ethanol in Nitrogen

www.ilmoproducts.com

Section 1: Product and Company Identification

ILMO Products Company
7 Eastgate Drive, Jacksonville, Illinois 62650
217-245-2183 800-424-9300 (Chemtrec)

Fax 217-243-7634
E-mail: info@ilmoproducts.com
Web: www.ilmoproducts.com

Product Code: Ethanol in Nitrogen
Part Number: BAC

Section 2: Hazards Identification

Warning

Hazard Classification:
Gases Under Pressure

Hazard Statements:
Contains gas under pressure; may explode if heated

Precautionary Statements

Storage:
Protect from sunlight.
Store in well-ventilated place.

Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Ethanol	64-17-5	5-500 ppm
Nitrogen	7727-37-9	Balance

	Chemical Substance	Chemical Family	Trade Names
Ethanol	ETHYL ALCOHOL, 100%	hydroxyls, aliphatic, alcohols, aliphatic	ETHANOL; ETHYL ALCOHOL; /4; ALCOHOL; ALCOHOL ANHYDROUS; ALGRAIN; ANHYDROL; Absolute alcohol; Anhydrous ethanol; Ethanol denatured; Fermentation alcohol; Grain alcohol; 1-Hydroxyethane; Methyl carbinol; Ethyl alcohol anhydrous; Absolute ethanol; Denatured ethanol; ETHYL HYDRATE; ETHYL HYDROXIDE; JAYSOL; TECSOL; STCC 4909159; UN 1170; C2H6O
Nitrogen	NITROGEN, COMPRESSED GAS	Inorganic gases	DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1066; N2

Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Ethanol	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.	For ingestion, consider gastric lavage.
Nitrogen	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Ethanol	Alcohol resistant foam, carbon dioxide, regular dry chemical, water, alcohol resistant foam Large fires: Use alcohol-resistant foam or flood with fine water spray.	Carbon monoxide, carbon dioxide, and toxic and irritating fumes	▪ Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. ▪ Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Nitrogen	Non-flammable. Use suitable extinguishing media for surrounding fire. Cylinders may rupture or explode if exposed to heat.	Non-flammable	▪ Respiratory protection may be needed for frequent or heavy exposure.

Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment
Ethanol	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Nitrogen	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	No significant effects from contamination expected.	Stop leak if possible without personal risk.

	Methods for Cleanup	Other Information
Ethanol	Small spills: Absorb with sand or other noncombustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal.	Not available
Nitrogen	N/A	N/A

Section 7: Handling and Storage

	Handling	Storage
Ethanol	Store and use with adequate ventilation. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 125°F (52°C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.	Do not get liquid in eyes, on skin, or clothing. Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Open valve slowly. Close cylinder valve after each use; keep closed even when empty. If valve is hard to open, discontinue use and contact your supplier.
Nitrogen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.

Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
Ethanol	ETHYL ALCOHOL, 100%: ETHYL ALCOHOL (ETHANOL): 1000 ppm (1900 mg/m3) OSHA TWA 1000 ppm ACGIH TWA 1000 ppm (1900 mg/m3) NIOSH recommended TWA 10 hour(s)
Nitrogen	NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant)

Engineering Controls
Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
Ethanol	Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	Wear appropriate chemical resistant clothing.	Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Nitrogen	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.

General Hygiene considerations
- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

	Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Ethanol	Liquid	Clear	Colorless	N/A	Volatile liquid	Pleasant odor	Burning taste
Nitrogen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Ethanol	55 F (13 C) (CC)	IB	Not available	685 F (363 C)	0.19	0.033
Nitrogen	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Ethanol	172 F (78 C)	-179 F (-117 C)	40 mmHg @ 19 C	1.59 (Air=1)	0.7893	Soluble	Not available	5-10 ppm	1.4 (carbon tetrachloride=1)	1.17 mPa.s (1.17 centipoises) @ 20 C; 1.074 mPa.s (1.074 centipoises) @ 25 C
Nitrogen	-321 F (-196 C)	-346 F (-210 C)	760 mmHg @ -196 C	0.967 (Air=1)	Not applicable	1.6% @ 20 C	Not applicable	Not available	Not applicable	0.01787 cP @ 27 C

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Ethanol	46.07	C-H3-C-H2-O-H	Not available	Not available	Not available	1	Soluble: Benzene, ether, acetone, chloroform, methanol, organic solvents
Nitrogen	28.0134	N2	1.2506 g/L	Not available	100%	1	Soluble: Liquid ammonia

Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
Ethanol	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials
Nitrogen	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Metals, oxidizing materials

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Ethanol	Oxides of carbon	Will not polymerize.
Nitrogen	Oxides of nitrogen	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

	Oral LD50	Dermal LD50	Inhalation
Ethanol	7 gm/kg oral-rat LD50	LD50 (dermal, rabbit): greater than 15800 mg/kg (cited as greater than 20 mL/kg); at 20 mL/kg, 1/4 rabbits died	Irritation, difficulty breathing, headache, drowsiness, symptoms of drunkenness
Nitrogen	Not available	Not available	Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma

	Eye Irritation	Skin Irritation	Sensitization
Ethanol	Irritation, tearing	Mild irritation, rash	Respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression
Nitrogen	Contact with rapidly expanding gas may cause burns or frostbite	No information on significant adverse effects	Difficulty breathing

Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Ethanol	NTP: Known Human Carcinogen (Alcoholic beverages); IARC: Human Sufficient Evidence, Group 1 (Alcoholic beverages), Animal Inadequate Evidence; ACGIH: A4 -Not Classifiable as a Human Carcinogen	Available.	Available.	No data
Nitrogen	Not hazardous	Not available	Not available	No data