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Certificate of Analysis

Certificate ID: 11912
Part #: BAC105L100T
Cylinder Size: 105L
Lot Number: 07919100A1
Expiration: 6/5/2021

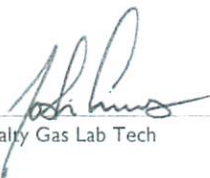
0.100 BAC (For the calibration of instruments used to determine breath alcohol concentration)

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

Component:	Reported Concentration:	Analytical Accuracy (U, k=2):	Analytical Method:	Distributed by:
Ethanol	260 ppm	+/-0.002 BAC(G/210L) [5.2 ppm]	NDIR	CMI Inc. 316 East Ninth Street Owensboro, KY 42303 Phone 866-835-0690 www.alcoholtest.com
Nitrogen	Balance			

*NIST Traceable Reference Material
Cylinder No. SGAL1091 / Job No. 13029
Certified 373.4 µmol/mol Ethanol in Nitrogen

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

04-26-19
Date



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.

Section 1: Product and Company Identification

ILMO Products Company
7 Eastgate Drive, Jacksonville, Illinois 62550
217-245-2183 800-424-9300 (Chemtec)

Fax: 217-243-7834
E-mail: info@ilmoproducts.com
Web: www.ilmoproducts.com

Product Code: Ethanol in Nitrogen
Part Number: BAC

Section 2: Hazards Identification



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

Ingredient	CAS #	Concentration
Ethanol	64-17-6	5-500 ppm
Nitrogen	7727-37-9	Balance

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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. Sewer 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.	Ethanol: 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: Keep separated from incompatible substances.
Nitrogen: Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines
Ethanol: ETHYL ALCOHOL, 100%; ETHYL ALCOHOL (ETHANOL): 1000 ppm (1900 mg/m ³) OSHA TWA 1000 ppm ACGIH TWA 1000 ppm (1900 mg/m ³) NIOSH recommended TWA 10 hour (6)
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.	Ethanol: Wear appropriate chemical resistant clothing.	Ethanol: 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: Respiratory protection may be needed for frequent or heavy exposure.
Nitrogen: Eye protection not required, but recommended.	Nitrogen: Protective clothing is not required.	

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	Tests
Ethanol: Liquid	Clear	Colorless	N/A	Volatile liquid	Pleasant odor	Burning taste
Nitrogen: Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless

Flash Point	Flammability	Pertition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Ethanol: 55 F (13 C)	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)	-170 F (-119 C)	40 mmHg @ 19 C	1.59 (Air=1)	0.7853	Soluble	Not available	Not available	1	1.17 mPa.s @ 20 C; 1.074 mPa.s @ 25 C
Nitrogen: -321 F (-196 C)	-346 F (-210 C)	760 mmHg @ -196 C	0.967 (Air=1)	Not available	1.6% @ 20 C	Not applicable	Not available	Not applicable	0.01767 cP @ 27 C

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Chemical Substances	Chemical Family	Trade Names
Ethanol: ETHYL ALCOHOL, 100%	hydroxy, aliphatic, alcohols, aliphatic	ETHANOL; ETHYL ALCOHOL; A; ALCOHOL; ALCOHOL ANHYDROUS; ALGRAIN; ANHYDRIC; 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; TECOSOL; STDC 4302155; UN 1170; C2H6O
Nitrogen: NITROGEN, COMPRESSED GAS	Inorganic gases	DIAZOTIC; NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1005, 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.	Ethanol: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	Ethanol: 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. Nitrogen: If a large amount is swallowed, get medical attention.	Ethanol: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention. Nitrogen: 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.	Ethanol: For ingestion, consider gastric lavage. Nitrogen: For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

Substance Extinguishing Media	Products of Combustion	Protection of Firefighters
Ethanol: Alcohol resistant foam, carbon dioxide, regular dry chemical, water, alcohol resistant foam or food with the water spray.	Ethanol: Carbon monoxide, carbon dioxide, and toxic and irritating fumes.	Ethanol: <ul style="list-style-type: none"> 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.	Nitrogen: Non-flammable	Nitrogen: 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.	Ethanol: Avoid heat, flames, sparks and other sources of ignition.	Ethanol: Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition. Nitrogen: Stop leak if possible without personal risk.
Nitrogen: Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	Nitrogen: No significant effects from contamination expected.	

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Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Ethanol: 172 F (78 C)	-170 F (-119 C)	40 mmHg @ 19 C	1.59 (Air=1)	0.7853	Soluble	Not available	5-10 ppm	1.4 (carbon tetrachloride=1)	1.17 mPa.s @ 20 C; 1.074 mPa.s @ 25 C
Nitrogen: -321 F (-196 C)	-346 F (-210 C)	760 mmHg @ -196 C	0.967 (Air=1)	Not available	1.6% @ 20 C	Not applicable	Not available	Not applicable	0.01767 cP @ 27 C

Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Ethanol: 46.07	C ₂ H ₅ O	Not available	Not available	Not available	1	Soluble: Benzene, ether, acetone, chloroform, methanol, organic solvents
Nitrogen: 28.0134	N ₂	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.	Ethanol: Stable at normal temperatures and pressure.	Ethanol: Halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials
Nitrogen: Stable at normal temperatures and pressure.	Nitrogen: Stable at normal temperatures and pressure.	Nitrogen: 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
Ethanol: Oral LD50: 7 g/mg oral-rat LD50 Dermal LD50: greater than 15000 mg/kg (calculated as greater than 20 mL/kg); at 20 mL/kg, 1/4 rabbits died Inhalation: Irritation, difficulty breathing, headache, drowsiness, symptoms of drunkenness
Nitrogen: Not available

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

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

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Section 12: Ecological Information

Fate and Transport				
Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment	
Ethanol Fish toxicity: 93 ug/L, 96 hour(s) LC50 (Mortality) Daphnia (Leptocheirus macrochirus) Invertebrate toxicity: 24 ug/L, 48 hour(s) EC50 (Immobilization) Water flea (Daphnia pulex) Algal toxicity: 10000-25000 ug/L, 1-2 hour(s) (Photophysiness) Green algae (Acrospira sponder) Phyto toxicity: Not available Other toxicity: Not available	Highly toxic to aquatic life.	Not available	Not available	
Nitrogen Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available	

Section 13: Disposal Considerations

Ethanol	Subject to disposal regulations: U.S. EPA 40 CFR 262, Hazardous Waste Number(s): D001. Dispose in accordance with all applicable regulations.
Nitrogen	Dispose in accordance with all applicable regulations.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture	
Shipping Name	Compressed gas, n.o.s. (Nitrogen, Ethanol)
UN Number	UN1950
Hazard Class	2.2
Hazard Information	Non-Flammable Gas

Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Ethanol	ETHANOL or ETHYL ALCOHOL or ETHANOL SOLUTIONS or ETHYL ALCOHOL SOLUTIONS	UN1170	3	II, III	3	N/A	N/A	N/A
Nitrogen	Nitrogen, compressed	UN1065	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A

Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Ethanol	Ethanol	UN1170	3	II
Nitrogen	Nitrogen, compressed	UN1065	2.2	Not applicable

Section 15: Regulatory Information

U.S. Regulations			
CERCLA Sections	SARA 338.30	SARA 354.40	
Ethanol	Not regulated.	Not regulated.	Not regulated.
Nitrogen	Not regulated.	Not regulated.	Not regulated.

SARA 370.21					
	Acute	Chronic	Fire	Reactive	Sudden Releases
Ethanol	Yes	Yes	Yes	No	No
Nitrogen	Yes	No	No	No	Yes

SARA 372.65	
Ethanol	Not regulated.
Nitrogen	Not regulated.

OSHA Process Safety	
Ethanol	Not regulated.
Nitrogen	Not regulated.

State Regulations	
	CA Proposition 65
Ethanol	Not regulated.
Nitrogen	Not regulated.

Canadian Regulations	
	Inventory Classification
Ethanol	B2, D2D
Nitrogen	A

National Inventory Status			
	US Inventory (TSCA)	TSCA 136 Export Notification	Canada Inventory (DSL/DSL)
Ethanol	Listed on inventory.	Not listed.	Not determined.
Nitrogen	Listed on inventory.	Not listed.	Listed on inventory.

Section 16: Other Information

HPPA Rating	
Ethanol	HEALTH=2 FIRE=3 REACTIVITY=0
Nitrogen	HEALTH=1 FIRE=0 REACTIVITY=0

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

INTOXILYZER 8000
Location: 11 N 145TH AVE
Serial Number: 80-000312
Core Version: 8105.48
06/06/2020

18:22:41

Standard Lot#: 07919100A1
Last Changed By: K. MIYAZATO #1139

QAS: K. MIYAZATO #1139
GOODYEAR PD

Operator: K. MIYAZATO #1139
GOODYEAR PD

Test	g/210L	Time
Air Blank	0.000	18:23:12
0.100 Cal Check	0.098	18:23:32
Air Blank	0.000	18:24:03

Preventative Maintenance
Performed -- Timer Reset