Emergency Contact: Chemtrec (800) 424-9300
Or Norco (208) 336-1643

1125 West Amity Road
Boise, ID 83705
(208) 336-1643

Propane in Air 0.0001% to 1.5%

MATERIAL SAFETY DATA SHEET

Identification

Product Name: Propane in Air 0.0001% to 1.5%
Chemical Name: Propane in Air
Chemical Family: Gas Mixture
CAS Number: N/A
Common Names/Synonyms: N/A
MSDS Identification Code/Number: 2170
Prepared by: Quality Dept.

Revision Date: 01/27/05
Last Review Date: 03/04/13

Composition, Information on Ingredients, Exposure Limits

Exposure Limits[1]:

Ingredient	% Volume	PEL-OSHA[2]	TLV-ACGIH[3]	LD_{50} or LC_{50} Route/Species
Propane Formula: C_3H_8 CAS: 74-98-6 RTECS#: TX2275000	0.0001 to 1.5%	1000 PPM	1000 PPM	Not available
Air Formula: N/A CAS: N/A RTECS#: N/A	98.5. to 99.9999%	None Established	Simple Asphyxiant	Not Available

[1] Refer to individual state or provincial regulations, as applicable, for limits which may be more stringent than those listed here.
[2]As stated in 29 CFR 1910, Subpart Z (revised July1, 1993)
[3]As stated in the ACGIH 2007 Threshold Limit Values for Chemical Substances and Physical Agents.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

Hazards Identification

Emergency Overview:

Odorless, colorless, nonflammable gas. Inhalation of high concentrations of simple hydrocarbons can cause central nervous system (CNS) depression and cardiac sensitization. Rapidly expanding gas may cause frostbite. Contents under pressure. Use and store below 125 ^{O}F (52^{O}C)

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Route of Entry:

Skin Contact	Skin Absorption	Eye Contact	Inhalation	Ingestion
No	No	No	Yes	No

Health Effects:

Exposure Limits	Irritant	Sensitization
Yes	No	No
Teratogen	Reproductive Hazard	Mutagen
No	No	No
Synergistic Effects None reported		

Hazards Identification Continued

Carcinogenicity: NTP: No IARC: No OSHA: No

Eye Effects:
Contact with rapidly expanding gas near the point of release may cause frost bite.

Skin Effects:
Contact with rapidly expanding gas near the point of release may cause frost bite with redness, skin color change to gray or white and blistering.

Ingestion Effects:
None known. Ingestion is unlikely as product is a gas at room temperature.

Inhalation Effects:
Product is relatively nontoxic. Inhalation of high propane concentrations may cause central nervous system depression with dizziness, disorientation, in-coordination, nausea and narcosis. High concentrations may also cause cardiac sensitization resulting in irregular heartbeat and may make the individual more susceptible to cardiac effects of substances such as epinephrine and adrenaline.

Medical Conditions Aggravated by Exposure: None known.

NFPA Hazard Codes		**HMIS Hazard Codes**		**Ratings System**
Health:	1	Health:	1	0: No Hazard
Flammability:	0	Flammability:	0	1: Slight Hazard
Instability:	0	Physical Hazard:	3	2: Moderate Hazard
				3: Serious Hazard
				4: Severe Hazard

Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA P-19-2004, *CGA Recommended Hazard Ratings for Compressed Gases, 2nd Edition.*

First Aid Measures

Eyes:
None required for gas. If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.

Skin:
None required for gas. For frostbite, immerse skin in lukewarm water. DO NOT USE HOT WATER. Obtain medical attention.

Ingestion:
None required.

Inhalation:
PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED 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 treatments should be symptomatic and supportive.

Note to Physician: Monitor cardiac rhythm and treat arrhythmias as necessary. DO NOT administer stimulants such as epinephrine or adrenaline.

Fire Fighting Measures

Conditions of Flammability: Non-flammable gas		
Flash Point: Not Available	Method: Not Available	Autoignition Temperature: Not Available
LEL % N/A*	UEL % N/A*	
Hazardous Combustion Products: Carbon Monoxide, Carbon Dioxide		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: Not Available		

* Propane has a LEL of 2.2% and a UEL of 9.5%.

Fire and Explosion Hazards:
Nonflammable. Percentage of propane is less than the lower explosive limit (LEL) of 2.2% for propane in air. Cylinder may rapidly vent or violently rupture from pressure when involved in a fire situation.

Extinguishing Media:
Carbon Dioxide, dry chemical or water spray. Use media as appropriate for surrounding fire.

Fire Fighting Instructions:
If possible, stop the flow of gas supply. Use water spray to cool adjacent cylinders and areas. Fire fighters should wear a full-facepiece NIOSH/MSHA approved self-contained breathing apparatus (SCBA) operated in positive pressure mode and full turnout gear.

Accidental Release Measures

Evacuate all personnel from affected area. Use appropriate protective equipment. Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. Ventilate enclosed areas. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or valve, contact the appropriate emergency telephone number listed in section 1 or call your closest Norco/NorLab location.

Handling and Storage

Gas mixture is non-corrosive and may be used with any common structural material.

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.

Protect cylinders from physical damage. Store in cool, dry, well ventilated area of non-combustible construction away from heavy traffic areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125^{O}F (52^{O}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. Post "NO SMOKING OR OPEN FLAMES" sign in the storage or use area.

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

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

Exposure Controls, Personal Protection

Engineering Controls:
Local exhaust in combination with general ventilation as necessary to control air contaminants at or below acceptable exposure guidelines.

Eye/Face Protection:
Safety goggles or glasses as appropriate for the job.

Skin Protection:
Protective gloves of material appropriate for the job.

Respiratory Protection:
Positive pressure air line with full-face mask and escape bottle or self-contained breathing apparatus should be available for emergency use.

Other/General Protection:
Safety shoes.

Physical and Chemical Properties

Parameter	Value	Units
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Not Available	
Vapor density (Air = 1)	: Not Available	
Evaporation point	: Not Available	
Boiling point	: Not Available	
Freezing point	: Not Available	
pH	: Not Applicable	
Specific gravity	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H_2O)	: Negligible	
Odor threshold	: Not Applicable	
Odor and appearance	: Colorless, odorless gas	

Stability and Reactivity

Stability:
Stable

Incompatible Materials:
None know for mixture. Propane is incompatible with oxidizing agents.

Hazardous Decomposition Products:
Small amounts of carbon monoxide and carbon dioxide.

Hazardous Polymerization:
Does not occur.

Toxicological Information

Inhalation: High concentrations of aliphatic hydrocarbon gases may cause CNS depression. Recent information suggests that C1 – C4 aliphatic (alkane) hydrocarbon gases can cause potentially fatal cardiac arrhythmias. Cardiac sensitization to adrenalin in dogs has been noted following inhalation. In dogs, the heart was more sensitive to epinephrine induced ventricular fibrillations following exposure to 15 – 90% propane for 10 minutes. Ventricular fibrillations have been reported in a 15-year old girl and a 14-year old boy following inhalation of n-butane (concentration not reported).

Skin and Eye:
Contact with gas is not expected to cause irritation.

Ecological Information

Product does not contain Class I or Class II ozone depleting substances. Product is not expected to be toxic to fish or wildlife. Will not bioconcentrate.

Disposal Considerations

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 Norco or NorLab for proper disposal. Non-refillable containers should be vented in a well ventilated area then disposed of in accordance with local regulations, or returned to NorLab.

Transport Information

Parameter	US DOT	Canada TDG
Proper Shipping Name:	Compressed gas, N.O.S., (Air, Propane)	Compressed gas, N.O. S., (Air, Propane)
Hazard Class:	2.2	2.2
Identification Number:	UN 1956	UN 1956
Shipping Label:	Nonflammable Gas	Nonflammable Gas

Regulatory Information

SARA Title III Notifications and Information:
This product does not contain toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and 40CFR 372.

Propane is listed under the accident prevention provisions of section 112(r) of the Clean Air Act (CAA) with a threshold quantity (TQ) of 10,000 pounds.

SARA Title III – Hazard Classes:
Sudden Release of Pressure Hazard
Acute Health Hazard

California Proposition 65: This product does not contain ingredient(s) known to the State of California to cause cancer or reproductive toxicity.

Other Information

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

Disclaimer of Expressed and Implied Warranties:
Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).