MATERIAL SAFETY DATA SHEET

EFFECTIVE JANUARY 2004

ANDY OXY CO., INC. PO BOX 6389 ASHEVILLE, NC 28816

TRANSPORTATION EMERGENCY RESPONSE : CHEMTREC (800) 424-9300

GENERAL ADDITIONAL INFORMATION: SAFETY SERVICES (973) 887-5300

SECTION 1 – PRODUCT IDENTIFICATION

Product Name: Commercial Odorized Propane
Chemical Name: Propane
Chemical Family: Petroleum Hydrocarbon
Common Names: Liquefied Petroleum Gas, LP-Gas, LPG, Bottle Gas

SECTION 2 – PHYSICAL AND CHEMICAL CHARACTERISTICS

BOILING POINT: - 44° F FLASH POINT: -156° F BULK DENSITY: 4.20 lbs. /gal.
SPECIFIC GRAVITY: LIQUID: 0.504 VAPOR: 1.50
GAS VOLUME @ ATM. PRESSURE & 60° F (Cu. Ft. gas/gal. Liquid): 36.38
VAPOR PRESSURE: 208 psig @ 100° F (ASTM) SPECIFIC HEAT of LIQUID: .630 BTU/LB. & 60° F
FLAMMABILITY LIMITS (% BY VOLUME IN AIR): L.E.L.: 2.1 U.E.L.: 9.5
EXPANSION RATIO OF LIQUID TO GAS @ 14.7psia: 1 to 270
LIQUID BOIL-OFF TO PROPANE VAPOR ABOVE – 44 F°: 100%

COMPONENTS	*CAS NO.*	
PROPANE	74-98-6	*
PROPYLENE	115-07-1	*
BUTANES	106-97-8	2.5%
SULPHUR	7704-34-9	185 ppmw with no discoloration of Lead Acetate paper**
RESIDUAL MATTER		0.05 ml after boil off of 100 ml liquid sample **
ODORANT(S)	Various	Odor concentration detectable in air of not over one-fifth of the lower limit of flammability per NFPA 58.
CORROSIVES		Not to exceed #1 grade copper strip test**

PROPANE IS COLORLESS AND ODORLESS.
PROPANE IS VERY STABLE.
POLYMERIZATION WILL NOT OCCUR.
AN ADDED ODORANT GIVES PROPANE A STRONG UNPLEASANT SMELL. Information regarding the effectiveness or intensity of odorants, is set forth in Section 3 below.

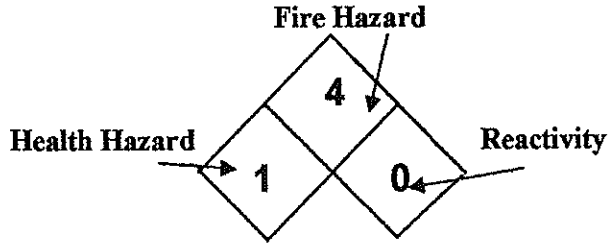
* *Combined constituents comprise a minimum 97.45 % of the total weight under Gas Processors Association (GPA) Standard 2140-97.*

** *Based on American Society of Testing and Materials (ASTM) Standard D1835-91.*

SECTION 3 – PHYSICAL HAZARD DATA

NFPA CLASSES:

4 - Severe
3 – Serious
2 – Moderate
1 – Slight
0 – Minimal



PROPANE IS FLAMMABLE. PROPANE IS A SIMPLE ASPHYXIANT.
Flammable Gas under pressure – Keep away from sources of ignition such as heat, sparks or flame. Vapor is heavier than air and may collect in low-lying areas.

The intensity of odorants may fade over time due to chemical oxidation (in the presence of rust, air or moisture), adsorption or absorption. Underground leaks passing through certain soils may reduce odorant level. If odorant level appears weak, notify propane supplier at once. The ability of people to detect odors can vary greatly. Individuals with nasal perception problems may have a reduced sensitivity to odorants. This condition can be initiated or aggravated by the use of alcohol, tobacco or drugs. These odorants may not impart the warning of the presence of propane in every instance.

SECTION 4 – HEALTH HAZARD DATA

Propane is a simple asphyxiant and care must be taken to provide adequate ventilation. Vapors can displace available oxygen for breathing in confined spaces. Odor may not provide adequate warning of potentially hazardous concentrations. Propane is heavier than air and may collect in low-lying areas in the absence of wind or ventilation. Liquid propane can cause freeze burns when brought into direct contact with body parts.

SECTION 5 – PRIMARY ROUTES OF ENTRY

Eye: Although propane vapor is generally non-irritating, pressurized gas may inflict mechanical injury to the eye. Direct contact with liquid propane can cause freeze burns and resultant swelling of the eye.
Skin: Contact with liquid propane can cause freeze burns similar to frostbite.
Ingestion: Deemed unlikely.
Inhalation: Simple asphyxiant. Extreme over exposure may cause dizziness, headache, disorientation, excitability, fatigue, coughing, vomiting, anesthesia, unconsciousness and death.

SECTION 6 – EXPOSURE LIMITS

COMPONENT	THRESHOLD LIMIT VALUE (TLV)	PERMISSABLE EXPOSURE LIMIT (PEL)
PROPANE	NE	1000 ppm
PROPYLENE	NE	NE
BUTANES	NE	800 ppm

PROPANE CAN DISPLACE OXYGEN REQUIRED FOR NORMAL RESPIRATION AND CARE SHOULD BE TAKEN TO PROVIDE ADEQUATE VENTILATION, ESPECIALLY IN CONFINED SPACES AND IN THE ABSENCE OF WIND.

SECTION 7 – TOXICOLOGICAL INFORMATION

Propane is not listed in the latest edition of the National Toxicology Program Annual Report on Carcinogens, has not been found to be a potential carcinogen in the latest edition of the International Agency for Research on Cancer Monographs, and has not been identified as a carcinogen by OSHA.

Upon review of USC Title 15 Chapter 23 Section 2601 commonly known as Toxic Substance Control Act (TSCA), Propane has not been found to be a chemical whose manufacture, processing, distribution in commerce, use, or disposal to present an unreasonable risk of injury to health or the environment.

Propane does not contain any Class 1 or Class 2 ozone-depleting chemicals. Propane is not a listed marine pollutant.

The Food and Drug Administration (FDA) has said propane is GRAS (generally recognized as safe) as a direct human food ingredient when used as a propellant, aerating agent and gas.

Normal combustion products of propane are carbon dioxide, nitrogen and water vapor. Incomplete combustion of propane can produce carbon monoxide (CO), a toxic gas, and various aldehydes; an eye and nose irritant. These can be produced both by gas appliances and internal combustion engines.

SECTION 8 – SAFE HANDLING AND USE

Propane systems must be tested and proven leak free prior to use. Refer to National Fire Protection Association (NFPA) 54 *National Fuel Gas Code* for further instructions.

Keep away from all sources of ignition, including heat, sparks and open flames. Never check for leaks with a lit match or flame. Use an approved leak detector solution or electronic leak detector.

All piping and equipment used for the handling, storage and use of propane must be specifically designed for that purpose. Refer to NFPA 54 *National Fuel Gas Code* and NFPA 58 *Liquefied Petroleum Gas Code*.

OSHA 29 CFR 1910.110, DOT 49 CFR 172.700 and NFPA 58 all require that persons handling LP gases be specially trained in proper handling and operating procedures, which must be documented by the employer. Only qualified persons should transport, operate, service and/or install propane systems and containers.

Propane vapor is heavier than air and can collect in low-lying areas, especially in the absence of wind or ventilation. Propane is a simple asphyxiant.

Liquid propane can cause freeze burns, and appropriate personal protective equipment should be used whenever handling this product.

Propane cylinders should always be stored in an approved location with relief valves in direct communication with the vapor space, and with service valves closed and plugged when not in use. Refer to NFPA 58 for details of specific storage requirements.

Empty propane containers retain residue and should be treated as if full. Never drop or damage containers. Damaged or corroded and leaking containers should not be utilized. Contact your local Suburban Propane supplier immediately to report any problems. If container service valve fails to operate properly, discontinue use. Never insert any object into the pressure relief valve. Return unused propane to supplier for proper disposal.

SECTION 9 – EXPOSURE CONTROLS

Propane is Odorized: In its natural state, propane is odorless. An odorant has been added as a warning agent to detect its presence. This smell is characterized as "skunk-like" or having a "rotten egg" smell. It is important to recognize the smell of propane. If you are unsure about the smell of odorized propane, contact your local Suburban Propane Customer Service Center for a sample.

Detection of Odors: The faint odor of propane may occasionally be present, due to a pilot light outage, or a burner left partially open. Information regarding the effectiveness or intensity of odorants, is set forth in Section 3 above. If, after checking these items, a smell persists, contact your local Suburban Propane immediately.

Engineering Controls: Provide ventilation in enclosed areas where accumulation of vapors may provide a flammable mixture. Where flammable mixtures may be present, specially designed electrical systems must be used in accordance with NFPA 70 *National Electric Code*.

Respiratory Protection: For general use no protection is required. Under emergency conditions, concentrations may be high enough to warrant supplied-air or self-contained breathing apparatus. Under these conditions, a flammable atmosphere is likely and precautions should be taken to avoid ignition.

Eye Protection: Approved safety glasses should be used whenever filling and handling propane containers.

Protective Clothing: To avoid skin contact with liquid propane, approved gloves that are impervious to propane should be worn along with clothing that will provide protection from liquid propane for the expected duration of exposure.

Other Protective Equipment: Safety shoes are recommended when handling cylinders.

SECTION 10 - EMERGENCY AND FIRST AID PROCEDURES

Contact with liquid propane can cause freeze burns similar to frostbite. Remove saturated clothing, shoes and jewelry immediately. Affected body parts should be gently flushed with or immersed in lukewarm water for 15 minutes. Seek medical attention.

If respiratory symptoms occur, get victim away from source and into fresh air. If breathing difficulties develop, qualified personnel may administer oxygen. If breathing or heartbeat cease, artificial respiration or cardiopulmonary resuscitation should be started immediately. Contact emergency medical responders at once.

If you smell the strong odor of propane indoors: Immediately evacuate and get away from the building. Turn off the gas supply at the tank or shutoff valve at the meter or where gas enters the building. Call your nearest Suburban Propane Customer Service Center from a neighbor's house, or other phone away from immediate area. Do not use ANY electrical devices, including light switches and telephones. Do not light matches or use any open flame.

Tampering: Never tamper with any gas appliances, their controls, or any related equipment. Never force an appliance control valve. All gas appliances and related equipment must be serviced by a qualified service technician. Connecting and disconnecting tanks and cylinders to or from your main gas service should only be performed by a qualified LP-Gas technician.

If you run out of gas: If you are a customer, and you suspect you have run out of gas, contact your nearest Suburban Propane Customer Service Center immediately. By running out of gas, a potential safety hazard may exist, which requires us to perform a Leak Test before your system can be returned to service.

Know how to shut off the gas in event of an emergency: It is important to know the location of the tank or cylinder and shutoff valve(s), if present, in your system. The service valve can be turned off by turning the knob clockwise.

In the event of an accidental release or spill out of doors, these actions should be taken: Evacuate immediate area. Eliminate all possible sources of ignition including heat, sparks and open flame. Provide maximum ventilation and shut off source(s) of leak if possible to do so safely. If cylinder or container is leaking, contact the nearest Suburban Propane supplier or local fire department. Never enter a vapor (white) cloud.

Release without fire: Use a "fogging" hose stream of water to break up and dissipate propane into the atmosphere. Stay uphill and upwind of release at all times.

Release with fire: Apply a direct stream of water to container in order to prevent overheating. Do not attempt to extinguish flame until source of leak is shut off. Water spray or "fog" should be used for adjacent areas and to dissipate liquid propane to atmosphere.

Extinguishing Media: Class B fire-extinguishing media such as Halon, $C0_2$, or dry chemical can be used. Water spray or fog is appropriate for surrounding areas. Do not extinguish flame until source of gas is shut off. Only those with specialized training should attempt fire fighting. For further information, refer to NPGA "Propane Emergencies" Text #7220.

SECTION 11 – OTHER INFORMATION

This Material Safety Data Sheet, issued January 2004, was prepared by Safety Services of Suburban Propane and supercedes June 2001.

SECTION 12 – CONTACT INFORMATION

For further information write to:

SUBURBAN PROPANE, L.P.
Safety Services
240 Route 10 West
P.O. Box 206
Whippany, NJ 07981-0206
Or call: (973) 887 – 5300

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