

LPG

Safety Data Sheet

Version 001— Last revision on May, 2015

SECTION 1 — IDENTIFICATION

Product Name:	LPG (Propane)	
Product ID:	NCRA-051	
Synonyms:	Bottled gas; compressed petroleum gas; liquified petroleum gas; liquified hydrocarbon gas; propane-butane-(propylene); UN 1075; OHS13000; RTECS SE7545000	
Chemical Family:	petroleums, hydrocarbons	
Molecular Formula:	C ₃ H ₈ /C ₃ H ₆ /C ₄ H ₁₀ /C ₄ H ₈	
Manufacturer:	NCRA 2000 South Main Street McPherson, Kansas 67460, USA	MFA Oil Company One Ray Young Columbia, Missouri, 65201
Telephone:	620.241.2340 (<i>General</i>) 620.241.2340 (<i>Emergency</i>) 620.241.9269 (<i>Fax</i>)	573.474.7928 (<i>General</i>) 573.474.1918 (<i>Fax</i>) www.mfaoil.com (<i>Web</i>)

SECTION 2 — HAZARD(S) IDENTIFICATION

Emergency Overview

DANGER



Extremely flammable gas (H220).
 Contains gas under pressure; may explode if heated (H280).
 May cause cancer by inhalation if 1,3-butadiene is a component (H350).
 May cause genetic defects by inhalation if 1,3-butadiene is a component (H340).
 May cause drowsiness or dizziness (H336).

PREVENTION

Do not handle until all safety precautions have been read and understood (P202).

Keep away from heat, sparks, open flames, and hot surfaces. No smoking (P210).
 Avoid breathing dust, fume, mist, vapors, or gas (P261).
 Wear gloves and eye protection (P280).
 Use personal protective equipment as required (P281).

RESPONSE

Leaking Gas Fire: Do not extinguish, unless leak can be stopped safely (P377)

Eliminate all ignition sources if safe to do so (P381).

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician (P304 + P340 + P310).

Protect from sunlight. Store in a well-ventilated place (P410 + P403).

Hazard Classifications (OSHA / GHS)

Flammable gases – Category 1
 Gases under pressure – Liquefied Gas
 Carcinogenicity – Category 1B
 Mutagenicity – Category 1B
 Specific Target Organ Toxicity (Single Exposure) – Category 3

NFPA



Potential Health Effects

Eye Health Effects: Severely corrosive to eyes. Causes eye burns.
 Skin Health Effects: Severely corrosive to skin. Causes skin burns.
 Inhalation Health Effects: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
 Ingestion Health Effects: May cause cancer by inhalation if 1,3-butadiene is a component.
 Carcinogenic Effects: None anticipated.

Potential Environmental Effects

Environmental Effects: Very toxic to aquatic life.

SECTION 3 — COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredients				
Name	CAS #	RTECS #	EINECS #	% (Volume)
LPG	68476-85-7	SE7545000	270-704-2	100 %

SECTION 4 — FIRST-AID MEASURES

Eye Contact

Flush eyes immediately with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get immediate medical attention.

Skin Contact

If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

Inhalation

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.

Ingestion

If a large amount is swallowed, get medical attention.

Notes to Physicians

For inhalation, consider oxygen.

Medical Conditions Aggravated by Exposure

Not available.

Other Comments

None.

SECTION 5 — FIRE-FIGHTING MEASURES

NFPA 704 Hazard Classes:

Health: 2 (Moderate)
Flammability: 4 (Severe)
Instability: 0 (Minimal)
Other Hazards: Not applicable

Unusual Fire and Explosion Hazards

Severe fire hazard. Severe explosion hazard. The gas is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Gas/air mixtures are explosive. Containers may rupture or explode if exposed to heat. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

Extinguishing Media

Carbon dioxide, regular dry chemical

Large fires: Flood with fine water spray.

Protection of Firefighters

Wear self-contained breathing apparatus for fire fighting if necessary. In addition, wear other appropriate protective equipment as conditions warrant (see *Section 8*).

Firefighting Procedures

Fire Fighting Instructions: Do not extinguish fires unless gas flow can be stopped safely; explosive re-ignition may occur. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action shall be taken involving any personal risk or without suitable training. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Stop flow of material. Use water to keep fire exposed containers cool and to protect personnel effecting shutoff. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.

Other Information

Combustion Products: Carbon Oxides

Flammable Properties: Extremely flammable gas. Gas forms mixtures with air which can catch fire and burn with explosive violence. Vapors are heavier than air and invisible mixture spreads easily and may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal Precautions

Evacuate the area promptly. No action shall be taken involving any personal risk or without suitable training. Keep unnecessary personnel away.

Ensure adequate ventilation. In case of inadequate ventilation, use respiratory protection. Wear appropriate personal protective equipment (See Section 8).

Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment should be avoided. Use water spray to knock down and neutralize gas cloud. Dike or divert spill into natural containment areas before it can enter watercourses. Assure conformity with applicable government regulations.

Containment Procedures

Notify shift foreman immediately should release occur. The shift foreman will notify appropriate personnel and may determine whether or not to call emergency response teams and supervisors, depending on the amount of chemical release. If the release occurs outside the facility, notify the NCRA refinery.

Clean-up Procedures

Ventilate well, stop flow of gas or liquid if possible. Prevent further leakage or spillage if safe to do so.

For small spills, contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and placing in a container for disposal according to local regulations.

Immediately contact emergency personnel.

SECTION 7 — HANDLING AND STORAGE

Handling

Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear appropriate personal protective equipment (See Section 8). Use good personal hygiene practices and wear appropriate personal protective equipment. Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Avoid confined areas. No smoking. Take measures to prevent build-up of static electric charge. Use normal measures for preventive fire protection.

Storage

Store in accordance with local, regional, national, and international regulations. Secure cylinders in an upright position at all times, close all valves when not in use. Store in a cool, dry, well-ventilated place. Keep container tightly closed and sealed until ready for use. Protect cylinders from damage.

SECTION 8 — EXPOSURE CONTROLS / PERSONAL PROTECTION

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, and/or engineering professionals.

Personal Protective Equipment



- Respiratory Protection:** Avoid exposure. Avoid breathing fume or gas. Use only explosion-proof ventilation equipment. Use only with ventilation sufficient to prevent the buildup of fumes in air. Do not enter enclosed spaces where fumes exist. Use supplied-air respiratory protection if needed and in confined or enclosed spaces. 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). If unable to determine respirator usage, contact competent safety personnel.
- Eye/Face Protection:** Use tightly fitting safety goggles and faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Provide an eyewash station immediately accessible to the work area.
- Skin Protection:** Avoid skin contact. Use gloves impervious to the specific material handled to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Use proper glove removal technique. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Complete suit protecting against chemicals. Flame retardant antistatic protective clothing.
- General Considerations:** When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practice.

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. The engineering controls also need to keep gas, vapor, or dust concentrations below any lower explosive limits.

Exposure Limits / Guidelines

Component	UK WEL	NIOSH REL	OSHA PEL
LPG (68476-85-7)	TWA: 1000 ppm (1750 mg/m ³) STEL: 1250 ppm(2180 mg/m ³)	TWA: 1000 ppm(1800 mg/m ³)	TWA: 1000 ppm(1800 mg/m ³)

Note: State, local, or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Supplemental Information

Notations

Component	NIOSH IDLH	Skin Notation	Sensitization
LPG (68476-85-7)	ppm	---	---

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical Form	Gas
Appearance	Colorless liquefied gas
Odor	varying odor, faint
Odor Threshold	5000 – 20000 ppm (propane)
pH	not available
Freezing Point	not available
Boiling Point	-54 to 30°F (-48 to -1°C)
Flash Point	-212 °F (-135.85 °C) by closed cup (methane)
Flammability	Limits in Air, Upper 9.5% Limits in Air, Lower 1%
Explosive Limits	2.1 % (LEL) – 9.5 % (UEL)
Evaporation Rate	>1 (butyl acetate=1)
Vapor Pressure	180 @ 100F
Vapor Density	(air=1): 1.8
Specific Gravity	0.51
Density	not available
Solubility	insoluble
Partition Coefficient	<i>Not available</i>
Auto-ignition Temperature	> 724.73 °F (>384.85 °C) (Butylene)
Decomposition Temperature	<i>Not available</i>
Viscosity	<i>Not available</i>
Molecular Formula	C3-H8 (Propane)
Molecular Weight	44.1 (Propane)

SECTION 10 — STABILITY AND REACTIVITY

Stability: Stable at normal temperature and pressure under recommended use.

Conditions to Avoid:	Avoid heat, flames, sparks, other sources of ignition and extremes of temperature. Minimize contact with material. Containers may rupture or explode if exposed to heat.
Incompatible Materials:	Oxidizing agents. Reducing agents. Acids. Alkalis.
Hazardous Polymerization:	Not known to polymerize.

SECTION 11 — TOXICOLOGICAL INFORMATION

General Toxicity

Signs and Symptoms:	Vapors may cause narcosis with headache, dullness, difficulty breathing, lightheadedness, drowsiness, unconsciousness and possibly death. Concentrations for 10 minutes may cause dizziness. Very high concentrations may cause asphyxiation with rapid respiration, dyspnea, reduced mental alertness and muscle coordination, nausea, vomiting, prostration, unconsciousness, convulsions, coma and death. Contact with liquid to skin may cause frostbite with redness, pain and blistering. Contact with liquid to eyes may cause frostbite with redness, pain and loss of sight. Ingestion of a gas is unlikely. If the liquid is swallowed, frostbite damage to the lips, mouth and mucous membranes may occur. High exposure levels can cause burning and blistering of skin, permanent corneal damage and may be fatal.
Aspiration Hazard:	Not available
Sensitization:	Not expected to be a skin or respiratory sensitizer.
Specific Target Organs:	<i>Not available.</i>
Carcinogenicity:	No component of this product has been identified as a possible, probable, or confirmed human carcinogen.
Germ Cell Mutagenicity:	<i>Not available.</i>
Reproductive Toxicity:	<i>Not available.</i>

Other Comments

None.

Toxicological Effects of Components

Toxicological Information		
Component	Category	Data
LPG (68476-85-7)	Exposure Routes	Inhalation, ingestion, skin, eye
	Symptoms	Irritation of eyes, nose, or throat; dyspnea (breathing difficulty); wheezing; chest pain; pulmonary edema; pink frothy sputum; skin burns; vesiculation; frostbite (liquid). Frostbite with redness, pain and blistering. Loss of sight to eyes.
	Target Organs	Eyes; skin; respiratory system, central nervous system.

	Short-Term Exposure	Vapors may cause narcosis with headache, dullness, difficulty breathing, lightheadedness, drowsiness, unconsciousness, and possibly death. Exposure may cause dizziness.
	Long-Term Exposure	Asphyxiation with rapid respiration, dyspnea, reduced mental alertness and muscle coordination, nausea, vomiting, prostration, unconsciousness, coma and death.

Note: Data for Exposure Routes, Symptoms, and Target Organs were obtained from the NIOSH Pocket Guide to Chemical Hazards. Data for Short- and Long-Term Exposure were obtained from the International Chemical Safety Cards from the International Occupational Safety and Health Information Centre.

SECTION 12 — ECOLOGICAL INFORMATION

Toxicity: Not expected to be harmful to aquatic organisms.

Persistence & Degradability: *Not available.*

Bio-accumulative Potential: *Not available.*

Mobility: *Not available.*

Other Adverse Effects: *Not available.*

SECTION 13 — DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Empty containers may contain product residues. Do not puncture or incinerate even when empty. This material and/or its container must be disposed of as hazardous waste. Return the empty cylinder to the supplier.

The generator of a waste is always responsible for making proper hazardous waste determinations. The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with all applicable federal, state, and local requirements and regulations.

SECTION 14 — TRANSPORTATION INFORMATION

DOT – United States – Department of Transportation

Shipping Name: Petroleum gases, liquefied

ID Number: UN1075

Hazard Class: 2.1

Packing Group: Not available

SECTION 15 — REGULATORY INFORMATION

United States Regulations

CERCLA/SARA Section 311/312 (Title III Hazard Categories)

Acute Health:	Yes
Chronic Health:	No
Fire Hazard:	Yes
Pressure Hazard:	Yes
Reactive Hazard:	No
Sudden Release:	Yes

This material may contain one or more of the following chemicals identified by the EPA under Title 40 of the Code of Federal Regulations (CFR), including the CAA (40 CFR 50-97), CERCLA (40 CFR 302.4), SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), and/or TSCA (40 CFR 700-766).

Components Listed by Selected Parts of US 40 CFR					
Component	CAA	CERCLA	SARA Section 302	SARA Section 313	TSCA
LPG (68476-85-7)		Xxxx	Not regulated	Not regulated	xxxx

This material may contain one or more chemicals identified on individual state hazardous substances lists. Contact each jurisdiction for more information.

Right-To-Know:

Massachusetts, Pennsylvania, New Jersey

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16 — OTHER INFORMATION

Preparation & Version Information

Version 001 – Last revision on 2014-11-01.

Prepared by Certified Environmental Management, Ltd. (www.cemih.com).

Guide to Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
CAA	Clean Air Act (United States)
CAS	Chemical Abstracts Service
CEIL	Ceiling Exposure Limit
CERCLA	The Comprehensive Environmental Response, Compensation, & Liability Act (United States)
CFR	Code of Federal Regulations (United States)
EINECS	European chemical Substances Information System
EPA	Environmental Protection Agency (United States)
GHS	Globally Harmonized System
IARC	International Agency for Research on Cancer
NFPA	National Fire Protection Association
NTP	National Toxicology Program (United States)
OSHA	Occupational Safety and Health Administration (United States)
PEL	Permissible Exposure Limit (OSHA)

RCRA	Resource Conservation and Recovery Act (United States)
RQ	Reportable Quantity
SARA	Superfund Amendments and Reauthorization Act (United States)
STEL	Short Term Exposure Limit (15 minutes)
TLV	Threshold Limit Value (ACGIH)
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act (United States)
TWA	Time Weighted Average (8 hours)
UN	United Nations

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