Safety Data Sheet

Section 1: Identification

Product Name: Propane

Recommended Use: Multiple Uses

Manufacturer:
Anadarko Petroleum Corporation
1201 Lake Robins Dr.
The Woodlands, TX 77380
United States
www.anadarko.com
(832) 636-1000 (General)

Emergency Telephone Number:
ChemTel: (831) 248-0585 (International)
(800) 255-3924 (North America)

Section 2: Hazard Identification

Classification:
- Flammable Gases 1
- Gases Under Pressure- Liquefied gas

Label Elements:

DANGER

Hazard Statements:
- Extremely flammable gas.
- Contains gas under pressure, may explode if heated.
- May displace oxygen and cause rapid suffocation.

Precautionary Statements:

Prevention
- Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
- Use only outdoors or in a well-ventilated area.

Response
- Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage/Disposal
- Store in a well-ventilated place. Protect from extreme heat.
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Other information:

NFPA 704 Hazard Class
Health: 1
Flammability: 4
Instability: 0

(0-Minimum, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

HMIS Hazard Rating

Health	**1**
Flammability	**4**
Physical Hazard	**0**

(0-Minimum, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

Section 3: Composition/Information on Ingredients

Component	CAS Number	Concentration
Propane	74-98-6	90 - 98%
Ethane	74-84-0	2 - 10%

All concentrations are percent by weight unless ingredient is gas. Gas concentrations are in percent by volume.

Synonyms: Liquefied Petroleum Gas, Commercial Propane

Section 4: First-Aid Measures

Inhalation: If respiratory symptoms develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If breathing is difficult, oxygen or artificial respiration should be administered by qualified personnel. If symptoms persist, seek medical attention.

Skin: Not likely to cause a problem due to high volatility of product. Contact with liquid or rapidly expanding gases released under high pressure may cause frostbite. Treat burned or frostbitten skin by flushing or immersing the affected area(s) in lukewarm water. Do not rub affected area. Do not remove clothing that adheres due to freezing. After sensation has returned to the frostbitten skin, keep skin warm, dry, and clean. If blistering occurs, apply a sterile dressing. Seek immediate medical attention.

Eye: Check for and remove contact lenses. Flush eyes with clear running water for 15 minutes while holding eyelids open. Seek medical attention.

Ingestion: Not likely to cause a problem due to high volatility of product.

Most Important Symptoms and Effects, both Acute and Delayed: Refer to Section 11 - Toxicological Information

Notes to Physician:	Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

Section 5: Fire-Fighting Measures

Suitable Extinguishing Media:	Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.
Unsuitable Extinguishing Media:	Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.
Unusual Fire and Explosion Hazards:	Closed containers can explode due to buildup of pressure when exposed to extreme heat. Caution- Material is extremely flammable.
Hazardous Combustion Products:	Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulfur may also be formed.
Advice for Firefighters:	If possible, stop the flow of gas. Firefighters must wear full facepiece self - contained breathing apparatus in positive pressure mode in enclosed areas. Fine water spray can be used to keep fire - exposed containers cool.

Section 6: Accidental Release Measures

Personal Precautions:	Eliminate all sources of ignition. Keep public away from danger area. Ventilate closed spaces before entering. Do not breathe gas. Wear appropriate personal protective equipment.
Emergency Procedures:	Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.
Environmental Precautions:	Stop spill/release if it can be done safely. Water spray may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.
Methods for Containment and Clean-up:	Notify relevant authorities in accordance with all applicable regulations. Recommended measures are based on the most likely spillage scenarios for this material; however, local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

Section 7: Handling and Storage

Precautions for Safe Handling:	Provide adequate ventilation. Do not enter storage areas or confined spaces unless adequately ventilated. Vapors are heavier than air and may travel along the floor and in the bottom of containers. Vapors may be ignited by a spark, a hot surface or an ember. Take precautionary measures against static discharges. Do not breathe gas. Avoid contact with eyes, skin, and clothing. Wear appropriate personal protective equipment. The product is extremely flammable. May form explosive mixtures with air. Avoid heat, sparks, open flames and other ignition sources. Observe good industrial hygiene practices.

Conditions for Safe Storage: Store in pressurized container. Provide adequate ventilation. Keep away from heat, sparks and open flame.

Section 8: Exposure Controls/Personal Protection

Component	ACGIH	NIOSH	OSHA	Other
Propane	TWA: 1000 ppm as Aliphatic Hydrocarbon Gases: Alkane (C1-C4)	TWA: 1000 ppm TWA: 1800 mg/m^3	TWA: 1000 ppm	
Ethane	TWA: 1000 ppm as Aliphatic Hydrocarbon Gases: Alkane (C1-C4)			

Engineering Measures/Controls: Use adequate ventilation to keep gas and vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use explosion-proof equipment and lighting in classified/controlled areas.

Respiratory Protection: None required while threshold limits are kept below maximum allowable concentrations; if TWA exceeds limits, NIOSH approved respirator must be worn. Refer to 29 CFR 1910.134 or European Standard EN 149 for complete regulations.

Eye/Face Protection: Wear chemical splash safety goggles.

Skin/Body Protection: Wear thermal insulating gloves and face shield or eye protection when working with materials that present thermal hazards (hot or cold).

Environmental Exposure Controls: Refer to local regulations for restriction of emissions to the atmosphere.

Section 9: Physical and Chemical Properties

Physical Form:	Liquefied gas
Appearance:	Colorless gas
Color:	Colorless
Odor:	Odorless or mercaptan odor
Odor Threshold:	No data available
Boiling Point:	-43.7°F (-42.1°C)
Melting Point:	No data available
Decomposition Temperature:	No data available
pH:	No data available
Specific Gravity (air=1):	1.522
Water Solubility:	Negligible
Viscosity:	No data available
Explosive Properties:	No data available
Oxidizing Properties:	No data available
Vapor Pressure:	125 psia (6464 mmHg) @ 70°F (21.1°C)
Vapor Density (air=1):	1.56
Evaporation Rate (water=1):	No data available
VOC (Wt.):	No data available
VOC (Vol.):	No data available
Flash Point (TCC):	-156°F (-104.4°C)
UEL:	13%
LEL:	2.1%
Autoignition:	842°F (450°C)
Flammability (solid, gas):	No data available
Octanol/Water Partition Coefficient:	No data available

Section 10: Stability and Reactivity

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical Stability: Stable under normal temperatures and pressures.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Heat, flames and sparks.

Incompatible Materials: Avoid contact with acids, aluminum chloride, chlorine, chlorine dioxide, Halogens and oxidizing agents.

Hazardous Decomposition Products: Decomposition will not occur if handled and stored properly. In case of a fire, oxides of carbon, hydrocarbons, vapors, and smoke may be produced.

Section 11: Toxicological Information

Components	CAS Number	Acute Toxicity
Propane (90 - 98%)	74-98-6	Inhalation-Rat LC50: 1443 ppm 15 Minute(s)
Ethane (2 - 10%)	74-84-0	Inhalation-Rat LC50: 658 mg/m³ 4 Hour(s)

Potential Health Effects

Inhalation: Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness. Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.

Skin: Not expected to be irritating. Contact with the liquefied or pressurized gas may cause frostbite ("cold" burn).

Eye: Not expected to be irritating. Contact with the liquefied or pressurized gas may cause momentary freezing followed by swelling and eye damage.

Ingestion: Ingestion is unlikely.

Chronic (Delayed): Prolonged exposure may cause chronic effects.

Mutagenic Effects: This product is not reported to have any mutagenic effects.

Carcinogenic Effects: This product is not reported to have any carcinogenic effects.

Reproductive Effects: Not expected to cause reproductive toxicity.

Section 12: Ecological Information

Toxicity: Petroleum gases will readily evaporate from the surface and would not be expected to have significant adverse effects in the aquatic environment. Classification: No classified hazards.

Persistence and Degradability: Material data lacking.

Bioaccumulative Potential: Not regarded as having the potential to bioaccumulate.

Mobility in Soil: Material data lacking.

Other Adverse Effects: No studies have been found.

Section 13: Disposal Considerations

Product Waste: Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging Waste: Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14: Transport Information

	UN Number	UN Proper Shipping Name	Transport Hazard Class(es)	Packing Group
DOT	UN1075	Liquefied Petroleum Gas	2.1	NDA
TDG	UN1075	Liquefied Petroleum Gas	2.1	NDA
IMO/IMDG	UN1075	Liquefied Petroleum Gas	2.1	NDA
IATA/ICAO	UN1075	Liquefied Petroleum Gas	2.1	NDA

Special Precautions for User: Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II Of MARPOL 73/78 and the IBC Code: Data lacking.

Section 15: Regulatory Information

CERCLA/SARA – Section 311/312 (Title III Hazard Categories)
Acute Health: Yes
Chronic Health: No
Fire Hazard: Yes
Pressure Hazard: Yes
Reactive Hazard: No

International Hazard Classification

Canada:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by Regulations.

WHMIS Hazard Class:
A
B1

National Chemical Inventories

Component	CAS Number	TSCA
Propane	74-98-6	Yes
Ethane	74-84-0	Yes

Section 16: Other Information

Last Revision Date: 22/September/2010

Preparation Date: 29/May/2015

Other Information: Version 1

Disclaimer/Statement of Liability: The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor makes no warranties, expressed or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose or course of performance or usage of trade. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.

Key to abbreviations
NDA = No data available
LD = Lethal Dose
TC = Toxic Concentration
D = Toxic Dose
ACGIH = American Conference of Governmental Industrial Hygiene
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration
STEL = Short Term Exposure Limits are based on 15-minute exposures
TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures