Safety Data Sheet

Chemical Name: Propane

Synonyms: Dimethylmethane, Liquefied Petroleum Gas (LPG), Sales Propane, Commercial Propane, Refinery Propane, Product Propane (non-odorized)

Section 1 - Chemical Product and Company Identification

Company Information

Ferrellgas (Blue Rhino)
One Liberty Plaza
Liberty, MO 64068
Emergency # 800-424-9300 (CHEMTREC)
General SDS assistance # 855-738-9178 (Ferrellgas Safety Department)

Product Information

Product: Propane (odorized)
Chemical Name: Propane
Chemical Family: Liquified Petroleum Gas (Paraffinic Hydrocarbons)
Chemical Formula: C_3H_8

Section 2 - Hazards Identification

GHS Classification:

Flammable Gas - Category 1
Gases Under Pressure - Liquefied Gas

GHS LABEL ELEMENTS

Pictogram(s)

Signal Word

Danger

Hazard Statements

H220 - Extremely flammable gas.
H280 - Contains gas under pressure, may explode if heated.

Precautionary Statements

Prevention
P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking
Response
P376 - Stop leak if safe to do so.
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
Storage
P403 - Store in a well-ventilated place.
P405 - Store locked up.
P410 - Protect from sunlight.
Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 - Composition / Information on Ingredients

CAS #	Component	Percent
74-98-6	Propane	85 - 100
106-97-8	Butane and heavier	0 - 2.5
74-84-0	Ethane	0 - 5
115-07-1	Propylene	0 - 10
75-08-1	Ethyl Mercaptan	0 - 0.0025

Section 4 - First Aid Measures

First Aid: Eyes

Direct contact with liquid propane can result in eye burns.
In case of contact with eyes, hold eyelids open to allow liquid to evaporate and gently flush with lukewarm water. Cover eyes to protect from light. Seek immediate medical attention.

First Aid: Skin

Direct contact with liquid propane can result in skin burns (frostbite).
Remove contaminated clothing. In case of blistering, frostbite or freeze burns seek immediate medical attention.

First Aid: Ingestion

Risk of ingestion is extremely low. However, if oral exposure occurs, seek immediate medical assistance.

First Aid: Inhalation

This product is classified as a simple asphyxiant. High vapor concentrations may produce a reversible central nervous system depression (anesthesia) and asphyxiation.
Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

Section 5 - Fire Fighting Measures

General Fire Hazards

See Section 9 for Flammability Properties.
Liquid releases flammable vapors at well below ambient temperatures and readily forms a flammable mixture with air. Dangerous fire and explosion hazard when exposed to heat, sparks or flame. Vapors are heavier than air and may travel long distances to a point of ignition and flash back.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

Use extinguishing media suitable for the surrounding material, preferably or, any extinguisher suitable for Class B fires, dry chemical, fire fighting foam, CO_2, and other gaseous agents. However, fire should not be extinguished unless flow of gas can be immediately stopped.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Gas fires should not be extinguished unless flow of gas can be immediately stopped. Shut off gas source and allow gas to burn out. If spill or leak has not ignited, determine if water spray may assist in dispersing gas or vapor to protect personnel attempting to stop leak. Use water to cool equipment, surfaces and containers exposed to fire and excessive heat. For large fire the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Isolate area, particularly around ends of storage vessels. Let vessel, tank car or container burn unless leak can be stopped. Withdraw immediately in the event of a rising sound from a venting safety device. Large fires typically require specially trained personnel and equipment to isolate and extinguish the fire.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Section 6 - Accidental Release Measures

Recovery and Neutralization

Stop the source of the release, if safe to do so.

Materials and Methods for Clean-Up

Do not flush down sewer or drainage systems. Do not touch spilled liquid (frostbite/freeze burn hazard!). Consider the use of water spray to disperse vapors. Isolate the area until gas has dispersed. Ventilate and gas test area before entering.

Emergency Measures

Evacuate nonessential personnel and secure all ignition sources. No road flares, smoking or flames in hazard area. Consider wind direction, stay upwind and uphill, if possible. Evaluate the direction of product travel. Vapor cloud may be white, but color will dissipate as cloud disperses - fire and explosion hazard is still present!

Personal Precautions and Protective Equipment

Do not touch spilled liquid (frostbite/freeze burn hazard!).

Environmental Precautions

Do not flush down sewer or drainage systems.

Prevention of Secondary Hazards

None

Section 7 - Handling and Storage

Handling Procedures

Keep away from flame, sparks, ingnition sources and excessive temperatures. Use only in well ventilated areas.

Storage Procedures

Store only in approved containers. Keep away from flame, sparks, excessive temperatures and open flame. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Incompatibilities

Keep away from strong oxidizers, ignition sources and heat. Explosion hazard when exposed to chlorine dioxide. Heating barium peroxide with propane causes violent exothermic reaction. Heated chlorine-propane mixtures are explosive under some conditions.

Section 8 - Exposure Controls / Personal Protection

Component Exposure Limits

Propane (74-98-6)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)
OSHA: 1000 ppm TWA; 1800 mg/m3 TWA
NIOSH: 1000 ppm TWA; 1800 mg/m3 TWA

Ethane (74-84-0)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)

Propylene (115-07-1)

ACGIH: 500 ppm TWA

Engineering Measures

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.

Personal Protective Equipment: Respiratory

Use a NIOSH approved positive-pressure, supplied air respirator with escape bottle or self-contained breathing apparatus (SCBA) for gas concentrations above occupational exposure limits, for potential for uncontrolled release, if exposure levels are not known, or in an oxygen-deficient atmosphere. CAUTION: Flammability limits (i.e., explosion hazard) should be considered when assessing the need to expose personnel to concentrations requiring respiratory protection.

Personal Protective Equipment: Hands

Use cold-impervious, insulating gloves where contact with liquid may occur.

Personal Protective Equipment: Eyes

Where there is a possibility of liquid contact, wear splash-proof safety glasses and faceshield.

Personal Protective Equipment: Skin and Body

Where contact with liquid may occur, wear appropriate cold insulating protective clothing and faceshield.

Section 9 - Physical & Chemical Properties

Appearance:	Colorless	Odor:	Odorless
Physical State:	Gas	pH:	ND
Max Vapor Pressure:	208 psig @ 100 °F (37.8 °C)	Vapor Density:	1.56 @ 32°F (0°C)
Boiling Point:	-43.8°F (-42.1°C)	Molecular Weight:	44.096
Solubility (H2O):	slight (0.1 to 1.0%)	Specific Gravity:	1.52 (Air = 1)
Expansion Ratio:	1 to 270 (from liquid to gas @ 14.7 psia)	Burning Rate:	ND
Evaporation Rate:	ND	VOC:	ND
Octanol/H2O Coeff.:	ND	Flash Point:	-156°F (-104 °C)
Flash Point Method:	PMCC	Auto Ignition:	842°F (450°C)
Upper Flammability Limit (UFL):	9.6%		
Lower Flammability Limit (LFL):	2.15%		

Section 10 - Chemical Stability & Reactivity Information

Chemical Stability

This is a stable material.

Hazardous Polymerization

Will not occur.

Conditions to Avoid

Keep away from strong oxidizers, ignition sources and heat.

Incompatible Products

Explosion hazard when exposed to chlorine dioxide. Heating barium peroxide with propane causes violent exothermic reaction. Heated chlorine-propane mixtures are explosive under some conditions.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke) may be formed during combustion.

Section 11 - Toxicological Information

Acute Toxicity

A: General Product Information

Propane exhibits some degree of anesthetic action and is mildly irritating to the mucous membranes. At high concentrations propane acts as a simple asphyxiant without other significant physiological effects. High concentrations may cause death due to oxygen depletion.

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Vapors are not irritating. Direct contact to skin or mucous membranes with liquefied product or cold vapor may cause freeze burns and frostbite. Contact to mucous membranes with liquefied product may cause frostbite and freeze burns. Signs of frostbite include a change in the color of the skin to gray or white, possibly followed by blistering. Skin may become inflamed and painful.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Vapors are not irritating. However, contact with liquid or cold vapor may cause frostbite, freeze burns, and permanent eye damage.

Potential Health Effects: Ingestion

Ingestion is unlikely. Contact with mucous membranes with liquefied product may cause frostbite and freeze burns.

Potential Health Effects: Inhalation

This product is considered to be non-toxic by inhalation. Inhalation of high concentrations may cause central nervous system depression such as dizziness, drowsiness, headache, and similar narcotic symptoms, but no long-term effects. Numbness, a "chilly" feeling, and vomiting have been reported from accidental exposures to high concentrations. This product is a simple asphyxiant. In high concentrations it will displace oxygen from the breathing atmosphere, particularly in confined spaces. Signs of asphyxiation will be noticed when oxygen is reduced to below 16%, and may occur in several stages. Symptoms may include rapid breathing and pulse rate, headache, dizziness, visual disturbances, mental confusion, incoordination, mood changes, muscular weakness, tremors, cyanosis, narcosis and numbness of the extremities. Unconsciousness leading to central nervous system injury and possibly death will occur when the atmospheric oxygen concentration is reduced to about 6% to 8% or less.

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects.

Carcinogenicity

A: General Product Information

This product is not reported to have any carcinogenic effects.

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ repeat effects.

Aspiration Respiratory Organs Hazard

This product is not reported to have any aspiration hazard effects.

Section 12 - Ecological Information

Ecotoxicity

A: General Product Information

Liquid release is only expected to cause localized, non-persistent environmental damage, such as freezing. Biodegradation of this product may occur in soil and water. Volatilization is expected to be the most important removal process in soil and water. This product is expected to exist entirely in the vapor phase in ambient air.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data is available for this product's components.

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

Section 13 - Disposal Considerations

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14 - Transportation Information

DOT Information

UN #: 1075 or 1978 Hazard Class: 2.1

Shipping Name: Petroleum Gases, Liquefied

Placard:

Section 15 - Regulatory Information

Regulatory Information

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Propylene (115-07-1)

SARA 313: 1.0 % de minimis concentration

SARA Section 311/312 – Hazard Classes

Acute Health	Chronic Health	Fire	Sudden Release of Pressure	Reactive
--	--	X	X	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION PERCENT BY VOLUME
Propylene (115-07-1)	30 max

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Propane	74-98-6	No	Yes	Yes	Yes	Yes	Yes
Ethane	74-84-0	No	Yes	Yes	Yes	Yes	Yes
Propylene	115-07-1	Yes	Yes	Yes	Yes	Yes	Yes

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EU
Propane	74-98-6	Yes	DSL	EINECS
Ethane	74-84-0	Yes	DSL	EINECS
Propylene	115-07-1	Yes	DSL	EINECS

*** Section 16 - Other Information ***

NFPA® Hazard Rating	Health	2	
	Fire	4	
	Reactivity	0	

HMIS® Hazard Rating	Health	2	Moderate
	Fire	4	Severe
	Physical	0	Minimal

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry; TSCA = Toxic Substance Control Act; EU = European Union; CAN = Canada

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

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. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

Issue Information

This Safety Data Sheet supersedes all previous editions.

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