

Section 1 – Chemical Product and Company Identification

Product identifier: REG Renewable Propane (*Non-odorized*)

Other means of identification

Synonyms: Bio-Derived LPG, Propane-Butane Mixture, Renewable Liquefied Petroleum Gas, Renewable LPG (*non-odorized*)

Recommended use: Burner fuel, fuel for combustion engines, industrial feedstock, industrial blendstock

Restrictions on use: Not intended for direct human consumption

Supplier information: REG Marketing & Logistics Group, LLC
416 S. Bell Ave.
Ames, IA 50010
(888) 734-8686

Emergency phone number: **For Hazardous Materials [or Dangerous Goods] Incident, Spill, Leak, Fire, Exposure, or Accident call CHEMTREC Day or Night: +1 703-741-5970 / 1-800-424-9300**

Section 2 – Hazard(s) Identification

Classification (in accordance with 29 CFR 1910.1200)

Hazard Class	Hazard Category	Route of Exposure
Flammable Gases	Category 1	Ignition sources
Gases Under Pressure	Liquefied Gas	Not Applicable
Simple Asphyxiant	None	Inhalation

Signal word: **Danger**

Pictograms:



Hazard Statements: H220 Extremely flammable gas, which may form explosive mixtures with air.
H280 Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation

Hazards not otherwise specified: Contact with liquid may cause cold burns or frostbite.

Precautionary statements

Prevention: Keep away from heat, sparks, open flames, hot surfaces, and other potential ignition sources. No smoking. Ground / bond container and receiving equipment and take precautionary measures against static discharge – including the use of non-sparking tools and explosion-proof equipment. Wear appropriate protective gloves, protective garments, and eye protection. Avoid breathing mists and sprays.

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

Storage: Protect from sunlight. Store in well-ventilated place.

Disposal: Dispose of contents/container in accordance with local, state, and federal regulations.

Section 3 – Composition / Information on Ingredients

Note: This SDS represents a product with batch-to-batch variability and/or a group of substantially similar mixtures

Chemical Name	Common Name & Synonyms	CAS number	% of product
Propane	Liquefied petroleum gas, LPG	74-98-6	>75%
n-Butane	Butane	106-97-8	<25%
Iso-butane	Propane	75-28-5	<25%
Iso-Pentane	Butane, 2-methyl-	78-78-4	<5%

Section 4 – First Aid Measures

First aid measures for exposure

- Inhalation:** Remove patient from exposure. If breathing difficulties develop, move victim away from source of exposure and into fresh air. If not breathing, give artificial respiration. Seek medical attention.
- Eyes:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists: Get medical attention.
- Skin:** Liquefied gases may cause cryogenic burns or injury. 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.
- Ingestion:** Due to the product's nature to rapidly phase change to vapor at ambient temperature and cryogenic nature, ingestion is not considered a potential route of exposure.

Most important symptoms / effects

- Acute:** May cause cryogenic burns or injury. Product May displace oxygen and cause rapid suffocation.
- Delayed / Chronic:** No information available

Indication of immediate medical attention and special treatment needed, if necessary: Treat symptomatically and supportively. Note: Due to the potentially cryogenic nature of the product, it may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Section 5 – Fire Fighting Measures

Suitable extinguishing media:	Water mist, firefighting foam, dry chemical, carbon dioxide, or clean extinguishing agents (such as Halon or Halotron)
Unsuitable extinguishing media:	Do not use a solid water stream, as it may scatter and spread the fire
Specific hazards arising from the chemical:	Contains extremely flammable gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
Hazardous combustion products include:	Carbon monoxide, carbon dioxide, and hydrocarbons
Protective equipment and precautions for firefighters:	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. If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive re-ignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device. Emergency responders in the immediate area should wear standard firefighting protective equipment, including self-contained breathing apparatus (SCBA) and full bunker gear. In case of external fires in proximity to storage containers, immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. Fight fire from protected location or maximum possible distance. Prevent runoff from entering streams, sewers, storm drains, or drinking water supply.

Section 6 – Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures:	Keep all sources of ignition away from spill. Wear protective garments, impervious oil resistant boots, protective chemical-resistant gloves, and safety glasses. Wear self-contained breathing apparatus when entering area unless atmosphere is proven to be safe. Evacuate area. Ensure adequate air ventilation. Stop leak if safe to do so. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Contain spill to smallest possible area. Stay upwind and away from spill/release, notify persons downwind of spill/release. Stop spill/release if it can be done with minimal risk. Prevent spilled material from entering sewers, storm drains, and other unauthorized treatment drainage systems and natural waterways. Immediate cleanup of any spill is recommended. If material spills into or upon any navigable waters and causes a film or sheen on the surface of the water, immediately notify the National Response Center at 1-800-424-8802.
Methods for containment and clean-up	
Small spill / incidental release:	Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.
Large spill / release:	Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.
Other information:	Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Section 7 – Handling and Storage

Precautions for safe handling:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment. Can accumulate static charge by flow or agitation. Can be ignited by static discharge. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents.

Conditions for safe storage, including incompatibilities:

Store only where temperature will not exceed 125°F (52°C). Post “No Smoking or Open Flames” signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g., NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.

Section 8 – Exposure Controls / Personal Protection

Precautions for safe handling:

A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

Component exposure limits:

Name	CAS #	ACGIH Exposure Limit	OSHA PEL	Weight %
Propane	74-98-6	1000 ppm TWA	PEL: 1000 ppm (1800 mg/m ³) TWA	>75%
Butane	106-97-8	800 ppm TWA	REL: 800 ppm (1,900 mg/m ³) TWA	<25%
Iso-Butane	75-28-5	None	(NIOSH REL) 1000 ppm TWA	<25%
Isopentane	78-78-4	600 ppm TWA	None	<5%

Appropriate engineering controls:

Keep product enclosed in primary containment (hoses, pipes, tanks, etc.) to avoid contact with skin. Handle in accordance with good industrial hygiene and safety practices.

Personal protective equipment

Eyes / face:

Wear safety glasses. If splash potential exists, use splash goggles to safeguard against potential eye contact, irritation, or injury. A face shield may be necessary, depending on conditions of use.

- Skin:** Wear flame retardant clothing (FRC), boots and chemical resistant or leather gloves. See glove manufacturer literature for information on permeability to paraffinic solvents. Inspect gloves, boots and clothing for defect prior to and during use. After removing gloves, wash hands with soap and water.
- Respiratory:** Use a positive pressure air-supplied respirator (self-contained breathing apparatus – SCBA respiratory protection program that meets regulatory requirements (OSHA’s 29 CFR 1910.134 and ANSI Z88.2) must be followed whenever workplace conditions warrant a respirator’s use.

Section 9 – Physical and Chemical Properties

Physical State:	Gas (at atmospheric pressure)	Color:	Colorless gas / liquid – white vapor
Odor:	Odorless to mild paraffin	Odor Threshold:	No information available
pH:	No information available	Melting/Freezing Point:	No information available
Boiling Point/Range:	-44° C (-47° F)	Flash Point:	<-50° C (<-58° F)
Evaporation Rate:	No information available	Flammability (solid/liq):	Highly flammable gas
LFL:	~1% by volume	UFL:	~9.5% by volume
Vapor Pressure:	~130 psi	Vapor Density:	>1 (air=1)
Relative Density:	No information available	VOC:	100%
Solubility (H2O):	Slightly soluble	Solubility (other):	No information available
Auto Ignition Temp.:	~460° C (~860° F)	Decomposition Temp.:	No information available
Viscosity:	No information available	Partition coefficient (n-octanol/water) :	Log Pow: 2.36

Section 10 – Chemical Stability and Reactivity Information

- Reactivity:** When handled and stored appropriately, no dangerous reactions are known
- Chemical stability:** Stable in closed containers at room temperature under normal storage and handling conditions. Extremely flammable. Vapor can cause flash fire if it comes into contact with an ignition source.
- Possibility of hazardous reactions:** Can form explosive atmosphere in air, May react violently with strong acids, strong oxidizers, and copper.
- Conditions to avoid:** Ignition sources or accumulation of static electricity
- Incompatible materials:** Keep away from strong oxidizing agents, strong reducing agents, strong acids, strong bases, and copper.
- Hazardous decomposition products:** Carbon oxides, hydrogen sulfide, nitrogen oxides, and hydrocarbons

Section 11 – Toxicological Information

Likely routes of exposure: Absorption, ingestion, and inhalation

Symptoms

Inhalation: Coughing, irritation, or asphyxiation

Eye contact: Redness or irritation and tearing. Liquefied gases may cause cryogenic burns or injury.

Skin contact: Redness or irritation. Liquefied gases may cause cryogenic burns or injury.

Ingestion: Due to the product's nature to rapidly phase change to vapor at ambient temperature and cryogenic nature, ingestion is not considered a potential route of exposure.

Acute toxicity

Oral: *No information available*

Dermal: *No information available*

Inhalation: **Propane (74-98-6)**
LC50 inhalation rat (mg/l) 658 mg/l/4h
ATE US (vapors) 658.000 mg/l/4h
ATE US (dust, mist) 658.000 mg/l/4h

Liquefied petroleum gas acts as a simple asphyxiant, acts by displacing oxygen in the lungs thereby diminishing the supply of oxygen available to the blood and tissue.

Skin corrosion / irritation: Direct contact with skin, mucous membranes or eyes with liquefied product or cold vapor may cause freeze burns and frostbite.

Serious eye damage / eye irritation: Direct contact with skin, mucous membranes or eyes with liquefied product or cold vapor may cause freeze burns and frostbite.

Sensitization (*Respiratory or Skin*): *No information available*

Germ cell mutagenicity: *No information available*

Carcinogenicity: This product is not listed as a carcinogen by IARC, NTP, or OSHA

Component carcinogenicity: *No information available*

Reproductive / developmental toxicity: *No information available*

Specific target organ toxicity

Single exposure: *No information available*

Repeated exposure: *No information available*

Aspiration hazard: *No information available*

Section 12 – Ecological Information

Acute ecotoxicity – short or long-term exposure	There is a potential for one ingredient (iso-pentane, <5%) to cause long-term adverse effects on aquatic environments. Other ingredients of this product have no known ecological damage.
Fish:	<i>No information available</i>
Invertebrates:	<i>No information available</i>
Algae:	<i>No information available</i>
Persistence and degradability:	This substance is biodegradable, and is unlikely to persist.
Bioaccumulative potential:	Not expected to bioaccumulate.
Mobility in soil:	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Other adverse effects:	None

Section 13 – Disposal Considerations

Disposal (<i>waste / unwanted product</i>):	The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.
Disposal (<i>containers with residue</i>):	Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container. Dispose of all containers with residue according to local, state, regional, and federal regulations.

Section 14 – Transport Information

UN number:	UN 1978 (Domestic only: UN/NA 1075)
UN proper shipping name:	Propane
Transport hazard class:	2.1 – Flammable gas
Packing group:	Not applicable
Marine pollutant:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Transport in bulk requirements:	No information available
Special transportation precautions:	19, T50



Safety Data Sheet (SDS)

ID: SDS 430-US

Section 15 – Regulatory Information

Inventory Listings

TSCA Listed Exempt
 DSL Listed Exempt

U.S. Federal Regulations

SARA 311/312 Hazard Categories:

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

EPA (CERCLA) reportable quantity: none

Clean Air Act section 112, Threshold Quantities:

Propane (CAS# 74-98-6); 10,000 lbs Butane (CAS# 106-97-8); 10,000 lbs
 i-Butane (CAS# 75-28-5); 10,000 lbs i-Pentane (CAS# 78-78-4); 10,000 lbs

U.S. State Regulations

California Proposition 65:

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations:

State: MA, NJ, PA

Component

CAS Number

Component	CAS Number
Propane	74-98-6

Section 16 – Other Information

Hazard Statements:

H220 Extremely flammable gas, which may form explosive mixtures with air.
 H280 Contains gas under pressure; may explode if heated.
 May displace oxygen and cause rapid suffocation

Issuing Date: Jan 07, 2014

Revision Date: Sept 28, 2018

Version #: 20180928

NFPA:

1	Health
4	Flammability
0	Reactivity

Revision Note: Updated Section 1.



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WARNING: POTENTIALLY HAZARDOUS MATERIAL. IMPROPER USE OR MISHANDLING CAN RESULT IN SERIOUS INJURY OR DEATH. THIS PRODUCT CONTAINS SUBSTANCES WHICH, IF MODIFIED, MAY BE FLAMABLE AND MAY BURN OR EXPLODE IF HEATED OR EXPOSED TO FLAME OR OTHER IGNITION SOURCE OR WATER, OXIDIZING AGENTS, ACIDS OR OTHER CHEMICALS. AVOID INGESTION, INHALATION AND CONTACT WITH SKIN AND EYES.

Disclaimer:

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS