

**Section 1: IDENTIFICATION**

Product Name: Propane

Synonyms: HD-5 Propane, C3.

Product Use: Chemical feedstock, fuel for space heating, autos, crop drying.

Restrictions on Use: Not available.

Manufacturer/Supplier: Stittco Energy Limited
1700, 440 2nd Ave SW
Calgary, AB T2P 5E9

Phone Number: 403-206-4100

Emergency Phone: Canutec (613) 996-6666 or Cellular *666

Date of Preparation of SDS: September 10, 2015

Section 2: HAZARD(S) IDENTIFICATION**GHS INFORMATION**

Classification: Flammable Gases, Category 1
Gases Under Pressure - Liquefied Gas
Simple Asphyxiant

LABEL ELEMENTS**Hazard****Pictogram(s):****Signal Word:** 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, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
In case of leakage, eliminate all ignition sources.

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

Disposal: Not applicable.

Hazards Not Otherwise Classified: Not applicable.

Ingredients with Unknown Toxicity: None.



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This material is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200).

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	Common name / Synonyms	CAS No.	% wt./wt.
Propane	Not available.	74-98-6	90 - 99
Ethane	Not available.	74-84-0	0 - 5
Butane	Not available.	106-97-8	0 - 5
Propane, 2-methyl- 1-Propene	Isobutane Propylene	75-28-5 115-07-1	0 - 5 0 - 5

Section 4: FIRST-AID MEASURES

Inhalation: IF INHALED: Call a POISON CENTER or doctor if you feel unwell.

Acute and delayed symptoms and effects: May displace oxygen and cause rapid suffocation. Adverse health effects occur as a result of the displacement of oxygen. Central nervous system depression can occur if product is present in concentrations that will reduce the oxygen content of air below 18 % (vol). Symptoms may include headache, lightheadedness, drowsiness, disorientation, vomiting and seizures. Unconsciousness and death may occur with severe oxygen deprivation. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Eye Contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

Acute and delayed symptoms and effects: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result. May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. IF ON SKIN: Wash with plenty of water. Get immediate medical advice/attention. Thaw frosted parts with lukewarm water. Do not rub affected area. Remove non-adhering contaminated clothing. Do not remove adherent material or clothing.

Acute and delayed symptoms and effects: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside.



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- Ingestion:** Not a normal route of exposure.
- Acute and delayed symptoms and effects:** Not a normal route of exposure.
- General Advice:** In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).
- Note to Physicians:** Symptoms may not appear immediately.

Section 5: FIRE-FIGHTING MEASURES

FLAMMABILITY AND EXPLOSION INFORMATION

Extremely flammable gas. Contains gas under pressure; may explode if heated. Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air. Vapors from liquefied gas are initially heavier than air and spread along ground. Vapors may travel to source of ignition and flash back. Cylinders exposed to fire may vent and release flammable gas through pressure relief devices. Containers may explode when heated. Ruptured cylinders may rocket. **DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED. CAUTION:**

If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. **ALWAYS** stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

- Sensitivity to Mechanical Impact:** This material is not sensitive to mechanical impact.
- Sensitivity to Static Discharge:** This material is sensitive to static discharge.

MEANS OF EXTINCTION

- Suitable Extinguishing Media:** Small Fire: Dry chemical or CO₂.
- Large Fire: Water spray or fog. Move containers from fire area if you can do it without risk.

- Unsuitable Extinguishing Media:** Not available.

- Products of Combustion:** Oxides of carbon.

- Protection of Firefighters:** Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources. Vapors may cause dizziness or asphyxiation without warning. Some may be irritating if inhaled at high concentrations. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire may produce irritating and/or toxic gases. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection. Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.

**Section 6: ACCIDENTAL RELEASE MEASURES**

- Emergency Procedures:** As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep out of low areas. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded.
- Personal Precautions:** Do not touch or walk through spilled material. Use personal protection recommended in Section 8.
- Environmental Precautions:** Not normally required.
- Methods for Containment:** Stop leak if you can do it without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Do not direct water at spill or source of leak.
- Methods for Clean-Up:** Prevent spreading of vapors through sewers, ventilation systems and confined areas. Isolate area until gas has dispersed. CAUTION: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.
- Other Information:** See Section 13 for disposal considerations.

Section 7: HANDLING AND STORAGE

- Handling:**
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not pierce or burn, even after use. See Section 8 for information on Personal Protective Equipment.
- Storage:**
Store in a well-ventilated place. Protect from sunlight. Store in a well-ventilated place. Store away from incompatible materials. See Section 10 for information on Incompatible Materials. Keep out of the reach of children.

**Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION****Exposure Guidelines****Component**

Propane [CAS No. 74-98-6]

ACGIH: Asphyxia**OSHA:** 1000 ppm (TWA), 1800 mg/m³ (TWA); For Propane.

Ethane [CAS No. 74-84-0]

ACGIH: Asphyxia**OSHA:** No PEL established.

Butane [CAS No. 106-97-8]

ACGIH: 1000 ppm (STEL); (2012)**OSHA:** 800 ppm (TWA) [Vacated];

Isobutane [CAS No. 75-28-5]

ACGIH: 1000 ppm (STEL); (2012)**OSHA:** No PEL established.

Propylene [CAS No. 115-07-1]

ACGIH: 500 ppm (TWA); A4 (2005)**OSHA:** No PEL established.**PEL:** Permissible Exposure Limit**TWA:** Time-Weighted Average**STEL:** Short-Term Exposure Limit**Engineering Controls:**

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapour, gas, etc.) below recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT (PPE)**Eye/Face Protection:**

Wear safety glasses. Wear cold insulating face shield and eye protection. Use equipment for eye protection that meets the standards referenced by CSA Standard CAN/CSA-Z94.3-92 and OSHA regulations in 29 CFR 1910.133 for Personal Protective Equipment.

Hand Protection:

Wear protective gloves. Wear cold insulating gloves. Consult manufacturer specifications for further information.

Skin and Body Protection:

Wear protective clothing.

Respiratory Protection:

If engineering controls and ventilation are not sufficient to



control exposure to below the allowable limits then an appropriate NIOSH/MSHA approved air-purifying respirator that meets the requirements of CSA Standard CAN/CSA-Z94.4-11, or self-contained breathing apparatus must be used. Supplied air breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.

General Hygiene Considerations: Handle according to established industrial hygiene and safety practices. Consult a competent industrial hygienist to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, colourless gas.
Colour:	Colourless.
Odour:	Odourized gas has sulphur type odour. Non-Odourized gas has slight hydrocarbon odour.
Odour Threshold:	Not available.
Physical State:	Gas.
pH:	Not available.
Melting Point / Freezing Point:	-186 °C (-302.8 °F) (Propane)
Initial Boiling Point:	-42 °C (-43.6 °F)
Boiling Range:	Not available.
Flash Point:	-104.4 °C (-155.92 °F) () (Propane)
Evaporation Rate:	Not available.
Flammability (solid, gas):	Extremely flammable gas.
Lower Flammability Limit:	2.1 % (Propane)
Upper Flammability Limit:	9.5 % (Propane)
Vapor Pressure:	953 kPa at 20 °C (68 °F) (Propane)
Vapor Density:	1.6 (Air = 1) Propane
Relative Density:	0.493 (Water = 1) (Propane)
Solubilities:	Insoluble in water.
Partition Coefficient: n-Octanol/Water:	2.36 (Propane)
Auto-ignition Temperature:	466 °C (870.8 °F) (Propane)
Decomposition	Not available.



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Temperature:

Viscosity: Not available.

Percent Volatile, wt. %: 100

VOC content, wt. %: Not available.

Density: Not available.

Coefficient of Water/Oil Distribution: Not available.

Section 10: STABILITY AND REACTIVITY

Reactivity: Contact with incompatible materials. Sources of ignition. Exposure to heat.

Chemical Stability: Stable under normal storage conditions.

Possibility of Hazardous Reactions: None known.

Conditions to Avoid: Contact with incompatible materials. Sources of ignition. Exposure to heat.

Incompatible Materials: Strong oxidizers. Oxidizers. Oxides of nitrogen. Halogens.

Hazardous Decomposition Products: None known.

Section 11: TOXICOLOGICAL INFORMATION

EFFECTS OF ACUTE EXPOSURE

Product Toxicity

Oral: Not available.

Dermal: Not available.

Inhalation: Not available.

Component Toxicity

Component	CAS No.	LD₅₀ oral	LD₅₀ dermal	LC₅₀
Propane	74-98-6	Not available.	Not available.	Not available.
Ethane	74-84-0	Not available.	Not available.	Not available.
Butane	106-97-8	Not available.	Not available.	658000 mg/m ³ (rat); 4H
Isobutane	75-28-5	Not available.	Not available.	570000 ppm (rat); 15M
Propylene	115-07-1	Not available.	Not available.	86000 mg/m ³ (rat); 4H



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Likely Routes of Exposure: Eye contact. Skin contact. Inhalation.

Target Organs: Skin. Eyes. Respiratory system. Cardiovascular system. Central nervous system.

Symptoms (including delayed and immediate effects)

Inhalation: May displace oxygen and cause rapid suffocation. Adverse health effects occur as a result of the displacement of oxygen. Central nervous system depression can occur if product is present in concentrations that will reduce the oxygen content of air below 18 % (vol). Symptoms may include headache, lightheadedness, drowsiness, disorientation, vomiting and seizures. Unconsciousness and death may occur with severe oxygen deprivation.

Eye: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result.

Skin: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside. May cause skin irritation.

Ingestion: Not a normal route of exposure.

Skin Sensitization: Not available.

Respiratory Sensitization: Not available.

Medical Conditions Aggravated By Exposure: Not available.

EFFECTS OF CHRONIC EXPOSURE (from short and long-term exposure)

Target Organs: Skin. Eyes. Respiratory system. Cardiovascular system. Central nervous system.

Chronic Effects: Not available.

Carcinogenicity: Product is not classified as a carcinogen. See Component Carcinogenicity table below for information on individual components.

Component Carcinogenicity

Component	ACGIH	IARC	NTP	OSHA	Prop 65
Propylene	A4	Group 3	Not listed.	Not listed.	Not listed.

Mutagenicity: Not available.

Reproductive Effects: Not available.

Developmental Effects

Teratogenicity: Not available.

Embryotoxicity: Not available.

Toxicologically Synergistic Materials: Not available.

**Section 12: ECOLOGICAL INFORMATION**

Ecotoxicity:	Not available.
Persistence / Degradability:	Not available.
Bioaccumulation / Accumulation:	Not available.
Mobility in Environment:	Not available.
Other Adverse Effects:	Not available.

Section 13: DISPOSAL CONSIDERATIONS

Disposal Instructions: Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

Section 14: TRANSPORT INFORMATION**U.S. Department of Transportation (DOT)**

Proper Shipping Name: UN1075, PETROLEUM GASES, LIQUEFIED OR LIQUEFIED PETROLEUM GAS, 2.1

Class: 2.1

UN Number: UN1075

Packing Group: Not applicable.

Label Code:

**Canada Transportation of Dangerous Goods (TDG)**

Proper Shipping Name: UN1075, PETROLEUM GASES, LIQUEFIED OR LIQUEFIED PETROLEUM GAS, 2.1

Class: 2.1

UN Number: UN1075

Packing Group: Not applicable.

Label Code:



**Section 15: REGULATORY INFORMATION****Chemical Inventories****US (TSCA)**

The components of this product are in compliance with the chemical notification requirements of TSCA.

Canada (DSL)

The components of this product are in compliance with the chemical notification requirements of the NSN Regulations under CEPA, 1999.

Federal Regulations**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

United States

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SARA Title III

Component	Section 302 (EHS) TPQ (lbs.)	Section 304 EHS RQ (lbs.)	CERCLA RQ (lbs.)	Section 313	RCRA CODE	CAA 112(r) TQ (lbs.)
Propane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Ethane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Butane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Isobutane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Propylene	Not listed.	Not listed.	Not listed.	X	Not listed.	10000

State Regulations**Massachusetts**

US Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

Component	CAS No.	RTK List
Propane	74-98-6	Listed.
Ethane	74-84-0	Listed.
Butane	106-97-8	Listed.
Isobutane	75-28-5	Listed.
Propylene	115-07-1	Listed.



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New Jersey

US New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

Component	CAS No.	RTK List
Propane	74-98-6	SHHS
Ethane	74-84-0	SHHS
Butane	106-97-8	SHHS
Isobutane	75-28-5	SHHS
Propylene	115-07-1	SHHS

Note: SHHS = Special Health Hazard Substance

Pennsylvania

US Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

Component	CAS No.	RTK List
Propane	74-98-6	Listed.
Ethane	74-84-0	Listed.
Butane	106-97-8	Listed.
Isobutane	75-28-5	Listed.
Propylene	115-07-1	E

Note: E = Environmental Hazard

California

California Prop 65: This product does not contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Section 16: OTHER INFORMATION

Disclaimer:

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for their own particular use.

Date of Preparation of SDS: September 10, 2015

Version: 1.0

GHS SDS Prepared by: Deerfoot Consulting Inc.

Phone: (403) 720-3700