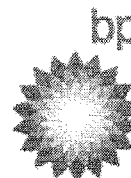


# Material Safety Data Sheet



## 1. Product and company identification

Product name Propane with Odorant  
MSDS # 0000001782  
Historic MSDS #: 12180 (Amoco), 01822  
Code 0000001782  
Product use Industrial applications  
Manufacturer BP Canada Energy Company  
240 - 4 Avenue S.W.  
P.O. Box 200, Station M  
Calgary, Alberta T2P 2H8  
CANADA  
Supplier BP Canada Energy Company  
240 - 4 Avenue S.W.  
P.O. Box 200, Station M  
Calgary, Alberta T2P 2H8  
CANADA  
EMERGENCY HEALTH INFORMATION: 1 (800) 447-8735  
Outside the US: +1 703-527-3887 (CHEMTREC)  
EMERGENCY SPILL INFORMATION: 1 (613) 996-6666 CANUTEC (Canada)  
OTHER PRODUCT INFORMATION: 1 (866) 4 BP - MSDS  
(866-427-6737 Toll Free - North America)  
email: bpcares@bp.com

## 2. Hazards identification

Physical state Liquefied gas  
Color Colorless.  
Emergency overview DANGER !  
EXTREMELY FLAMMABLE GAS.  
MAY CAUSE FLASH FIRE.  
AT VERY HIGH CONCENTRATIONS, CAN DISPLACE THE NORMAL AIR AND CAUSE SUFFOCATION FROM LACK OF OXYGEN.  
INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS.  
Contact with rapidly expanding gas may cause burns or frostbite.  
Eliminate all ignition sources. Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst or explode. Simple asphyxiant At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen. Keep away from heat, sparks and flame. Do not puncture or incinerate container. Do not enter storage areas and confined spaces unless adequately ventilated. Do not breathe gas. Avoid contact with skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use.  
Routes of entry Dermal contact. Eye contact. Inhalation.  
Potential health effects  
Eyes Contact with rapidly expanding gas may cause burns or frostbite. Will cause serious damage to the eyes.

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Skin	Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation	Inhalation of vapors may cause dizziness, an irregular heartbeat, narcosis, nausea or asphyxiation. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
Ingestion	Not applicable (gas).

See toxicological information (section 11)

### 3. Composition/information on ingredients

Ingredient name	CAS #	%
Propane	74-98-6	100
Ethyl mercaptan	75-08-1	0 - 0.1

### 4. First aid measures

Eye contact	Contact with liquid: Immediately flush with plenty of tepid water (105-115 F; 41-46 C). DO NOT USE HOT WATER. Get immediate medical attention.
Skin contact	Contact with liquid: Immediately flush with plenty of tepid water (105-115 F; 41-46 C). DO NOT USE HOT WATER. Get immediate medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion	As this product is a gas, refer to the inhalation section.

### 5. Fire-fighting measures

Flammability of the product	Extremely flammable gas.
Auto-ignition temperature	449.9°C (841.8°F)
Flash point	Closed cup: -104.4°C (-155.9°F)
Explosion limits	Lower: 2.1% Upper: 9.5%
Fire/explosion hazards	Contains 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.
Unusual fire/explosion hazards	Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
<b>Extinguishing media</b>	
Suitable	Use an extinguishing agent suitable for the surrounding fire.
Not suitable	Do not use water jet.
Fire-fighting procedures	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance.
Hazardous combustion products	Combustion products may include the following: carbon oxides (CO, CO <sub>2</sub> ) (carbon monoxide, carbon dioxide)
Protective clothing (fire)	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

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## 6. Accidental release measures

**Personal precautions** Accidental releases pose a serious fire or explosion hazard. Immediately contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

**Environmental precautions** 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).

### Methods for cleaning up

**Large spill** Eliminate all ignition sources. Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see section 1 for emergency contact information and section 13 for waste disposal.

**Small spill** Eliminate all ignition sources. Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

## 7. Handling and storage

**Handling** Put on appropriate personal protective equipment (see section 8). Workers should wash hands and face before eating, drinking and smoking. Do not breathe gas. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. High pressure gas.

**Storage** Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use.

## 9. Exposure controls/personal protection

### Occupational exposure limits

#### Ingredient name

#### Occupational exposure limits

Propane

##### CA Alberta Provincial (Canada).

8 hrs OEL: 1000 ppm 8 hour(s). Issued/Revised: 4/2004

##### CA Ontario Provincial (Canada).

TWAEV: 1000 ppm 8 hour(s). Issued/Revised: 2/2005

##### CA Quebec Provincial (Canada).

TWAEV: 1800 mg/m<sup>3</sup> 8 hour(s). Issued/Revised: 1/2000

TWAEV: 1000 ppm 8 hour(s). Issued/Revised: 1/2000

##### CA British Columbia Provincial (Canada).

TWA: 1000 ppm 8 hour(s). Issued/Revised: 8/2004

Ethyl mercaptan

##### Alberta OH&S (Canada).

OEL: 0.5 ppm 8 hour(s).

##### British Columbia OH&S (Canada).

EL: 0.5 ppm

##### CA Alberta Provincial (Canada).

8 hrs OEL: 1.3 mg/m<sup>3</sup> 8 hour(s). Issued/Revised: 4/2004

8 hrs OEL: 0.5 ppm 8 hour(s). Issued/Revised: 4/2004

##### CA British Columbia Provincial (Canada).

TWA: 0.5 ppm 8 hour(s). Issued/Revised: 8/2004

##### CA Ontario Provincial (Canada).

TWAEV: 1.3 mg/m<sup>3</sup> 8 hour(s). Issued/Revised: 2/2005

TWAEV: 0.5 ppm 8 hour(s). Issued/Revised: 2/2005

##### CA Quebec Provincial (Canada).

TWAEV: 1.3 mg/m<sup>3</sup> 8 hour(s). Issued/Revised: 1/2000

TWAEV: 0.5 ppm 8 hour(s). Issued/Revised: 1/2000

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While specific OELs for certain components may be shown in this section, other components may be present in any mist, vapor or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

<b>Control Measures</b>	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
<b>Hygiene measures</b>	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.
<b>Personal protection</b>	
<b>Eyes</b>	Avoid contact with eyes. Wear chemical goggles and a full face shield
<b>Skin and body</b>	Avoid contact with skin and clothing. Protective/insulated gloves.
<b>Respiratory</b>	Use adequate ventilation. The gas can cause asphyxiation without warning by replacing the oxygen in the air. Air-filtering respirators, also called air-purifying respirators, will not be adequate under conditions of oxygen deficiency (i.e. low oxygen concentration), and would not be considered suitable where airborne concentrations of chemicals with a significant hazard are present. In these cases air-supplied breathing apparatus will be required. If operating conditions cause high gas concentrations to be produced or any recommended or statutory exposure limit is exceeded, use an air-fed respirator or self-contained breathing apparatus.
<b>Hands</b>	Insulated gloves suitable for low temperatures  The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.  Consult your supervisor or Standard Operating Procedure (S.O.P) for special handling instructions.

## 9. Physical and chemical properties

Physical state	Liquefied gas
Color	Colorless.
Odor	mercaptan, skunky odor.
Odor threshold	Not available.
Flash point	Closed cup: -104.4°C (-155.9°F)
Explosion limits	Lower: 2.1% Upper: 9.5%
Auto-ignition temperature	449.9°C (841.8°F)
Specific gravity	0.59
pH	Not available.
Boiling point / Range	-42°C (-43.6°F)
Melting point / Range	-186°C (-302.8°F)
Critical temperature	96.7°C (206.1°F)
Vapor pressure	767.952 kPa (5775 mm Hg)
Vapor density	1.6 [Air = 1]
Evaporation rate	Not available.
Solubility	insoluble in water.
LogK <sub>ow</sub>	2.36

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## 10. Stability and reactivity

Stability and reactivity	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	Keep away from heat, sparks and flame. Avoid all possible sources of ignition (spark or flame). Hot containers may explode.
Incompatibility with various substances	Reactive or incompatible with the following materials: oxidizing materials, reducing materials, acids and alkalis; halogenated compounds
Hazardous decomposition products	Decomposition products may include the following materials: carbon oxides (CO, CO <sub>2</sub> ) (carbon monoxide, carbon dioxide)
Hazardous polymerization	Under normal conditions of storage and use, hazardous polymerization will not occur.

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## 11. Toxicological information

### Acute toxicity

### Other information

This material is an asphyxiant. Asphyxiants may reduce the oxygen concentration in the air to dangerous levels. Symptoms of lack of oxygen include increased depth and frequency of breathing, air hunger, dizziness, headache, nausea or loss of consciousness.

High vapor concentrations can cause headaches, dizziness, drowsiness and nausea and may lead to unconsciousness. Exposure to vapor at high concentrations may have the following effects: heart beat irregularity (arrhythmia)

### Potential chronic health effects

Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Reproductive effects	No known significant effects or critical hazards.
Medical conditions aggravated by over-exposure	None known.

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## 12. Ecological information

### Ecotoxicity

No testing has been performed by the manufacturer.

### Mobility

This product is likely to volatilize rapidly into the air because of its high vapor pressure. This product is not likely to move rapidly with surface or groundwater flows because of its low water solubility of: < 0.1%

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## 13. Disposal considerations

### Waste information

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Do not puncture or incinerate container. Empty pressure vessels should be returned to the supplier.

NOTE: The generator of waste has the responsibility for proper waste identification (based on characteristic(s) or listing), transportation and disposal

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## 14. Transport information

### International transport regulations

Regulatory information	UN number	Proper shipping name	Class	Packing group	Additional information
DOT Classification	UN1978	Propane	2.1	Not applicable.	-
TDG Classification	UN1978	Propane	2.1	Not applicable.	-
IMDG Classification	UN1978	Propane	2.1	Not applicable.	-
IATA/ICAO Classification	UN1978	Propane	2.1	Not applicable.	-

## 15. Regulatory information

WHMIS (Canada)

Class A: Compressed gas.  
Class B-1: Flammable gas.

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.

### Inventories

Canada inventory	All components are listed or exempted.
United States inventory (TSCA 8b)	All components are listed or exempted.
Europe inventory	All components are listed or exempted.
Australia inventory (AICS)	All components are listed or exempted.
China inventory (IECSC)	All components are listed or exempted.
Japan inventory (ENCS)	All components are listed or exempted.
Korea inventory (KECI)	All components are listed or exempted.
Philippines inventory (PICCS)	All components are listed or exempted.

## 16. Other information

### Label requirements

DANGER !

EXTREMELY FLAMMABLE GAS.  
MAY CAUSE FLASH FIRE.

AT VERY HIGH CONCENTRATIONS, CAN DISPLACE THE NORMAL AIR AND CAUSE SUFFOCATION FROM LACK OF OXYGEN.  
INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS.

Contact with rapidly expanding gas may cause burns or frostbite.

### History

Date of issue 08/24/2010.

Date of previous issue 08/24/2007.

Prepared by Product Stewardship

### Notice to reader

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All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from us.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken.

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