

## SECTION 1 – PRODUCT INFORMATION

Product Name	Propane	PIN	1075
Supplier	Superior Propane A Division of Superior Plus Inc. 1111 – 49th Avenue N.E. Calgary, AB T2E 8V2 (403) 730-7500	WHMIS classification	Compressed Gas – Class A Flammable Gas – Class B, Division 1
Trade Name	Propane, Liquefied Petroleum Gas (Propane), LPG (Propane)	Uses	Fuel
		24-Hour Emergency Number	Canutec (613) 996-6666

## SECTION 2 – HAZARDOUS INGREDIENTS

COMPONENTS	CASE NO.	% VOLUME (v/v)	EXPOSURE LIMITS (ppm)	LD <sub>50</sub> (RAT, ORAL)	LD <sub>60</sub> (RAT, 4 HR )
			ACGIH (2004)		
Propane	74-98-6	90 – 100	1,000 TWA No STEL	Not Applicable	Not Available
Including: Propylene	115-07-1	0 – 5	1,000 TWA No STEL	Not Applicable	Not Available
Butane (& Heavier Hydrocarbons)	106-97-8	0 – 2.5	1,000 TWA No STEL	Not Applicable	658 mg/m <sup>3</sup>
Ethyl Mercaptan	75-08-01	0.4728	0.5 TWA No STEL	682 mg/kg	4,420 ppm

## SECTION 3 – PHYSICAL DATA

Appearance & Odour	Colourless gas. Liquefied by pressure for more convenient storage and transport. Penetrating, persistent odour of garlic or leeks or rotten cabbage.	Coefficient of Water/Oil Distribution	Log P(oct) = 2.36
		Evaporation Rate	Not applicable to gas. Liquid evaporates instantly, as pressure is released.
Odour Threshold	2 to 4 parts per billion (ppb) (Ethyl Mercaptan)	Vapour Pressure	1,435 kPa @ 37.8°C
		Boiling Point	-42°C (-44°F) (Propane, 1 atm)
Vapour Density	1.55 (air = 1)	Melting Point	-190°C (-310°F) (Propane)
Specific Gravity	0.5 (water=1) (liquid)	pH	Not applicable

## SECTION 4 – FIRE OR EXPLOSION HAZARD

Conditions of Flammability	Extremely flammable gas. Explosive. Gas is released very rapidly as liquid evaporates. Gas is heavier than air and may travel a considerable distance to a source of ignition and flashback to a leak. Accumulates in low-lying areas or confined spaces, causing explosion (or asphyxiation) hazard.		
Flash Point	-104°C (-156°F)	Autoignition Temperature	450°C (842°F)
Lower Explosive Limit	2.2%	Upper Explosive Limit	9.5%
Sensitivity to Mechanical Impact	Not sensitive		
Sensitivity to Static Discharge	Liquid form accumulates static charge by flow or agitation. Gas is ignited by static discharge.		
Other Explosion Hazard	Heating can cause a rapid build-up of pressure inside containers, with explosive rupture.		
Means of Extinction	Evacuate area and fight fire from a safe distance or a protected location. Approach fire from upwind. Use dry chemical powder, carbon dioxide, water spray, or fog. Water may be ineffective because it will not cool the product below its flash point. If it is not possible to stop the flow of gas and if there is no risk to the surrounding area, it may be preferable to allow continued burning, while protecting exposed materials with water spray until the flow of gas can be stopped. Container metal shells require cooling with water to prevent flame impingement and the weakening of metal. If sufficient water is not available to protect the container shell from weakening, the area should be evacuated.		
Hazardous Combustion Products	Carbon monoxide. Carbon dioxide. Smoke.		

## SECTION 5 – REACTIVITY DATA

Stability	Stable
Incompatibilities	Strong oxidizers (such as chlorine, chlorine dioxide, peroxides).
Other Conditions of Reactivity	Static charges, sparks, open flames and other sources of ignition.
Hazardous Decomposition Products	Carbon dioxide. Carbon monoxide.

## SECTION 6 – HEALTH HAZARD INFORMATION

Routes of Entry	Inhalation (gas)	Hazardous Contact	Eyes and skin (liquid)
Acute Exposure	Contact with liquid Propane will cause freeze injury to eyes or skin. Propane is a simple asphyxiant, i.e., at high concentrations (% range), it can displace oxygen in enclosed spaces and cause asphyxiation of exposed persons. Symptoms include rapid breathing, fatigue, loss of coordination, salivation, headache, nausea, vomiting, and disorientation. Oxygen concentrations must be maintained at 18% or higher, which is equivalent, at normal pressure, to about 18 kPa. Central nervous system (CNS) depression, i.e. headache, dizziness, at high concentrations (10,000 ppm).		
Chronic Exposure	No chronic effects known.		
Irritancy	Not known to be an irritant.	Sensitization	Not known to be a sensitizer.
Carcinogenicity	Not known to be carcinogenic.	Teratogenicity	Not known to cause teratogenic effects.
Mutagenicity	Not known to be mutagenic.	Reproductive Toxicity	Not known to cause reproductive effects.
Toxicological Synergies	Other gases that displace oxygen in confined spaces or cause CNS depression are expected to have an additive effect.		

## SECTION 7 – PRECAUTIONARY MEASURES

Personal Protective Equipment	Respirators are not required under normal conditions of use. If a respirator is needed, use a properly fitted, positive-pressure, NIOSH-approved, airline respirator or SCBA. Fire-resistant long sleeved shirt and long legged pants or coveralls. Pant legs outside boots. Closed boot tops. Immediately remove clothing that is wet with liquid product. Thoroughly clean before re-use, or discard. CSA-approved safety goggles and a face shield when working with liquid product. Insulated protective gloves when handling liquid. Gloves made of nitrile or Responder™ are recommended.
Engineering Controls	Enclose processes. Ventilate (non-sparking, grounded system) use area. Local exhaust ventilation at main potential sources of product dissemination and general (dilution) ventilation to remove small quantities generated at point sources. Vent to the outdoors. Supply an adequate quantity of tempered make-up air. Ventilate low-lying areas such as sumps or pits to prevent accumulation of gas. Consult the CSA B149.1 Natural Gas and Propane Installation Code, B149.2 Propane Storage and Handling Code and the equipment manufacturers installation instructions regarding engineering controls specific to the application.
Handling Procedures and Equipment	Eliminate all ignition sources. Use non-sparking equipment, explosion-proof ventilation systems, and intrinsically safe electrical equipment. Bond and ground containers during product transfer. Always secure cylinders to a wall, rack or other solid structure in an upright position, unless equipment is specifically designed for a different cylinder position, such as on certain forklifts. Do not handle cylinders with oily hands. Keep valves closed and protective cap in place on cylinders that are not in use. Empty containers may have product residue. Do not pressurize, cut, heat, or weld "empty" containers. Maintain clean emergency eyewash and shower in the work area. Consult the CSA B149.2 Propane Storage and Handling Code and the Transportation of Dangerous Goods Act and Regulations for further detail on Handling Procedures and Equipment.
Storage	Isolated building that is cool, dry, and well-ventilated. Non-sparking equipment, explosion-proof ventilation systems, and intrinsically safe electrical systems. Eliminate all ignition sources. Keep product out of direct sunlight and away from incompatible or combustible materials. Consider leak detection and alarm equipment for storage area. Avoid storage in cylinders for more than 6 months. Check cylinder valve for evidence of damage, rust, or dirt, which may inhibit operation. Maintain cylinders in an upright position, affixed to a solid structure. Consult the CSA B149.2 Propane Storage and Handling Code and the Transportation of Dangerous Goods Act and Regulations for further detail on Storage.
Leaks or Spills	Leaks of high-pressure materials, particularly when large volumes are involved, can generate high atmospheric concentrations very rapidly. Leaked product will accumulate in low-lying areas. Evacuate area and isolate the leak. Eliminate all sources of ignition. Ventilate area. Stop flow of product if this can be done without risk. Use water spray to disperse gas if it has not ignited. <i>Note:</i> Propane is heavier than air and can settle into low areas, such as sewers, basements, or confined areas. Monitor these areas until leaked gas is completely dissipated.
Waste Disposal	Evacuate product from containers using a closed system or use as fuel. Contact appropriate regulatory authorities.
Shipping	UN 1075. TDG Class 2.1.

## SECTION 8 – FIRST AID

Inhalation	Move affected person to fresh air or remove source of contamination. If breathing is difficult, a trained individual may administer oxygen. If breathing has stopped, seek medical attention at once, and have a qualified person administer artificial respiration. If the heart has stopped beating, have a qualified person administer cardiopulmonary resuscitation (CPR) and get immediate medical help.
Skin	Flush affected area with lukewarm, gently flowing water until the product is removed. Do not attempt to rewarm the affected area, rub it, or apply dry heat. Gently remove clothing or jewelry that may restrict circulation. Carefully cut around clothing that sticks to the skin and remove the remainder of the garment. Loosely cover affected area with sterile dressing. Do not allow affected person to drink alcohol or smoke. Transport person to an emergency care facility immediately.
Eye	Immediately flush with lukewarm, gently flowing water until the product is removed. Do not attempt to rewarm. Cover both eyes with a sterile dressing. Do not allow affected person to drink alcohol or smoke. Transport affected person to an emergency care facility.
Ingestion	Not applicable: Gases do not enter body by this route.

## SECTION 9 – PREPARATION INFORMATION

Prepared by	Superior Propane Occupational Health and Safety	Telephone (403) 730-7500 Revision October 1, 2004
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