

1. Identification

Product identifier	ASU Liquefied Petroleum Gas (ASU LPG)		
Other means of identification			
Synonyms	Compressed petroleum gas Liquefied Petroleum gas (LPG)		
Recommended use	Fuel		
Recommended restrictions	None known.		
Manufacturer/Importer/Supplier/Distributor information			
Manufacturer			
Company name	Irving Oil Refining G.P.		
Address	Box 1260 Saint John, NB E2L 4H6 Canada		
Telephone	Phone:	(506) 202-2000	
	Refinery:	(506) 202-3000	
e-mail	Not available.		
Emergency phone number	1-800-424-9300 (CHEMTREC)		
Supplier	See above.		

2. Hazard identification

Physical hazards	Flammable gases	Category 1
	Gases under pressure	Liquefied gas
Health hazards	Not classified.	
Environmental hazards	Not classified.	

Label elements



Signal word	Danger		
Hazard statement	Extremely flammable gas. Contains gas under pressure; may explode if heated.		
Precautionary statement			
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	Protect from sunlight. Store in a well-ventilated place.		
Disposal	Dispose of waste and residues in accordance with local authority requirements.		
Other hazards	None known.		
Supplemental information	None		

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Butane		106-97-8	15 - 40
Isobutane		75-28-5	15 - 40
Butane, 2-methyl-		78-78-4	10 - 30
Propane		74-98-6	10 - 30
Ethane		74-84-0	3 - 5
Pentane		109-66-0	1 - 5

Chemical name	Common name and synonyms	CAS number	%
Methane		74-82-8	0.1 - 1

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation	If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.
Skin contact	Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists.
Eye contact	Flush with cool water. Remove contact lenses, if applicable, and continue flushing. Obtain medical attention if irritation persists.
Ingestion	Not likely, due to the form of the product. Rinse mouth. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.
Indication of immediate medical attention and special treatment needed	Treat patient symptomatically.
General information	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.

5. Fire-fighting measures

Suitable extinguishing media	Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	Vapours may form explosive mixtures with air. Vapours may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Hazardous combustion products	May include and are not limited to: Oxides of carbon.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire: Stop leak if safe to do so. In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. Cool containers exposed to flames with water until well after the fire is out.
General fire hazards	Extremely flammable gas. Contents under pressure. Pressurized container may explode when exposed to heat or flame.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep out of low areas. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Emergency personnel need self-contained breathing equipment. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8.
Methods and materials for containment and cleaning up	Stop leak if you can do so without risk. Use water spray to reduce vapours or divert vapour cloud drift. Isolate area until gas has dispersed. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. Prevent entry into waterways, sewer, basements or confined areas. For waste disposal, see section 13 of the SDS.
Environmental precautions	Do not discharge into lakes, streams, ponds or public waters.

7. Handling and storage

Precautions for safe handling	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. All equipment used when handling the product must be grounded. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Wash thoroughly after handling. When handling, do not eat, drink or smoke.
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Conditions for safe storage, including any incompatibilities

Keep away from heat, sparks and open flame.
This material can accumulate static charge which may cause spark and become an ignition source.
Prevent electrostatic charge build-up by using common bonding and grounding techniques.
Store in a cool, dry place out of direct sunlight.
Store in original tightly closed container.
Store in a well-ventilated place.
Store away from incompatible materials (see Section 10 of the SDS).
Keep out of reach of children.

8. Exposure controls/Personal protection

Occupational exposure limits**US. ACGIH Threshold Limit Values**

Components	Type	Value
Butane (CAS 106-97-8)	STEL	1000 ppm
Butane, 2-methyl- (CAS 78-78-4)	TWA	1000 ppm
Isobutane (CAS 75-28-5)	STEL	1000 ppm
Pentane (CAS 109-66-0)	TWA	1000 ppm

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Butane (CAS 106-97-8)	TWA	1000 ppm
Butane, 2-methyl- (CAS 78-78-4)	TWA	1770 mg/m ³ 600 ppm
Ethane (CAS 74-84-0)	TWA	1000 ppm
Pentane (CAS 109-66-0)	TWA	1770 mg/m ³ 600 ppm
Propane (CAS 74-98-6)	TWA	1000 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Butane (CAS 106-97-8)	STEL	750 ppm
	TWA	600 ppm
Butane, 2-methyl- (CAS 78-78-4)	TWA	600 ppm
Ethane (CAS 74-84-0)	TWA	1000 ppm
Isobutane (CAS 75-28-5)	TWA	1000 ppm
Methane (CAS 74-82-8)	TWA	1000 ppm
Pentane (CAS 109-66-0)	TWA	600 ppm
Propane (CAS 74-98-6)	TWA	1000 ppm

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value
Butane (CAS 106-97-8)	STEL	1000 ppm
Butane, 2-methyl- (CAS 78-78-4)	TWA	1000 ppm
Isobutane (CAS 75-28-5)	STEL	1000 ppm
Pentane (CAS 109-66-0)	TWA	1000 ppm

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
Butane (CAS 106-97-8)	TWA	800 ppm
Butane, 2-methyl- (CAS 78-78-4)	TWA	600 ppm
Ethane (CAS 74-84-0)	TWA	1000 ppm
Isobutane (CAS 75-28-5)	TWA	800 ppm
Methane (CAS 74-82-8)	TWA	1000 ppm
Pentane (CAS 109-66-0)	TWA	600 ppm
Propane (CAS 74-98-6)	TWA	1000 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
Butane (CAS 106-97-8)	TWA	1900 mg/m3 800 ppm
Pentane (CAS 109-66-0)	TWA	350 mg/m3 120 ppm
Propane (CAS 74-98-6)	TWA	1800 mg/m3 1000 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Rubber gloves. Confirm with a reputable supplier first.

Other As required by employer code.

Respiratory protection Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.

Thermal hazards Not applicable.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. When handling, do not eat, drink or smoke.

9. Physical and chemical properties

Appearance	Gaseous.
Physical state	Gas.
Form	Gaseous. May be liquefied by pressurization.
Colour	Clear
Odour	Petroleum
Odour threshold	Not available.
pH	Not applicable
Melting point/freezing point	-190 °C (-310 °F) (Propane)
Initial boiling point and boiling range	-40 - 80 °C (-40 - 176 °F)
Flash point	-104.0 °C (-155.2 °F) Closed cup
Evaporation Rate	Not applicable
Flammability (solid, gas)	Flammable gas.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	> 1.8 (butane)
Flammability limit - upper (%)	< 9.5
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Vapour pressure	853 kPa (8.3 atm) @ 21°C
Vapour density	1.55 (propane) (Air=1)
Relative density	Not available.
Solubility(ies)	
Solubility (Water)	Not available.
Partition coefficient (n-octanol/water)	2.36 [log p (oct)]
Auto-ignition temperature	450 °C (842 °F)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Flash point class	Flammable IA

Oxidizing properties	Not oxidising.
Specific gravity	0.5 @ 20°C (liquid propane)

10. Stability and reactivity

Reactivity	May react with incompatible materials.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerisation does not occur.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Do not mix with other chemicals.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Not a normal route of exposure. May cause stomach distress, nausea or vomiting.

Symptoms related to the physical, chemical and toxicological characteristics
Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity

Components	Species	Test results
Butane (CAS 106-97-8)		
Acute		
<i>Inhalation</i>		
LC50	Mouse	680 mg/L, 2 Hours
	Rat	276000 ppm, 4 Hours
		658 mg/l/4h
<i>Oral</i>		
LD50	Not available	
Butane, 2-methyl- (CAS 78-78-4)		
Acute		
<i>Inhalation</i>		
LC50	Mouse	14000 ppm
		1000 mg/L, 1 Hours
		450 mg/L, 2 Hours
LD50		
<i>Oral</i>		
LD50	Not available	
Ethane (CAS 74-84-0)		
Acute		
<i>Inhalation</i>		
LC50	Rat	658 mg/l/4h
<i>Oral</i>		
LD50	Not available	
Isobutane (CAS 75-28-5)		
Acute		
<i>Dermal</i>		
LD50	Not available	
<i>Inhalation</i>		
LC50	Rat	658 mg/l/4h

Components	Species	Test results
<i>Oral</i> LD50	Not available	
Methane (CAS 74-82-8)		
Acute		
<i>Dermal</i> LD50	Not available	
<i>Inhalation</i> LC50	Not available	
Pentane (CAS 109-66-0)		
Acute		
<i>Inhalation</i> LC50	Rat	364 mg/L, 4 Hours
<i>Oral</i> LD50	Rat	2000 mg/kg
Propane (CAS 74-98-6)		
Acute		
<i>Inhalation</i> LC50	Rat	> 1442.8 mg/L, 15 Minutes
<i>Oral</i> LD50	Not available	
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.	
Exposure minutes	Not available.	
Erythema value	Not available.	
Oedema value	Not available.	
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.	
Corneal opacity value	Not available.	
Iris lesion value	Not available.	
Conjunctival reddening value	Not available.	
Conjunctival oedema value	Not available.	
Recover days	Not available.	
Respiratory or skin sensitisation		
Canada - Quebec OELs: Asphyxiant		
Ethane (CAS 74-84-0)	Simple asphyxiant.	
Methane (CAS 74-82-8)	Simple asphyxiant.	
Respiratory sensitisation	Not a respiratory sensitizer.	
Skin sensitisation	This product is not expected to cause skin sensitisation.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	Not classified.	
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not likely, due to the form of the product.	
Chronic effects	Prolonged inhalation may be harmful.	
Further information	Not available.	

12. Ecological information

Ecotoxicity See below

Ecotoxicological data

Components	Species	Test results
Butane, 2-methyl- (CAS 78-78-4) Crustacea	EC50 Daphnia	2.3 mg/L, 48 Hours
Pentane (CAS 109-66-0) Crustacea	EC50 Daphnia	9.74 mg/L, 48 Hours
Persistence and degradability	No data is available on the degradability of this product.	
Bioaccumulative potential		
Mobility in soil	No data available.	
Mobility in general	Not available.	
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation)	

13. Disposal considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

General	Canada: TDG Proof of Classification: In accordance with Part 2.2.1 (SOR/2014-152) of the Transportation of Dangerous Goods Regulations, we certify that the classification of this product is correct as of the SDS date of issue. If applicable, the technical name and the classification of the product will appear below.
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Transportation of Dangerous Goods (TDG - Canada)**Basic shipping requirements:**

UN number	UN1075
Proper shipping name	Petroleum gases, liquefied
Hazard class	2.1

TDG**15. Regulatory information**

Canadian federal regulations	This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (SOR/2015-17) and the SDS contains all the information required by the HPR.
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Canada CEPA Schedule I: Listed substance

Methane (CAS 74-82-8)	Listed.
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Canada DSL Challenge Substances: Listed substance

Butane (CAS 106-97-8)	Listed
Isobutane (CAS 75-28-5)	Listed

Canada NPRI VOCs with Additional Reporting Requirements: Mass reporting threshold/Identification Number

Butane (CAS 106-97-8)	1 TONNES
Butane, 2-methyl- (CAS 78-78-4)	1 TONNES
Isobutane (CAS 75-28-5)	1 TONNES
Pentane (CAS 109-66-0)	1 TONNES
Propane (CAS 74-98-6)	1 TONNES

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Methane (CAS 74-82-8)

Precursor Control Regulations

Not regulated.

WHMIS status Controlled**International regulations****Inventory Status**

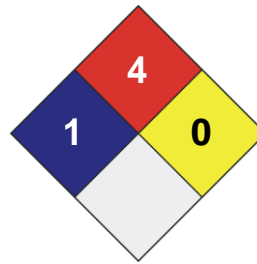
Country(s) or region	Inventory Name	On Inventory (Yes/No)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	/ 1
FLAMMABILITY	4
PHYSICAL HAZARD	0
PERSONAL PROTECTION	X

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Other information This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (SOR/2015-17) and the SDS contains all the information required by the HPR. For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.

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