

1. Identification

Product identifier	Butane		
Other means of identification			
Synonyms	n-butane		
	normal butane		
Recommended use	Not available.		
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	Emergency Phone:	1-800-424-9300 (CHEMTREC)	
Supplier	See above.		

2. Hazard identification

Physical hazards	Flammable gases	Category 1
	Gases under pressure	Liquefied gas
	Simple asphyxiants	Category 1
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. May displace oxygen and cause rapid suffocation.		
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	40 - 70 *
Butane, 2-methyl-		78-78-4	0.1 - 1 *
Isobutane		75-28-5	30 - 60 *
Pentane		109-66-0	0.1 - 1 *
Propane		74-98-6	0.5 - 1.5 *

Chemical name	Common name and synonyms	CAS number	%
Propylene		115-07-1	1 - 5 *

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

Composition comments *CANADA GHS: The exact percentage (concentration) of composition has been withheld as a trade secret.

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. Clothing frozen to the skin should be thawed before being removed.
Eye contact	Flush with cool water. Remove contact lenses, if applicable, and continue flushing. Obtain medical attention if irritation persists.
Ingestion	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	Provide general supportive measures and treat 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	Carbon dioxide. Dry chemical powder. Foam. Water spray.
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	DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED. In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Do not direct water at source of leak or safety devices as icing may occur. Use water spray to cool unopened containers. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tanks due to fire. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
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. Pressurised container may explode when exposed to heat or flame.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep out of low areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Wear appropriate protective equipment and clothing during clean-up. Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Refer to attached safety data sheets and/or instructions for use. Stop leak if you can do so without risk. If possible, turn leaking containers so that gas escapes rather than liquid. 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. For waste disposal, see section 13 of the SDS.
Environmental precautions	Prevent further leakage or spillage if safe to do so. 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. Do not smoke. All equipment used when handling the product must be grounded. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash thoroughly after handling. Use good industrial hygiene practices in handling this material. When using do not eat or drink.

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 a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Stored containers should be periodically checked for general condition and leakage. 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
Propylene (CAS 115-07-1)	TWA	500 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
Pentane (CAS 109-66-0)	TWA	1770 mg/m ³ 600 ppm
Propane (CAS 74-98-6)	TWA	1000 ppm
Propylene (CAS 115-07-1)	TWA	860 mg/m ³ 500 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
Isobutane (CAS 75-28-5)	TWA	1000 ppm
Pentane (CAS 109-66-0)	TWA	600 ppm
Propane (CAS 74-98-6)	TWA	1000 ppm
Propylene (CAS 115-07-1)	TWA	500 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
Propylene (CAS 115-07-1)	TWA	500 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
Isobutane (CAS 75-28-5)	TWA	800 ppm
Pentane (CAS 109-66-0)	TWA	600 ppm
Propane (CAS 74-98-6)	TWA	1000 ppm
Propylene (CAS 115-07-1)	TWA	500 ppm

Canada. Quebec OELs. (Ministry of Labour - 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

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles).

Skin protection**Hand protection**

Impervious gloves. Confirm with reputable supplier first.

Other

Wear suitable protective clothing. As required by employer code.

Respiratory protection

Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).

Thermal hazards

Not applicable.

General hygiene considerations

When using do not smoke. When using do not eat or drink.

9. Physical and chemical properties

Appearance	Gaseous.
Physical state	Gas.
Form	liquefied gas
Colour	Colourless
Odour	Odourless
Odour threshold	Not available.
pH	Not applicable
Melting point/freezing point	-138 °C (-216.4 °F)
Initial boiling point and boiling range	-0.5 °C (31.1 °F)
Flash point	Flammable gas
Evaporation rate	Not applicable
Flammability (solid, gas)	Flammable gas.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	> 1.8 %
Flammability limit - upper (%)	< 8.5 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.

Vapour pressure	214 kPa (1614 mm Hg) @ 21.1°C
Vapour density	2 (air = 1)
Relative density	Not available.
Solubility(ies)	
Solubility (Water)	Not available
Partition coefficient (n-octanol/water)	2.89
Auto-ignition temperature	287 °C (548.6 °F)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Flash point class	Flammable IA
Oxidising properties	Not oxidising.
Specific gravity	Not applicable

10. Stability and reactivity

Reactivity	This product may react with strong oxidising agents.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Do not mix with other chemicals.
Incompatible materials	Strong oxidising agents. Nitrates. Fluorine. Chlorine.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon.

11. Toxicological information

Information on likely routes of exposure

Inhalation	No adverse effects due to inhalation are expected.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	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>Dermal</i>		
LD50	Not available	
<i>Inhalation</i>		
LC50	Mouse	539600 ppm, 120 Minutes, ECHA 520400 ppm, 120 Minutes, ECHA 1237 mg/L, 120 Minutes 680 mg/L, 2 Hours, HSDB 57 %, 120 Minutes, ECHA 52 %, 120 Minutes
	Rat	> 800000 ppm, 10 Minutes, ECHA 1442738 mg/m3, 10 Minutes, ECHA 1354944 mg/m3, 10 Minutes, ECHA 570000 ppm, 10 Minutes, ECHA 276000 ppm, 4 Hours, CCOHS

Components	Species	Test results
		1443 mg/L, 10 Minutes, ECHA 1355 mg/L, 10 Minutes
<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 > 25.3 mg/L, 4 Hours
	Rat	> 25.3 mg/L, 4 Hours
<i>Oral</i> LD50	Rat	> 2000 mg/kg
LD50 <i>Oral</i> LD50	Not available	
Isobutane (CAS 75-28-5)		
Acute <i>Dermal</i> LD50	Not available	
<i>Inhalation</i> LC50	Mouse	1237 mg/L, 120 min, ECHA 57 %, 120 minutes, ECHA 52 mg/L, 1 h, HSDB 52 %, 120 min, ECHA
	Rat	> 80000 ppm, 10 min, ECHA 1355 mg/L, 10 min, ECHA 658 mg/l/4h, LOLI
<i>Oral</i> LD50	Not available	
Pentane (CAS 109-66-0)		
Acute <i>Inhalation</i> LC50	Rat	> 25.3 mg/L, 4 Hours
<i>Oral</i> LD50	Rat	> 2000 mg/kg 2000 mg/kg
Propane (CAS 74-98-6)		
Acute <i>Dermal</i> LD50	Not available	
<i>Inhalation</i> LC50	Mouse	539600 ppm, 120 Minutes, ECHA 520400 ppm, 120 Minutes, ECHA 1237 mg/L, 120 Minutes 57 %, 120 Minutes, ECHA 52 %, 120 Minutes
	Rat	> 12000000 ppm, 4 hours > 800000 ppm, 10 Minutes, ECHA > 1464 mg/L, 15 Minutes, HSDB 1442738 mg/m3, 10 Minutes, ECHA 1354944 mg/m3, 10 Minutes, ECHA

Components	Species	Test results
		570000 ppm, 10 Minutes, ECHA 1355 mg/L, 10 Minutes
Oral LD50	Not available	
Propylene (CAS 115-07-1)		
Acute		
<i>Inhalation</i>		
LC50	Mouse	680 mg/L, 2 Hours
	Rat	658 mg/L, 4 Hours
Oral 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 - Manitoba OELs Hazard: Asphyxiant		
Propane (CAS 74-98-6)	Simple asphyxiant.	
Canada - Quebec OELs: Asphyxiant		
Propylene (CAS 115-07-1)	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.	
ACGIH Carcinogens		
Propylene (CAS 115-07-1)	A4 Not classifiable as a human carcinogen.	
Canada - Manitoba OELs: carcinogenicity		
Propylene (CAS 115-07-1)	Not classifiable as a human carcinogen.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Propylene (CAS 115-07-1)	Volume 60 - 3 Not classifiable as to carcinogenicity to humans.	
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	Not available.	
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

Components	Species	Test results
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	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. 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	Dispose of in accordance with local regulations. 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: Classification Method: Classified as per Part 2, Sections 2.1 – 2.8 of the Transportation of Dangerous Goods Regulations. 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	UN1011
Proper shipping name	Butane
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 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
Propylene (CAS 115-07-1)	1 TONNES

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

WHMIS status Controlled

International regulations

Inventory status

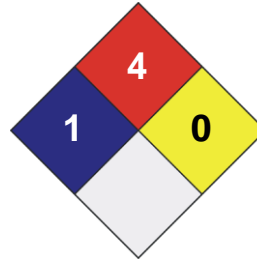
Country(s) or region	Inventory Name	On Inventory (Yes/No)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No

*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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Version No. 02

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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