

SAFETY DATA SHEET

Section 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME Butane

OTHER NAMES Methylethylmethane, Diethyl, n-Butane

PRODUCT USE The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation. Household fuels; motor fuels; producer gas; synthetic rubber production; aerosol propellant; food additive; refrigerant; manufacture of ethylene.

SUPPLIER

Company: IRPC Public Company Limited

Address: 299 Moo.5 Sukhumvit Road, Tumbon Chern-nern
Amphur Muang, Rayong 21000
THAILAND

Telephone: +66 38802560

Section 2 - HAZARDS IDENTIFICATION

GHS Classification Flammable Gas Category 1
Gas under Pressure
STOT – Single exposure Category 3

PICTOGRAMS



SIGNAL WORD DANGER

HAZARD STATEMENTS

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

PRECAUTIONARY STATEMENTS

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P261 Avoid breathing fume/gas.

P271 Use only outdoors or in a well-ventilated area.

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P304+P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 Eliminate all ignition sources if safe to do so.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P410 Protect from sunlight.

P501 Dispose of contents/containers in accordance with local regulation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS Number	EC Number	Composition
Butane	106-97-8	203-448-7	100 %

Section 4 - FIRST AID MEASURES

Skin Exposure

If skin or hair contact occurs:

Flush skin and hair with running water (and soap if available).

Seek medical attention in event of irritation.

Eyes Exposure

Open the eyelid(s) wide to allow the material to evaporate.

Gently rinse the affected eye(s) with clean, cool water for at least 15 minutes. Have the patient lie or sit down and tilt the head back.

Inhalation

Following exposure to gas, remove the patient from the gas source or contaminated area.

Prostheses such as false teeth, which may block the airway, should be removed, where possible, prior to initiating first aid procedures.

If the patient is not breathing spontaneously, administer rescue breathing.

Ingestion

Not considered a normal route of entry.

Section 5 - FIRE FIGHTING MEASURES

Suitable extinguishing agents Dry chemical, CO₂ or water spray to extinguish gas (only if absolutely necessary and safe to do so). DO NOT use water jets.

DO NOT Extinguish burning gas unless leak can be stopped safely.

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Fire fighting	<p>To stop the flow of gas, specifically trained personnel may inert the atmosphere to reduce oxygen levels thus allowing the capping of leaking container(s).</p> <p>Reduce the rate of flow and inject an inert gas, if possible, before completely stopping the flow to prevent flashback.</p> <p>DO NOT extinguish the fire until the supply is shut off otherwise an explosive re-ignition may occur.</p> <p>Use non-sparking tools to close container valves.</p>
Hazards during fire-fighting	Carbon monoxide (CO), carbon dioxide (CO ₂), other pyrolysis products typical of burning organic material.
Protective equipment	Breathing apparatus. Gas tight chemical resistant suit.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions	Avoid breathing vapour and any contact with gas. Protective equipment including respirator should be used.
Cleanup	<p>Clear area of all unprotected personnel and move upwind.</p> <p>Alert Emergency Authority and advise them of the location and nature of hazard.</p> <p>May be violently or explosively reactive.</p> <p>Remove leaking cylinders to a safe place.</p> <p>Fit vent pipes. Release pressure under safe, controlled conditions</p> <p>Burn issuing gas at vent pipes.</p> <p>DO NOT exert excessive pressure on valve; DO NOT attempt to operate damaged valve.</p>

WARNING: The gas does not have any odour warning properties and presents a hazard as an asphyxiant.

Section 7 - HANDLING AND STORAGE

Handling	<p>Containers, even those that have been emptied, may contain explosive vapours.</p> <p>Consider use in closed pressure systems, fitted with temperature, pressure and safety relief valves which are vented for safe disposal.</p> <p>Use a pressure reducing regulator when connecting cylinder to lower pressure (< 100 psig) piping or systems.</p> <p>Electrostatic discharge may be generated during pumping - this may result in fire.</p> <p>Before connecting gas cylinders, ensure manifold is mechanically secure and does not contain another gas. Before disconnecting gas cylinder, isolate supply line segment proximal to cylinder, remove trapped gas in supply line with aid of vacuum pump.</p> <p>DO NOT drag, slide or roll cylinders - use a suitable hand truck for cylinder movement</p> <p>DO NOT transfer gas from one cylinder to another.</p>
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Storage conditions

Store in an upright position.
 Outside or detached storage is preferred.
 Cylinders stored in the open should be protected against rust and extremes of weather.
 Cylinders should be stored in a purpose-built compound with good ventilation, preferably in the open.
 The storage compound should be kept clear and access restricted to authorised personnel only.
 Cylinders stored in the open should be protected against rust and extremes of weather.

Section 8 - EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure limits

Component Name	Reference	TWA	
		ppm	mg/m3
Butane	NIOSH	800	1900
	Australia Exposure Limits	800	1900

Exposure controls

Exposed individuals are reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Personal protective equipments

Respiratory protection

Not required if good ventilation is maintained. If exposure exceeds occupational exposure limits, use a NIOSH approved respirator to prevent overexposure.

Eye protection

Chemical goggles. Full face shield may be required for supplementary.

Protective clothing

The clothing worn by process operators insulated from earth may develop static charges far higher (up to 100 times) than the minimum ignition energies for various flammable gas-air mixtures. This holds true for a wide range of clothing materials including cotton.

Hand protection

When handling sealed and suitably insulated cylinders wear cloth or leather gloves. Insulated gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

State	Gas
Melting Range	- 135 °C
Viscosity	Not applicable
Boiling Range	-1.0 °C
Solubility in water	Immiscible

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Flash Point (°C)	- 60 °C
pH (1% solution)	Not applicable
Decomposition Temp (°C)	Not applicable
Autoignition Temp	405 °C (approx)
Vapour Pressure	211 kPa @ 15 °C
Upper Explosive Limit (%)	8.5
Lower Explosive Limit (%)	1.8
Specific Gravity (water=1)	0.6 @ 0 °C
Relative Vapour Density (air=1)	2.046 @ 0 °C
Volatile Component (%vol)	100

Section 10 - CHEMICAL STABILITY

Chemical Stability	Product is considered stable.
Dangerous reaction	May react violently with strong oxidizers, acetylene, halogens and nitrous oxides
Condition to Avoid	High temperatures, heat, flames and static electricity.
Material to Avoid	Strong oxidizing agents; nitrates, oxidizing acids, chlorine bleaches
Dangerous decomposition	Carbon monoxide (CO), carbon dioxide (CO ₂).

Section 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity

Chemical name	Route	Species	Acute Toxic Value
Butane	Inhalation	Rat	LC ₅₀ > 800000 ppm/15min

Irritating/corrosive effects

Eye Irritation	Direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness.
Skin Irritation	Not produce adverse health effects or skin irritation following contact. Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.
Respiratory Irritation	Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.
Ingestion Irritation	Not normally a hazard due to physical form of product.

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Section 12 - ECOLOGICAL INFORMATION

Eco-toxicity No relevant studies identified.

Persistence and degradability Expected to be readily biodegradable. Oxidises rapidly by photo-chemical reactions in air.

Bioaccumulative potential Product has no potential for bioaccumulation.

Mobility in soil The product is expected to volatilize rapidly due to its very low boiling point. Therefore, degradation in soil will not play an important role.

Other adverse effects Not applicable.





Section 13 - DISPOSAL CONSIDERATIONS

Evaporate or incinerate residue at an approved site.

Return empty containers to supplier.

Ensure damaged or non-returnable cylinders are gas-free before disposal.

Section 14 - TRANSPORTATION INFORMATION

Regulatory information	UN number	Class	Packing group	Label	Proper Shipping Name
DOT	1011	2.1	-		BUTANE
ADR /RID	1011	2.1	-		BUTANE
IMDG	1011	2.1	-		BUTANE
ICAO/IATA	1011	2.1	-		BUTANE

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Section 15 - REGULATORY INFORMATION

REGULATIONS

US. Toxic Substances Control Act

All components of this product are on the TSCA Inventory.

NFPA - USA

Health - 1, Flammability - 4, Reactivity - 0

HMIS - USA

Health - 1, Flammability - 4, Reactivity - 0

European Inventory of Existing Commercial Chemical Substances (EINECS)

The components of this product are on the EINECS inventory.

EU Directives 67/548/EEC

Classification

F+

Symbols



R-Phrases

R12: Extremely flammable.

S-Phrases

S2: Keep out of the reach of children.

S9: Keep container in a well-ventilated place.

S16: Keep away from sources of ignition - No smoking.

Canada - WHMIS

This product has a WHMIS classification of A, B1.

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Section 16 - OTHER INFORMATION

The information in this document is based on our best present. Nevertheless, it does not constitute a guarantee for any specific product features and does not establish any a legally binding contract.

DOT	Department of Transportation
ADR	European agreement concerning the international carriage of dangerous goods by road.
RID	Regulations concerning the international carriage of dangerous goods by rail.
IMDG – CODE	International maritime dangerous goods code
ICAO	International Civil Aviation Organization
IATA	International air transport association
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
NIOSH	National Institute for Occupational Safety and Health
NFPA	National Fire Protection Association
HMIS	Hazardous Materials Identification System

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