

Material Safety Data Sheet

Butane

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND SUPPLIER

Product Name: Butane

Other Names: N-Butane, Normal-Butane

Recommended use: Industrial gas for use as a fuel in domestic, commercial industrial and automotive applications.

Supplier: Irwin Industrial Tool Company Pty Ltd
ABN: 30 335 543 966
Address: 2 National Drive
Dandenong South VIC 3975
Australia

Telephone: +61 8 9259 8888 (WA) or +61 3 8787 3888 (all other states)

Facsimile: +61 8 9259 8800 (WA) or +61 3 8787 3800 (all other states)

Emergency Phone: (08) 9259 8888 (WA: 8.30 am – 5 pm) or (03) 8787 3888 (Vic: 8 am – 6 pm)

2. HAZARDS IDENTIFICATION

NON-HAZARDOUS SUBSTANCE – DANGEROUS GOOD

DG Class: 2.1 (Flammable gas)

Subsidiary Risk: None allocated

Packing Group: None allocated

Risk phrases:
R12 Extremely flammable

Safety phrases:
S2 Keep out of reach of children
S3/9 Keep in a cool and well ventilated place.
S16 Keep away from sources of ignition – No smoking.
S33 Take precautionary measures against static discharges.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical identity	CAS Number	Proportion
N-Butane	106-97-8	100 % by volume

All components in this product are listed on the Australian Inventory of Chemical Substances (AICS).

Contains no other substances or impurities that as classified as hazardous substances.
The concentration of dienes, including 1,3-butadiene, is less than 0.1%.

4. FIRST AID MEASURES

If poisoning occurs, contact a doctor or Poisons Information Centre. In case of frostbite, seek immediate medical attention.

Swallowed: Not considered a potential route of exposure.

Eye: If there is contact with liquid, flush with water for at least 15 minutes and apply a sterile, dry dressing. Seek medical attention immediately.

Skin: If there is contact with liquid, flush with water for at least 15 minutes and apply a sterile, dry dressing. Seek medical attention immediately.

Inhaled: Remove affected person to fresh air and keep warm and calm. If symptoms persist, obtain medical advice. Unconscious persons must be placed in recovery position. Monitor breathing and pulse rate and if breathing has failed respiration should be assisted, preferably by artificial respiration (mouth to mouth). Administer cardiac massage if necessary. Seek medical attention immediately.

Notes to doctor: Treat symptoms and reduce overexposure.

5. FIRE FIGHTING MEASURES

Specific hazards: Extremely flammable gas. Liquefied gas under pressure. Explosive air/vapour mixtures may form at ambient temperatures. Pressurised cylinders may rupture or explode violently when involved in a fire situation. Butane gas is supplied and stored above its flash point – avoid all naked flames.

Extinguishing media: Foam, Dry Chemical or Carbon Dioxide. Dry powder recommended for small fires.

Fire fighting procedures: Extremely flammable gas. If possible, stop the flow of product. Move containers or cylinders away and cool with water from protected position. Heating can cause expansion and pressure build-up leading to violent rupture and explosion of containers. Continue to cool fire exposed containers until well after flames are extinguished. Do not extinguish a leaking gas flame unless absolutely necessary – spontaneous explosive re-ignition may occur. Extinguish any other fire. Firefighters must wear self-contained breathing apparatus with full face-mask and protective clothing in fire situations or in confined spaces.

Hazardous Decomposition Products: Incomplete combustion may form carbon dioxide.

Hazchem Code: 2WE

6. ACCIDENTAL RELEASE MEASURES

Eliminate all sources of ignition – no smoking. Take precautionary measures against static discharges. Evacuate all personnel from the affected area and increase ventilation. If possible, stop flow of product. In case of major escape of gas wear self contained breathing apparatus when entering area unless atmosphere has been proven to be safe. Prevent accumulation of product in sewers, basements and other enclosed areas – severe explosion risk. Use appropriate protective equipment. Small quantities of spilled product may be allowed to evaporate – vapour should be dispersed by effective ventilation.

7. HANDLING AND STORAGE

Handling: Open valve slowly to avoid pressure shock. Avoid suck back of water into cylinder. Avoid back feed into the container. Only use equipment which is suitable for this product, the supply, pressures and temperature – contact the supplier in all cases of doubt. Avoid all ignition sources. Flameproof equipment necessary in area where this product is being used. Containers must be earthed to avoid generation of static charges. Before using this product in any new process, a thorough material compatibility and safety study should be carried out. Always check cylinders when first collected, delivered or used, using an approved leak detection fluid.

Storage: Store cylinder or container below 50°C in well ventilated areas away from heat, sources of ignition and incompatibles. Store away from oxidizing agents. Keep containers closed at all times – check regularly for leaks. Ensure equipment is electrically bonded and earthed to prevent static accumulation. Segregate from acetylene, oxidizing gases (e.g. oxygen) and other oxidizing agents in store. Do not smoke in areas of use or storage. Observe State Regulations concerning the storage and handling of Dangerous Goods. Store in accordance with all precautions required for handling flammable gases. Refer to supplier's container handling instructions.

Incompatibilities: Not to be stored with explosives (Class 1), flammable liquids in bulk (Class 3), flammable solids (Class 4.1) spontaneously combustible substances (Class 4.2), dangerous when wet substances (Class 4.3), oxidizing agents (Class 5.1), organic peroxides (Class 5.2), radioactive substances (Class 7). Exemptions may apply.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National occupational exposure standards

Substance	TWA		STEL		Carcinogen Category	Notices
	ppm	mg/m ³	ppm	mg/m ³		
N-Butane	800	1900	None allocated	None allocated	None allocated	None allocated

As published by National Occupational Health and Safety Commission.

Exposure Standard (TWA) is the time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life. According to current knowledge this concentration should neither impair the health or, not cause undue discomfort to, nearly all workers.

These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These Exposure Standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Engineering controls: Local exhaust ventilation and/or mechanical (general) exhaust is recommended, provided these are fitted with flame and explosion proof electrical fittings. Keep containers tightly closed when not in use.

Personal Protection

Skin: Avoid skin contact by the use of chemical resistant gloves when using this gas mixture. Wear mechanically resistant gloves when handling cylinders of this gas mixture.

Eye: Avoid eye contact by wearing eye protection, e.g. splash goggles, face-shields or safety glasses. Wear goggles with suitable filter lenses when use is cutting / welding.

Respiratory: None should be needed under normal circumstances. However, under conditions of frequent use or heavy exposure, respiratory protection may be needed.

Do not smoke while handling product. Ensure adequate ventilation. Keep escape type self-contained breathing apparatus readily available for emergency use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	colourless gas with rotten egg odour
Boiling Point:	-11°C
Melting Point:	not available
Vapour pressure:	190 kPa (21°C)
Specific gravity:	0.57 (15.5°C)
Flash Point:	-74°C (CC)
pH:	not available
Flammability Limits:	% by volume lower: 1.8 % by volume upper: 8.4
Autoignition temperature:	405°C
Solubility in water:	negligible (< 0.1%)
Vapour Density:	2.0 (air = 1.0)
Critical temperature:	below ambient temperature

10. STABILITY AND REACTIVITY

Chemical stability:	May form explosive mixtures with air.
Hazardous polymerization:	Will not occur.
Incompatible materials:	May react violently with strong oxidizing agents.
Conditions to avoid:	Heat, sparks, flame, ignition sources and build-up of static electricity.
Hazardous decomposition products:	Incomplete combustion can produce carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Swallowed: Not considered a likely route of exposure. Adverse effects are not expected.

Eye: Contact with liquid product will cause serious damage (frostbite) and likely loss of sight.

Skin: Contact with liquid product will cause cold burns and frostbite.

Inhaled: May cause drowsiness, headache, blurred vision and irritation of the eyes, nose and throat. High concentrations may have a narcotic effect. Abuse involving wilful inhalation of high concentrations of vapour can produce unconsciousness and/or death.

Chronic: No chronic systemic effects reported for industrial exposures.

12. ECOLOGICAL INFORMATION

Butane gas is a greenhouse gas. No other data available.

13. DISPOSAL CONSIDERATIONS

Do not dispose of any non-empty containers. Cylinders should be emptied and returned to an approved hazardous waste collection point or to supplier for rechecking and refilling. Do not discharge into any area where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arresters. Empty cylinders will still contain flammable vapour. Contact supplier if guidance is required.

14. TRANSPORT INFORMATION**Road and Rail Transport (Australian Dangerous Goods Code):**

UN Number: 1011
Proper Shipping Name: BUTANE
Class: 2.1 Flammable gas
Subsidiary Risk: None allocated
Hazchem Code: 2WE
Packing Group: None allocated

Marine Transport (International Maritime Dangerous Goods Code):

UN Number: 1011
Proper Shipping Name: BUTANE
Class: 2.1 Flammable gas
Subsidiary Risk: None allocated
Packing Group: None allocated
Marine Pollutant: No

Air Transport (International Air Transport Association Dangerous Goods Regulations):

UN Number: 1011
Proper Shipping Name: BUTANE
Class: 2.1 Flammable gas
Subsidiary Risk: None allocated
Packing Group: None allocated
Limitations: Transport on cargo aircraft only

Further transport advice:

Avoid transport on vehicles where load space is not separated from the driver's compartment. Ensure that the vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

Before transporting product containers ensure they are firmly secured and:

- Cylinder valve is closed and not leaking;
- Valve outlet cap nut or plug (where provided) is correctly fitted;
- Valve protection device (where provided) is correctly fitted;
- There is adequate ventilation; and
- There is compliance with applicable regulations.

15. REGULATORY INFORMATION

Classification: Not hazardous according to criteria of NOHSC.
Dangerous Good according to criteria of the Australian Dangerous Goods Code.

Poisons Schedule: Not Scheduled

