

SAFETY DATA SHEET

Section 1. Identification of the material and the supplier

Product: **Bromic R600a (Isobutane) Aluminium Cylinder 420g**
 Part Number: 1811227
 Product Use: Refrigerant gas for refrigeration and air-conditioners systems
 Restriction of Use in NZ: Refer to Section 15

Australian Supplier: **Bromic Pty Ltd (ABN 88 001 648 979)**
 10 Phiney Place
 Ingleburn, NSW, 2565, Australia

Tel: +61 2 9426 5224
Australian Emergency No **+61 2 9426 5224 (24/7)**

New Zealand Supplier: **Bromic Group**
 Address: Malcolm Total Logistics Auckland
 39 Richard Pearse Drive
 Airport Oaks, Mangere, 2022

Telephone: 0508 276 642
Emergency No: **0508 276 642**
0800 764 766 (National Poison Centre)

Date of SDS Preparation: 20 July 2021

Section 2. Hazards Identification

Australia:
 Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia

New Zealand:
 This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2020

EPA Approval No: Gases under Pressure Mixtures (Flammable) – HSR002532

Pictograms



Signal Word: **DANGER**

GHS Classification and Category	Hazard Code	Hazard Statement
Flammable gas Cat. 1A	H220	Extremely flammable gas.
Liquefied Gas	H280	Contains Gas under pressure; may explode if heated

Prevention Code	Prevention Statement
P103	Read label before use.
P210	Keep away from heat, sparks, open flames or hot surfaces. No smoking.

Response Code	Response Statement
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.

Storage Code	Storage Statement
P403	Store in a well-ventilated place.

Disposal Code	Disposal Statement
P501	Dispose of according to Local Regulations or Authorities

Section 3. Composition / Information on Hazardous Ingredients

Ingredients	Wt%	CAS NUMBER.
Isobutane	>97%	75-28-5

Section 4. First Aid Measures

General Information	If the person is unconscious, place it in the recovery position and get immediately medical attention. Do not give anything to an unconscious person. If breathing is irregular, give oxygen. If breathing stopped, administer artificial respiration. If symptoms persist, call a physician. Note to physician: Do not give adrenaline-ephedrine or similar drugs group.
If in Eyes	Remove contact lenses, if present. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
If on Skin	In case of contact with skin, wash immediately with plenty of water. Remove contaminated clothing. If irritation or blistering occurs, call a physician
If Swallowed	Unlikely route of exposure. As this product is a gas, refer to the section "Inhalation". Do not induce vomiting without medical advice. Obtain immediate medical attention.
If Inhaled	Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Administer oxygen if necessary. Keep at rest until fully recovered. Apply artificial respiration if not breathing. Get medical advice if breathing becomes difficult.
Most important symptoms and effects, both acute and delayed	
Symptoms:	In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.
Treatment:	Do not give adrenaline-ephedrine or similar drugs group. Treat symptomatically.

Section 5. Fire Fighting Measures

Hazard Type	Flammable Gas
Hazards from	Vapours are heavier than air and can cause rapid suffocation by

combustion products	reducing oxygen available for breathing. In case of fire, decomposition products may include the following materials: carbon dioxide and monoxide.
Suitable Extinguishing media	Dry powder, water spray, alcohol-resistant foam and CO2 Do not use highwater jet.
Precautions for firefighters and special protective clothing	Firefighters must use standard protective equipment including SCBA. Avoid contact with eyes and skin. Do breathe the fumes. Coordinate fire measure to the surrounding fire. Exposure to flames and heat can cause the container to rupture. From protected position, cool endangered containers with water spray jet. Do not discharge contaminated water into drains. If possible, stop flow of the product. If possible, use water spray to knock down the fumes. Explosive re-ignition may occur, turn off all the other fire. Move containers from fire area if this can be done without risk. On heating: heating will cause a rise in pressure with a risk of bursting. Toxic and corrosive vapours are released. Cool down the containers exposed to heat with a water spray.
HAZCHEM CODE	2T

Section 6. Accidental Release Measures

Personal precautions:

Refer to Section 8 for PPE requirements. Evacuate area of unnecessary personnel. Remove all sources of ignition. Avoid contact with skin (possible frostbite).

Ventilate the area/local. In case of insufficient ventilation, wear self-contained breathing apparatus.

Environmental precautions:

Do not allow product to spread into the environment. Avoid spillage and prevent possible losses.

Spill and Disposal procedures:

Ventilate/aerate the area/local.

Let the evaporation of the product. Take into consideration that the vapours are heavier than air.

Section 7. Handling and Storage

Precautions for Handling:

- Use only properly specified equipment that is suitable for this product, its supply pressure and temperature. In case of doubt, refer to supplier's handling instructions.
- Only experienced and properly instructed persons should handle gases under pressure.
- Service technician must check regularly your entire gas system to ensure that it is leak-free.
- Read label before use.
- Keep away from heat, sparks, open flames or hot surfaces. No smoking.
- Handle and open container with care. Caution when opening, pressurized container.
- Protect from sunlight and do not expose to temperatures exceeding 50° C.
- Do not spray on a naked flame or any incandescent material.
- Do not use in area without adequate ventilation.
- Protect containers from physical damage; do not drag, roll, slide or drop.
- Do not pierce or burn, even after use.
- Leave valve protection caps in place until the container is ready for use.
- Close container valve after each use and when empty, even if still connected to equipment.
- Do not remove or deface labels provided by the supplier for the identification of the container contents.
- Ensure adequate ventilation of the working area.

Precautions for Storage:

- Avoid storage with oxidizing products, acids and, in general, with chemicals.
- Avoid storage with tools or equipment that may cause sparks.
- Keep containers tightly closed in a dry, cool and well-ventilated place, away from any ignition or heat sources. Store in original container.
- Container valves or caps should be in place.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA	STEL
	ppm mg/m ³	ppm mg/m ³

No ingredients have exposure limits

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices NOV 2020 12TH EDITION.

Engineering Controls

Ensure adequate ventilation. In case of insufficient ventilation, wear self-contained breathing apparatus.

Personal Protection Equipment



Eyes	Safety glasses with side-shields (according to directive EN 166).
Hands	It is recommended to use protective gloves against cold (EN 511). The penetration time of the gloves must be greater than the period of expected use. Gloves should be replaced immediately if they show signs of wear or deterioration.
Skin	Evaluate the need for flame resistant workwear. EN ISO 14116 Protective clothing - Protection against heat and flame – Limited flame spread materials. EN ISO 1149-5 Protective clothing – Electrostatic properties. Wear safety shoes while handling containers. EN ISO 20345 Personal protective equipment - Safety shoes. Apron or protective clothing are not necessary.
Respiratory	The vapours are heavier than air and can cause asphyxia caused to an reduction of oxygen level. In case of insufficient ventilation, wear self-contained breathing apparatus (EN 133).

Section 9 Physical and Chemical Properties

Appearance	Liquefied Gas
Colour	Colourless
Odour	Odourless
Odour Threshold	Odour threshold is subjective and is inadequate to warn of over exposure.
pH	Not available
Boiling Point	- 11,73° C @ 1013 hPa (experimental result, supporting study)
Melting Point	- 182,47 °C (experimental result, supporting study)
Freezing Point	Not available
Flash Point	- 88,6° C

Product Name: Bromic R600a (Propane) Aluminium Cylinder Prepared by: Technical Compliance Consultants (NZ) Ltd
Date of SDS: 20 July 2021 Tel: 64 9 475 5240 www.techcomp.co.nz

Flammability	Not available
Upper and Lower Explosive Limits	12,5 % (V) (experimental result, supporting study) / 1,50 % (V)
Vapour Pressure	2.200 Pa @ 20° C
Vapour Density	2,01 (air = 1)
Relative Density	0,59
Water Solubility	54 mg/l
Partition Coefficient:	2,76 log Kow
Auto-ignition Temperature	287 °C (experimental result, supporting study)
Decomposition Temperature	Not available
Kinematic Viscosity	Not available
Particle Characteristics	Not available
Other information:	
Critical temperature	135°C
Vapour pressure	347,97 kPa @ 25 °C
Molecular Weight	58,12 g/mol (C4H10)

Section 10. Stability and Reactivity

Stability of Substance	This product is stable under normal conditions.
Possibility of hazardous reactions	May react violently with oxidants. Can form explosive mixture with air.
Conditions to Avoid	Contains gas under pressure, may explode if heated. Protect from sunlight and do not expose to temperatures exceeding 50 °C. Keep away from heat, sparks, open flame or other sources of ignition. Do not smoke. Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material.
Incompatible Materials	Air, oxidizing agents.
Hazardous Decomposition Products	Under normal conditions of storage and use, hazardous decomposition products should not be produced. In case of combustion, toxic compositions, may be formed: carbon monoxide (CO) and carbon dioxide (CO ₂).

Section 11 Toxicological Information

Acute Effects:

Swallowed	Not applicable.
Dermal	Not applicable.
Inhalation	Not applicable. LC50: 658 000 ppm Exposition time: 4 h Animal species: Rat
Eye	Not applicable.
Skin	Not applicable.

Chronic Effects:

Carcinogenicity	Not applicable.
Reproductive Toxicity	Not applicable.
Germ Cell Mutagenicity	Not applicable.
Aspiration	Not applicable.
STOT/SE	Not applicable.
STOT/RE	Not applicable.
Other hazards	High concentrations may cause drowsiness, headache and dizziness. If the amount of oxygen in the air drops below 17% may cause unconsciousness, asphyxia and / or CNS depression.

Inhalation at high concentrations of decomposition products may cause respiratory failure (pulmonary edema). Contact with compressed gas may cause frostbite and serious ocular injury.

Section 12. Ecotoxicological Information

This product is not hazardous to the environment.

Persistence and degradability	The substance will be readily biodegradable and it is not expected to persist in the environment.
Bioaccumulation	The substance are not considered to be persistent in the environment due to its low log Kow (log Kow < 4).
Mobility in Soil	Because of its high volatility, the product is unlikely to cause ground or water.
Other adverse effects	Ozone Depletion Potential ODP (R-11=1) = 0 Global Warming Potential GWP (CO2=1) = 3

Individual component information (Please refer to www.epa.govt.co.nz for full details): Propylene (115-07-1)

Route	Species	Duration	Value LC50/EC50
Fish 1	Various	96 hr	27.96 mg/L
Acute aquatic, Crustacean	Daphnia magna 1	48 hr	14.22 mg/L

Section 13. Disposal Considerations

Disposal Method:

Precautions or methods to avoid:

Section 14 Transport Information

This product is classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code) (7th edition).

This product is classified as a Dangerous Good for transport in NZ; NZS 5433:2012



Road and Rail Transport

UN No: 2037
Class-primary 2
Proper Shipping Name: RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES)

Air Transport

UN No: 2037
Class-primary 2
Proper Shipping Name: RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES)

Marine Transport

UN No: 2037
Class-primary 2
Proper Shipping Name: RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES)
Marine pollutant: No

Section 15**Regulatory Information****Australia:**

Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

New Zealand:

This substance is classified hazardous according to the EPA Hazardous Substances (Classification) Notice 2020

EPA Approval Code: **Gases under Pressure Mixtures (Flammable) – HSR002532**

GHS Classification and Category
Flammable gas Cat. 1A

HSW (HS) Regulations 2017 and EPA Notices	Trigger Quantity
Certified Handler	Not required
Location Certificate	100kg
Tracking Trigger Quantities	Not required
Signage Trigger Quantities	250kgm
Emergency Response Plan	300kg
Secondary Containment	300kg
Restriction of Use	Only use for the intended purpose.

Section 16**Other Information****Glossary**

Cat	Category
EC ₅₀	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
HSW	Health and Safety at Work.
LC ₅₀	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD ₅₀	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:**Australia:**

1. Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice.
2. Standard for the Uniform Scheduling of Medicines and Poisons.
3. Australian Code for the Transport of Dangerous Goods by Road & Rail.
4. Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
5. Workplace exposure standards for airborne contaminants, Safe work Australia.
6. American Conference of Industrial Hygienists (ACGIH).
7. Globally Harmonised System of classification and labelling of chemicals.

New Zealand:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017

2. Workplace Exposure Standards and Biological Exposure Indices Nov 2017 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2012
5. HSW (Hazardous Substances) Regulations 2017

Disclaimer

This document has been prepared by TCC (NZ) Ltd and serves as the suppliers Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to TCC (NZ) Ltd or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer. While TCC (NZ) have taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, TCC (NZ) Ltd accept no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS

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Please contact the Australian Manufacturer or New Zealand distributor, if further information is required.

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