

Section 1. Identification**1.1 Product Identifier** 1676

Product Name	2-BROMOBUTANE pure
CAS Number	78-76-2
REACH Registration No	A registration number is not available as the substance or its uses are exempt, the annual tonnage does not require a registration or the registration is envisaged for a later date.
Molecular Formula	$\text{CH}_3\text{CHBrCH}_2\text{CH}_3$ =137.02

1.2 Relevant identified uses of the substance or mixture & uses advised against

Uses of Material	Chemical for industrial and laboratory use. Not suitable for domestic use.
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1.3 Supplier Vickers Laboratories Ltd

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(24hr) 112
(Have this document to hand)**Section 2. Hazards Identification****2.1 Classification of the substance or mixture****Classification according to regulation 1272/2008/EC**

Flammable liquid, category 2	H225: Highly flammable liquid and vapour.
Skin corrosion/irritation, category 2	H315: Causes skin irritation.
Serious eye damage/irritation, category 2	H319: Causes serious eye irritation.
Spec target organ tox - single, category 3	H335: May cause respiratory irritation.
Hazard to aquatic environment, category 3	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements**Labelling according to regulation 1272/2008/EC**

Signal word	Danger
Hazard Pictograms	



Hazard Statements Highly flammable liquid and vapour. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. Harmful to aquatic life with long lasting effects.

Precautionary Statements Keep away from heat / sparks/open flames/hot surfaces - No smoking. Ground/bond container and receiving equipment. Wear protective gloves / protective clothing / eye protection. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do and continue rinsing. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Section 3. Composition

3.1 Substances

Component	CAS No.	EEC No.	REACH No.	Conc w/w	CLP Classification (1272/2008/CE)
2-bromobutane	78-76-2	201-140-7		>98%	Flam. Liq. 2, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3 (I), Aquatic Chronic 3

Section 4. First Aid

4.1 Description of first aid measures

Eyes	Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open.
Skin	Thoroughly wash off skin with soap and water. Remove contaminated clothing immediately and wash before re-use.
Inhalation	Remove from exposure. Keep warm and at rest. If there is difficulty in breathing give oxygen if available. If breathing stops or shows signs of failing, apply artificial resuscitation. If unconscious place in the recovery position. OBTAIN MEDICAL ATTENTION URGENTLY.
Ingestion	Wash out the patients mouth thoroughly with water. OBTAIN MEDICAL ATTENTION URGENTLY.
Personal protection for first aiders	Wear protective gloves / eye protection.

4.2 Most important symptoms and effects, both acute & delayed.

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed.

No further relevant information available.

Section 5. Fire Fighting

5.1 Extinguishing media

Extinguishing Media	Water spray, foam, dry powder or carbon dioxide.
Unsuitable Media	Not specified.

5.2 Special hazards arising from the substance or mixture

Hazards	Vapour-air mixtures are explosive.
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5.3 Advice for firefighters

Advice for firefighters	Evacuate area immediately. Keep up wind. Avoid exposure to toxic vapours and fumes. Fire-fighters should wear protective clothing and breathing apparatus.
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Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Protection Ensure no sources of ignition. Avoid breathing vapour. Wear goggles, respirator, rubber boots and heavy rubber gloves.

6.2 Environmental precautions

Environmental Keep material out of sewers, storm drains, surface waters and soil. Notify the Environmental Agency and local Environmental Health Officer if major spillage occurs.

6.3 Methods and material for containment and cleaning up

Major Spillage Cover with an activated carbon adsorbent. Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete. Use non-metallic tools only. Ensure no sources of ignition.

Minor Spillage Cover with an activated carbon adsorbent. Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete. Use non-metallic tools only. Ensure no sources of ignition.

6.4 Reference to other sections

See section 8.2 for information on protective equipment and section 13 for information on disposal.

Section 7. Storage & Handling

7.1 Precautions for safe handling

All transfer systems should be earthed to prevent accumulation of static electricity. Avoid contact with skin and eyes. Do not breath vapours. Do not allow to contaminate clothing. Use non-metallic tools only.

Ensure Local Exhaust Ventilation maintains vapour concentrations below the recommended limits.

7.2 Conditions for safe storage, including any incompatibilities

Well ventilated, cool, dry storage . Protect from direct sun and store away from sources of ignition. Keep containers closed when not in use. Keep well separated from oxidising agents.

7.3 Specific end use(s)

See section 1.2.

Section 8. Workplace Exposure & Personal Protection

8.1 Control parameters

Component	CAS No	Concentration	Workplace Exposure Limits	
			Long Term (8hr TWA)	Short Term 15min period
2-bromobutane	78-76-2	>98%	-	-

Exposure data source(s) No occupational exposure data currently available.

8.2 Exposure controls

Respiratory Protection Wear NIOSH/MSHA-approved respirator.

Hand Protection Use solvent resistant gloves.

Eye Protection Use tightly fitting chemical splash proof glasses or goggles.

Skin Protection Avoid contact with skin. If skin contact or contamination of clothing is likely, protective clothing must be worn.

Special Hazards No special precautions required.

Section 9. Physical & Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance Clear colourless to pale yellow liquid.
Odour Fresh and characteristic.
pH Not applicable
Boiling Point 91°C
Melting Point -112°C
Flash Point 21°C (Closed cup)
Upper Flammable Limit 6.6%

Lower Flammable Limit	2.6%
Auto Ignition	265°C
Explosive Properties	No.
Oxidising Properties	No.
Vapour Pressure	70mbar@20°C
Relative Density	Not available
Water Solubility	Not specified.

9.2 Other information

No data available.

Section 10. Stability & Reactivity

10.1	Reactivity	No data available.
10.2	Chemical Stability	Stable under normal conditions
10.3	Possibility of hazardous reactions	No data available.
10.4	Conditions to Avoid	Hot surfaces, naked flames or other sources of ignition.
10.5	Incompatible Materials	Strong oxidising agents. Alkalis. Magnesium. Potassium. Sodium.
10.6	Hazardous Decomposition Products	In combustion emits Carbon dioxide, carbon monoxide and hydrogen bromide.

Section 11. Toxicological Information

11.1 Information on toxicological effects

Eyes	Both the vapour and liquid will, be irritating to the eyes.
Skin	Causes skin irritation. The liquid may be harmful if absorbed through the skin.
LD50 Skin	Not available
Ingestion	May be harmful by ingestion.
LD50 Oral	Not available
Inhalation	May cause respiratory irritation.
LD50 Inhalation	Not available
TCLo	Not available
Carcinogenicity	No data available.
Mutagenicity	Not considered to be a mutagen.
Reproductive Effects	None identified.
Other Information	May also if ingested cause drowsiness, nausea, dizziness, and ultimately unconsciousness. May cause damage to kidneys & liver though prolonged or repeated exposure.

Section 12. Ecological

12.1	Toxicity	Small amounts present no specific environmental hazard.
	LC50 Algal	20.87mg/l Algae (96 hours)
	LC50 Crustacea	32.28mg/l Daphnia (48 hours)
	LC50 Fish	28.97mg/l Fish (96 hours)
12.2	Persistence and degradability	No data available.
12.3	Bioaccumulative potential	No data available.
12.4	Mobility in soil	No data available.
12.5	Results of PBT & vPvB assessment	Assessment not required.
12.6	Other adverse effects	None known at present.

Section 13. Disposal Considerations

13.1 Waste treatment methods

Disposal Methods	Burn in a chemical incinerator equipped with afterburners and scrubbers. Exert extra care in igniting as this material is highly flammable.
Contaminated Packaging	Burn in a chemical incinerator equipped with afterburners and scrubbers. Exert extra care in igniting as this material is highly flammable.

Section 14. Transport Information

14.1 UN Number	2339
14.2 Proper Shipping Name	2-Bromobutane
14.3 Transport classes	
UN classification	3
Subsidiary hazard(s)	None
Transport category	2
ADR Hazard ID	33
Tunnel Restriction Code	D/E
14.4 Packing Group	II
14.5 Environment hazards	See section 12.
14.6 Special precautions for user	No special precautions required.
14.7 Transport in bulk	Not transported in bulk.



Section 15. Regulatory Information

15.1 Safety, health and environment regulations specific for substance/mixture.

Classification, Labeling & Packaging of Substances & Mixtures Regulations (1272/2008/CE)

Classification Flammable liquid, category 2; Skin corrosion/irritation, category 2; Serious eye damage/irritation, category 2; Spec target organ tox - single, category 3; Hazard to aquatic environment, category 3

Signal word Danger

Hazard Pictograms



Hazard Statements H225, H315, H319, H335, H412
Highly flammable liquid and vapour. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. Harmful to aquatic life with long lasting effects.

Hazard Statements (Packs of 100ml/g or less) H225, H315, H319, H335, H412
Highly flammable liquid and vapour. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. Harmful to aquatic life with long lasting effects.

Precautionary Statements P210, P240, P280, P303+P361+P353, P305+P351+P338, P304+P340
Keep away from heat / sparks/open flames/hot surfaces - No smoking. Ground/bond container and receiving equipment. Wear protective gloves / protective clothing / eye protection. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do and continue rinsing. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Precautionary Statements (Packs of 100ml/g or less) P210, P302+P352, P305+P351
Keep away from heat / sparks/open flames/hot surfaces - No smoking. IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes.

15.2 Chemical safety assessment

Assessment not required.

Section 16. Other Information

The information contained in this document only covers the hazards presented by this material, it DOES NOT constitute a workplace risk assessment. See sections 11 for toxicological information and section 12 for ecological information.

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