

Revision: 2.0
(Replaces revision 1.1 of 16 April 2021)Revision date: 21 April 2021
Date printed: 12 August 2023**Section 1. Identification****1.1 Product Identifier** 0963

Product Name 2-CHLOROBUTANE pure

CAS Number 78-86-4

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 $\text{CH}_3\text{CH}_2\text{CHClCH}_3$ =92.57

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.

1.3 Supplier Vickers Laboratories Ltd

Grangefield Industrial Estate
Richardshaw Road
Pudsey
West Yorkshire
LS28 6QW
UNITED KINGDOM

Phone 44 0113 2362811
Fax +44(0)113 2362703
Email safety@viclabs.co.uk
Website www.viclabs.co.uk

1.4 Emergency Telephone (08:00-16:30) +44(0) 113 2362811
(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**

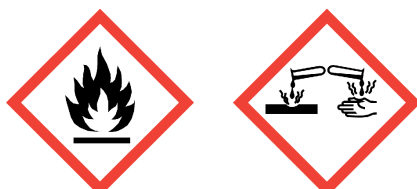
Flammable liquid, category 2
Corrosive to metals, category 1
Hazard to aquatic environment, category 3

H225: Highly flammable liquid and vapour.
H290: May be corrosive to metals.
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. May be corrosive to metals. 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. Store in a well ventilated place. Keep cool.

Section 3. Composition

3.1 Substances

Component	CAS No.	EEC No.	REACH No.	Conc w/w	CLP Classification (1272/2008/CE)
2-Chlorobutane	78-86-4	201-151-4		>99%	Flam. Liq. 2, Met. Corr. 1, 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. OBTAIN MEDICAL ATTENTION.
Skin	Wash off skin thoroughly with 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	If conscious give plenty of water to drink. Do not induce vomiting. 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.
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, alcohol resistant foam, dry powder or carbon dioxide. Use water spray to keep fire exposed containers cool.
Unsuitable Media	Nothing 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. Use approved personal protective equipment. Evacuate area immediately. Do not allow general use of area until it is safe to do so. Beware : vapour is heavier than air and will tend to accumulate at low spots.
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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.
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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.
- 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.

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

- Keep containers closed when not in use. Wash thoroughly after handling.
- 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-Chlorobutane	78-86-4	>99%	-	-

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

8.2 Exposure controls

- Respiratory Protection Use only in a chemical fume hood.
- 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 liquid.
- Odour Fresh and characteristic.
- pH Not applicable
- Boiling Point 68-70°C
- Melting Point -140°C
- Flash Point -15°C (Closed cup)
- Upper Flammable Limit Not applicable
- Lower Flammable Limit Not applicable
- Auto Ignition Not applicable
- Explosive Properties The vapours will form explosive mixtures with air.
- Oxidising Properties No.
- Vapour Pressure Not applicable
- Relative Density 0.8730
- Water Solubility 0.1%

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.
10.6	Hazardous Decomposition Products	In combustion emits toxic fumes of Hydrogen chloride gas, carbon dioxide & carbon monoxide.

Section 11. Toxicological Information

11.1 Information on toxicological effects

Eyes	The liquid may be irritating to the eyes.
Skin	The liquid may be harmful if absorbed through the skin.
LD50 Skin	20ml/kg Rabbit
Ingestion	May be harmful by ingestion.
LD50 Oral	20ml/kg Rat
Inhalation	Harmful by inhalation.
LD50 Inhalation	Not available
TCLo	8000ppm
Carcinogenicity	Possible Carcinogen.
Mutagenicity	Not considered to be a mutagen.
Reproductive Effects	None identified.
Other Information	To the best of our knowledge, the chemical, physical, & toxicological properties have not been thoroughly investigated.

Section 12. Ecological

12.1	Toxicity	No data available.
	LC50 Algal	67 mg/L Algae (72 hours)
	LC50 Crustacea	99,9 mg/L Daphnia (24 hours)
	LC50 Fish	75.5 mg/L Fish (48 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	Dispose of via an authorised waste disposal contractor to an approved waste disposal site, observing all local and national regulations.

Section 14. Transport Information

14.1 UN Number	1127
14.2 Proper Shipping Name	Chlorobutanes
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; Corrosive to metals, category 1; Hazard to aquatic environment, category 3

Signal word Danger

Hazard Pictograms



Hazard Statements H225, H290, H412
Highly flammable liquid and vapour. May be corrosive to metals. Harmful to aquatic life with long lasting effects.

Precautionary Statements P210, P240, P280, P303+P361+P353, P403+P235
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. Store in a well ventilated place. Keep cool.

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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