Camlab Limited – Material Safety Data Sheet

1. Identification

Product Code **CC/0933-CO**

Product Name **BUTAN-2-OL pure**

Molecular Formula **$CH_3CH_2CHOHCH_3$ =74.12**

CAS Number **78-92-2**

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2. Composition

Component	CAS No	EEC No	Conc w/w	Classification & Risk Phrases	Exp (See 8.1)
Butan-2-ol	78-92-2	201-158-5	> 99.0%	Xi : R10,R36/37,R67	WEL

3. Hazards Identification

Flammable. Irritating to eyes and respiratory system. Vapours may cause drowsiness and dizziness.

4. 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. If discomfort persists OBTAIN MEDICAL ATTENTION.

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.

5. Fire Fighting Measures

Hazards: Evacuate area immediately. Keep up wind. Avoid exposure to toxic vapours and fumes. Fire-fighters should wear protective clothing and breathing apparatus. Vapour-air mixtures are explosive.

Extinguishing Media: Water spray, alcohol resistant foam, dry powder or carbon dioxide. Use water spray to keep fire exposed containers cool.

Unsuitable Media: Do not use water jet.

6. Accidental Release Measures

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.
Enviromental	Keep material out of sewers, storm drains, surface waters and soil. Notify the Environmental Agency and local Environmental Health Officer if major spillage occurs.
Major Spillage	Contain and absorb on inert material. Transfer absorbent to salvage container for removal. Wash area down with copious amounts of water.
Minor Spillage	Contain and absorb on inert material. Transfer absorbent to container for removal. Allow solvent to evaporate in remote area, then dispose of absorbent as solid chemical waste. Wash area down with copious amounts of water.

7. Storage & Handling

Handling Precautions	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. Ensure Local Exhaust Ventilation maintains vapour concentrations below the recommended limits.
Storage Conditions	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.

8.1 Workplace Exposure Limits

Workplace Exposure Limits	Long Term (8hr TWA):	100.0	ppm	308.0	mg m-3
	Short Term (15min Period):	150.0	ppm	462.0	mg m-3

8.2 Personal Protection

Respiratory	Use L.E.V. or natural ventilation to maintain vapour concentrations below exposure limits. If not, use a well maintained chemical cartridge organic vapour respirator, or use self contained breathing apparatus.
Hands	Use solvent resistant gloves.
Eyes	Use chemical splash proof glasses or goggles.
Skin	Avoid contact with skin. If skin contact or contamination of clothing is likely, protective clothing must be worn.

9. Physical & Chemical Properties

Appearance	Clear colourless liquid.
Odour	Rancid odour.
pH	Not available
Boiling point	99.5 °C
Melting point	114.7- °C
Flash point	31.0 °C(DIN 51755)
Upper Flammable Limit	11.2 %
Lower Flammable Limit	1.4 %
Auto Ignition	345.0 °C
Explosive properties	Moderate/severe in confined spaces.
Oxidising Properties	No.
Vapour Presure	5.5 mmHg 20 C
Relative Density	0.8090
Water Solubility	8%

10. Stability & Reactivity

Chemical Stability	Stable under normal conditions
Conditions to Avoid	Hot surfaces, naked flames or other sources of ignition.

10. Stability & Reactivity (continued)

Materials to Avoid	Strong oxidising agents. Nitric acid. Silver nitrate, potassium perchlorate, chromyl chloride, chromium trioxide and permanganic acid. Peroxides, potassium permanganate, sodium, potassium, platinum, potassium tertiary butoxide.
Hazardous Decomposition Products	None unusual. Burning will produce smoke, carbon monoxide and/or carbon dioxide.

11. Toxicological Information

Eyes	Both the vapour and liquid may, be irritating to the eyes. High concentrations of vapour may cause burning sensations, lachrymation, blurred vision and photophobia.
Skin	Repeated or prolonged contact may defat the skin producing irritation and dermatitis. Many of the effects typical of the vapour can result from absorbtion through the skin.
LD50 Skin	Not available
Ingest	Ingestion may cause symptoms resembling those of alcoholic intoxication ie excitation and irritability. Ingestion of large amounts may cause liver and kidney damage.
LD50 Ingest	Oral Rat 6480 mg/kg
Inhalation	Exposure to vapour concentrations above the occupational exposure limits will produce irritation of the eyes, nose, throat and respiratory tract. High concentrations of vapour will effect the central nervous system acting as a narcotic.
Carcinogenicity	Not considered to be a carcinogen.
Mutagenicity	Not considered to be a mutagen.
Reproductive Effects	No information is available.
Other Information	The irritant effect provides warning and toxic dosages are unlikely to be absorbed.

12. Ecological

Readily bio-degraded in the environment.

13. Disposal Considerations

Disposal Methods	Dispose of in a licensed incinerator for organic solvents. Do not dispose of as domestic waste. Never dispose of into water courses or sewerage systems due to high risk of explosion.
Contaminated Packaging	Use a licensed waste disposer. Do not attempt to burn any residual liquids due to risk of explosion.

14. Transport Information

Proper Shipping Name	Butanols
UN Number	1120
UN Classification	3 Flammable liquid
Subsidiary Risk	None
Flash Point	31.0 °C(DIN 51755)
Packing Group	III
Transport Category	3
Marine pollutant	No
ADR Hazard ID	30

15. Regulatory Information

Labelling Classification	Irritant.
Label Symbols	Xi

15. Regulatory Information (continued)46

Risk & safety Phrases	Flammable. Irritating to eyes and respiratory system. Vapours may cause drowsiness and dizziness. Keep out of reach of children. Keep container tightly closed and in a well ventilated place. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If swallowed, seek medical advice immediately and show this container or label.
EEC Number	201-158-5

16. Other Information

Document Information	This document has been prepared in accordance with directive 88/379/EEC. The information contained in this document only covers the hazards presented by this material, it DOES NOT constitute a workplace risk assessment. Revision Date: 8/06/05. Data reviewed and PDF file generated: 17/03/10.