

Hazard Statements Flammable liquid and vapour. Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause respiratory irritation.

Precautionary Statements Keep away from heat / sparks/open flames/hot surfaces - No smoking. Wear protective gloves / protective clothing / eye protection / face protection. Do not breathe dust / fume / gas / mist / vapours / spray. Do not eat, drink or smoke when using this product. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do and continue rinsing.

Section 3. Composition

3.1 Substances

Component	CAS No.	EEC No.	REACH No.	Conc w/w	CLP Classification (1272/2008/CE)
Butan-1-ol	71-36-3	200-751-6	01-2119484630-38-XXXX	>99.5%	Flam. Liq. 3, Acute Tox. 4 (O), Skin Irrit. 2, Eye Dam. 1, STOT SE 3 (I)

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. 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.

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 Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards Vapour-air mixtures are explosive.

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.

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.

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 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.

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.

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	
Butan-1-ol	71-36-3	>99.5%	-	-	50.0 ppm	154.0 mg/m-3

Exposure data source(s) IOELV: Indicative Occupational Exposure Limit Value.

8.2 Exposure controls

Respiratory Protection 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.

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 Rancid odour.

pH Not applicable

Boiling Point 117.5°C

Melting Point -88.9°C

Flash Point 29°C (Open cup)

Upper Flammable Limit 11.2%

Lower Flammable Limit 1.4%

Auto Ignition 345°C

Explosive Properties Moderate/severe in confined spaces.

Oxidising Properties	No.
Vapour Pressure	5.5mmHg @ 20°C
Relative Density	0.8090
Water Solubility	8%

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

Section 11. Toxicological Information

11.1 Information on toxicological effects

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 absorption through the skin.
LD50 Skin	4200mg/kg Rabbit
Ingestion	Ingestion may cause symptoms resembling those of alcoholic intoxication ie excitation and irritability. Ingestion of large amounts may cause liver and kidney damage.
LD50 Oral	790mg/kg Rat
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.
LD50 Inhalation	Not available
TCLo	Not available
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.

Section 12. Ecological

12.1	Toxicity	Readily bio-degraded in the environment.
	LC50 Algal	Not available
	LC50 Crustacea	1328mg/l Daphnia magna (48 hours)
	LC50 Fish	1376mg/l Fathead Minnow (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 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.

Section 14. Transport Information

14.1 UN Number 1120

14.2 Proper Shipping Name Butanols

14.3 Transport classes

UN classification 3

Subsidiary hazard(s) None

Transport category 3

ADR Hazard ID 30

Tunnel Restriction Code D/E

14.4 Packing Group III

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 3; Acute toxicity, category 4 (oral); Skin corrosion/irritation, category 2; Serious eye damage/irritation, category 1; Spec target organ tox - single, category 3

Signal word Danger

Hazard Pictograms



Hazard Statements H226, H302, H315, H318, H335
Flammable liquid and vapour. Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause respiratory irritation.

Precautionary Statements P210, P280, P260, P270, P301+P330+P331, P305+P351+P338
Keep away from heat / sparks/open flames/hot surfaces - No smoking. Wear protective gloves / protective clothing / eye protection / face protection. Do not breathe dust / fume / gas / mist / vapours / spray. Do not eat, drink or smoke when using this product. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do and continue rinsing.

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.

Revision number: 1.1 (Supercedes revision 1.0)

Revision date: 16 April 2021

Reviewed by chemist: 16 April 2021

Printed date: 16 September 2024

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