

Hazard Statements	Highly flammable liquid and vapour. Harmful if inhaled. Harmful in contact with skin. Harmful if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation.
Precautionary Statements	Keep away from heat / sparks/open flames/hot surfaces - No smoking. Wear protective gloves / protective clothing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do and continue rinsing. IF ON SKIN: Wash with plenty of soap and water.

Section 3. Composition

3.1 Substances

Component	CAS No.	EEC No.	REACH No.	Conc w/w	CLP Classification (1272/2008/CE)
Butylamine	109-73-9	203-699-2	01-2119470233-46-XXXX	>98%	Flam. Liq. 2, Skin Corr. 1A, Acute Tox. 4 (O), Acute Tox. 4 (D), Acute Tox. 4 (I), 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. In severe cases or if exposure has been great, 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	Alcohol resistant foam, dry powder, carbon dioxide or vaporising liquid. 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. Vapours may flow along surfaces to distant ignition sources and flash back.
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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.

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

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		
Butylamine	109-73-9	>98%	-	5.0 mg/m-3	-	15.0 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 Pungent fishy odour. Strong ammoniacal odour at higher concentrations.

pH 13 @ 20°C

Boiling Point 78°C

Melting Point -50°C

Flash Point -9°C (Closed cup)

Upper Flammable Limit 1.7%

Lower Flammable Limit 10%

Auto Ignition 310°C

Explosive Properties Moderate/severe in confined spaces.

Oxidising Properties No.

Vapour Pressure Not applicable

Relative Density	0.7370
Water Solubility	Completely miscible in water.

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	Acids. Strong oxidising agents.
10.6 Hazardous Decomposition Products	Burning will produce toxic fumes of NO _x , carbon monoxide and/or carbon dioxide.

Section 11. Toxicological Information

11.1 Information on toxicological effects

Eyes	Both the vapour and liquid may, be extremely irritating to eyes and can cause chemical eye burns.
Skin	Contact with the liquid may cause burns. May be absorbed through the skin.
LD50 Skin	850mg/kg Rabbit
Ingestion	Harmful if swallowed. Causes immediate irritation of the mouth, throat and gastro-intestinal tract.
LD50 Oral	366mg/kg Rat
Inhalation	Harmful by inhalation. High concentrations of vapour will produce severe irritation of the eyes, nose, throat and respiratory tract.
LD50 Inhalation	Not available
TCLo	Not available
Carcinogenicity	Not considered to be a carcinogen.
Mutagenicity	Not considered to be a mutagen.
Reproductive Effects	None identified.

Section 12. Ecological

12.1 Toxicity	A problem material due to it's intense odour. However it is readily biodegraded in the environment.
LC50 Algal	Not available
LC50 Crustacea	Not available
LC50 Fish	Not available
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.
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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	1125
14.2 Proper Shipping Name	n-Butylamine
14.3 Transport classes	
UN classification	3
Subsidiary hazard(s)	8
Transport category	2
ADR Hazard ID	338
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 1A; Acute toxicity, category 4 (oral); Acute toxicity, category 4 (dermal); Acute toxicity, category 4 (inhalation); Spec target organ tox - single, category 3
Signal word	Danger
Hazard Pictograms	Three red diamond-shaped hazard pictograms are shown side-by-side. The first contains a black flame icon. The second contains a black icon of a hand being poured on by a test tube. The third contains a black exclamation mark.
Hazard Statements	H225, H332, H312, H302, H314, H335 Highly flammable liquid and vapour. Harmful if inhaled. Harmful in contact with skin. Harmful if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation.
Precautionary Statements	P210, P280, P305+P351+P338, P302+P352 Keep away from heat / sparks/open flames/hot surfaces - No smoking. Wear protective gloves / protective clothing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do and continue rinsing. IF ON SKIN: Wash with plenty of soap and water.

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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