

Material Safety Data Sheet

n-Butanol

Version 1.06

Revision Date 14.12.2006



1. Identification of the substance/preparation and of the company/undertaking

Trade name	<i>n</i> -Butanol
Synonyms	<i>n</i> -Butanol, 1-Hydroxybutane, Methylolpropane, <i>n</i> -Butan-1-ol, Propylcarbinol
Use	Solvents, industrial use
Company	Hitech Chemicals

2. Composition/information on ingredients

Preparation on the base:

butan-1-ol; n-butanol

content: 99.85 %W/W

CAS-No. 71-36-3

Index-No. 603-004-00-6

EC-No. 200-751-6

Symbol(s) Xn

R-phrase(s) -R10 -R22 -R37/38 -R41 -R67

For the full text of the R phrases mentioned in this Section, see Section 16.

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3. Hazards identification

Identification of the risks

R10	Flammable.
R22	Harmful if swallowed.
R37/38	Irritating to respiratory system and skin.
R41	Risk of serious damage to eyes.
R67	Vapours may cause drowsiness and dizziness.

Particular risks to human beings and the environment

Highly flammable.

4. First aid measures

General advice	When symptoms persist or in all cases of doubt seek medical advice.
Inhalation	Move to fresh air in case of accidental inhalation of vapours. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before re-use. If skin irritation persists, call a physician.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Ingestion	If swallowed, seek medical advice immediately and show this container or label. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

5. Fire-fighting measures

Suitable extinguishing media	Water spray, Alcohol-resistant foam, Dry chemical, Carbon dioxide (CO ₂)
Specific hazards during fire fighting	Flash back possible over considerable distance.
Special protective equipment for fire-fighters	Wear self-contained breathing apparatus and protective suit.
Further information	Cool containers / tanks with water spray.

6. Accidental release measures

Personal precautions	Keep people away from and upwind of spill/leak. Remove all
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	<i>sources of ignition. Do not breathe vapours or spray mist. Danger of slipping after spill or leakage.</i>
Environmental precautions	<i>Should not be released into the environment. Prevent further leakage or spillage if safe to do so.</i>
Methods for cleaning up	<i>Soak up with inert absorbent material and dispose of as hazardous waste.</i>

7. Handling and storage

Handling

Safe handling advice	<i>Provide sufficient air exchange and/or exhaust in work rooms. Wear personal protective equipment. Take precautionary measures against static discharges. Ensure all equipment is electrically grounded before beginning transfer operations.</i>
Advice on protection against fire and explosion	<i>Use explosion-proof equipment.</i>

Storage

Requirements for storage areas and containers	<i>Keep containers tightly closed in a dry, cool and well-ventilated place.</i>
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8. Exposure controls / personal protection

Components with workplace control parameters

NATIONAL OCCUPATIONAL EXPOSURE LIMITS

EUROPEAN OCCUPATIONAL EXPOSURE LIMITS

Contains no substances with occupational exposure limit values.

Engineering measures

Provide sufficient air exchange and/or exhaust in work rooms.

Personal protective equipment

Respiratory protection	<i>In case of insufficient ventilation wear suitable respiratory equipment.</i>
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Hand protection	<i>gloves suitable for permanent contact: Material: butyl-rubber Break through time: 4 h Material thickness: 0.5 mm unsuitable gloves Material: Polyvinylchloride, leather, nitrile rubber/nitrile latex, natural rubber/natural latex</i>
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Eye protection	Safety glasses with side-shields
Skin and body protection	Protective suit, Safety shoes
Hygiene measures	Wash hands before breaks and immediately after handling the product.
Protective measures	Wear suitable protective equipment.

9. Physical and chemical properties

Form	liquid
state of matter	liquid
Colour	clear, colourless
Odour	alcoholic
Melting point/range	-89.5 °C
Boiling point/range	117 °C
Flash point	37 °C; closed cup
Flash point	98.6 °C; open cup
Autoignition temperature	343 °C
Lower explosion limit	1.4 %(V)
Upper explosion limit	11.2 %(V)
Vapour pressure	9.333 hPa; 25 °C
Density	0.81 g/cm ³
Water solubility	partly soluble
Viscosity, dynamic	36.1 mPa.s
Viscosity, kinematic	44.568 mm ² /s
Relative vapour density	2.6(Air = 1.0)

10. Stability and reactivity

Materials to avoid	Strong oxidizing agents, Incompatible with acids., Halogenated compounds
Hazardous decomposition products	Carbon oxides
Hazardous reactions	Hazardous polymerisation does not occur.

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11. Toxicological information

Acute oral toxicity	LD50 rat: 790 mg/kg; literature value
Acute inhalation toxicity	LC50 rat: 8,000 mg/l; ; 4 h; literature value
Acute dermal toxicity	LD50 rabbit: 3,400 mg/kg; literature value
Skin irritation	rabbit: moderately irritating; literature value; Irritating to skin.
Eye irritation	rabbit: highly irritating; literature value; Risk of serious damage to eyes.

12. Ecological information

Ecotoxicity effects

Toxicity to fish	LC50 Pimephales promelas: 1,730 mg/l; 96 h; literature value
Toxicity to daphnia and other aquatic invertebrates.	EC50 Daphnia magna: 1,983 mg/l; 48 h; literature value

13. Disposal considerations

Product	In accordance with local and national regulations., Do not contaminate ponds, waterways or ditches with chemical or used container., The product should not be allowed to enter drains, water courses or the soil.
Contaminated packaging	Do not burn, or use a cutting torch on, the empty drum., Triple rinse containers., Can be offered for recycling, re-conditioning or puncture.

14. Transport information

ADR	UN-No.: 1120; Class: 3; Packaging group: III; F1; Description of the goods: BUTANOLS (n-butanol)
RID	UN-No.: 1120; Class: 3; Packaging group: III; F1; Description of the goods: BUTANOLS (n-butanol)
ADNR	UN-No.: 1120; Class: 3; Packaging group: III; F1; Description of the goods: BUTANOLS (n-butanol)
IMDG	UN-No.: 1120; Class: 3; EmS: F-E, S-D; Packaging group: III; Description of the goods: BUTANOLS (n-butanol)

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ICAO/IATA

UN-No. : 1120; Class: 3; Packaging group: III; Description of the goods: Butanols (n-butanol)

15. Regulatory information

Labelling



Regulatory base

67/548/EEC

Symbol(s)

Xn: Harmful

R-phrase(s)

R10: Flammable.
R22: Harmful if swallowed.
R37/38: Irritating to respiratory system and skin.
R41: Risk of serious damage to eyes.
R67: Vapours may cause drowsiness and dizziness.

S-phrase(s)

S 2: Keep out of the reach of children.
S 7/9: Keep container tightly closed and in a well-ventilated place.
S13: Keep away from food, drink and animal feedingstuffs.
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39: Wear suitable gloves and eye/face protection.
S46: If swallowed, seek medical advice immediately and show this container or label.

Hazardous components which must be listed on the label

butan-1-ol; n-butanol

16. Other information

Full text of R-phrases referred to under sections 2 and 3



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This MSDS summarises at the date of issue our best knowledge of the health, safety and environmental hazard information related to the product, and in particular how to safely handle, use, store and transport the product in the workplace. Since we cannot anticipate or control conditions under which the product may be handled, used, stored or transported, each user must, prior to usage, review this MSDS in the context of how the user intends to handle, use, store or transport the product in the workplace and beyond, and communicate such information to all relevant parties. If clarification or further information is needed to ensure that an appropriate assessment can be made, the user should contact this company.

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The MSDS was created by:

The MSDS was approved by: