

# Safety Data Sheet

## n-BUTANOL

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### 1. Identification

#### Product identifier used on the label

**n-BUTANOL**

#### Recommended use of the chemical and restriction on use

Recommended use\*: solvent(s)

Recommended use\*: solvent(s); for industrial use only

Unsuitable for use: Not intended for sale to or use by the general public.

\* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

#### Details of the supplier of the safety data sheet

##### Company:

BASF CORPORATION  
100 Park Avenue  
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

#### Emergency telephone number

##### 24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300

BASF HOTLINE: 1-800-832-HELP (4357)

#### Other means of identification

Molecular formula:	C(4)H(10)O
Chemical family:	alcohols, aliphatic
Synonyms:	1-Butanol n-Butanol n-Butyl Alcohol

### 2. Hazards Identification

According to Regulation 2024 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

#### Classification of the product

Flam. Liq.

3

Flammable liquids

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Skin Irrit.	2	Skin irritation
Eye Dam.	1	Serious eye damage
STOT SE	3 (May cause drowsiness and dizziness.)	Specific target organ toxicity — single exposure
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure

### Label elements

Pictogram:



Signal Word:  
Danger

Hazard Statement:

H226	Flammable liquid and vapour.
H318	Causes serious eye damage.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H335	May cause respiratory irritation.

Precautionary Statements (Prevention):

P280	Wear protective gloves and eye protection or face protection.
P271	Use only outdoors or in a well-ventilated area.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing mist or vapour or spray.
P243	Take action to prevent static discharges.
P241	Use explosion-proof electrical, ventilating and lighting equipment.
P264	Wash contaminated body parts thoroughly after handling.
P240	Ground and bond container and receiving equipment.
P242	Use non-sparking tools.

Precautionary Statements (Response):

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or physician.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use alcohol-resistant foam, carbon dioxide, dry powder or water spray for extinction.

Precautionary Statements (Storage):

P233	Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary Statements (Disposal):

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P501

Dispose of contents/container in accordance with local regulations.

### Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture. See section 12 - Results of PBT and vPvB assessment.

## 3. Composition / Information on Ingredients

### According to Regulation 2024 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

| n-butanol

| CAS Number: 71-36-3  
Content (W/W):  $\geq 99.8 - < 100.0\%$   
Synonym: 1-Butanol; n-Butanol

Isobutanol

CAS Number: 78-83-1  
Content (W/W):  $> 0.0 - \leq 0.1\%$   
Synonym: 2-Methyl-1-propanol; Isobutanol

## 4. First-Aid Measures

### Description of first aid measures

#### General advice:

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

#### If inhaled:

Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

#### If on skin:

Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

#### If in eyes:

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Seek medical attention.

#### If swallowed:

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

### Most important symptoms and effects, both acute and delayed

Symptoms: Overexposure may cause:, headache, dizziness, coordination disorder, coma, lacrimation, loss of hearing

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Hazards: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11. (Further) symptoms and / or effects are not known so far

### Indication of any immediate medical attention and special treatment needed

#### Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

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## 5. Fire-Fighting Measures

### Extinguishing media

Suitable extinguishing media:  
dry powder, water spray, carbon dioxide, alcohol-resistant foam

Unsuitable extinguishing media for safety reasons:  
water jet

Additional information:  
Use extinguishing measures to suit surroundings.

### Special hazards arising from the substance or mixture

Hazards during fire-fighting:  
Flammable liquid Cool endangered containers with water-spray. See SDS section 7 - Handling and storage.

### Advice for fire-fighters

Protective equipment for fire-fighting:  
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear. Special protective equipment for firefighters

### Further information:

Evacuate area of all unnecessary personnel. Fight fire from maximum distance.

Extend fire extinguishing measures to the surroundings. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

### Impact Sensitivity:

Remarks: Based on the chemical structure there is no shock-sensitivity.

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## 6. Accidental release measures

Further accidental release measures:  
High risk of slipping due to leakage/spillage of product.

Release of substance/product can cause fire or explosion. Shut off or stop source of leak. Shut off or stop released substance/product under safe conditions.

Pack in tightly closed containers for disposal.

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### Personal precautions, protective equipment and emergency procedures

Handle in accordance with good industrial hygiene and safety practice.

Avoid all sources of ignition: heat, sparks, open flame. Use antistatic tools.

### Environmental precautions

Discharge into the environment must be avoided.

### Methods and material for containment and cleaning up

Pick up with suitable appliance and dispose of. Spills should be contained, solidified, and placed in suitable containers for disposal. Dispose of absorbed material in accordance with regulations.

## 7. Handling and Storage

### Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

Protection against fire and explosion:

Avoid all sources of ignition: heat, sparks, open flame. Ground all transfer equipment properly to prevent electrostatic discharge.

### Conditions for safe storage, including any incompatibilities

No applicable information available.

Further information on storage conditions: Keep container tightly closed and dry; store in a cool place.

Keep away from sources of ignition - No smoking. Keep container tightly closed in a cool, well-ventilated place. Storage containers should be grounded. Do not use or store in iron, copper or aluminium containers or equipment.

## 8. Exposure Controls/Personal Protection

### Components with occupational exposure limits

n-butanol	ACGIH, US:	TWA value 20 ppm ;
	OSHA Z1:	PEL 100 ppm 300 mg/m3 ;
	NIO ID, US:	IDLH 1,400 ppm ; IDLH values based on the 1994 Revised Criteria
	NIO ID, US:	LEL 1.4 % ;
Isobutanol	ACGIH, US:	TWA value 50 ppm ;
	OSHA Z1:	PEL 100 ppm 300 mg/m3 ;
	NIO ID, US:	IDLH 1,600 ppm ; IDLH values based on the 1994 Revised Criteria
	NIO ID, US:	LEL 1.7 % ;

### Advice on system design:

Provide local exhaust ventilation to maintain recommended P.E.L.

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### Personal protective equipment

#### **Respiratory protection:**

Observe OSHA regulations for respirator use (29 CFR 1910.134). Wear a NIOSH-certified (or equivalent) respirator as necessary.

#### **Hand protection:**

Chemical resistant protective gloves, Suitable materials, chloroprene rubber (Neoprene)

#### **Eye protection:**

Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

#### **General safety and hygiene measures:**

Work place should be equipped with a shower and an eye wash. Avoid inhalation of vapours/mists. Wear protective clothing as necessary to prevent contact.

## 9. Physical and Chemical Properties

Physical state:	liquid	
Form:	liquid	
Odour:	alcohol-like	
Odour threshold:	not determined	
Colour:	colourless	
pH value:	4.6 - 5.0 ( 100 %(m))	
Melting point:	< -90 °C	(ASTM D97)
Freezing point:	No data available.	
Boiling point:	119 °C ( 1,013 hPa)	(OECD Guideline 103)
Boiling range:	No data available.	
Sublimation point:	No applicable information available.	
Flash point:	35 °C	(ISO 2719, closed cup)
Flammability:	Flammable.	(derived from flash point)
Lower explosion limit:	For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Heat of Combustion:	36.11 kJ/g	
Autoignition:	355 °C	(DIN 51794)
Vapour pressure:	< 10 hPa ( 20 °C)	
Density:	0.8095 g/cm3 ( 20 °C) 0.7824 g/cm3 ( 55 °C)	(ASTM D4052)
Relative density:	0.8095 ( 20 °C)	
Relative vapour density:	2.55 ( 20 °C) Heavier than air.	(calculated)

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Partitioning coefficient n-octanol/water (log Pow):	1 ( 25 °C)	(OECD Guideline 117)
Self-ignition temperature:	20 °C	
	Based on its structural properties the product is not classified as self-igniting.	
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:	2.947 mPa.s ( 20 °C)	
Viscosity, kinematic:	No data available.	
Solubility in water:	66 g/l ( 20 °C)	
Solubility (quantitative):	No data available.	
Solubility (qualitative):	soluble	
	solvent(s): organic solvents,	
Molecular weight:	74.12 g/mol	
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	

### Particle characteristics

Particle size distribution: The substance / product is marketed or used in a non solid or granular form.

## 10. Stability and Reactivity

### Reactivity

Corrosion to metals:  
No corrosive effect on metal.

Oxidizing properties:  
Based on its structural properties the product is not classified as oxidizing.

Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.
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### Chemical stability

The product is stable if stored and handled as prescribed/indicated.

### Possibility of hazardous reactions

The product is chemically stable.  
Reacts with strong oxidizing agents.

### Conditions to avoid

Avoid all sources of ignition: heat, sparks, open flame.

### Incompatible materials

strong oxidizing agents  
strong acids, halogens, copper alloys, aluminum compounds

### Hazardous decomposition products

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Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

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## 11. Toxicological information

### Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

### Acute Toxicity/Effects

#### Acute toxicity

Assessment of acute toxicity: Of low toxicity after short-term skin contact. Virtually nontoxic by inhalation. Of low toxicity after single ingestion. The European Union (EU) has classified this substance as 'harmful' after oral exposure.

If used as intended, this product is not expected to present a physical or health hazard.

#### Oral

Type of value: LD50

Species: rat

Value: 2,292 mg/kg (OECD Guideline 401)

The European Union (EU) has classified this substance as 'harmful'.

#### Inhalation

Type of value: LC50

Species: rat (male/female)

Value: > 17.76 mg/l (OECD Guideline 403)

Exposure time: 4 h

The vapour was tested.

Highest concentration technically achievable. No mortality was observed.

Type of value: LC50

Species: rat (male)

Value: > 24 mg/l (other)

Exposure time: 4 h

The vapour was tested.

No mortality was observed.

#### Dermal

Type of value: LD50

Species: rabbit

Value: 3,430 mg/kg (OECD Guideline 402)

#### Assessment other acute effects

Assessment of STOT single:

Possible narcotic effects (drowsiness or dizziness). Causes temporary irritation of the respiratory tract.

#### Irritation / corrosion



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Assessment of irritating effects: Skin contact causes irritation. Risk of serious damage to eyes.

### Skin

Species: rabbit  
Result: Irritant.  
Method: BASF-Test

### Eye

Species: rabbit  
Result: irreversible damage  
Method: OECD Guideline 405

### Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

### Mouse Local Lymph Node Assay (LLNA)

Species: mouse  
Result: Non-sensitizing.  
Method: similar to OECD guideline 429

### Aspiration Hazard

Some authorities consider isobutyl alcohol, n-primary alcohols and ketones with C3-C13 as "May be harmful if swallowed and enters airways"

## **Chronic Toxicity/Effects**

### Repeated dose toxicity

Assessment of repeated dose toxicity: No substance-specific organotoxicity was observed after repeated administration to animals.  
Repeated oral uptake of the substance did not cause substance-related effects.

### Genetic toxicity

Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was not genotoxic in mammalian cell culture. The substance was not genotoxic in a test with mammals.

### Carcinogenicity

Assessment of carcinogenicity: No reliable data was available concerning carcinogenic activity. The chemical structure does not suggest a specific alert for such an effect.

### Reproductive toxicity

Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect.

### Teratogenicity

Assessment of teratogenicity: Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.  
The potential to cause toxicity to development cannot be excluded when given in high doses.

### Experiences in humans

High concentrations have a narcotizing effect. Irritates the respiratory organs.

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## **12. Ecological Information**

### **Toxicity**

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### Aquatic toxicity

#### Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

### Toxicity to fish

LC50 (96 h) 1,376 mg/l, Pimephales promelas (OECD 203; ISO 7346; 92/69/EWG, C.1, static)

### Aquatic invertebrates

EC50 (48 h) 1,328 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

### Aquatic plants

EC50 (96 h) 225 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)

No observed effect concentration (96 h) 129 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)

### Chronic toxicity to fish

No data available.

### Chronic toxicity to aquatic invertebrates

No observed effect concentration (21 d) 4.1 mg/l, Daphnia magna (OECD Guideline 211, semistatic)

### Assessment of terrestrial toxicity

No data available.

## **Microorganisms/Effect on activated sludge**

### Toxicity to microorganisms

DIN 38412 Part 8 aerobic

bacterium/EC10 (17 h): 2,476 mg/l

## **Persistence and degradability**

### Assessment biodegradation and elimination (H<sub>2</sub>O)

Readily biodegradable (according to OECD criteria).

### Elimination information

92 % BOD of the ThOD (20 d) (APHA 'Standard Methods', No. 219, 1971) (aerobic, activated sludge, domestic, non-adapted)

Literature data.

### Assessment of stability in water

No data available.

### Information on Stability in Water (Hydrolysis)

No data available.

## **Bioaccumulative potential**

### Assessment bioaccumulation potential

Significant accumulation in organisms is not to be expected.

### Bioaccumulation potential

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No data available.

### Mobility in soil

#### Assessment transport between environmental compartments

The substance will not evaporate into the atmosphere from the water surface.

Adsorption to solid soil phase is not expected.

### Additional information

Adsorbable organically-bound halogen(AOX):

This product contains no organically-bound halogen.

Other ecotoxicological advice:

The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

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## 13. Disposal considerations

### Waste disposal of substance:

Dispose of in accordance with national, state and local regulations.

### Container disposal:

Disposal must be made according to official regulations.

**RCRA:** U031

This product is regulated by RCRA.

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## 14. Transport Information

### Land transport

USDOT

Hazard class:	3
Packing group:	III
ID number:	UN 1120
Hazard label:	3
Proper shipping name:	BUTANOLS

### Sea transport

IMDG

Hazard class:	3
Packing group:	III
ID number:	UN 1120
Hazard label:	3
Marine pollutant:	NO
Proper shipping name:	BUTANOLS

### Air transport

IATA/ICAO

Hazard class:	3
Packing group:	III
ID number:	UN 1120
Hazard label:	3
Proper shipping name:	BUTANOLS

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### Further information

To products mentioned in chapter 18 of the IBC-Code, no ship type is assigned within this list.

## 15. Regulatory Information

### Federal Regulations

#### Registration status:

Chemical TSCA, US

All substances are TSCA listed and active.

**EPCRA 311/312 (Hazard categories):** Refer to SDS section 2 for GHS hazard classes applicable for this product.

#### EPCRA 313:

##### CAS Number

71-36-3

Chemical name

n-butanol

##### CERCLA RQ

5000 LBS

##### CAS Number

71-36-3

##### Chemical name

n-butanol

### State regulations

#### State RTK

NJ

PA

#### CAS Number

71-36-3

71-36-3

#### Chemical name

n-butanol

n-butanol

#### NFPA Hazard codes:

Health: 2

Fire: 3

Reactivity: 0

Special:

#### HMIS III rating

Health: 2

Flammability: 3

Physical hazard: 0

### Assessment of the hazard classes according to UN GHS criteria (most recent version):

Flam. Liq.	3	Flammable liquids
Acute Tox.	5 (dermal)	Acute toxicity
Skin Irrit.	2	Skin irritation
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure
STOT SE	3 (May cause drowsiness and dizziness.)	Specific target organ toxicity — single exposure
Acute Tox.	5 (oral)	Acute toxicity
Eye Dam.	1	Serious eye damage

## 16. Other Information

#### SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2025/10/13

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