



## SAFETY DATA SHEET

# 1-Butanol

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

<i>Trade name:</i>	1-Butanol
<i>Product no.:</i>	DIFKE
<i>Other means of identification:</i>	Index No.: 603-004-00-6 EC No.: 200-751-6 CAS No.: 71-36-3

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

<i>Relevant identified uses of the substance or mixture:</i>	Laboratory use
<i>Uses advised against :</i>	None known.

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

<i>Company and address:</i>	<b>Laboratoriumdiscounter</b> Zandvoortstraat 75 1976BN IJmuiden Netherlands Tel: +31 255 700 210 <a href="http://www.laboratoriumdiscounter.nl/en/">www.laboratoriumdiscounter.nl/en/</a>
<i>E-mail:</i>	<a href="mailto:info@laboratoriumdiscounter.nl">info@laboratoriumdiscounter.nl</a>
<i>Revision:</i>	30/01/2023
<i>SDS Version:</i>	1.0

### 1.4. Emergency telephone number

Contact The National Poisons Information Service (dial 111, 24 h service).  
See section 4 "First aid measures".

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

Flam. Liq. 3; H226, Flammable liquid and vapour.  
Acute Tox. 4; H302, Harmful if swallowed.  
Skin Irrit. 2; H315, Causes skin irritation.  
Eye Dam. 1; H318, Causes serious eye damage.  
STOT SE 3; H335, May cause respiratory irritation.  
STOT SE 3; H336, May cause drowsiness or dizziness.

### 2.2. Label elements

*Hazard pictogram(s):*



*Signal word:*

Danger



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<i>Hazard statement(s):</i>	Flammable liquid and vapour. (H226) Harmful if swallowed. (H302) Causes skin irritation. (H315) Causes serious eye damage. (H318) May cause respiratory irritation. (H335) May cause drowsiness or dizziness. (H336)
<i>Safety statement(s):</i>	
<i>General:</i>	-
<i>Prevention:</i>	Wash hands and exposed skin thoroughly after handling. (P264) Wear eye protection/protective gloves. (P280)
<i>Response:</i>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338) Immediately call a POISON CENTER/doctor. (P310)
<i>Storage:</i>	Store in a well-ventilated place. Keep cool. (P403+P235)
<i>Disposal:</i>	Dispose of contents/container in accordance with local regulation. (P501)
<i>Hazardous substances:</i>	butan-1-ol;n-butanol
<i>Additional labelling:</i>	Not applicable.
<b>2.3. Other hazards</b>	
<i>Additional warnings:</i>	This mixture/product does not contain any substances considered to meet the criteria classifying them as PBT and/or vPvB. This product does not contain any substances considered to be endocrine disruptors in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Product/substance	Identifiers	% w/w	Classification	Note
butan-1-ol;n-butanol	CAS No.: 71-36-3 EC No.: 200-751-6 UK-REACH: Index No.: 603-004-00-6	95-100%	Flam. Liq. 3, H226 Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 STOT SE 3, H336	

### 3.2. Mixtures

Not applicable. This product is a substance.

See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if



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these are available.

## Other information

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## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

#### *General information:*

In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet.  
Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

#### *Inhalation:*

Upon breathing difficulties or irritation of the respiratory tract: Bring the person into fresh air and stay with him/her.

#### *Skin contact:*

IF ON SKIN: Wash with plenty of water and soap.  
Remove contaminated clothing and shoes. Ensure to wash exposed skin thoroughly with water and soap. DO NOT use solvents or thinners.  
If skin irritation occurs: Get medical advice/attention.

#### *Eye contact:*

Upon irritation of the eye: Remove contact lenses. Flush eyes with plenty of water or salt water (20-30 °C) for at least 30 minutes and continue until irritation stops. Make sure you flush under the upper and lower eyelids. Seek medical assistance immediately and continue flushing during transport.

#### *Ingestion:*

In the case of ingestion, contact a doctor immediately. If the person is conscious, give them water. DO NOT try to induce vomiting unless this is recommended by a doctor. Hold head facing down to prevent vomit returning mouth and throat. Prevent shock by keeping the injured person warm and calm. Initiate immediate resuscitation if breathing stops. If unconscious, roll the injured person into recovery position. Call an ambulance.

#### *Burns:*

Rinse with water until pain stops then continue to rinse for 30 minutes.

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

The product contains substances that cause serious eye damage. Contact with these substances can cause irreversible effects on the eye / serious eye damage.

Neurotoxic effects: This product contains organic solvents, which may cause adverse effects to the nervous system. Symptoms of neurotoxicity include: loss of appetite, headache, dizziness,



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ringing in ears, tingling sensations of skin, sensitivity to the cold, cramps, difficulty in concentrating, tiredness, etc. Repeated exposure to solvents can result in the breaking down of the skin's natural fat layer and may result in an increased absorption potential of other hazardous substances at the area of exposure.

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

IF exposed or concerned:

Get immediate medical advice/attention.

*Information to medics:*

Bring this safety data sheet or the label from this product.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam, carbon dioxide, powder, water mist.

Unsuitable extinguishing media: Waterjets should not be used, since they can spread the fire.

### 5.2. Special hazards arising from the substance or mixture

Fire will result in dense smoke. Exposure to combustion products may harm your health. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters.

If the product is exposed to high temperatures, e.g. in the event of fire, dangerous decomposition compounds are produced. These are:

Carbon oxides (CO / CO<sub>2</sub>)

### 5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective clothing to prevent contact. Upon direct exposure contact The National Poisons Information Service (dial 111, 24 h service) in order to obtain further advice.

Hazchem Code: ●2Y

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

Storages not yet ignited must be cooled by water mist. Remove flammable materials if conditions allow it. Ensure sufficient ventilation.

Avoid direct contact with spilled substances.

Avoid inhalation of vapours from spilled material.

### 6.2. Environmental precautions

Avoid discharge to lakes, streams, sewers, etc.

### 6.3. Methods and material for containment and cleaning up

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

Wherever possible cleaning should be performed with normal cleaning agents. Avoid use of solvents.

### 6.4. Reference to other sections

See section 13 "Disposal considerations" on handling of waste.

See section 8 "Exposure controls/personal protection" for protective measures.

## SECTION 7: HANDLING AND STORAGE



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### 7.1. Precautions for safe handling

Ground and bond container and receiving equipment.  
Use explosion-proof [electrical/lighting/ventilating] equipment.  
Use non-sparking tools.  
Take action to prevent static discharges.  
Avoid direct contact with the product.  
Smoking, drinking and consumption of food is not allowed in the work area.  
See section 8 "Exposure controls/personal protection" for information on personal protection.

### 7.2. Conditions for safe storage, including any incompatibilities

Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Take action to prevent static discharges.

Must be stored in a cool and well-ventilated area, away from possible sources of ignition.

*Recommended storage material:* Keep only in original packaging.

*Storage temperature:* Room temperature 15 to 25°C

*Incompatible materials:* Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

### 7.3. Specific end use(s)

This product should only be used for applications quoted in section 1.2.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

butan-1-ol;n-butanol

Short term exposure limit (15 minutes) (ppm): 50

Short term exposure limit (15 minutes) (mg/m<sup>3</sup>): 154

Annotations:

Sk = Can be absorbed through the skin and lead to systemic toxicity.

The Control of Substances Hazardous to Health Regulations 2002. SI 2002/2677 The Stationery Office 2002.

EH40/2005 Workplace exposure limits (Fourth Edition 2020).

### DNEL

butan-1-ol;n-butanol

Duration	Route of exposure	DNEL
Long term – Systemic effects - General population	Dermal	3.125 mg/kg bw/day
Long term – Local effects - General population	Inhalation	155 mg/m <sup>3</sup>
Long term – Local effects - Workers	Inhalation	310 mg/m <sup>3</sup>
Long term – Systemic effects - General population	Inhalation	55.357 mg/m <sup>3</sup>
Long term – Systemic effects - General population	Oral	1.562 mg/kg bw/day

### PNEC

butan-1-ol;n-butanol

Route of exposure	Duration of Exposure	PNEC
Freshwater		82 µg/L



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Freshwater sediment		324 µg/kg
Intermittent release (freshwater)		2.25 mg/L
Marine water		8.2 µg/L
Marine water sediment		32.4 µg/kg
Sewage treatment plant		2.476 g/L
Soil		16.6 µg/kg

## 8.2. Exposure controls

Compliance with the given occupational exposure limits values should be controlled on a regular basis.

*General recommendations:*

Smoking, drinking and consumption of food is not allowed in the work area.

*Exposure scenarios:*

There are no exposure scenarios implemented for this product.

*Exposure limits:*

Professional users are subjected to the legally set maximum concentrations for occupational exposure. See occupational hygiene limit values above.

*Appropriate technical measures:*

The formation of vapours must be kept at a minimum and below current limit values (see above). Installation of a local exhaust system if normal air flow in the work room is not sufficient is recommended. Ensure eyewash and emergency showers are clearly marked.

*Hygiene measures:*

Take off contaminated clothing and wash it before reuse.

*Measures to avoid environmental exposure:*


No specific requirements.

## 8.3. Individual protection measures, such as personal protective equipment

*Generally:*

Use only UKCA marked protective equipment.


*Respiratory Equipment:*

Type	Class	Colour	Standards	
A	Class 2 (medium capacity)	Brown	EN14387	

*Skin protection:*

No specific requirements.


*Hand protection:*

Material	Glove thickness (mm)	Breakthrough time (min.)	Standards	
Butyl	0,7	> 480	EN374-2, EN374-3, EN388, EN421	

*Eye protection:*



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Type	Standards	
Safety glasses with side shields.	EN166	

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<i>Physical state:</i>	Liquid
<i>Colour:</i>	Colourless
<i>Odour / Odour threshold:</i>	Alcohol odor (Odour treshold: 0.004 - 48.7 ppm)
<i>pH:</i>	Testing not relevant or not possible due to the nature of the product.
<i>Density (g/cm<sup>3</sup>):</i>	0.81
<i>Kinematic viscosity:</i>	3,638 mm <sup>2</sup> /s (20 °C)
<i>Particle characteristics:</i>	Does not apply to liquids.

#### Phase changes

<i>Melting point/Freezing point (°C):</i>	<-90
<i>Softening point/range (waxes and pastes) (°C):</i>	Does not apply to liquids.
<i>Boiling point (°C):</i>	119
<i>Vapour pressure:</i>	<10 hPa
<i>Relative vapour density:</i>	2,6 bij 20 °C
<i>Decomposition temperature (°C):</i>	Not applicable

#### Data on fire and explosion hazards

<i>Flash point (°C):</i>	35
<i>Ignition (°C):</i>	355
<i>Auto flammability (°C):</i>	Testing not relevant or not possible due to the nature of the product.
<i>Lower and upper explosion limit (% v/v):</i>	1.4 - 11.3

#### Solubility

<i>Solubility in water:</i>	66 g /l
<i>n-octanol/water coefficient:</i>	Testing not relevant or not possible due to the nature of the product.
<i>Solubility in fat (g/L):</i>	Testing not relevant or not possible due to the nature of the product.

### 9.2. Other information

<i>Other physical and chemical parameters:</i>	No data available.
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## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity



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No data available.

#### **10.2. Chemical stability**

The product is stable under the conditions, noted in section 7 "Handling and storage".

#### **10.3. Possibility of hazardous reactions**

None known.

#### **10.4. Conditions to avoid**

Avoid static electricity.

Do not expose to any forms of heat (e.g. solar radiation). May lead to excess pressure.

#### **10.5. Incompatible materials**

Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

#### **10.6. Hazardous decomposition products**

The product is not degraded when used as specified in section 1.

## **SECTION 11: TOXICOLOGICAL INFORMATION**

### **11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008 as retained and amended in UK law**

#### **Acute toxicity**

Harmful if swallowed.

#### **Skin corrosion/irritation**

Causes skin irritation.

#### **Serious eye damage/irritation**

Causes serious eye damage.

#### **Respiratory sensitisation**

Based on available data, the classification criteria are not met.

#### **Skin sensitisation**

Based on available data, the classification criteria are not met.

#### **Germ cell mutagenicity**

Based on available data, the classification criteria are not met.

#### **Carcinogenicity**

Based on available data, the classification criteria are not met.

#### **Reproductive toxicity**

Based on available data, the classification criteria are not met.

#### **STOT-single exposure**

May cause respiratory irritation.

May cause drowsiness or dizziness.

#### **STOT-repeated exposure**

Based on available data, the classification criteria are not met.

#### **Aspiration hazard**

Based on available data, the classification criteria are not met.

### **11.2. Information on other hazards**

#### **Long term effects**

The product contains substances that cause serious eye damage. Contact with these substances can cause irreversible effects on the eye / serious eye damage.

Neurotoxic effects: This product contains organic solvents, which may cause adverse effects to





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the nervous system. Symptoms of neurotoxicity include: loss of appetite, headache, dizziness, ringing in ears, tingling sensations of skin, sensitivity to the cold, cramps, difficulty in concentrating, tiredness, etc. Repeated exposure to solvents can result in the breaking down of the skin's natural fat layer and may result in an increased absorption potential of other hazardous substances at the area of exposure.

### **Endocrine disrupting properties**

None known.

### **Other information**

None known.

## **SECTION 12: ECOLOGICAL INFORMATION**

### **12.1. Toxicity**

No data 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 and vPvB assessment**

This mixture/product does not contain any substances considered to meet the criteria classifying them as PBT and/or vPvB.

### **12.6. Endocrine disrupting properties**

None known.

### **12.7. Other adverse effects**

None known.

## **SECTION 13: DISPOSAL CONSIDERATIONS**

### **Waste treatment methods**

Product is covered by the regulations on hazardous waste.

HP 3 - Flammable

HP 4 - Irritant (skin irritation and eye damage)

HP 5 - Specific Target Organ Toxicity (STOT)/Aspiration Toxicity

HP 6 - Acute toxicity

Dispose of contents/container to an approved waste disposal plant.

Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.

### **EWC code**

Not applicable.




### **Specific labelling**

Not applicable.

### **Contaminated packing**

Packaging containing residues of the product must be disposed of similarly to the product.

**SECTION 14: TRANSPORT INFORMATION**

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other information
ADR	UN1120	BUTANOLS	Class: 3 Labels: 3 Classification code: F1 	III	No	Limited quantities: 5 L Tunnel restriction code: (D/E) See below for additional information.
IMDG	UN1120	BUTANOLS	Class: 3 Labels: 3 Classification code: F1 	III	No	Limited quantities: 5 L EmS: F-E S-D See below for additional information.
IATA	UN1120	BUTANOLS	Class: 3 Labels: 3 Classification code: F1 	III	No	See below for additional information.

\* Packing group

\*\* Environmental hazards

**Additional information**

ADR / See Table A, Section 3.2.1 for any information on special provisions, requirements, or warnings in connection with transport. See section 5.4.3, for instructions in writing regarding mitigation of damages in relation to incidents or accidents during transport.

IMDG / See section 3.2.1, for any information on special provisions, requirements, or warnings in connection with transport.

IATA / See Table 4.2 for any information on special provisions, requirements, or warnings in connection with transport.

This product is within scope of the regulations of transport of dangerous goods.

Hazchem Code: ●2Y

**14.6. Special precautions for user**

Not applicable.

**14.7. Maritime transport in bulk according to IMO instruments**

No data available.

**SECTION 15: REGULATORY INFORMATION****15.1. Safety, health and environmental regulations/legislation specific for the substance**

**or mixture***Restrictions for application:*

Restricted to professional users.  
Pregnant women and women breastfeeding must not be exposed to this product. The risk, and possible technical precautions or design of the workplace needed to eliminate exposure, must be considered.

*Demands for specific education:*

No specific requirements.

*SEVESO - Categories / dangerous substances:*

P5c - FLAMMABLE LIQUIDS, Qualifying quantity (lower-tier): 5.000 tonnes / (upper-tier): 50.000 tonnes

*Additional information:*

Not applicable.

*Sources:*

The Management of Health and Safety at Work Regulations 1999.  
The Health and Safety at Work etc. Act 1974  
Regulations 2013.  
Control of Major Accident Hazards (COMAH) Regulations 2015.  
Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.  
Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP) as retained and amended in UK law.  
Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as retained and amended in UK law.

**15.2. Chemical safety assessment**

No

**SECTION 16: OTHER INFORMATION****Full text of H-phrases as mentioned in section 3**

H226, Flammable liquid and vapour.  
H302, Harmful if swallowed.  
H315, Causes skin irritation.  
H318, Causes serious eye damage.  
H335, May cause respiratory irritation.  
H336, May cause drowsiness or dizziness.

**Abbreviations and acronyms**

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway  
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road  
ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
CAS = Chemical Abstracts Service  
CE = Conformité Européenne



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CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
CSA = Chemical Safety Assessment  
CSR = Chemical Safety Report  
DMEL = Derived Minimal Effect Level  
DNEL = Derived No Effect Level  
EINECS = European Inventory of Existing Commercial chemical Substances  
ES = Exposure Scenario  
EUH statement = CLP-specific Hazard statement  
EWC = European Waste Catalogue  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IARC = International Agency for Research on Cancer (IARC)  
IATA = International Air Transport Association  
IBC = Intermediate Bulk Container  
IMDG = International Maritime Dangerous Goods  
LogPow = logarithm of the octanol/water partition coefficient  
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
OECD = Organisation for Economic Co-operation and Development  
PBT = Persistent, Bioaccumulative and Toxic  
PNEC = Predicted No Effect Concentration  
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail  
RRN = REACH Registration Number  
SCL = A specific concentration limit  
SVHC = Substances of Very High Concern  
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure  
STOT-SE = Specific Target Organ Toxicity - Single Exposure  
TWA = Time weighted average  
UN = United Nations  
UVBC = Unknown or variable composition, complex reaction products or of biological materials  
VOC = Volatile Organic Compound  
vPvB = Very Persistent and Very Bioaccumulative

### Additional information

The classification of the substance/mixture in regard of health hazards are in accordance with the calculation methods given by Regulation (EC) No. 1272/2008 (CLP) as retained and amended in UK law.

The classification of the mixture in regard to physical hazards has been based on experimental data.

### The safety data sheet is validated by

Laboratoriumdiscounter

### Other

A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a blue triangle.

The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.

It is recommended to hand over this safety data sheet to the actual user of the product.

Information in this safety data sheet cannot be used as a product specification.

Country-language: GB-en