

Safety Data Sheet

according to Regulation (EC) No 1907/2006

2-Butanol (2-Butyl alcohol), 1 l

Print date: 14.04.2015

Product code: 9991178

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

2-Butanol (2-Butyl alcohol), 1 l

CAS No: 78-92-2
Index No: 603-127-00-5
EC No: 201-158-5

1.2. Relevant identified uses of the substance or mixture and uses advised against**Use of the substance/mixture**

Laboratory chemicals

1.3. Details of the supplier of the safety data sheet**Seller**

Company name: CONATEX-DIDACTIC Lehrmittel GmbH
Street: Im Forstgarten 1
Place: D-66459 Kirkel
Internet: www.conatex.com

Supplier

Company name: Carbolution Chemicals GmbH
Street: Im Stadtwald, Gebäude A1.2
Place: D-66123 Saarbrücken
Contact person: Dr. Michael Bauer Telephone: +49 (0)681 302-71232
e-mail: michael.bauer@carbolution-chemicals.de
Internet: www.carbolution-chemicals.de

1.4. Emergency telephone number: +49 (0)681 302-71232**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Classification according to Directive 67/548/EEC or 1999/45/EC**

Indications of danger: Xi - Irritant
R phrases:
Flammable.
Irritating to eyes and respiratory system.
Vapours may cause drowsiness and dizziness.

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Hazard categories:
Flammable liquid: Flam. Liq. 3
Serious eye damage/eye irritation: Eye Irrit. 2
Specific target organ toxicity - single exposure: STOT SE 3
Specific target organ toxicity - single exposure: STOT SE 3
Hazard Statements:
Flammable liquid and vapour.
Causes serious eye irritation.
May cause respiratory irritation.
May cause drowsiness or dizziness.

2.2. Label elements

Hazardous components which must be listed on the label
butan-2-ol

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Signal word:

Warning

Pictograms:

GHS02-GHS07



Hazard statements

- | | |
|------|------------------------------------|
| H226 | Flammable liquid and vapour. |
| H319 | Causes serious eye irritation. |
| H335 | May cause respiratory irritation. |
| H336 | May cause drowsiness or dizziness. |

Precautionary statements

- | | |
|----------------|--|
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
|----------------|--|

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula:	C ₄ H ₁₀ O
Molecular weight:	74,12

Hazardous components

EC No	Chemical name	Quantity
CAS No	Classification according to Directive 67/548/EEC	
Index No	Classification according to Regulation (EC) No. 1272/2008 [CLP]	
201-158-5	butan-2-ol	100 %
78-92-2	Xi - Irritant R10-36/37-67	
603-127-00-5	Flam. Liq. 3, Eye Irrit. 2, STOT SE 3, STOT SE 3; H226 H319 H335 H336	

Full text of R-, H- and EUH-phrases: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

Provide fresh air. Medical treatment necessary.

After contact with skin

Wash with plenty of water. Change contaminated clothing.

After contact with eyes

If product gets into the eye, keep eyelid open and rinse immediately with large quantities of water, for at least 5 minutes. Subsequently consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water.

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

No data available

SECTION 5: Firefighting measures

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5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂). Foam. Extinguishing powder.

5.2. Special hazards arising from the substance or mixture

Combustible. Vapours may form explosive mixtures with air.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Use water spray jet to protect personnel and to cool endangered containers. Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Wear personal protection equipment.

6.2. Environmental precautions

Do not allow uncontrolled discharge of product into the environment. Explosion hazard.

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Advice on protection against fire and explosion

Keep away from sources of ignition. - No smoking. Take precautionary measures against static discharges. Vapours may form explosive mixtures with air.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep in a cool, well-ventilated place. Keep away from sources of ignition.
- No smoking.

Advice on storage compatibility

Do not store together with: Material, rich in oxygen, oxidizing.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
78-92-2	Butan-2-ol	100	308		TWA (8 h)	WEL
		150	462		STEL (15 min)	WEL

8.2. Exposure controls

Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe

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gas/fumes/vapour/spray.

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Protect skin by using skin protective cream.
After work, wash hands and face. When using do not eat or drink.

Eye/face protection

Eye protection: Tightly sealed safety glasses. German Industry Norms (DIN) / European Norms (EN):
DIN EN 166

Hand protection

Hand protection: Single-use gloves. Before using check leak tightness / impermeability. Use gloves
only once. German Industry Norms (DIN) / European Norms (EN): DIN EN 374

Skin protection

Body protection: Lab apron. Only wear fitting, comfortable and clean protective clothing.

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required. If
technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must
be worn. Suitable respiratory protective equipment: particulates filter device (DIN EN 143).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	colourless
Odour:	No data available

Test method

pH-Value:	No data available
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Changes in the physical state

Melting point:	-115 °C
Initial boiling point and boiling range:	98 °C
Sublimation point:	No data available
Softening point:	No data available
Flash point:	27 °C

Flammability

Solid:	No data available
Gas:	No data available
Lower explosion limits:	1,7 vol. %
Upper explosion limits:	9,8 vol. %
Ignition temperature:	No data available

Auto-ignition temperature

Solid:	No data available
Gas:	No data available
Vapour pressure: (at 20 °C)	15,3 hPa
Vapour pressure: (at 25 °C)	24,4 hPa
Density:	No data available
Water solubility:	No data available
Partition coefficient:	0,146

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Viscosity / dynamic:	No data available
Viscosity / kinematic:	No data available
Flow time:	No data available
Vapour density:	2,56
Evaporation rate:	No data available
Solvent separation test:	No data available
Solvent content:	No data available

9.2. Other information

Solid content:	No data available
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SECTION 10: Stability and reactivity

10.1. Reactivity

No data available

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

Keep away from heat. Ignition hazard.

10.5. Incompatible materials

Oxidizing agents, strong.

10.6. Hazardous decomposition products

No data available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicokinetics, metabolism and distribution

Toxicological data are not available.

Acute toxicity

CAS No	Chemical name				
	Exposure routes	Method	Dose	Species	Source
78-92-2	butan-2-ol				
	oral	LD50	2190 mg/kg	Ratte	

Irritation and corrosivity

Irritating to eyes. Following inhalation: Lung irritation. Coughing. shortage of breath.

Sensitising effects

No data available

Severe effects after repeated or prolonged exposure

No data available

Carcinogenic/mutagenic/toxic effects for reproduction

Due to missing data no statement can be made whether the substance fulfills the criteria of CMR categories 1 or 2. Practical experiences do not give any evidence for CMR activity of categories 1 or 2.

Specific effects in experiment on an animal

No data available

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Additional information on tests

The classification was carried out according to the calculation method of the Preparations Directive (1999/45/EC).

Practical experience

Observations relevant to classification

No data available

SECTION 12: Ecological information

12.1. Toxicity

CAS No	Chemical name					
	Aquatic toxicity	Method	Dose	[h] [d]	Species	Source
78-92-2	butan-2-ol					
	Acute fish toxicity	LC50	3670 mg/l	96 h	Pimephales promelas	

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
78-92-2	butan-2-ol	0,65

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Other adverse effects

No data available

Further information

The classification was carried out according to the calculation method of the Preparations Directive (1999/45/EC).

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Dispose of waste according to applicable legislation.

Waste disposal number of waste from residues/unused products

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals
Classified as hazardous waste.

Waste disposal number of used product

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals
Classified as hazardous waste.

Waste disposal number of contaminated packaging

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150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by dangerous substances
Classified as hazardous waste.

Contaminated packaging

Water (with cleaning agent). Completely emptied packages can be recycled.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number: UN1120
14.2. UN proper shipping name: BUTANOLS
14.3. Transport hazard class(es): 3
14.4. Packing group: III
Hazard label: 3
Classification code: F1
Limited quantity: 5 L
Transport category: 3
Hazard No: 30
Tunnel restriction code: D/E

Other applicable information (land transport)

E1

Inland waterways transport (ADN)

14.1. UN number: UN1120
14.2. UN proper shipping name: BUTANOLS
14.3. Transport hazard class(es): 3
14.4. Packing group: III
Hazard label: 3
Classification code: F1
Limited quantity: 5 L

Other applicable information (inland waterways transport)

E1

Marine transport (IMDG)

14.1. UN number: UN1120
14.2. UN proper shipping name: BUTANOLS
14.3. Transport hazard class(es): 3
14.4. Packing group: III
Hazard label: 3
Special Provisions: 223
Limited quantity: 5 L
EmS: F-E, S-D

Other applicable information (marine transport)

E1

Air transport (ICAO)

14.1. UN number: UN1120
14.2. UN proper shipping name: BUTANOLS
14.3. Transport hazard class(es): 3

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14.4. Packing group:	III
Hazard label:	3
Special Provisions:	A3
Limited quantity Passenger:	10 L
IATA-packing instructions - Passenger:	355
IATA-max. quantity - Passenger:	60 L
IATA-packing instructions - Cargo:	366
IATA-max. quantity - Cargo:	220 L

Other applicable information (air transport)

E1
: Y344

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information

2004/42/EC (VOC): 100 %

Additional information

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

National regulatory information

Water contaminating class (D): 1 - slightly water contaminating

SECTION 16: Other information

Relevant R-phrases (Number and full text)

- 10 Flammable.
- 36/37 Irritating to eyes and respiratory system.
- 67 Vapours may cause drowsiness and dizziness.

Relevant H- and EUH-phrases (Number and full text)

- H226 Flammable liquid and vapour.
- H319 Causes serious eye irritation.
- H335 May cause respiratory irritation.
- H336 May cause drowsiness or dizziness.