

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

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

1.1 Product identifier

Trade name/designation	Butan-2-ol
Product No.	52-7587
Substance name	Butan-2-ol
CAS No.	78-92-2
INDEX no.	603-127-00-5
REACH registration No.	Not yet communicated down the supply chain.
other means of identification	(±)-2-Hydroxy butane (±)-Ethyl methyl carbinol (±)-Methyl ethyl carbinol (±)-sec-Butyl alcohol (±)-sec-Butanol

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

Relevant identified uses for laboratory use and chemical production.

1.3 Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/only representative/downstream user/distributor)

Company	:	Rapid Electronics, Severalls Lane, Colchester, Essex, CO4 5JS, United Kingdom
Telephone	:	+44 (0) 1206 751166
Fax	:	+44 (0) 1206 751188
E-mail address	:	sales@rapidelec.co.uk

1.4 Emergency telephone

Telephone +44 (0) +44 (0) 1206 751166

2. Hazards identification

2.1 Classification of the substance or mixture

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

hazard classes and hazard categories	Hazard Statements	classification procedure	remark
Flammable liquid, category 3	H226		

Eye irritation, category 2	H319		
Specific target organ toxicity (single exposure), category 3, vascular	H335		
Specific target organ toxicity (single exposure), category 3, narcotic effect	H336		

2.1.2 Classification according to Directive 67/548/EEC or 1999/45/EC

Hazard symbols:	R-phrases
	R10
Xi	R36/37
	R67

2.2 Label elements

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



Signal word

Danger

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

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P243	Take precautionary measures against static discharge.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.

2.2.2 Labelling (67/548/EEC or 1999/45/EC)

Hazard symbols:

Xi

R-phrases

R10	Flammable.
R36/37	Irritating to eyes and respiratory system.
R67	Vapours may cause drowsiness and dizziness.

S-phrases

S7/9	Keep container tightly closed and in a well-ventilated place.
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S13	Keep away from food, drink and animal feedingstuffs.
S24/25	Avoid contact with skin and eyes.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S46	If swallowed, seek medical advice immediately and show this container or label.

2.3 Other hazards

none

3. Composition/ Information on ingredients

Molecular formula	C4H10O
Molecular weight (g/mol)	74.12 g/mol
CAS No.	78-92-2
EC No	201-158-5
INDEX no.	603-127-00-5

4. First-aid measures

4.1 General information

IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician. If unconscious place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person or a person with cramps. Change contaminated, saturated clothing. Do not leave affected person unattended.

4.2 After inhalation

Call a POISON CENTER or doctor/physician. Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

4.3 In case of skin contact

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin reactions, consult a physician.

4.4 After eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye. Remove contact lenses, if present and easy to do. Continue rinsing.

4.5 After ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Do not induce vomiting. Give nothing to eat or drink.

4.6 Self-protection of the first aider

First aider: Pay attention to self-protection!

4.7 Information to physician:

Symptoms	No data available
Hazards	No data available
Treatment	No data available

5. Firefighting measures

5.1 Suitable extinguishing media

Water spray ABC-powder Carbon dioxide (CO₂) Nitrogen

5.2 Extinguishing media which must not be used for safety reasons:

no restriction

5.3 Special hazards arising from the substance or mixture

In case of fire may be liberated: Carbon dioxide (CO₂) Carbon monoxide

5.4 Advice for firefighters

DO NOT fight fire when fire reaches explosives. In case of fire: Wear self-contained breathing apparatus.

5.5 Additional information

Do not allow run-off from fire-fighting to enter drains or water courses. Do not inhale explosion and combustion gases. Use caution when applying carbon dioxide in confined spaces. Carbon dioxide can displace oxygen. Use water spray jet to protect personnel and to cool endangered containers.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid generation of dust. Do not breathe dust/fume/gas/mist/vapours/spray. Provide adequate ventilation. Remove all sources of ignition. Use personal protection equipment. The accumulation in lowlying or closed rooms can cause increased danger of fire and explosion. The vapour of the product is heavier than air and may accumulate below ground level, in pits, channels and basements in higher concentration.

6.2 Environmental precautions

Do not allow to enter into surface water or drains.

6.3 Methods and material for containment and cleaning up

Spilled product must never be returned to the original container for recycling. Prevent spread over a wide area (e.g. by containment or oil barriers). Soak up inert absorbent and dispose as waste requiring special attention. Collect in closed and suitable containers for disposal.

6.4 Additional information

Clear spills immediately.

7. Handling and storage

7.1 Precautions for safe handling

Avoid: Inhalation. Avoid contact with skin and eyes. Use extractor hood (laboratory). If handled uncovered, arrangements with local exhaust ventilation have to be used. If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means. Keep away from sources of ignition. - No smoking. Usual measures for fire prevention. Take precautionary measures against static discharge. Protect from moisture.

7.2 Conditions for safe storage, including any incompatibilities

storage temperature 15-25°C

Keep container tightly closed in a cool, well-ventilated place.

7.3 Specific end use(s)

No data available

8. Exposure controls / Personal protection

8.1 Control parameters

Does not contain substances above concentration limits fixing an occupational exposure limit.

8.2 Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.

8.3 Personal protective equipment

Wear suitable protective clothing. When handling with chemical substances, protective clothing with CE-labels including the four control digits must be worn.

8.3.1 Eye / face protection

Eye glasses with side protection DIN-/EN-Norms: DIN EN 166

8.3.2 Skin protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. Recommended glove articles DIN-/EN-Norms: DIN EN 374 In the case of wanting to use the gloves again, clean them before taking off and air them well.

By short-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material	0,12 mm
Breakthrough time (maximum wearing time)	>480 min
Recommended glove articles	VWR 112-0998

By long-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material	0,38 mm
Breakthrough time (maximum wearing time)	>480 min
Recommended glove articles	VWR 112-3717 / 112-1381

8.3.3 Protective clothing

Wash hands before breaks and after work. Avoid contact with skin and eyes. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

8.3.4 Respiratory protection

Respiratory protection necessary at: aerosol or mist formation

Suitable respiratory protection apparatus:	Full-/half-/quarter-face masks (DIN EN 136/140)
Recommendation	VWR 111-0206
Suitable material:	A2B2E2K2P3
Recommendation	VWR 111-0059

8.4 Additional information

Wash hands before breaks and after work. Avoid contact with skin and eyes. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

(a) Appearance	
Physical state	liquid
Colour	colourless
(b) Odour	No data available
(c) Odour threshold	No data available

Safety relevant basic data

(d) pH	7 (20°C)
(e) Melting point/freezing point	-115°C
(f) Initial boiling point and boiling range	94°C (1013 hPa)
(g) Flash point	23°C
(h) Evaporation rate	No data available
(i) Flammability (solid, gas)	Flammable liquid and vapour.
(j) Upper/lower flammability or explosive limits	
Lower explosion limit (Vol-%)	1.4
Upper explosion limit (Vol-%)	10
(k) Vapour pressure	16 hPa (20°C)

(l) Vapour density	2.55 (20°C)
(m) Relative density	0.8534 g/cm ³ (20°C)
(n) Solubility(ies)	
Water solubility (g/l)	125 g/l (20°C)
at °C:	20
Soluble (g/l) in	No data available
(o) Partition coefficient: n-octanol/water	0.61 (20°C)
(p) Auto-ignition temperature	390°C
(q) Decomposition temperature	No data available
(r) Viscosity	
Kinematic viscosity	No data available
Dynamic viscosity	4.21 mPa*s (15°C)
(s) Explosive properties	not applicable
(t) Oxidising properties	not applicable

9.2 Other information

Bulk density	No data available
refraction index	1.3978 (589 nm, 20°C)
dissociation constant	No data available
Surface tension	No data available
Henry constant	No data available

10. Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

No data available

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

No data available

10.7 Additional information

No data available

11. Toxicological information

11.1 Information on toxicological effects

Acute effects

Acute oral toxicity

Effective dose	LD50: 6480 mg/kg
species:	rat
Exposure time	
remark	
source	OECD 401

Acute dermal toxicity

Effective dose	LD50: Min. 2000 mg/kg
species:	rat
Exposure time	
remark	
source	RTECS

Acute inhalation toxicity

Effective dose	No data available
species:	No data available
Exposure time	
remark	
source	

Irritant and corrosive effects

Primary irritation to the skin

Exposure time	
species:	
Result	

Irritation to eyes

Exposure time	
species:	
Result	

Irritation to respiratory tract

Exposure time	
species:	
Result	

Sensitisation

In case of skin contact	not sensitising.
After inhalation	not sensitising.

Specific target organ toxicity (single exposure)

May cause respiratory irritation.

Specific target organ toxicity (repeated exposure)

not relevant

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Carcinogenicity

No indication of human carcinogenicity.

Germ cell mutagenicity/Genotoxicity

No indications of human germ cell mutagenicity exist.

Reproductive toxicity

No indications of human reproductive toxicity exist.

Aspiration hazard

not relevant

11.2 Other adverse effects

No data available

11.3 Additional information

No data available

12. Ecological information

12.1 Ecotoxicity

Acute (short-term) fish toxicity

LC50: No data available

EC50

species:

Exposure time

Chronic (long-term) fish toxicity

LC50: No data available

EC50

species:

Exposure time

Acute (short-term) daphnia toxicity

LC50: No data available

EC50
species:
Exposure time

Chronic (long-term) daphnia toxicity

LC50: No data available
EC50
species:
Exposure time

Acute (short-term) algae toxicity

LC50: No data available
EC50
species:
Exposure time

Chronic (long-term) algae toxicity

LC50: No data available
EC50
species:
Exposure time

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

(o) Partition coefficient: n-octanol/water 0.61 (20°C)

12.4 Mobility in soil

No data available

12.5 Results of PBT assessment

No data available

12.6 Other adverse effects

No data available

13. Disposal considerations

13.1 Waste treatment methods

Appropriate disposal / Product

Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal. Send to a hazardous waste incinerator facility under observation of official regulations.

Waste code product

No data available

Appropriate disposal / Package

13.2 Additional information

No data available

14. Transport information

14.1 Land transport (ADR/RID)

UN-No.	1120
Proper Shipping Name	BUTANOLS
Class(es)	3
Classification code:	F1
Packing group	III
Hazard label(s)	3

14.2 Sea transport (IMDG)

UN-No.	1120
Proper Shipping Name	BUTANOLS
Class(es)	3
Classification code:	F1
Packing group	III
Marine pollutant	
Segregation group	

14.3 Air transport (ICAO-TI / IATA-DGR)

UN-No.	1120
Proper Shipping Name	BUTANOLS
Class(es)	3
Classification code:	F1
Packing group	III

14.4 Additional information

No data available

15. Regulatory information

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

Water hazard class (WGK)	1
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15.2 Chemical Safety Assessment

No data available

16. Other information

16.1 Relevant R-, H- and EUH-phrases (Number and full text)

R10	Flammable.
R36/37	Irritating to eyes and respiratory system.
R67	Vapours may cause drowsiness and dizziness.

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

16.2 Additional information

Indication of changes

general update

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.