

Section 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier****Product name:** BUTAN-2-OL**CAS number:** 78-92-2**EINECS number:** 201-158-5**Index number:** 603-127-00-5**Product code:** A66576**Synonyms:** SEC-BUTANOL

SEC-BUTYL ALCOHOL

(+)-2-BUTANOL

1.2. Relevant identified uses of the substance or mixture and uses advised against**Use of substance / mixture:** Laboratory Chemicals, Manufacture of Substances.**1.3. Details of the supplier of the safety data sheet****Company name:** PHILIP HARRIS

2 Gregory Street

Hyde

Cheshire

SK14 4HR

United Kingdom

Tel: +44 (0)845 1200 506**Fax:** +44 (0)161 367 2140**Email:** enquiries@philipharris.co.uk**1.4. Emergency telephone number****Emergency tel:** +44 (0) 845 1200 506**Section 2: Hazards identification****2.1. Classification of the substance or mixture****Classification under CHIP:** -: R10; Xi: R36/37; -: R67**Classification under CLP:** STOT SE 3: H335; Eye Irrit. 2: H319; Flam. Liq. 3: H226; STOT SE 3: H336**Most important adverse effects:** Flammable. Irritating to eyes and respiratory system. Vapours may cause drowsiness and dizziness.**2.2. Label elements****Label elements:****Hazard statements:** H226: Flammable liquid and vapour.

H319: Causes serious eye irritation.

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H335: May cause respiratory irritation.

H336: May cause drowsiness or dizziness.

Signal words: Warning

Hazard pictograms: GHS02: Flame

GHS07: Exclamation mark



Precautionary statements: P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P241: Use explosion-proof electrical/ventilating/lighting/.. equipment.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P303+361+353: IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water/shower.

P304+340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P243: Take precautionary measures against static discharge.

P312: Call a POISON CENTER/doctor//if you feel unwell.

Label elements under CHIP:

Hazard symbols: Irritant.



Risk phrases: R10: Flammable.

R36/37: Irritating to eyes and respiratory system.

R67: Vapours may cause drowsiness and dizziness.

Safety phrases: S2: Keep out of the reach of children.

S7/9: Keep container tightly closed and in a well-ventilated place.

S13: Keep away from food, drink and animal feeding stuffs.

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

Other hazards: In use, may form flammable / explosive vapour-air mixture.

Section 3: Composition/information on ingredients

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3.1. Substances

Chemical identity: BUTAN-2-OL

CAS number: 78-92-2

EINECS number: 201-158-5

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Remove all contaminated clothes and footwear immediately unless stuck to skin. Wash immediately with plenty of soap and water. In case of skin reactions, consult a Doctor

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Protect Uninjured eye. Consult a doctor.

Ingestion: Wash out mouth with water. Do not induce vomiting. Give nothing to eat or drink. Consult a doctor.

Inhalation: Immediately call the POISON CENTRE or a doctor. Remove casualty from exposure ensuring one's own safety whilst doing so. If breathing is irregular or stopped, administer artificial respiration. Consult a doctor.

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

Skin contact: There may be irritation and redness at the site of contact.

Eye contact: There may be irritation and redness. The eyes may water profusely.

Ingestion: There may be soreness and redness of the mouth and throat.

Inhalation: There may be irritation of the throat with a feeling of tightness in the chest. Exposure may cause coughing or wheezing.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

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

Immediate / special treatment: Eye bathing equipment should be available on the premises. IF exposed or if you feel unwell: Call a POISON CENTRE or DOCTOR. Immediate medical attention is required.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Alcohol resistant foam. Water spray. Carbon dioxide. Dry chemical powder. Use water spray to cool containers.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: Flammable. In combustion emits toxic fumes. Forms explosive air-vapour mixture. In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes. DO NOT fight fire when fire reaches explosives.

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Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to section 8 of SDS for personal protection details. If outside do not approach from downwind. If outside keep bystanders upwind and away from danger point. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Turn leaking containers leak-side up to prevent the escape of liquid. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Eliminate all sources of ignition. Remove sources of ignition. The accumulation in low lying 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 & basements in higher concentrations.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding. Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method. Do not use equipment in clean-up procedure which may produce sparks. Spilled product must never be returned to the original container for recycling.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS. Refer to section 13 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid direct contact with the substance. Ensure there is sufficient ventilation of the area. Do not handle in a confined space. Avoid the formation or spread of mists in the air. Smoking is forbidden. Use non-sparking tools. Avoid inhalation of vapour or mist. Avoid contact with skin and eyes. Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Keep container tightly closed. Keep away from sources of ignition. Prevent the build up of electrostatic charge in the immediate area. Ensure lighting and electrical equipment are not a source of ignition.

Suitable packaging: Must only be kept in original packaging.

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7.3. Specific end use(s)

Specific end use(s): Apart from uses mentioned in section 1.2 no other specific uses are stipulated.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits:

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	308 mg/m ³	462 mg/m ³	-	-

Respirable dust

Hazardous ingredients:

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Workplace exposure limits:

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	308 mg/m ³	462 mg/m ³	-	-

Respirable dust

DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area. Ensure lighting and electrical equipment are not a source of ignition. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Technical measures and the application of suitable work processes have priority over personal protection equipment. If handle uncovered, arrangements with local exhaust ventilation have to be used.

Respiratory protection: Self-contained breathing apparatus must be available in case of emergency. Where risk assessment shows air-purifying respirators are appropriate use a full face respirator with multi purpose combination (US) or type AXBEK (EN14387 respirator cartridges as a back up to engineering controls.

Hand protection: Protective gloves. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching the gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use.
Wash and dry hands. Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M) Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm

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Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Eye protection: Face shield and safety glasses. Use equipment for eye protection test and approved under appropriate government statements such as NIOSH (US) or EN 166(EU) Ensure eye bath is to hand.

Skin protection: Protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Environmental: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Colourless

Boiling point/range°C: >35

Flammability limits %: lower: 1.4

Flash point°C: 23 - 60

Vapour pressure: 16

pH: 7

Melting point/range°C: -115

upper: 10

Autoflammability°C: 390

Relative density: 0.8534

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions. Stable at room temperature.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions. Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

Conditions to avoid: Heat. Hot surfaces. Sources of ignition. Flames.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

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Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

Route	Species	Test	Value	Units
IVN	RAT	LD50	138	mg/kg
ORL	RAT	LD50	2193	mg/kg
SKN	RAT	LD50	>2	gm/kg

Hazardous ingredients:

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IVN	RAT	LD50	138	mg/kg
ORL	RAT	LD50	2193	mg/kg
SKN	RAT	LD50	>2	gm/kg

Relevant hazards for substance:

Hazard	Route	Basis
Serious eye damage/irritation	OPT	Hazardous: calculated
STOT-single exposure	INH	Hazardous: calculated

Symptoms / routes of exposure

Skin contact: There may be irritation and redness at the site of contact.

Eye contact: There may be irritation and redness. The eyes may water profusely.

Ingestion: There may be soreness and redness of the mouth and throat.

Inhalation: There may be irritation of the throat with a feeling of tightness in the chest. Exposure may cause coughing or wheezing.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: Biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Readily absorbed into soil.

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12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Negligible ecotoxicity.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company. Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal.

Disposal of packaging: Dispose of as unused product.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN1120

14.2. UN proper shipping name

Shipping name: BUTANOLS

14.3. Transport hazard class(es)

Transport class: 3

14.4. Packing group

Packing group: II

14.5. Environmental hazards

Environmentally hazardous: No

Marine pollutant: No

14.6. Special precautions for user

Special precautions: No special precautions.

Tunnel code: D/E

Transport category: 2

Section 15: Regulatory information

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

Specific regulations: Not applicable.

15.2. Chemical Safety Assessment

Section 16: Other information

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Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: H226: Flammable liquid and vapour.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

H336: May cause drowsiness or dizziness.

R10: Flammable.

R36/37: Irritating to eyes and respiratory system.

R67: Vapours may cause drowsiness and dizziness.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.