

1-Butanol**33065-2.5L**

Version 1.1

Revision Date 11/03/2021

Print Date 05/12/2023

SECTION 1. IDENTIFICATION

Product name : 1-Butanol

Number : 000000020528

Product Use Description : Laboratory chemicals

Manufacturer or supplier's details : Honeywell International Inc.
1953 South Harvey Street
Muskegon, MI 49442

For more information call : 1-800-368-0050
+1-231-726-3171(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : Medical: 1-800-498-5701 or +1-303-389-1414
: Transportation (CHEMTREC): 1-800-424-9300 or
+1-703-527-3887
:
: (24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION**Emergency Overview**

Form : liquid

Color : colourless

Odor : characteristic

Classification of the substance or mixture

Classification of the substance or mixture : Flammable liquids, Category 3
Acute toxicity, Category 4, Oral
Skin irritation, Category 2
Serious eye damage, Category 1
Specific target organ toxicity - single exposure, Category 3,
Respiratory system, Central nervous system

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GHS Label elements, including precautionary statements

Symbol(s)

:



Signal word

: Danger

Hazard statements

: Flammable liquid and vapour.
Harmful if swallowed.
Causes skin irritation.
Causes serious eye damage.
May cause respiratory irritation.
May cause drowsiness or dizziness.

Precautionary statements

: **Prevention:**
Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.**Response:**

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

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

Immediately call a POISON CENTER/ doctor.

Rinse mouth.

If skin irritation occurs: Get medical advice/ attention.

Take off contaminated clothing and wash before reuse.

In case of fire: Use dry sand, dry chemical or alcohol-resistant

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foam for extinction.

Storage:

Store in a well-ventilated place. Keep container tightly closed.
Keep cool.
Store locked up.

Disposal:

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

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C₄H₁₀O

Chemical nature : Substance

Chemical name	CAS-No.	Concentration
Butan-1-ol	71-36-3	100.00 %

SECTION 4. FIRST AID MEASURES

- General advice : First aider needs to protect himself. Move out of dangerous area. Take off immediately all contaminated clothing.
- Inhalation : If inhaled, remove to fresh air. Consult a physician.
- Skin contact : After contact with skin, wash immediately with plenty of soap and water. Consult a physician.
- Eye contact : Rinse thoroughly with plenty of water, also under the eyelids. Protect unharmed eye. Call a physician immediately.

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Ingestion : When swallowed, allow water to be drunk. Do NOT induce vomiting. Call a physician immediately.

Notes to physician

Most important symptoms/effects, acute and delayed : No information available.

Indication of immediate medical attention and special treatment needed, if necessary : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray
Foam
Carbon dioxide (CO₂)
Dry powder

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during firefighting : Flammable.
Vapours may form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.

Special protective equipment for firefighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

Further information : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Evacuate personnel to safe areas.
Wear personal protective equipment. Unprotected persons must be kept away.

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- Ensure adequate ventilation.
Remove all sources of ignition.
- Environmental precautions : Do not flush into surface water or sanitary sewer system.
- Methods and materials for containment and cleaning up : Ventilate the area.
Do not use sparking tools.
Use explosion-proof equipment.
Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE**Handling**

- Precautions for safe handling : Wear personal protective equipment.
Use only in well-ventilated areas.
- Advice on protection against fire and explosion : Keep product and empty container away from heat and sources of ignition.
No smoking.
Take precautionary measures against static discharges.
Vapours may form explosive mixtures with air.

Storage

- Conditions for safe storage, including any incompatibilities : Store in original container.
Keep containers tightly closed in a dry, cool and well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.
Legal requirements are to be considered in regard of the selection, use and care of personal protective equipment.
Do not breathe vapours or spray mist.
- Engineering measures : Use with local exhaust ventilation.
Prevent vapour buildup by providing adequate ventilation during

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and after use.

- Eye protection : Safety goggles
- Hand protection : Wear nitrile rubber gloves to avoid contact with the skin.
Gloves must be inspected prior to use.
Replace when worn.
- Skin and body protection : Protective suit
- Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.
- Hygiene measures : General industrial hygiene practice.
Take off all contaminated clothing immediately.
Recommended preventive skin protection

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Butan-1-ol	71-36-3	TWA : Time weighted average	(20 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values, as amended

Butan-1-ol	71-36-3	SKIN_DES : Skin designation:	Can be absorbed through the skin.	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards, as amended
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Butan-1-ol	71-36-3	Ceil_Time : Ceiling Limit Value and Time Period (if specified) :	150 mg/m3 (50 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards, as amended
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Butan-1-ol	71-36-3	PEL : Permissible exposure limit	300 mg/m ³ (100 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Butan-1-ol	71-36-3	SKIN_FINAL : Skin designation (Final Rule Limit applies):	Can be absorbed through the skin.	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
Butan-1-ol	71-36-3	Ceiling : Ceiling Limit Value:	150 mg/m ³ (50 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid
Color	: colourless
Odor	: characteristic
Odor threshold	: Note: No data available
pH	: 7 at 60.00 g/l, 20 °C
Melting point/range	: < -90 °C Method: ISO 3016
Boiling point/boiling range	: 119 °C at 1,013 hPa Method: OECD Test Guideline 103

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Flash point	: ca. 95 °F (35 °C) at 1,013 hPa Method: closed cup
Evaporation rate	: Note: No data available
Lower explosion limit	: 1.5 %(V)
Upper explosion limit	: 9.4 %(V)
Vapor pressure	: 6.7 hPa at 20 °C(68 °F)
Vapor density	: Note: No data available
Density	: 0.81 g/cm ³ at 20 °C Method: DIN 51757
Water solubility	: 66 g/l at 20 °C at 7 pH Method: OECD Test Guideline 105
Solubility in other solvents	: Note: Soluble in most organic solvents
Partition coefficient: n-octanol/water	: log Pow: 1 at 25 °C Method: 92/69/EEC, A.8
Ignition temperature	: 355 °C at 1,019 hPa Method: DIN 51794
Auto-ignition temperature	: Note: not auto-flammable
Decomposition temperature	: Note: At normal pressure may be distilled without decomposition.

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Viscosity, dynamic	: 2.95 mPa.s at 20 °C Method: ASTM D 445
Viscosity, kinematic	: Note: No data available
Oxidizing properties	: The substance or mixture is not classified as oxidizing.
Molecular weight	: 74.12 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Not classified as a reactivity hazard.
Chemical stability	: Stable under recommended storage conditions.
Possibility of hazardous reactions	: Vapours may form explosive mixture with air. Hazardous polymerisation does not occur.
Conditions to avoid	: Keep away from heat and sources of ignition.
Incompatible materials	: Incompatible with oxidizing agents. Plastic materials can be attacked.
Hazardous decomposition products	: In case of fire hazardous decomposition products may be produced such as: Carbon monoxide Carbon dioxide (CO ₂)

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	: Note: Classification based on Annex VI of regulation 1272/2008/EC.
Acute inhalation toxicity	: LC50: > 17.6 mg/l

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Exposure time: 4 h
Species: Rat
Method: OECD Test Guideline 403
Note: Technically maximum achievable concentration.

Acute dermal toxicity : LD50: ca. 3,430 mg/kg
Species: Rabbit
Method: OECD Test Guideline 402

Skin irritation : Species: Rabbit
Result: irritating
Method: Draize Test
Exposure time: 2 h

Eye irritation : Species: Rabbit
Result: Irreversible effects on the eye
Classification: Risk of serious damage to eyes.
Method: OECD Test Guideline 405

Sensitisation : Note: No data available

Repeated dose toxicity : Note: Not classified due to data which are conclusive although insufficient for classification.

Genotoxicity in vitro : Note: Not classified due to data which are conclusive although insufficient for classification.

Genotoxicity in vivo
Butan-1-ol : Note: In vivo tests did not show mutagenic effects

Aspiration toxicity : No data available

Further information : Note: Irritating to skin and mucous membranes Risk of serious damage to eyes. Inhalation of high vapour concentrations can cause CNS-depression and narcosis. Not mutagenic in Ames Test

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SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Toxicity to fish : static test
LC50: 1,376 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)
Method: OECD Test Guideline 203

: static test
NOEC: 519 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : static test
EC50: 1,328 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 202

Toxicity to algae : static test
EC50: 225 mg/l
Exposure time: 96 h
Species: Pseudokirchneriella subcapitata (green algae)
Method: OECD Test Guideline 201

Toxicity to bacteria : static test
EC50: 4,390 mg/l
Exposure time: 17 h
Species: Pseudomonas putida
Method: DIN 38412

Elimination information (persistence and degradability)

Bioaccumulation : Note: No data available

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Biodegradability : aerobic
Value: 92 %
Method: OECD
Note: Readily biodegradable.

Further information on ecology

Adsorbed organic bound : Note: Product does not contain any organic halogens.
halogens (AOX)
Additional ecological : Should not be released into the environment.
information

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods : Observe all Federal, State, and Local Environmental regulations.

SECTION 14. TRANSPORT INFORMATION

DOT UN/ID No. : UN 1120
Proper shipping name : BUTANOLS
Class : 3
Packing group : III
Hazard Labels : 3

IATA UN/ID No. : UN 1120
Description of the goods : BUTANOLS
Class : 3
Packaging group : III
Hazard Labels : 3
Packing instruction (cargo aircraft) : 366
Packing instruction : 355
(passenger aircraft)
Packing instruction : Y344
(passenger aircraft)

IMDG UN/ID No. : UN 1120
Description of the goods : BUTANOLS
Class : 3
Packaging group : III

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Hazard Labels	: 3
EmS Number	: F-E, S-D
Marine pollutant	: no

SECTION 15. REGULATORY INFORMATION**Inventories**

US. Toxic Substances Control Act : On TSCA Inventory

Australia. Industrial Chemicals Act (AICC), as amended : On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL) : All components of this product are on the Canadian DSL

Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory

Korea. Existing Chemicals Inventory (KECI) : On the inventory, or in compliance with the inventory

Philippines. Inventory of Chemicals and Chemical Substances (PICCS) : On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances (IECSC) : On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

National regulatory information

US. EPA CERCLA Hazardous Substances (40 CFR 302) : The following component(s) of this product is/are subject to release reporting under 40 CFR 302 when release exceeds the Reportable Quantity (RQ):

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	Reportable quantity: 5000 lbs	
	: Butan-1-ol	71-36-3
SARA 302 Components	: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.	
SARA 313 Components	: The following components are subject to reporting levels established by SARA Title III, Section 313:	
	: Butan-1-ol	71-36-3
SARA 311/312 Hazards	: Fire Hazard Acute Health Hazard Chronic Health Hazard	
CERCLA Reportable Quantity	: 5000 lbs	
California Prop. 65	: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.	
Massachusetts RTK	: Butan-1-ol	71-36-3
New Jersey RTK	: Butan-1-ol	71-36-3
Pennsylvania RTK	: Butan-1-ol	71-36-3

SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 2*	2
Flammability	: 3	3
Physical Hazard	: 0	
Instability	:	0

* - Chronic health hazard

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

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Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group