

Safety Data Sheet

1. Chemical product and company identification

Product name : 1-Butanol

Company information

Name of manufacturer : KANTO CHEMICAL CO., INC.
 Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
 Name of section : Business Administration Department, Reagent Division
 Telephone number : +81-3-6214-1090
 Facsimile number : +81-3-3241-1047
 Mail address : BC32@kanto.co.jp
 Reference No : 04354
 Product numbers applied by the SDS : 04354, 05178, 05832
 Recommended use : For research use only
 Restrictions on use : Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Physical hazards	Flammable liquids	Category 3
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity (single exposure)	Category 3 (narcosis)
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation.)
	Specific target organ toxicity (repeated exposure)	Category 1 (central nervous system, auditory organs)

Hazard pictograms



Signal word : Danger

Hazard statements : Flammable liquid and vapor
 Causes skin irritation
 Causes serious eye irritation
 May cause respiratory irritation
 May cause drowsiness or dizziness
 Causes damage to organs (central nervous system, auditory organs) through prolonged or repeated exposure

Precautionary statements

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 Keep container tightly closed.
 Ground and bond container and receiving equipment.



	Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take action to prevent static discharges. Do not breathe mist/vapors. Wash hands, forearms and face 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 ON SKIN: Wash with plenty of water. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water . IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor if you feel unwell. Get medical advice/attention if you feel unwell. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.
Storage	: Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

Distinction of substance or mixture	: Substance
Synonyms	: n-Butyl alcohol

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
1-Butanol	≥ 99	C4H10O	Listed	200-751-6	71-36-3

4. First aid measures

First aid measures

First-aid measures after inhalation	: Remove the victim to fresh air, and make him blow his nose and gargle.
First-aid measures after skin contact	: Wash the affected areas under running water.
First-aid measures after eye contact	: Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.
First-aid measures after ingestion	: The chemical is volatile. Do not induce vomiting because it increases the risk of aspiration into the lungs. Get medical attention immediately. If necessary, rinse mouth with water.
Personal Protection in First Aid and Measures	: Rescuers should wear proper protective equipment like rubber gloves, goggles.

Most Important Symptoms/Effects



Symptoms/effects : Inhalation causes cough, headache, feeling of fatigue, and lethargy.

5. Fire fighting measures

Suitable extinguishing media : Water, dry chemical powder, carbon dioxide, dry sand, alcohol resistant foam

Unsuitable extinguishing media : Foam extinguisher

Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.

Fight fire from windward.

Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Alcohol-resistant foam extinguisher is effective for a large scale fire.

Personal protection (Emergency response) : Wear breathing apparatus.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Remove all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.

Environmental precautions

Environmental precautions : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

Methods and Equipment for Containment and Cleaning up

For containment : Absorb spill with inert material (e.g, diatomaceous earth, sand) and flush spillage area with copious amounts of water.

Prevention Measures for Secondary Accidents : Remove nearby sources of ignition and prepare extinguishing media.

7. Handling and storage

Handling

Technical measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited.

Ventilate well at working places.

Prevent build-up of electrostatic charges (e.g. by grounding) .

Precautions for safe handling : Use with an enclosed system or a local exhaust ventilation. Use in well-ventilated areas.

Do not allow contact with oxidizing substances.

Storage

Storage conditions : Store in a dark, cool place and tightly closed.

Material used in packaging/containers : Glass, fluorine resin, stainless steel.

Do not use polyvinyl chloride resin, acrylic resin.



8. Exposure controls / Personal protection equipment

ACGIH TWA	20 ppm
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Appropriate engineering controls : Use with an enclosed system or a local exhaust ventilation.

Protective equipment

Respiratory protection : If necessary, wear gas mask for organic solvents or airline respirator.

Hand protection : Impervious protective gloves

Eye protection : Safety goggles

Skin and body protection : Protective clothing, protective boots

9. Physical and chemical properties

Physical state : Liquid

Color : Colorless.

Odor : Characteristic acrid odor

pH : No data available

Melting point : -89.8 ° C

Freezing point : No data available

Boiling point : 117.7 ° C

Flash point : 35 ° C (C.C.)

Auto-ignition temperature : 343 ° C

Decomposition temperature : No data available

Flammability : Flammable

Vapor pressure : 6 hPa (20°C)

Relative density : No data available

Density : 0.808 - 0.811 g/cm³ (20°C)

Relative gas density : 2.56

Solubility : Organic solvents: Freely soluble in many kinds of organic solvents.
Water: 7.08 % (30°C)

Partition coefficient n-octanol/water (log Pow) : 0.88

Explosive limits (vol %) : 1.45 - 11.25 vol %

Viscosity, kinematic : 3.6 mm²/s (20°C)

Particle characteristics : No data available

10. Stability and reactivity

Reactivity : May react with oxidizing substances.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Stable under normal conditions of use.

Conditions to avoid : Light, heat.

Incompatible materials : Oxidizing substances.

Hazardous decomposition products : Carbon monoxide.



11. Toxicological information

Acute toxicity (oral)	: No classification rat LD50=2290 mg/kg
Acute toxicity (dermal)	: No classification rabbit LD50=3400 mg/kg
Acute toxicity (inhalation)	: No classification (gas) Classification not possible (vapor) No classification (dust, mist) rat LC50=24.2 mg/L/4h
Skin corrosion/irritation	: Causes skin irritation From description that the moderate irritation was observed by 24-hour patch test using the rabbit, it was classified into category 2.
Serious eye damage/irritation	: Causes serious eye irritation The middle to severe stimulativeness was observed by the test using the rabbits and it did not disappear within seven days, but it disappeared completely within 21 days. Therefore it was classified into category 2A.
Respiratory sensitization	: Classification not possible
Skin sensitization	: Classification not possible
Germ cell mutagenicity	: Classification not possible As for in vivo, there are negative data on micronucleus assay in mouse erythrocytes. Furthermore, as for in vitro, it was negative in a bacterial reverse mutation test, and a mouse lymphoma test, a chromosomal aberration test, and a micronucleus test with cultured mammalian cells.
Carcinogenicity	: Classification not possible EPA classifies it as Group D (Not Classifiable as to Human Carcinogenicity).
Reproductive toxicity	: Classification not possible Only the frame variation (cervical rib) in a fetus was observed at dosing levels toxic to dams in the inhalation exposure test in rats. However, the classification is not possible because there is no data on sexual function and fertility of male and female rats.
STOT-single exposure	: May cause drowsiness or dizziness May cause respiratory irritation From description that the slight stimulus was observed in human pharynx by inhalation exposure, it was classified into category 3 (respiratory tract irritation). Moreover, from description that anesthetic actions or central nervous system depression was observed in animal experiments, it was classified into category 3 (narcosis).
STOT-repeated exposure	: Causes damage to organs (central nervous system, auditory organs) through prolonged or repeated exposure Based on the descriptions that dizziness and headache were observed in human occupational exposure examples, and that hearing loss was observed in human occupational exposure examples, it was classified into category 1 (central nervous system, auditory organs).
Aspiration hazard	: Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	: No classification Oryzias latipes LC50>100 mg/L/96h
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Aquatic chronic : No classification
Daphnia magna NOEC=4.1 mg/L/21-day

Persistence and degradability

Readily biodegradable
BOD : 92%

Bioaccumulative potential

Low bioconcentration
log Pow : 0.88

Mobility in soil

High mobility
Koc : 3.2

Hazardous to the ozone layer

Ozone : Classification not possible

13. Disposal considerations

Ecological waste information : Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.

Contaminated container and packaging : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG) : 1120
Proper Shipping Name (IMDG) : BUTANOLS
Packing group (IMDG) : III
Transport hazard class(es) : 3

(IMDG)

Air transport(IATA)

UN-No. (IATA) : 1120
Proper Shipping Name (IATA) : Butanols
Packing group (IATA) : III
Transport hazard class(es) : 3

(IATA)

Marine pollutant : Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollutant category : Z
MFAG-No : 129

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : Dictionary of Organic Compounds, The society of Synthetic Organic Chemistry, Kodansha Ltd. (1985) .
Solvents Handbook, T, Asahara el, Kodansha Scientific Ltd.



(1976) .
Dangerous Properties of Industrial Materials, 6th ed.
N. I. Sax Van Nostrand Reinhold Company (1984) .
Handbook of 17322 Chemical Products, The Chemical Daily Co.
(2022) .
NITE Chemical Risk Information Platform (NITE-CHRIP), National
Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet (SDS) is prepared based on JIS Z7253.

