



Safety Data Sheet

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

Product identifier:

Product name: Di-n-butyl ether

SDS No. : 2230E-2

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

Research and Development

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL AND CHEMICAL HAZARDS

Flammable liquids: Category 3

HEALTH HAZARDS

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 2

Specific target organ toxicity – single exposure: Category 1 (liver, respiratory system)

Specific target organ toxicity – single exposure: Category 3 (Narcotic effects)

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 3

Hazardous to the aquatic environment, long-term (chronic): Category 3

(Note) GHS classification without description: Not classified/Classification not possible

Label elements



Signal word: Danger

HAZARD STATEMENT

H226 Flammable liquid and vapor

H315 Causes skin irritation

H319 Causes serious eye irritation

H370 Causes damage to organs (liver, respiratory system)

H336 May cause drowsiness or dizziness

H412 Harmful to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

P273 Avoid release to the environment.

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



Di-n-butyl ether,2230E-2,2023/11/30

- P233 Keep container tightly closed.
- P240 Ground and bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting equipment.
- P242 Use non-sparking tools.
- P243 Take action to prevent static discharges.
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P271 Use only outdoors or in a well-ventilated area.
- P264 Wash contaminated parts thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P270 Do not eat, drink or smoke when using this product.

Response

- P370 + P378 In case of fire: Use appropriate media to extinguish.
- P312 Call a POISON CENTER/doctor/physician if you feel unwell.
- P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor/physician.
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- P332 + P313 If skin irritation occurs: Get medical advice/attention.
- P362 + P364 Take off contaminated clothing and wash it before reuse.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337 + P313 If eye irritation persists: Get medical advice/attention.

Storage

- P403 Store in a well-ventilated place. P233 Keep container tightly closed. P235 Keep cool.
- P405 Store locked up.

Disposal

- P501 Dispose of contents/container in accordance with local/national regulation.

Specific adverse human health effects

See "11. Toxicological Information".

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name	Content (%)	CAS No.	Chemicals No, Japan	Chemical formula
Di-n-butyl ether	99(min)	142-96-1	2-363	[CH3(CH2)3]2O

Note : The figures shown above are not the specifications of the product.

Stabilizing additives

Dibutyl hydroxytoluene (CAS No.128-37-0)

Section 4. First-aid measures

Descriptions of first-aid measures

General measures

Call a POISON CENTER/doctor/physician if you feel unwell.

IF INHALED



Di-n-butyl ether,2230E-2,2023/11/30

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN

Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES

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

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

Call a POISON CENTER/doctor/physician if you feel unwell.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

In case of fire, use spraying loaded liquid, foam (water-soluble liquid: alcohol-resistant foam), inactive gases, dry powder, dry sand to extinguish.

*Fire Service Act Group 4 Hazardous Materials

Unsuitable extinguishing media

Indoor Fire Plug System or Outdoor Fire Plug System

Sprinkler System

Dry Chemical Extinguishing System-Others (except for phosphates etc., Hydrogen Carbonates etc.)

Fire Extinguisher Discharging Jet Water/Spraying Water

Fire Extinguisher Discharging Jet Loaded Liquid

Fire Extinguisher Discharging Dry Extinguishing agents-Others (except for phosphates etc., Hydrogen Carbonates etc.)

Water Bucket or Water Tank

*Cabinet Order Concerning the Control of Hazardous Materials (Attached Table 5) Group 4 Hazardous Materials

Specific hazards arising from the substance or mixture

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

See "10.Stability and Reactivity".

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

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

Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures



Di-n-butyl ether,2230E-2,2023/11/30

- Keep unauthorized personnel away.
- Ventilate area until material pick up is complete.
- Wear proper protective equipment.

Environmental precautions

- Prevent spills from entering sewers, watercourses, low areas or rivers. To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for containment and cleaning up

- Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Preventive measures for secondary accident

- Collect spillage.

Section 7. Handling and storage**Precautions for safe handling****Preventive measures**

(Exposure Control for handling personnel)

- Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

- Ground and bond container and receiving equipment.

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

- Use non-sparking tools.

- Take action to prevent static discharges.

(Exhaust/ventilator)

- Exhaust/ventilator should be available.

(Safety treatments)

- Avoid contact with skin.

- Avoid contact with eyes.

Safety Measures

- Use only outdoors or in a well-ventilated area.

- Wear protective gloves/protective clothing/eye protection/face protection.

- Wash hands et al thoroughly after handling.

- When using do not eat, drink or smoke.

Any incompatibilities

- See "10.Stability and Reactivity".

Advice on general occupational hygiene

- Wash contaminated parts thoroughly after handling.

- Do not eat, drink or smoke when using this product.

- Take off contaminated clothing and wash it before reuse.

Storage**Conditions for safe storage**

- Keep container tightly closed.

- Store locked up. (P405)

- Store in a cool, dry place. Do not store in direct sunlight.

- Storage in accordance with local/national regulation.

Container and packaging materials for safe handling

- Glass

- Iron



etc.

Section 8. Exposure controls/personal protection

Control parameters

Adopted value

(Dibutyl hydroxytoluene)

ACGIH(2001) TWA: 2mg/m³(IFV) (URT irr)

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

Recommend to use protective equipment in conformity with the standards.

Respiratory protection

Wear respiratory protection (dust-proof mask/gas mask). Select chemical cartridge corresponding to type of gases when using a gas mask.

Hand protection

Wear impervious protective glove.

Eye protection

Wear eye/face protection. Wear safety goggles in cases gas is generated.

Skin and body protection

Wear protective clothing.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless, Clear

Odor: Characteristic odor

Melting point/Freezing point: -95°C

Boiling point or initial boiling point: (Di-n-butyl ether)142°C

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit:

Lower explosion limit: 0.9 vol %

Upper explosion limit: 8.5 vol %

Flash point: (Di-n-butyl ether)(C.C.) 25°C

Auto-ignition temperature: (Di-n-butyl ether)175°C

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Very poor (< 0.1 g/100 ml)

Solubility in solvent data is not available.

n-Octanol/water partition coefficient: log Pow3.21

Vapor pressure: 0.46 kPa (20°C)

Density and/or relative density: 0.8 g/cm³ (20°C)

Relative vapor density (Air=1): 4.5



Relative density of the Vapor/air – mixture at 20°C (Air = 1): 1

Particle characteristics data is not available.

Other information

Other information is not available.

Section 10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

As a result of flow, agitation, etc., electrostatic charges can be generated.

The substance can form explosive peroxides , especially in anhydrous form. Reacts violently with nitrogen trichloride and strong oxidants. Reacts with strong acids. (ICSC 1150)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Strong acids, Strong oxidizing agents, Nitrogen trichloride

Hazardous decomposition products

Carbon oxides, Explosive peroxides

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Data for components of the product]

[GHS Cat. Japan, base data]

(Dibutyl hydroxytoluene)

rat LD50=2450mg/kg (DFGOT vol.23, 2007)

Acute toxicity (Dermal)

[Data for components of the product]

[GHS Cat. Japan, base data]

(Dibutyl hydroxytoluene)

rat LD50 >2000mg/kg (SIDS, 2002)

Irritant properties

Skin corrosion/irritation

[Product]

Category 2, Causes skin irritation

[Data for components of the product]

[GHS Cat. Japan, base data]

(Di-n-butyl ether)

rabbit Irritation score=4 (PATTY 5th, 2001)

Serious eye damage/irritation

[Product]

Category 2, Causes serious eye irritation

[Data for components of the product]

[GHS Cat. Japan, base data]



(Di-n-butyl ether)
rabbit Irritation score=1 (PATTY 5th, 2001)
(Dibutyl hydroxytoluene)
rabbit recover after 72hours (SIDS, 2002)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenicity

[Data for components of the product]

[IARC]

(Dibutyl hydroxytoluene)

Group 3 : Not classifiable as to its carcinogenicity to humans

[ACGIH]

(Dibutyl hydroxytoluene)

A4(2001) : Not Classifiable as a Human Carcinogen

Reproductive toxicity data is not available.

Specific target organ toxicity (STOT)

STOT-single exposure

[Product]

Category 1, Causes damage to organs

Category 3, May cause drowsiness or dizziness

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

(Di-n-butyl ether)

liver, respiratory system (RTECS, 2007)

[cat.3 (narcotic effects)]

[GHS Cat. Japan, base data]

(Di-n-butyl ether)

narcotic effect (RTECS, 2007)

STOT-repeated exposure data is not available.

Aspiration hazard data is not available.

Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Product]

Category 3, Harmful to aquatic life

Category 3, Harmful to aquatic life with long lasting effects

[Data for components of the product]

Hazardous to the aquatic environment, short-term (acute)

[GHS Cat. Japan, base data]

(Di-n-butyl ether)

Crustacea (Daphnia magna) LC50=26mg/L/48hr (Aquire, 2008)

(Dibutyl hydroxytoluene)

Crustacea (Daphnia magna) EC50=0.84mg/L/48hr (MOE Japan, 1999)

Hazardous to the aquatic environment, long-term (chronic)

[GHS Cat. Japan, base data]

(Dibutyl hydroxytoluene)

Fish (Atheriniformes) ELS NOEC=0.053mg/L (MOE Japan, 2007)

**Water solubility**

(Di-n-butyl ether)
< 0.1 g/100 ml (ICSC, 1994)
(Dibutyl hydroxytoluene)
0.00006 g/100 ml (25°C) (ICSC, 1999)

Persistence and degradability

[Data for components of the product]
(Di-n-butyl ether)
BOD_Degradation : 3% (METI existing chemical safety inspections 1986)
(Dibutyl hydroxytoluene)
Not rapidly degradable (BOD_Degradation : 4.5% (METI existing chemical safety inspections 1979))

Bioaccumulative potential

[Data for components of the product]
(Di-n-butyl ether)
log Pow=3.08 (calculated) (ICSC, 1994)
(Dibutyl hydroxytoluene)
log Pow=5.1 (ICSC, 1999); BCF=2800 (Check & Review, Japan)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment.
Dispose of contents/container as industrial waste. Accordance with local/national regulation.

Section 14. Transport Information

UN Number or ID Number : 1149
UN Proper Shipping Name :
DIBUTYL ETHERS
Class or division (Transport hazard class) : 3
Packing group : III
ERG GUIDE No.: 128

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 1149
UN Proper Shipping Name :
DIBUTYL ETHERS
Class or division (Transport hazard class) : 3
Packing group : III

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 1149
UN Proper Shipping Name :
DIBUTYL ETHERS



Di-n-butyl ether,2230E-2,2023/11/30

Class or division (Transport hazard class) : 3

Hazard labels : Flamm.liquid

Packing group : III

Environmental hazards

Marine pollutants (yes/no) : no

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

Noxious Liquid Substances ; Cat. Y

Di-n-butyl ether

Section 15. Regulatory Information

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

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

Dibutyl hydroxytoluene; Di-n-butyl ether

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Section 16. Other information

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN

IMDG Code, 2020 Edition (Incorporating Amendment 40-20)

IATA Dangerous Goods Regulations (64th Edition) 2023

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2023 TLVs and BEIs. (ACGIH)

Supplier's data/information

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2022).