

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**Product Identifier**

**Product Description:** 2-(2-Butoxyethoxy)ethanol  
**Cat No. :** C14971  
**Synonyms** Butyl diglycol, Diethylene glycol monobutyl ether, Butyl carbitol, 2-(2-Butoxyethoxy)ethanol, Dioxitol  
**CAS No** 112-34-5  
**Molecular Formula** C8 H18 O3

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

**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available

**Details of the supplier of the safety data sheet**
**Importer**

Fisher Scientific Korea  
 D5,D6, Incheon Airport Logistics Complex  
 150, Gonghangdong-Ro 296 Beon-Gil  
 Jung-Gu, Incheon  
 Tel: +82-1661-9555  
 Fax: +82-2-2023-0603

**Supplier**

Thermo Fisher Scientific Chemicals, Inc.  
 30 Bond Street  
 Ward Hill, MA 01835-8099

**E-mail address** Chem.KR@thermofisher.com

**Emergency Telephone Number**

Emergency telephone: Medical: +(82) 070-7686-0086 or + 1-703-741-5970  
 CHEMTREC: 080 822 1374 (Local), CHEMTREC: 1-800-424-9300 or + 1-703-527-3887  
 Korea: 00-308-13-2549 (24 hours a day, 7 days a week)

## SECTION 2: HAZARDS IDENTIFICATION

**Classification of the substance or mixture**
**Physical hazards**

Based on available data, the classification criteria are not met

**Health hazards**

Serious Eye Damage/Eye Irritation

Category 2

**Environmental hazards**

Based on available data, the classification criteria are not met

**Label Elements**

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## Signal Word

## Warning

### Hazard Statements

H319 - Causes serious eye irritation

### Precautionary Statements

#### Prevention

P264 - Wash hands and face thoroughly after handling

P280 - Wear protective gloves/protective clothing/eye protection/face protection

#### Response

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

### Other Hazards

This product does not contain any known or suspected endocrine disruptors

### NFPA

Health  
2

Flammability  
1

Instability  
0

Physical hazards  
N/A

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Component	Common Name	CAS No	Index No	Weight %
Diethylene glycol monobutyl ether	Butyl diglycol, Diethylene glycol monobutyl ether, Butyl carbitol, 2-(2-Butoxyethoxy)et hanol, Dioxitol	112-34-5	KE-10466	99 - 100

## SECTION 4: FIRST AID MEASURES

### Description of first aid measures

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

#### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.

#### Ingestion

Do NOT induce vomiting. Get medical attention.

#### Inhalation

Remove to fresh air. Get medical attention if symptoms occur. If not breathing, give artificial respiration.

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**Self-Protection of the First Aider** No special precautions required.

**Most important symptoms and effects, both acute and delayed**

No information available.

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

**Extinguishing media**

**Suitable Extinguishing Media**

Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam.

**Extinguishing media which must not be used for safety reasons**

Do not use a solid water stream as it may scatter and spread fire.

**Special hazards arising from the substance or mixture**

Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

**Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

**Advice for fire-fighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures**

Use personal protective equipment as required. Remove all sources of ignition. Avoid contact with skin, eyes or clothing.

**Environmental precautions**

Avoid release to the environment. See Section 12 for additional Ecological Information.

**Methods and Material for Containment and Cleaning Up**

Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

**Reference to Other Sections**

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

**Precautions for Safe Handling**

Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition.

**Conditions for Safe Storage, Including any Incompatibilities**

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Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame.

## Specific End Uses

Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

Component	CAS No	Korea	ACGIH TLV	OSHA PEL
Diethylene glycol monobutyl ether	112-34-5	TWA: 10 ppm	TWA: 10 ppm	Not listed

Component	CAS No	European Union	The United Kingdom	Germany
Diethylene glycol monobutyl ether	112-34-5	TWA: 10 ppm (8hr) TWA: 67.5 mg/m <sup>3</sup> (8hr) STEL: 15 ppm (15min) STEL: 101.2 mg/m <sup>3</sup> (15min)	STEL: 15 ppm 15 min STEL: 101.2 mg/m <sup>3</sup> 15 min TWA: 10 ppm 8 hr TWA: 67.5 mg/m <sup>3</sup> 8 hr	TWA: 10 ppm (8 Stunden). AGW - exposure factor 1.5 TWA: 67 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 1.5 TWA: 67 mg/m <sup>3</sup> (8 Stunden). MAK can occur as vapor and aerosol at the same time; MAK value applies for the sum of the concentrations of Diethylene glycol Monobutyl ether and its acetate in the air TWA: 10 ppm (8 Stunden). MAK can occur as vapor and aerosol at the same time; MAK value applies for the sum of the concentrations of Diethylene glycol Monobutyl ether and its acetate in the air Höhepunkt: 15 ppm Höhepunkt: 100.5 mg/m <sup>3</sup>

### ACGIH - Biological Exposure Indices

Component	CAS No	ACGIH - Biological Exposure Indices
Diethylene glycol monobutyl ether	112-34-5	Not listed

### Exposure Controls

#### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

#### Eye Protection

Goggles

#### Hand Protection

Protective gloves

#### Skin and body protection

Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

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**Personal protective equipment** Use only those certified by the Korea Occupational Safety and Health Administration.  
**Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced  
**Recommended Filter type:** Organic gases and vapours filter Type A Brown

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice

**Environmental exposure controls** No information available

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

**Appearance (Physical State, Color, etc.)** Colorless Liquid

**Odor** Slight  
**Odor Threshold** No data available  
**pH** No information available

**Melting Point/Range** -68 °C / -90.4 °F  
**Softening Point** No data available  
**Boiling Point/Range** 231 °C / 447.8 °F @ 760 mmHg  
**Flash Point** 100 °C / 212 °F **Method -** CC (closed cup) ISO 2719

**Evaporation Rate** No data available  
**Flammability (solid,gas)** Not applicable Liquid  
**Explosion Limits** **Lower** 0.7 vol %  
**Upper** 5.3 vol %

**Vapor Pressure** 130 mmHg @ 30°C  
**Vapor Density** 5.6 (Air = 1.0)  
**Specific Gravity / Density** 0.955  
**Bulk Density** Not applicable Liquid  
**Water Solubility** Soluble  
**Solubility in other solvents** No information available

### Partition Coefficient (n-octanol/water)

Component	CAS No	log Pow
Diethylene glycol monobutyl ether	112-34-5	0.56

**Autoignition Temperature** 227 - °C / 440.6 - °F  
**Decomposition Temperature** No data available  
**Viscosity** 6.16 mPa.s @ 20 °C  
**Explosive Properties** Not explosive explosive air/vapour mixtures possible  
**Oxidizing Properties** No information available

**Molecular Formula** C8 H18 O3  
**Molecular Weight** 162.23

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## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

None known, based on information available

### Chemical Stability

Stable under normal conditions.

### Possibility of Hazardous Reactions

**Hazardous Polymerization** No information available.  
**Hazardous Reactions** May form explosive peroxides.

### Conditions to Avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

### Incompatible Materials

Strong oxidizing agents. Metals. Strong acids. Strong bases. Peroxides.

### Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Product Information

#### Information on expected route of exposure

**Inhalation** May cause irritation of respiratory tract. May be harmful if inhaled. INHALATION MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS.  
**Ingestion** May be harmful if swallowed. May cause central nervous system effects. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.  
**Eyes** Irritating to eyes.  
**Skin** May cause irritation. May be harmful in contact with skin.

#### Information on Health Hazards

##### (a) acute toxicity;

**Oral** Based on available data, the classification criteria are not met  
**Dermal** Based on available data, the classification criteria are not met  
**Inhalation** Based on available data, the classification criteria are not met

Component	CAS No	LD50 Oral	LD50 Dermal	LC50 Inhalation
Diethylene glycol monobutyl ether	112-34-5	LD50 = 5660 mg/kg ( Rat )	LD50 = 2700 mg/kg ( Rabbit )	No data available

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

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**Respiratory** No data available  
**Skin** No data available

Component	CAS No	Test method	Test species	Study result
Diethylene glycol monobutyl ether	112-34-5	No data available	No data available	No data available

**(e) germ cell mutagenicity;** No data available

Component	CAS No	Test method	Test species	Study result
Diethylene glycol monobutyl ether	112-34-5	No data available	No data available	No data available

**(f) carcinogenicity;** No data available

Component	CAS No	Test method	Test species / Duration	Study result
Diethylene glycol monobutyl ether	112-34-5	No data available	No data available	No data available

There are no known carcinogenic chemicals in this product

Component	CAS No	IARC	NTP	ACGIH	OSHA	UK
Diethylene glycol monobutyl ether	112-34-5	Not listed	Not listed	Not listed	Not listed	Not listed

**(g) reproductive toxicity;** No data available

Component	CAS No	Test method	Test species / Duration	Study result
Diethylene glycol monobutyl ether	112-34-5	No data available	No data available	No data available

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** No data available

**Target Organs** None known.

**(j) aspiration hazard;** No data available

**Other Adverse Effects**  
No information available.

Component	CAS No	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Diethylene glycol monobutyl ether	112-34-5	Not applicable	Not applicable	Not applicable

## SECTION 12: ECOLOGICAL INFORMATION

### Ecotoxicity effects

Component	CAS No	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Diethylene glycol monobutyl ether	112-34-5	LC50: = 1300 mg/L, 96h static (Lepomis macrochirus)	EC50: > 100 mg/L, 48h (Daphnia magna)	EC50: > 100 mg/L, 96h (Desmodesmus subspicatus)	No data available

**Persistence and degradability** Readily biodegradable  
**Persistence** Soluble in water, Persistence is unlikely, based on information available.

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Component	Degradability
Diethylene glycol monobutyl ether 112-34-5 ( 99 - 100 )	76% (28d) OECD 301D

**Bioaccumulative potential** Bioaccumulation is unlikely; Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Diethylene glycol monobutyl ether	0.56	No data available

**Mobility in soil** The product is water soluble, and may spread in water systems . Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

## Ozone Depletion Potential

Component	CAS No	Ozone Depletion Potential
Diethylene glycol monobutyl ether	112-34-5	Not listed

**Other adverse effects** No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

### Waste treatment methods

**Waste from Residues/Unused Products** Waste is classified as hazardous. Dispose in accordance with the Wastes Control Act (폐기물관리법).

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

**Other Information** Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

## SECTION 14: TRANSPORT INFORMATION

**Road and Rail Transport** Not Regulated

**IATA** Not regulated

**IMDG/IMO** Not regulated  
**Marine Pollutant** No hazards identified

**Special Precautions for User** No special precautions required

## SECTION 15: REGULATORY INFORMATION

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

Legend: X - Listed '-' - Not Listed

### International Inventories

Component	CAS No	KECL	TSCA	EINECS	IECSC	DSL	NDSL	PICCS	ENCS	ISHL	AICS
Diethylene glycol monobutyl ether	112-34-5	KE-10466	X	203-961-6	X	X	-	X	X	X	X

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)



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		Notification	Requirements		
Diethylene glycol monobutyl ether	112-34-5	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential
Diethylene glycol monobutyl ether	112-34-5	Listed	Not applicable	Not applicable

## Korean National Regulations

Component	CAS No	Act on Registration and Evaluation of Chemical Substances (K-REACH)	Authorised Chemicals	Existing Substances Subject to Registration
Diethylene glycol monobutyl ether	112-34-5	Annex 1 - KE-10466	Not applicable	Listed

Component	CAS No	Chemical Control Act - Toxic Chemicals	Chemical Control Act - Prohibited Chemicals	Chemical Control Act - Use Restricted Chemicals
Diethylene glycol monobutyl ether	112-34-5	Not applicable	Not applicable	Not applicable

Component	CAS No	Chemical Control Act - Accident Precaution Chemicals (% in mixtures)	Chemical Control Act - Accident Precaution Chemicals - Quantity limits Storage (% in mixtures)	Chemical Control Act - Accident Precaution Chemicals - Quantity limits Manufacture/Use (% in mixtures)
Diethylene glycol monobutyl ether	112-34-5	Not applicable	Not applicable	Not applicable

Component	CAS No	Waste Control Law	Ministry of Environment - CMR risk	Ministry of Environment - Critically Controlled Substance
Diethylene glycol monobutyl ether	112-34-5	Not applicable	Not applicable	Not applicable

Component	CAS No	ISHA - Harmful Agents Subject to Work Environment Monitoring	ISHA - Prohibited substances	ISHA - Substances requiring permission
Diethylene glycol monobutyl ether	112-34-5	Not applicable	Not applicable	Not applicable

Component	CAS No	ISHA - Substances subject to control	ISHA - Harmful Agents Requiring Health Examination	ISHA - Permissible Exposure Limits
Diethylene glycol monobutyl ether	112-34-5	Not applicable	Not applicable	Not applicable

Component	CAS No	ISHA - Subject to Process Safety Reports (minimum quantity)	ISHA - Threshold Limit Values (TLVs) Chemicals	ISHA - Special management materials
Diethylene glycol monobutyl ether	112-34-5	Not applicable	TWA: 10 ppm	Not applicable

## National Fire Association - Dangerous Substances Minimum quantity requiring a permit

Component	CAS No	Class 1 - Oxidising solids	Class 2 - Flammable solid	Class 3 - Spontaneously Combustible Substances and Dangerous Substances When Wet	Class 4 - Flammable liquids	Class 5 - Self-reactive substances	Class 6 - Oxidising liquids
Diethylene glycol monobutyl ether	112-34-5	Not applicable	Not applicable	Not applicable	5. Group 3 Petroleum (Soluble) 4000 L	Not applicable	Not applicable

## Control Parameters

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Component	CAS No	Korea	ACGIH - Biological Exposure Indices
Diethylene glycol monobutyl ether	112-34-5	TWA: 10 ppm	Not listed

## US Management Information

OSHA - Occupational Safety and Health Administration

Not applicable

Component	CAS No	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Diethylene glycol monobutyl ether	112-34-5	Not applicable	Not applicable

CERCLA Not applicable

Component	CAS No	CERCLA Extremely Hazardous Substances RQs	Hazardous Substances RQs	SARA 313 - Threshold Values %
Diethylene glycol monobutyl ether	112-34-5	Not applicable	Not applicable	1.0 %

## GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Warning.

H319 - Causes serious eye irritation.

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

## SECTION 16: OTHER INFORMATION

### Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

POW - Partition coefficient Octanol:Water

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

### Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

First aid for chemical exposure, including the use of eye wash and safety showers.

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Prepared By	Health, Safety and Environmental Department
Creation Date	21-Jun-2010
Revision Date	12-Jun-2024
Revision Number	2
Revision Summary	New emergency telephone response service provider.

## MOEL's Public Notice No. 2023-9 (Standards for Classification and Labeling of Chemical Substances and Safety Data Sheets)

### Disclaimer

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

**End of Safety Data Sheet**