

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

**Product Identifier**

<b>Product Description:</b>	<b>Ethylene glycol, AR</b>
<b>Cat No. :</b>	<b>W00018</b>
<b>Synonyms</b>	Monoethylene glycol; 1,2-Ethanediol
<b>CAS No</b>	107-21-1
<b>Molecular Formula</b>	C2 H6 O2

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

<b>Recommended Use</b>	Laboratory chemicals.
<b>Uses advised against</b>	No Information available

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

<b>Importer</b>	<b>Supplier</b>
Fisher Scientific Korea	Thermo Fisher Scientific Chemicals, Inc.
D5,D6, Incheon Airport Logistics Complex	30 Bond Street
150, Gonghangdong-Ro 296 Beon-Gil	Ward Hill, MA 01835-8099
Jung-Gu, Incheon	
Tel: +82-1661-9555	
Fax: +82-2-2023-0603	

<b>E-mail address</b>	Chem.KR@thermofisher.com
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**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**

Acute Oral Toxicity	Category 4
Specific target organ toxicity - (repeated exposure)	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

H302 - Harmful if swallowed

H373 - May cause damage to organs through prolonged or repeated exposure

### Precautionary Statements

#### Prevention

P270 - Do not eat, drink or smoke when using this product

P264 - Wash hands and face thoroughly after handling

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

#### Response

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

P330 - Rinse mouth

P314 - Get medical advice/attention if you feel unwell

#### Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

### Other Hazards

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

### NFPA

Health  
2

Flammability  
1

Instability  
1

Physical hazards  
N/A

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Component	Common Name	CAS No	Index No	Weight %
Ethylene glycol	Monoethylene glycol; 1,2-Ethanediol	107-21-1	KE-13169	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 immediately if symptoms occur.

#### Ingestion

Do NOT induce vomiting. Call a physician or poison control center immediately.

#### Inhalation

Remove to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way

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valve or other proper respiratory medical device. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration.

**Self-Protection of the First Aider** Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Difficulty in breathing.

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

**Notes to Physician** Treat symptomatically. Symptoms may be delayed.

## 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**

No information available.

**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**

Ensure adequate ventilation. Use personal protective equipment as required.

**Environmental precautions**

Should not be released into the environment. See Section 12 for additional Ecological Information.

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

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**

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Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not breathe mist/vapors/spray. Avoid contact with skin, eyes or clothing.

## Conditions for Safe Storage, Including any Incompatibilities

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
Ethylene glycol	107-21-1	Ceiling: 100 mg/m <sup>3</sup>	TWA: 25 ppm STEL: 50 ppm STEL: 10 mg/m <sup>3</sup>	(Vacated) Ceiling: 50 ppm (Vacated) Ceiling: 125 mg/m <sup>3</sup>

Component	CAS No	European Union	The United Kingdom	Germany
Ethylene glycol	107-21-1	TWA: 20 ppm (8h) TWA: 52 mg/m <sup>3</sup> (8h) STEL: 40 ppm (15min) STEL: 104 mg/m <sup>3</sup> (15min) Skin	STEL: 40 ppm 15 min STEL: 104 mg/m <sup>3</sup> 15 min STEL: 30 mg/m <sup>3</sup> 15 min TWA: 10 mg/m <sup>3</sup> 8 hr TWA: 20 ppm 8 hr TWA: 52 mg/m <sup>3</sup> 8 hr Skin	TWA: 10 ppm (8 Stunden). AGW - exposure factor 2 TWA: 26 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2 TWA: 10 ppm (8 Stunden). MAK can occur as vapor and aerosol at the same time TWA: 26 mg/m <sup>3</sup> (8 Stunden). MAK can occur as vapor and aerosol at the same time Höhepunkt: 20 ppm Höhepunkt: 52 mg/m <sup>3</sup> Haut

### ACGIH - Biological Exposure Indices

Component	CAS No	ACGIH - Biological Exposure Indices
Ethylene glycol	107-21-1	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

Wear safety glasses with side shields (or 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.

**Personal protective equipment** Use only those certified by the Korea Occupational Safety and Health Administration.

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## Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

## Recommended Filter type:

Organic gases and vapours filter Type A Brown conforming to EN14387

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

When RPE is used a face piece Fit Test should be conducted

## 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 Viscous liquid Liquid

**Odor**

Odorless

**Odor Threshold**

No data available

**pH**

5.5-7.5

50% aq. sol

**Melting Point/Range**

-13 °C / 8.6 °F

**Softening Point**

No data available

**Boiling Point/Range**

196 - 198 °C / 384.8 - 388.4 °F @ 760 mmHg

**Flash Point**

111 °C / 231.8 °F

**Method -** DIN 51758

**Evaporation Rate**

No information available

**Flammability (solid,gas)**

Not applicable

Liquid

**Explosion Limits**

**Lower** 3.2 vol %

**Upper** 28 vol %

**Vapor Pressure**

0.12 mmHg @ 20 °C

**Vapor Density**

2.14 (Air = 1.0)

(Air = 1.0)

**Specific Gravity / Density**

1.113

**Bulk Density**

Not applicable

Liquid

**Water Solubility**

Miscible

**Solubility in other solvents**

No information available

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

Component	CAS No	log Pow
Ethylene glycol	107-21-1	-1.36

**Autoignition Temperature**

413 °C / 775.4 °F

**Decomposition Temperature**

> 500°C

**Viscosity**

21 cP (20°C)

**Explosive Properties**

No information available

**Oxidizing Properties**

No information available

**Molecular Formula**

C2 H6 O2

**Molecular Weight**

62.06

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## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

None known, based on information available

### Chemical Stability

Hygroscopic.

### Possibility of Hazardous Reactions

#### **Hazardous Polymerization**

Hazardous polymerization does not occur.

#### **Hazardous Reactions**

None under normal processing.

### Conditions to Avoid

Incompatible products. Excess heat. Exposure to moist air or water.

### Incompatible Materials

Strong oxidizing agents. Strong acids. Strong bases. Aldehydes.

### 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 be harmful if inhaled. May cause irritation of respiratory tract.

##### **Ingestion**

Harmful if swallowed. May cause central nervous system effects. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

##### **Eyes**

May cause irritation.

##### **Skin**

May be harmful in contact with skin. May cause irritation.

#### **Information on Health Hazards**

##### **(a) acute toxicity;**

##### **Oral**

Category 4

##### **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
Ethylene glycol	107-21-1	7712 mg/kg ( Rat )	LD50 = 9530 µL/kg ( Rabbit ) LD50 = 10600 mg/kg ( Rat ) LD50 > 3500 mg/kg (mice)	LC50 > 2.5 mg/L ( Rat ) 6 h

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

##### **Respiratory**

No data available

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**Skin** No data available

Component	CAS No	Test method	Test species	Study result
Ethylene glycol	107-21-1	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
Ethylene glycol	107-21-1	No data available	No data available	No data available

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

Component	CAS No	Test method	Test species / Duration	Study result
Ethylene glycol	107-21-1	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
Ethylene glycol	107-21-1	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
Ethylene glycol	107-21-1	No data available	No data available	No data available

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

**(i) STOT-repeated exposure;** Category 2

**Target Organs** Central nervous system (CNS), Liver, Kidney.

**(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
Ethylene glycol	107-21-1	Not applicable	Not applicable	Not applicable

## SECTION 12: ECOLOGICAL INFORMATION

**Ecotoxicity effects** Do not empty into drains. .

Component	CAS No	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Ethylene glycol	107-21-1	LC50: = 41000 mg/L, 96h (Oncorhynchus mykiss) LC50: = 27540 mg/L, 96h static (Lepomis macrochirus) LC50: 14 - 18 mL/L, 96h static (Oncorhynchus mykiss)	EC50: = 46300 mg/L, 48h (Daphnia magna)	EC50: 6500 - 13000 mg/L, 96h (Pseudokirchneriella subcapitata)	No data available

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		LC50: = 40761 mg/L, 96h static (Oncorhynchus mykiss) LC50: 40000 - 60000 mg/L, 96h static (Pimephales promelas) LC50: = 16000 mg/L, 96h static (Poecilia reticulata)			
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**Persistence and degradability**  
**Persistence**

Readily biodegradable  
Persistence is unlikely.

**Bioaccumulative potential**

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Ethylene glycol	-1.36	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
Ethylene glycol	107-21-1	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**

**IATA**

Not regulated

**IMDG/IMO**

**Marine Pollutant**

Not regulated  
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

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## International Inventories

Component	CAS No	KECL	TSCA	EINECS	IECSC	DSL	NDSL	PICCS	ENCS	ISHL	AICS
Ethylene glycol	107-21-1	KE-13169	X	203-473-3	X	X	-	X	X	X	X

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Ethylene glycol	107-21-1	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential
Ethylene glycol	107-21-1	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
Ethylene glycol	107-21-1	Annex 1 - KE-13169	Not applicable	Not applicable

Component	CAS No	Chemical Control Act - Toxic Chemicals	Chemical Control Act - Prohibited Chemicals	Chemical Control Act - Use Restricted Chemicals
Ethylene glycol	107-21-1	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)
Ethylene glycol	107-21-1	Not applicable	Not applicable	Not applicable

Component	CAS No	Waste Control Law	Ministry of Environment - CMR risk	Ministry of Environment - Critically Controlled Substance
Ethylene glycol	107-21-1	Not applicable	Not applicable	Not applicable

Component	CAS No	ISHA - Harmful Agents Subject to Work Environment Monitoring	ISHA - Prohibited substances	ISHA - Substances requiring permission
Ethylene glycol	107-21-1	Listed	Not applicable	Not applicable

Component	CAS No	ISHA - Substances subject to control	ISHA - Harmful Agents Requiring Health Examination	ISHA - Permissible Exposure Limits
Ethylene glycol	107-21-1	Listed	Listed	Not applicable

Component	CAS No	ISHA - Subject to Process Safety Reports (minimum quantity)	ISHA - Threshold Limit Values (TLVs) Chemicals	ISHA - Special management materials
Ethylene glycol	107-21-1	Not applicable	Ceiling: 100 mg/m <sup>3</sup>	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	Class 4 - Flammable liquids	Class 5 - Self-reactive substances	Class 6 - Oxidising liquids

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				Substances and Dangerous Substances When Wet			
Ethylene glycol	107-21-1	Not applicable	Not applicable	Not applicable	5. Group 3 Petroleum (Soluble) 4000 L	Not applicable	Not applicable

## Control Parameters

Component	CAS No	Korea	ACGIH - Biological Exposure Indices
Ethylene glycol	107-21-1	Ceiling: 100 mg/m <sup>3</sup>	Not listed

## US Management Information

OSHA - Occupational Safety and Health Administration

Not applicable

Component	CAS No	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Ethylene glycol	107-21-1	Not applicable	Not applicable

## CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355)

Component	CAS No	CERCLA Extremely Hazardous Substances RQs	Hazardous Substances RQs	SARA 313 - Threshold Values %
Ethylene glycol	107-21-1	Not applicable	5000 lb	1.0 %

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

Warning.

H302 - Harmful if swallowed. H373 - May cause damage to organs through prolonged or repeated exposure.

P280 - Wear protective gloves/protective clothing/eye protection/face protection. P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

## 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

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

**MARPOL** - International Convention for the Prevention of Pollution from Ships

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OECD - Organisation for Economic Co-operation and Development  
BCF - Bioconcentration factor

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.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

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

Chemical incident response training.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.

Prepared By	Health, Safety and Environmental Department
Creation Date	02-Feb-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**