

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 04/16/2018

Version 1.2

SECTION 1. Identification**Product identifier**

Product number	EX0564
Product name	Ethylene Glycol
CAS-No.	107-21-1

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

Identified uses	Reagent for analysis
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification**GHS Classification**

Acute toxicity, Category 4, Oral, H302
Specific target organ systemic toxicity - repeated exposure, Category 2, Oral, Kidney, H373
For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling*Hazard pictograms*

Signal Word
Warning

Hazard Statements

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

Precautionary Statements

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

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P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P314 Get medical advice/ attention if you feel unwell.
P330 Rinse mouth.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	HOCH ₂ CH ₂ OH	C ₂ H ₆ O ₂ (Hill)
Molar mass	62.07 g/mol	

Hazardous ingredients

Chemical name (Concentration)

CAS-No.

ethylene glycol (>= 90 % - <= 100 %)

107-21-1

Exact percentages are being withheld as a trade secret.

SECTION 4. First aid measures

Description of first-aid measures

Inhalation

After inhalation: fresh air. Call in physician.

Skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

Eye contact

After eye contact: rinse out with plenty of water.

Ingestion

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

agitation, Nausea, Vomiting, Tiredness, ataxia (impaired locomotor coordination), CNS disorders, Unconsciousness

Indication of any immediate medical attention and special treatment needed

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

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SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Water, Foam, Carbon dioxide (CO₂), Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapors possible in the event of fire.

Advice for firefighters

Special protective equipment for fire-fighters

In the event of fire, wear self-contained breathing apparatus.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact.

Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed.

Store at room temperature.

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SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>ethylene glycol 107-21-1</i>			
ACGIH	Ceiling Limit Value:	100 mg/m ³	Form of exposure: Aerosol.
Z1A	Ceiling Limit Value:	50 ppm 125 mg/m ³	

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Eye/face protection

Safety glasses

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment:

protective clothing

Respiratory protection

required when vapors/aerosols are generated.

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Recommended Filter type: Filter A (acc. to DIN 3181) for vapors of organic compounds
The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are performed according to the instructions of the producer. These measures have to be properly documented.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	odorless
Odor Threshold	Not applicable
pH	6 - 7.5 at 100 g/l 68 °F (20 °C)
Melting point/range	7 - 14 °F (-14 - -10 °C)
Boiling point/boiling range	387.7 °F (197.6 °C) at 1,013 hPa
Flash point	232 °F (111 °C) Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	3.2 %(V)
Upper explosion limit	15.3 %(V)
Vapor pressure	0.053 hPa at 68 °F (20 °C)
Relative vapor density	2.14
Density	1.11 g/cm ³ at 68 °F (20 °C)
Relative density	No information available.
Water solubility	1,000 g/l at 68 °F (20 °C)

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Partition coefficient: n-octanol/water	log Pow: -1.36 (experimental) (Lit.) Bioaccumulation is not expected.
Autoignition temperature	No information available.
Decomposition temperature	> 392 - 482 °F (> 200 - 250 °C) Distillable in an undecomposed state at normal pressure.
Viscosity, dynamic	21 mPa.s at 68 °F (20 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	770 °F (410 °C) Method: DIN 51794
Conductivity	< 1 µS/cm

SECTION 10. Stability and reactivity

Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

Risk of explosion with:

Aluminum, perchloric acid

Risk of ignition or formation of inflammable gases or vapors with:

chromyl chloride, Strong oxidizing agents, chlorates, Peroxides, potassium permanganate

Exothermic reaction with:

chlorosulfonic acid, Sodium hydroxide, fuming sulfuric acid, sulfuric acid

Conditions to avoid

Strong heating.

Incompatible materials

various plastics

Hazardous decomposition products

no information available

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SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact

Target Organs

Eyes

Skin

Respiratory system

Central nervous system

Acute oral toxicity

LDLO human: 786 mg/kg (RTECS)

Symptoms: Nausea, Vomiting

Acute inhalation toxicity

LC50 Rat: > 2.5 mg/l; 6 h ; aerosol
(ECHA)

Acute dermal toxicity

LD50 Mouse: > 3,500 mg/kg
(ECHA)

Skin irritation

Rabbit

Result: No irritation
(ECHA)

Eye irritation

Rabbit

Result: No eye irritation
(ECHA)

Sensitization

Patch test:

Result: negative

(IUCLID)

Genotoxicity in vivo

Chromosome aberration test

Rat

Result: negative
(ECHA)

Genotoxicity in vitro

Ames test

Escherichia coli/Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

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Mutagenicity (mammal cell test): chromosome aberration.

Result: negative
(ECHA)

Carcinogenicity

Did not show carcinogenic effects in animal experiments.

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure if swallowed.

Routes of exposure: Oral

Target Organs: Kidney

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

After absorption:

agitation, CNS disorders

Systemic effects:

After a latency period:

Tiredness, ataxia (impaired locomotor coordination), Unconsciousness

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

LC50 *Oncorhynchus mykiss* (rainbow trout): > 18,500 mg/l; 96 h (External MSDS)

Toxicity to daphnia and other aquatic invertebrates

static test *Daphnia magna* (Water flea): > 100 mg/l; 48 h

Analytical monitoring: yes

OECD Test Guideline 202

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Toxicity to algae

IC5 Scenedesmus quadricauda (Green algae): > 10,000 mg/l; 7 d (Lit.)

Toxicity to bacteria

static test EC5 Pseudomonas putida: > 10,000 mg/l; 16 h

DIN 38412

Persistence and degradability

Biodegradability

100 %; 10 d; aerobic

OECD Test Guideline 301A

Readily biodegradable.

Biochemical Oxygen Demand (BOD)

780 mg/g (5 d)

(IUCLID)

Chemical Oxygen Demand (COD)

1,190 mg/g

(IUCLID)

Theoretical oxygen demand (ThOD)

1,290 mg/g

(IUCLID)

Ratio BOD/ThBOD

BOD5 60 %

(IUCLID)

Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: -1.36

(experimental)

(Lit.) Bioaccumulation is not expected.

Mobility in soil

No information available.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

Not classified as dangerous in the meaning of transport regulations.

Air transport (IATA)

Not classified as dangerous in the meaning of transport regulations.

Sea transport (IMDG)

Not classified as dangerous in the meaning of transport regulations.

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SECTION 15. Regulatory information

United States of America

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ingredients

ethylene glycol	107-21-1	100 %
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SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients

ethylene glycol

Pennsylvania Right To Know

Ingredients

ethylene glycol

New Jersey Right To Know

Ingredients

ethylene glycol

California Prop 65 Components

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Ingredients

ethylene glycol

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Notification status

TSCA: All components of the product are listed in the TSCA-inventory.
DSL: All components of this product are on the Canadian DSL

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Labeling

Hazard pictograms



Signal Word

Warning

Hazard Statements

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

Precautionary Statements

Response

P314 Get medical advice/ attention if you feel unwell.

Full text of H-Statements referred to under sections 2 and 3.

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

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Revision Date 04/16/2018

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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