

Chemical Safety Data Sheet MSDS / SDS

Triethylene glycol

Revision Date:2024-07-27 Revision Number:1

SECTION 1: Identification of the substance/mixture

Product identifier

Product name : Triethylene glycol
CBnumber : CB1698903
CAS : 112-27-6
EINECS Number : 203-953-2
Synonyms : triethylene glycol,teg

SECTION 2: Hazards identification

GHS Label elements, including precautionary statements

Signal word : Warning

Precautionary statements

P264 Wash hands thoroughly after handling.

P264 Wash skin thoroughly after handling.

Hazard statements

H320 Causes eye irritation

SECTION 3: Composition/information on ingredients

Substance

Product name : Triethylene glycol
Synonyms : triethylene glycol,teg
CAS : 112-27-6

EC number : 203-953-2
MF : C6H14O4
MW : 150.17

SECTION 4: First aid measures

Description of first aid measures

If inhaled

After inhalation: fresh air.

In case of skin contact

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

In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

Carbon oxides 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 vapours possible in the event of fire.

Advice for firefighters

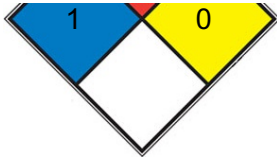
In the event of fire, wear self-contained breathing apparatus.

Further information

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

NFPA 704





■ HEALTH 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion

■ FIRE 1 can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. [mineral oil](#), ammonia)

■ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N₂](#))

□ SPEC.

□ HAZ.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection 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. Chemizorb?). Dispose of properly. Clean up affected area.

Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling

For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. hygroscopic

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

control parameter

Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

Exposure controls

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. 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).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. 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).

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

Respiratory protection

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Appearance	colorless clear, viscous liquid
Odour	odorless
Odour Threshold	Not applicable d) pH 6,5 - 7,5 at 100 g/l at 20 °C Melting point/freezing point Initial boiling point and boiling range Melting point/range: -7 °C - lit. 125 - 127 °C at 0,1 hPa - lit. Flash point 166 °C - closed

cup Evaporation rate No data available Flammability (solid, gas) Upper/lower flammability or explosive limits No data available Upper explosion limit: 9,2 %(V) Lower explosion limit: 0,9 %(V) Vapour pressure < 0,1 hPa at 24,7 °C Vapour density 5,18 - (Air = 1.0) Relative density No data available Water solubility 1.000 g/l at 20 °C - completely miscible Partition coefficient: n-octanol/water Autoignition temperature Decomposition temperature log Pow. -1,98 at 25 °C - Bioaccumulation is not expected., (Lit.) 347 °C >200 °C - Viscosity Viscosity, kinematic: No data available Viscosity, dynamic: 47,8 mPa.s at 20 °C Explosive properties During processing, dust may form explosive mixture in air. Oxidizing properties No data available

Melting point/freezing point	Melting point/range: -7 °C - lit.
Initial boiling point and boiling range	125 - 127 °C at 0,1 hPa - lit.
Flash point	166 °C - closed cup
Evaporation rate	165 °C
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 9,2 %(V) Lower explosion limit: 0,9 %(V)
Vapour pressure	< 0,1 hPa at 24,7 °C
Vapour density	5,18 - (Air = 1.0)
Relative density	5.2 (vs air)
Water solubility	1.000 g/l at 20 °C - completely miscible
Partition coefficient: n-octanol/water	log Pow. -1,98 at 25 °C - Bioaccumulation is not expected., (Lit.)
Autoignition temperature	347 °C
Decomposition temperature	>200 °C -
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 47,8 mPa.s at 20 °C
Explosive properties	During processing, dust may form explosive mixture in air.
Oxidizing properties	No data available
λ _{max}	λ: 260 nm A _{max} : 0.06 λ: 280 nm A _{max} : 0.03

Other safety information

Relative vapor density

5,18 - (Air = 1.0)

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

Exothermic reaction with: Bases

Strong acids hydrogen peroxide Oxidizing agents Oxygen

Violent reactions possible with:

Isocyanates permanganates Peroxides halogen oxides persulfates

Conditions to avoid

Strong heating.

Incompatible materials

Zinc

Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - > 2.000 mg/kg (ATC METHODE)

Inhalation: Respiratory disorder Symptoms: slight mucosal irritations, Cough

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h (Draize Test)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation - 24 h (Draize Test)

Eyes - Rabbit

Result: Mild eye irritation

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration. Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Toxicity

LD50 in mice, rats (g/kg): 21, 15-22 orally; 7.3-9.5, 11.7 i.v. (Stenger)

SECTION 12: Ecological information

Toxicity

Toxicity to fish

static test LC50 - *Lepomis macrochirus* (Bluegill sunfish) - > 10.000 mg/l - 96 h

Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - *Daphnia magna* (Water flea) - > 10.000 mg/l - 48 h

(DIN 38412)

Toxicity to bacteria

static test EC10 - activated sludge - > 1.995 mg/l - 30 min Remarks: (ECHA)

Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: 25 - 92 % - Readily biodegradable. (OECD Test Guideline 301C)

Theoretical oxygen demand

1.600 mg/g Remarks: (Lit.)

Ratio BOD/ThBOD 1,4 - 32 %

Remarks: (Lit.)

Bioaccumulative potential

No bioaccumulation is to be expected ($\log Pow \leq 4$).

Mobility in soil

No data available

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Other adverse effects

No data available

SECTION 13: Disposal considerations

Waste treatment methods

Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

UN number

ADR/RID: - IMDG: - IATA: -

UN proper shipping name

ADR/RID: Not dangerous goods IMDG: Not dangerous goods IATA: Not dangerous goods

Transport hazard class(es)

ADR/RID: - IMDG: - IATA: -

Packaging group

ADR/RID: - IMDG: - IATA: -

Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

Special precautions for user

Further information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

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

Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Not Listed. website: <https://www.mem.gov.cn/>

Measures for Environmental Management of New Chemical Substances

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

EC Inventory:Listed.

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:

http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

Other Information

Health effects of exposure to the substance have been investigated, but none has been found.

Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.