SAFETY DATA SHEET
According to EC No 1907/2006 as amended as at the date of this SDS

Triethylene Glycol

Version	Revision Date:	SDS Number:	Date of last issue: 12.02.2025
1.11	17.02.2025	800001014447	Print Date 24.02.2025

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	:	Triethylene Glycol
Product code	:	U1256
Registration number EU	:	01-2119438366-35-0001, 01-2119438366-35-0003
Synonyms	:	2,2 ethylenedioxydiethanol, Ethylene triglycol, gg, glycol bis (hydroxyethyl) ether, TEG, Triglycol
CAS-No.	:	112-27-6

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

Use of the Substance/Mixture	:	Chemical intermediate. Please refer to section 16 and/or the annexes for the registered uses under REACH.
Uses advised against	:	This product must not be used in applications other than the above without first seeking the advice of the supplier., Do not use in the manufacture or preparation of foods or pharmaceuticals., Do not use in theatrical fogs or other artificial smoke generator applications., Keep out of reach of children and pets., Do not use in aircraft deicing applications.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier	:	**Shell Chemicals Europe B.V.** PO Box 2334 3000 CH Rotterdam Netherlands
Telephone	:	+31 (0)10 441 5137 / +31 (0)10 441 5191
Telefax	:	+31 (0)20 716 8316 / +31 (0)20 713 9230
Contact for Safety Data Sheet	:	sccmsds@shell.com

1.4 Emergency telephone number

+44 (0) 1235 239 670 (This telephone number is available 24 hours per day, 7 days per week)
Poison Centre: (+41) 145

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Based on available data this substance / mixture does not meet the classification criteria.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms : No Hazard Symbol required
Signal word : No signal word

Hazard statements :
PHYSICAL HAZARDS:
Not classified as a physical hazard according to CLP criteria.
HEALTH HAZARDS:
Not classified as a health hazard under CLP criteria.
ENVIRONMENTAL HAZARDS:
Not classified as environmental hazard according to CLP criteria.

Precautionary statements :

Prevention:

No precautionary phrases.

Response:

No precautionary phrases.

Storage:

No precautionary phrases.

Disposal:

No precautionary phrases.

2.3 Other hazards

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Not classified as flammable but will burn.

SECTION 3: Composition/information on ingredients

3.1 Substances

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
Triethylene glycol	112-27-6 203-953-2	> 99
Diethylene glycol	111-46-6 203-872-2	< 1

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice	:	Not expected to be a health hazard when used under normal conditions.
Protection of first-aiders	:	When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.
If inhaled	:	No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
In case of skin contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.
In case of eye contact	:	Flush eye with copious quantities of water. Remove contact lenses, if present and easy to do. Continue rinsing. If persistent irritation occurs, obtain medical attention.
If swallowed	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	Not considered to be an inhalation hazard under normal conditions of use. Possible respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing. No specific hazards under normal use conditions. Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. Skin irritation signs and symptoms may include a burning sensation, redness, or swelling. Ingestion may result in nausea, vomiting and/or diarrhoea.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	Call a doctor or poison control center for guidance. Treat symptomatically. May cause significant renal, respiratory, and CNS toxicity. May cause significant acidosis.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media : Do not use water in a jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Material will not burn unless preheated.
Carbon monoxide may be evolved if incomplete combustion occurs.
Containers exposed to intense heat from fires should be cooled with large quantities of water.

5.3 Advice for firefighters

Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

Specific extinguishing methods : Standard procedure for chemical fires.

Further information : Evacuate the area of all non-essential personnel.
Keep adjacent containers cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions :

Observe all relevant local and international regulations.
Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.
Local authorities should be advised if significant spillages cannot be contained.
6.1.1 For non emergency personnel:
Avoid contact with skin, eyes and clothing.
6.1.2 For emergency responders:
Avoid contact with skin, eyes and clothing.

6.2 Environmental precautions

Environmental precautions : Prevent from spreading or entering into drains, ditches or riv-

ers by using sand, earth, or other appropriate barriers.
Use appropriate containment to avoid environmental contamination.
Ventilate contaminated area thoroughly.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Contain run-off from residue flush and dispose of properly. Soak up residue with an absorbent such as clay, sand or other suitable material.

For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely

6.4 Reference to other sections

For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet., For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.
Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Ensure that all local regulations regarding handling and storage facilities are followed.

Advice on safe handling : Use local exhaust extraction over processing area.
Handle and open container with care in a well-ventilated area.
Do not empty into drains.
When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Handling Temperature:
Ambient.

Product Transfer : Keep containers closed when not in use. Do not pressurize drum containers to empty.

Hygiene measures : Wash hands before eating, drinking, smoking and using the toilet. Launder contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Further information on storage stability : Tanks must be clean, dry and rust-free.
Keep container tightly closed.
Must be stored in a diked (bunded) well- ventilated area, away from sunlight, ignition sources and other sources of heat.
Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions.
Drums should be stacked to a maximum of 3 high.
Storage Temperature:
Ambient.

Packaging material : Suitable material: Stainless steel., Mild steel., Carbon steel
Unsuitable material: Data not available

Container Advice : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

7.3 Specific end use(s)

Specific use(s) : Please refer to section 16 and/or the annexes for the registered uses under REACH.

Ensure that all local regulations regarding handling and storage facilities are followed.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Triethylene glycol	112-27-6	TWA (inhalable dust)	1.000 mg/m3	CH SUVA
	Further information: The substance can be present simultaneously as vapor and aerosol, Harm to the unborn child cannot be excluded when the OEL-value is respected.			
Triethylene glycol		STEL (inhalable dust)	2.000 mg/m3	CH SUVA
	Further information: The substance can be present simultaneously as vapor and aerosol, Harm to the unborn child cannot be excluded when the OEL-value is respected.			

Diethylene glycol	111-46-6	TWA	10 ppm 44 mg/m3	CH SUVA
	Further information: Harm to the unborn child is not to be expected when the OEL-value is respected			
Diethylene glycol		STEL	40 ppm 176 mg/m3	CH SUVA
	Further information: Harm to the unborn child is not to be expected when the OEL-value is respected			

Biological occupational exposure limits

No biological limit allocated.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Diethylene glycol	Workers	Dermal	Long-term systemic effects	43 mg/kg bw/day
Diethylene glycol	Workers	Inhalation	Long-term local effects	60 mg/m3
Diethylene glycol	Consumers	Dermal	Long-term systemic effects	21 mg/kg bw/day
Diethylene glycol	Consumers	Inhalation	Long-term local effects	12 mg/m3

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Remarks:	Exposure assessments have not been presented for the environment therefore PNEC values not required.	

8.2 Exposure controls

Engineering measures

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:
Adequate ventilation to control airborne concentrations.
Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
Eye washes and showers for emergency use.

General Information
Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.
Define procedures for safe handling and maintenance of controls.
Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or subsequent recycle.

Personal protective equipment

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex. The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards.

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Eye protection : If material is handled such that it could be splashed into eyes, protective eyewear is recommended.
Approved to EU Standard EN166.

Hand protection

Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: Nitrile rubber gloves. Incidental contact/Splash protection: PVC or neoprene rubber gloves. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Skin and body protection : Skin protection is not ordinarily required beyond standard work clothes.
It is good practice to wear chemical resistant gloves.
Protective clothing approved to EU Standard EN14605.

Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.
Check with respiratory protective equipment suppliers.
Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined

space) use appropriate positive pressure breathing apparatus.
Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.
If air-filtering respirators are suitable for conditions of use:
Select a filter suitable for the combination of organic gases and vapours and particles meeting EN14387 and EN143
[Filter type A/P for use against certain organic gases and vapours with a boiling point >65°C (149°F) and for use against particles].

Thermal hazards : Not applicable

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : Slightly viscous liquid.

Colour : colourless

Odour : mild

Odour Threshold : Data not available

Melting point/freezing point : -7 °C

Boiling point/boiling range : 280 - 295 °C

Flammability

Flammability (solid, gas) : Not applicable

Lower explosion limit and upper explosion limit / flammability limit

Upper explosion limit / Upper flammability limit : 9,2 %(V)

Lower explosion limit / Lower flammability limit : 0,9 %(V)

Flash point : 166 °C
Method: Pensky-Martens closed cup

Auto-ignition temperature : 323 °C

Decomposition temperature

Decomposition temperature : Data not available

pH : Not applicable

Viscosity		
Viscosity, dynamic	:	47,8 mPa.s (20 °C) Method: ASTM D445
Viscosity, kinematic	:	42,8 mm2/s (20 °C) Method: ASTM D445
Solubility(ies)		
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	log Pow: -1,24
Vapour pressure	:	1,33 Pa (20 °C)
Relative density	:	1,13 Method: ASTM D4052
Density	:	1.130 kg/m3 (15 °C) Method: ASTM D4052
Relative vapour density	:	Data not available
Particle characteristics		
Particle size	:	Data not available

9.2 Other information

Explosive properties	:	Not applicable
Oxidizing properties	:	Data not available
Evaporation rate	:	Data not available
Conductivity	:	Electrical conductivity: > 10,000 pS/m A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid, This material is not expected to be a static accumulator.
Surface tension	:	Data not available
Molecular weight	:	150,17 g/mol

SECTION 10: Stability and reactivity

10.1 Reactivity

The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

10.2 Chemical stability

No hazardous reaction is expected when handled and stored according to provisions
Oxidises on contact with air.

10.3 Possibility of hazardous reactions

Hazardous reactions : None known.

10.4 Conditions to avoid

Conditions to avoid : Extremes of temperature and direct sunlight.

Product cannot ignite due to static electricity.

10.5 Incompatible materials

Materials to avoid : Strong oxidising agents.
Strong acids.
Strong bases.

10.6 Hazardous decomposition products

Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

SECTION 11: Toxicological information

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

Information on likely routes of exposure : Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute toxicity

Product:

Acute oral toxicity : LD 50 (Rat, male and female): > 2.000 mg/kg
Method: Literature data
Remarks: Based on available data, the classification criteria are not met.

Acute inhalation toxicity : LC 50 (Rat, male and female): > 5 mg/l
Exposure time: 4 h
Test atmosphere: Aerosol
Method: Acceptable non-standard method.

Remarks: Based on available data, the classification criteria are not met.

Acute dermal toxicity : LD 50 (Rabbit, male and female): 16 ml/kg bw
Method: Acceptable non-standard method.
Remarks: Based on available data, the classification criteria are not met.

Components:

Triethylene glycol:

Acute oral toxicity : LD 50 (Rat, male and female): > 2.000 mg/kg
Method: Literature data
Remarks: Based on available data, the classification criteria are not met.

Acute inhalation toxicity : LC 50 (Rat, male and female): > 5 mg/l
Exposure time: 4 h
Test atmosphere: Aerosol
Method: Acceptable non-standard method.
Remarks: Based on available data, the classification criteria are not met.

Acute dermal toxicity : LD 50 (Rabbit, male and female): 16 ml/kg bw
Method: Acceptable non-standard method.
Remarks: Based on available data, the classification criteria are not met.

Diethylene glycol:

Acute oral toxicity : LD 50 (Rat, male and female): > 5.000 mg/kg
Method: Literature data
Remarks: Harmful if swallowed.
There is a marked difference in acute oral toxicity between rodents and man, man being more susceptible than rodents. The estimated fatal dose for man is 100 milliliters (1/2 cup). This material has also been shown to be toxic and potentially lethal by ingestion to cats and dogs.

Acute inhalation toxicity : LC 50 (Rat): Exposure time: 4 h
Test atmosphere: Aerosol
Method: Literature data
Remarks: LC50 greater than near-saturated vapour concentration.
Based on available data, the classification criteria are not met.

Acute dermal toxicity : LD 50 (Rabbit): > 5.000 mg/kg
Method: Literature data
Remarks: Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Product:

Species	:	Rabbit
Method	:	Literature data
Remarks	:	Slightly irritating. Insufficient to classify.

Components:

Triethylene glycol:

Species	:	Rabbit
Method	:	Literature data
Remarks	:	Slightly irritating. Insufficient to classify.

Diethylene glycol:

Species	:	Rabbit
Method	:	Literature data
Remarks	:	Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation

Product:

Species	:	Rabbit
Method	:	Literature data
Remarks	:	Slightly irritating. Insufficient to classify.

Components:

Triethylene glycol:

Species	:	Rabbit
Method	:	Literature data
Remarks	:	Slightly irritating. Insufficient to classify.

Diethylene glycol:

Species	:	Rabbit
Method	:	Literature data
Remarks	:	Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Product:

Species	:	Guinea pig
Method	:	Test(s) equivalent or similar to OECD Test Guideline 406
Remarks	:	Based on available data, the classification criteria are not met.

Components:

Triethylene glycol:

Species	:	Guinea pig
Method	:	Test(s) equivalent or similar to OECD Test Guideline 406
Remarks	:	Based on available data, the classification criteria are not met.

Diethylene glycol:

Species	:	Guinea pig
Method	:	Regulation (EC) No. 440/2008, Annex, B.6
Remarks	:	Based on available data, the classification criteria are not met.

Method	:	Tested according to Annex V of Directive 67/548/EEC.

Germ cell mutagenicity

Product:

Genotoxicity in vitro	:	Method: OECD Test Guideline 471 Remarks: Based on available data, the classification criteria are not met. Method: Test(s) equivalent or similar to OECD Test Guideline 473 Remarks: Based on available data, the classification criteria are not met. Method: Test(s) equivalent or similar to OECD Test Guideline 479 Remarks: Based on available data, the classification criteria are not met.
Germ cell mutagenicity- Assessment	:	This product does not meet the criteria for classification in categories 1A/1B.

Components:

Triethylene glycol:

Genotoxicity in vitro	:	Method: OECD Test Guideline 471 Remarks: Based on available data, the classification criteria are not met. Method: Test(s) equivalent or similar to OECD Test Guideline 473 Remarks: Based on available data, the classification criteria are not met. Method: Test(s) equivalent or similar to OECD Test Guideline 479 Remarks: Based on available data, the classification criteria are not met.

Germ cell mutagenicity- Assessment	:	This product does not meet the criteria for classification in categories 1A/1B.

Diethylene glycol:

Genotoxicity in vitro	:	Method: OECD Test Guideline 471 Remarks: Based on available data, the classification criteria are not met. Method: OECD Test Guideline 473 Remarks: Based on available data, the classification criteria are not met. Method: OECD Test Guideline 476 Remarks: Based on available data, the classification criteria are not met. Method: OECD Test Guideline 479 Remarks: Based on available data, the classification criteria are not met.
Genotoxicity in vivo	:	Species: Mouse Method: OECD Test Guideline 474 Remarks: Based on available data, the classification criteria are not met.
Germ cell mutagenicity- Assessment	:	This product does not meet the criteria for classification in categories 1A/1B.

Carcinogenicity

Product:

Species	:	Rat, male and female
Application Route	:	Oral
Method	:	Literature data
Test substance	:	Diethylene glycol
Remarks	:	Based on available data, the classification criteria are not met.
Carcinogenicity - Assessment	:	This product does not meet the criteria for classification in categories 1A/1B.

Components:

Triethylene glycol:

Species	:	Rat, male and female
Application Route	:	Oral
Method	:	Literature data
Test substance	:	Diethylene glycol
Remarks	:	Based on available data, the classification criteria are not met.
Carcinogenicity - Assessment	:	This product does not meet the criteria for classification in categories 1A/1B.

Diethylene glycol:

Species	:	Rat, male and female
Application Route	:	Oral
Method	:	Literature data
Remarks	:	Based on available data, the classification criteria are not met. Tumours produced in animals are not considered relevant to humans.
Carcinogenicity - Assessment	:	This product does not meet the criteria for classification in categories 1A/1B.

Material	GHS/CLP Carcinogenicity Classification
Triethylene glycol	No carcinogenicity classification.
Diethylene glycol	No carcinogenicity classification.

Reproductive toxicity

Product:

Effects on fertility	:	Species: Mouse Sex: male and female Application Route: Oral Method: Acceptable non-standard method. Remarks: Based on available data, the classification criteria are not met.
Reproductive toxicity - Assessment	:	This product does not meet the criteria for classification in categories 1A/1B.

Components:

Triethylene glycol:

Effects on fertility	:	Species: Mouse Sex: male and female Application Route: Oral Method: Acceptable non-standard method. Remarks: Based on available data, the classification criteria are not met.
Reproductive toxicity - Assessment	:	This product does not meet the criteria for classification in categories 1A/1B.

Diethylene glycol:

Effects on fertility	:	Species: Mouse

Sex: male and female
Application Route: Oral

Method: Acceptable non-standard method.
Remarks: Based on available data, the classification criteria are not met.

Reproductive toxicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

STOT - single exposure

Product:

Remarks : Based on available data, the classification criteria are not met. Inhalation of vapours or mists may cause irritation to the respiratory system.

Components:

Triethylene glycol:

Remarks : Based on available data, the classification criteria are not met. Inhalation of vapours or mists may cause irritation to the respiratory system.

Diethylene glycol:

Remarks : Based on available data, the classification criteria are not met. Inhalation of vapours or mists may cause irritation to the respiratory system.
Ingestion may cause drowsiness and dizziness.

STOT - repeated exposure

Product:

Remarks : Based on available data, the classification criteria are not met.

Components:

Triethylene glycol:

Remarks : Based on available data, the classification criteria are not met.

Diethylene glycol:

Remarks : Based on available data, the classification criteria are not met.

Repeated dose toxicity

Product:

Species : Rat, male and female
Application Route : Oral

Method	:	Test(s) equivalent or similar to OECD Test Guideline 408
Target Organs	:	No specific target organs noted
Species	:	Rat, male and female
Application Route	:	Inhalation
Test atmosphere	:	Aerosol
Method	:	Acceptable non-standard method.
Test substance	:	PEG 200
Target Organs	:	No specific target organs noted

Components:

Triethylene glycol:

Species	:	Rat, male and female
Application Route	:	Oral
Method	:	Test(s) equivalent or similar to OECD Test Guideline 408
Target Organs	:	No specific target organs noted
Species	:	Rat, male and female
Application Route	:	Inhalation
Test atmosphere	:	Aerosol
Method	:	Acceptable non-standard method.
Test substance	:	PEG 200
Target Organs	:	No specific target organs noted

Diethylene glycol:

Species	:	Rat, male and female
Application Route	:	Oral
Method	:	Acceptable non-standard method.
Target Organs	:	No specific target organs noted
NOAEL	:	300 mg/kg
Exposure time	:	98 Days
LOAEL	:	1500 mg/kg
Exposure time	:	98 Days
Species	:	Dog, male
Application Route	:	Dermal
Method	:	OECD Test Guideline 410
Target Organs	:	No specific target organs noted
NOAEL	:	4440 mg/kg
LOAEL	:	8880 mg/kg

Aspiration toxicity

Product:

Based on available data, the classification criteria are not met.

Components:

Triethylene glycol:
Based on available data, the classification criteria are not met.

Diethylene glycol:
Based on available data, the classification criteria are not met.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks	:	Classifications by other authorities under varying regulatory frameworks may exist.
Remarks	:	Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Components:

Triethylene glycol:

Remarks	:	Classifications by other authorities under varying regulatory frameworks may exist.

Diethylene glycol:

Remarks	:	Classifications by other authorities under varying regulatory frameworks may exist.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): > 10.000 mg/l Exposure time: 96 h Method: Test(s) equivalent or similar to OECD Guideline 203 Remarks: Practically non toxic:

LL/EL/IL50 > 100 mg/l

Toxicity to daphnia and other aquatic invertebrates : (Daphnia magna (Water flea)): > 10.000 mg/l
Exposure time: 48 h
Method: Other guideline method.
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 6.500 - 13.000 mg/l
Exposure time: 96 h
Method: Other guideline method.
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic toxicity) : NOEC: 15.380 mg/l
Exposure time: 7 d
Species: Pimephales promelas (fathead minnow)
Method: Other guideline method.
Remarks: NOEC/NOEL > 100 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 15.000 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: Other guideline method.
Remarks: NOEC/NOEL > 100 mg/l

Toxicity to microorganisms : EC10 (Activated sludge): > 1.995 mg/l
Exposure time: 0,5 h
Method: Other guideline method.
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Components:

Triethylene glycol:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): > 10.000 mg/l
Exposure time: 96 h
Method: Test(s) equivalent or similar to OECD Guideline 203
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to daphnia and other aquatic invertebrates : (Daphnia magna (Water flea)): > 10.000 mg/l
Exposure time: 48 h
Method: Other guideline method.
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 6.500 - 13.000 mg/l
Exposure time: 96 h
Method: Other guideline method.

Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to microorganisms : EC10 (Activated sludge): > 1.995 mg/l
Exposure time: 0,5 h
Method: Other guideline method.
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic toxicity) : NOEC: 15.380 mg/l
Exposure time: 7 d
Species: Pimephales promelas (fathead minnow)
Method: Other guideline method.
Remarks: NOEC/NOEL > 100 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 15.000 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: Other guideline method.
Remarks: NOEC/NOEL > 100 mg/l

Diethylene glycol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l
Exposure time: 96 h
Method: Literature data.
Remarks: Practically non toxic:

Method: Other guideline method.
Remarks: LL/EL/IL50 > 100 mg/l

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: Other guideline method.
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to algae/aquatic plants : EC50 (Scenedesmus quadricauda (Green algae)): > 100 mg/l
Exposure time: 72 h
Method: Information given is based on data obtained from similar substances.
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to microorganisms : EC20 (Activated sludge, domestic waste): > 1.000 mg/l
Exposure time: 3 h
Method: Test(s) equivalent or similar to OECD Guideline 209
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic toxicity) : NOEC: > 40 mg/l
Exposure time: 28 d
Species: Pimephales promelas (fathead minnow)

Method: Information given is based on data obtained from similar substances.
Remarks: NOEC/NOEL > 100 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 100 mg/l
Species: Ceriodaphnia dubia (Water flea)
Method: Information given is based on data obtained from similar substances.
Remarks: NOEC/NOEL > 100 mg/l

12.2 Persistence and degradability

Product:

Biodegradability : Biodegradation: 90 - 100 %
Exposure time: 10 d
Method: OECD Test Guideline 301A
Remarks: Readily biodegradable.
Oxidises rapidly by photo-chemical reactions in air.

Components:

Triethylene glycol:

Biodegradability : Biodegradation: 90 - 100 %
Exposure time: 10 d
Method: OECD Test Guideline 301A
Remarks: Readily biodegradable.
Oxidises rapidly by photo-chemical reactions in air.

Diethylene glycol:

Biodegradability : Biodegradation: 70 - 80 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
Remarks: Inherently biodegradable.

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Does not have the potential to bioaccumulate significantly.

Components:

Triethylene glycol:

Bioaccumulation : Remarks: Does not have the potential to bioaccumulate significantly.

Diethylene glycol:

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

12.4 Mobility in soil

Product:

Mobility : Remarks: If product enters soil, it will be highly mobile and may contaminate groundwater., Sinks in water.

Components:

Triethylene glycol:

Mobility : Remarks: If product enters soil, it will be highly mobile and may contaminate groundwater., Sinks in water.

Diethylene glycol:

Mobility : Remarks: If the product enters soil, one or more constituents will or may be mobile and may contaminate groundwater., Dissolves in water.

12.5 Results of PBT and vPvB assessment

Components:

Diethylene glycol:

Assessment : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB..

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Components:

Diethylene glycol:

Additional ecological information : Data not available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Remove all packaging for recovery or waste disposal.
Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.
Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.
Do not dispose into the environment, in drains or in water courses.
Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local regulations may be more stringent than regional or national requirements and must be complied with.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects at controlling pollutions from ships.

Contaminated packaging : Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

SECTION 14: Transport information

14.1 UN number or ID number

ADN : Not regulated as a dangerous good

ADR : Not regulated as a dangerous good

RID : Not regulated as a dangerous good

IMDG : Not regulated as a dangerous good

IATA : Not regulated as a dangerous good

14.2 UN proper shipping name

ADN : Not regulated as a dangerous good

ADR : Not regulated as a dangerous good

RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.3 Transport hazard class(es)

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.4 Packing group

ADN	:	Not regulated as a dangerous good
CDNI Inland Water Waste Agreement	:	NST 8963 Glycols unspecified
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.5 Environmental hazards

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good

14.6 Special precautions for user

Remarks	:	Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

14.7 Maritime transport in bulk according to IMO instruments

Pollution category	:	Z
Product name	:	Triethylene Glycol

Additional Information **:** This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen enriched atmospheres displaces available oxygen which may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

Waters Protection Ordinance (WPO 814.201)
Water pollution class : Swiss Class B, (www.tankportal.ch)

Other regulations:

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

The components of this product are reported in the following inventories:

AIIC	:	Listed
DSL	:	Listed
IECSC	:	Listed
ENCS	:	Listed
KECI	:	Listed
NZIoC	:	Listed
PICCS	:	Listed
TSCA	:	Listed
TCSI	:	Listed

15.2 Chemical safety assessment

A Chemical Safety Assessment was performed for all substances of this product.

SECTION 16: Other information

Full text of other abbreviations

CH SUVA	:	Switzerland. Limit values at the work place
CH SUVA / TWA	:	Time Weighted Average
CH SUVA / STEL	:	Short Term Exposure Limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Training advice	:	Provide adequate information, instruction and training for operators.
Other information	:	This product is not classified for human health or environmental hazards. An exposure scenario is not required. For Industry guidance and tools on REACH please visit the CEFIC website at http://cefic.org/Industry-support. The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB. A vertical bar (|) in the left margin indicates an amendment from the previous version.
Sources of key data used to compile the Safety Data Sheet	:	The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

Identified Uses according to the Use Descriptor System
Uses - Worker

Title	:	- Industrial Manufacture of substance Distribution of substance Use as an intermediate Formulation & (re)packing of substances and mixtures Use in coatings Use in Cleaning Agents Use in functional fluids Use in laboratories Water treatment chemicals

Uses - Worker

Title	:	- Professional Use in coatings Use in Cleaning Agents Use in functional fluids Use in laboratories

Uses - Consumer

Title	:	- Consumer Use in coatings Use in Cleaning Agents Use in de-icing and anti-icing fluids

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.

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