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# **Triethylene Glycol**

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

#### 1.1 Product identifier

Trade name : Triethylene Glycol

Product code : U1251

Registration number EU : 01-2119438366-35-0001, 01-2119438366-35-0003, 01-

2119475497-23-0003

Synonyms : 2,2 ethylenedioxydiethanol, Ethylene triglycol, glycol bis (hy-

droxyethyl) 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 Sub- : Chemical intermediate.

stance/Mixture Please refer to section 16 and/or the annexes for the regis-

tered 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., Do not use in aircraft deicing applica-

tions., Keep out of reach of children and pets.

# 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 : sccmsds@shell.com

Sheet

### 1.4 Emergency telephone number

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

#### **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.

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#### 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.	Concentration (% w/w)
onomour name	EC-No.	Concontitution (70 W/W)
Triethylene glycol	112-27-6	> 99
	203-953-2	
Diethylene glycol	111-46-6	< 1
	203-872-2	

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### **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 wa-

ter 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

rınsıng.

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 con-

ditions of use.

Possible respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, cough-

ing, and/or difficulty breathing.

No specific hazards under normal use conditions.

Eye irritation signs and symptoms may include a burning sen-

sation, redness, swelling, and/or blurred vision.

Skin irritation signs and symptoms may include a burning sen-

sation, 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.

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# **SECTION 5: Firefighting measures**

### 5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam, water spray or fog. Dry chemical pow-

der, 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 fire-

fighting

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 meth-

ods

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-

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ers by using sand, earth, or other appropriate barriers.

Use appropriate containment to avoid environmental contami-

nation.

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

Ensure that all local regulations regarding handling and stor-

age 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.

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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 cov-

ering the packaging and storage of this product.

Further information on stor-

age 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 regis-

tered uses under REACH.

Ensure that all local regulations regarding handling and stor-

age 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
Diethylene glyco	l 111-46-6	TWA	23 ppm 101 mg/m3	GB EH40

### Biological occupational exposure limits

No biological limit allocated.

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

Damarke:	I not required	
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### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
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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

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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 concentra-

tions 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 appa-

ratus.

Where air-filtering respirators are suitable, select an appro-

priate 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

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Melting / freezing point : -7 - -4 °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 tempera-

No data available

ture

pH : Not applicable

Viscosity

Viscosity, dynamic : Data not available

Viscosity, kinematic : 42.8 mm2/s (20 °C)

Method: ASTM D445

Solubility(ies)

Water solubility : completely soluble

Solubility in other solvents : Data not available

Partition coefficient: n-

octanol/water

log Pow: -1.24

Vapour pressure : 1.33 Pa (20 °C)

Relative density : 1.123 - 1.126

Method: ASTM D4052

Density : Data not available

Relative vapour density : Data not available

Particle characteristics

Particle size : Data not available

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9.2 Other information

Explosive properties : Not applicable

Oxidizing properties : Data not available

Evaporation rate : Data not available

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 : 150.2 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.

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# **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

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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 concen-

ration.

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.

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### **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

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are not met.

Germ cell mutagenicity- As-

sessment

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- As-

sessment

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- As-

sessment

This product does not meet the criteria for classification in

categories 1A/1B.

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# 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 - Assess-

ment

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 - Assess-

ment

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 - Assess-

ment

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.

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Remarks: Based on available data, the classification criteria

are not met.

Reproductive toxicity - As-

sessment

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 - As-

sessment

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 - As-

sessment

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 res-

piratory 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 res-

piratory system.

Diethylene glycol:

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

Inhalation of vapours or mists may cause irritation to the res-

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piratory 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

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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 consid-

ered 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 representa-

tive of the product as a whole, rather than for individual com-

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ponent(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 tox-

icity)

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 (Chron-

ic 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

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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 tox-

icity)

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 (Chron-

ic 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.

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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 tox-

icity)

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 (Chron-

ic 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.

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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 significant-

ly.

**Components:** 

Triethylene glycol:

Bioaccumulation : Remarks: Does not have the potential to bioaccumulate significant-

ly.

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 persis-

tence, bioaccumulation and toxicity and hence is not consid-

ered to be PBT or vPvB..

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### 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 infor-

mation

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 infor-

mation

: 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 meth-

ods 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 na-

tional 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.

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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

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

: Not regulated as a dangerous good

#### 14.2 UN proper shipping name

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

i Not regulated as a dangerous good

# 14.3 Transport hazard class(es)

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

: Not regulated as a dangerous good

# 14.4 Packing group

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

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

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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 - List of substances subject to authorisation : Product is not subject to Authorisa-

(Annex XIV) tion under REACH.

REACH - Candidate List of Substances of Very High

Concern for Authorisation (Article 59). stances of very high concern (Regulation (FC) No. 1007/2006 (REACH)

lation (EC) No 1907/2006 (REACH),

This product does not contain sub-

Article 57).

### Other regulations:

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

Environmental Protection Act 1990 (as amended). Health and Safety at Work etc. Act 1974. Consumers Protection Act 1987. Pollution Prevention and Control Act 1999. Environment Act 1995. Factories Act 1961. The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011. Chemicals (Hazard Information and Packaging for Supply) Regulations 2009. Control of Substances Hazardous to Health Regulations 2002 (as amended). Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (as amended). Personal Protective Equipment Regulations 2002. Personal Protective Equipment at Work Regulations 1992. Hazardous Waste (England and Wales) Regulations 2005(as amended). Control of Major Accident Hazards Regulations 1999 (as amended). Renewable Transport Fuel Obligations Order 2007 (as amended). Energy Act 2011. Environmental Permitting (England and Wales) Regulations 2010 (as amended). Waste (England and Wales) Regulations 2011 (as amended). Planning (Hazardous Substances) Act 1990 and associated regulations. The Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011.

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

DSL : Listed

IECSC : Listed

TSCA : Listed

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KECI : Listed

PICCS : Listed

ENCS : Listed

NZIoC : 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

GB EH40 : UK. EH40 WEL - Workplace Exposure Limits

GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)

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

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- 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 op-

erators.

Other information : This product is not classified for human health or environmen-

tal 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 consid-

ered 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 de-icing and anti-icing fluids

Use in laboratories

**Uses - Consumer** 

Title : - Consumer

Use in coatings

Use in Cleaning Agents

Use in de-icing and anti-icing fluids

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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.

GB/EN