

SIBUR-NEFTEKHIM JSC

SAFETY DATA SHEET

According to Regulations (EC) 1907/2006 (REACH), (EC) 1272/2008 (CLP) & (EU) 2015/830

2,2'-(ETHYLENEDIOXY)DIETHANOL

Version: 2.0
Date created: 16/01/2019

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

1.1. Product identifier

Product form: Substance
Substance name: 2,2'-(ethylenedioxy)diethanol
EC index No.: None
EC No.: 203-953-2
CAS-No.: 112-27-6
REACH registration No: 01-2119438366-35-0038
Formula: C₆H₁₄O₄
Synonyms: Ethanol, 2,2'-[1,2-ethanediylbis(oxy)]bis-;
2,2'-[ethane-1,2-diylbis(oxy)]diethanol
Trade names: Triethylene glycol, TEG

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

1.2.1. Relevant identified uses

Use of the substance/mixture: As no exposure scenarios according to Article 14.4 of Regulation (EC) No1907/2006 are required no detailed information on use is given.

- Generally the substance is used in industrial and/or professional settings.
- The substance is contained in consumer products.
- The substance is contained in articles handled by consumers.

Most common technical function of substance: Fertilisers
Anti-freezing agents
Plant protection active substance
Intermediates
Heat transfer agents
Food/feedstuff additives
Laboratory chemicals
Odour agents
Pharmaceutical substance
Pressure transfer agents
Reprographic agents (Toners)
Solvents
Colouring agents, dyes
Colouring agents, pigments
Lubricants and lubricant additives
Fillers
Photosensitive agents and other photo-chemicals
Impregnation agents.

1.2.2. Uses advised against

Restrictions on use: Product category (PC): PC 29: Pharmaceuticals.

1.3. Details of the supplier of the safety data sheet

Only representative

Company name: Gazprom Marketing and Trading France
 Address: 68 avenue des Champs-Élysées, 75008, Paris, France
 Contact Telephone: +33 1 42 99 73 50
 Fax: +33 1 42 99 73 99
 Email Address: didier.lebout@gazprom-mt.com

Manufacturer

Company name: SIBUR-NEFTEKHIM JSC
 Address: Building 390, Eastern Industrial Zone, Dzerzhinsk,
 Nizhniy Novgorod region, 606000, Russian Federation
 Contact phone: +7 8313 27-59-09
 Fax: +7 8313 27-59-99
 Email Address: infosnh@snh.sibur.ru
 Emergency Telephone: +7 8313 27-52-98 (office hours only, GMT+3)

Importer: List of importers is available with the Only Representative

1.4. Emergency telephone number

Emergency phone in the country of delivery 112 (*Please note that emergency numbers may vary depending upon the country of delivery though 112 remains valid as universal number*)

SECTION 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

The substance is not classified according to Regulation (EC) No.1272/2008 [CLP].

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

This substance does not meet the criteria for classification.

Hazard pictograms Not applicable.

(CLP):

Signal word (CLP): Not applicable.

Hazard statements Not applicable.

(CLP):

Precautionary statements Not applicable.

(CLP):

EUH-statements: Not applicable.

2.3. Other hazards

Other hazards not contributing to the classification: No other hazards identified.

Assessment PBT / vPvB: According to Annex XIII of Regulation (EC) No.1907/2006 (REACH):
 - not fulfilling PBT (persistent/bioaccumulative/toxic) criteria;
 - not fulfilling vPvB (very persistent/very bioaccumulative) criteria.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name	Product identifier	%	Classification [CLP]
2,2'-(ethylenedioxy) diethanol	(CAS-No.) 112-27-6 (EC No.) 203-953-2 (EC index No.) - None (REACH-no) 01-2119438366-35-0038	90.0 – 99.5	Not classified
Including substances affecting general product classification and labelling:			
2,2'-oxydiethanol	(CAS-No.) 111-46-6 (EC No.) 203-872-2 (EC index No.) - 603-140-00-6	0.5 – 8.0	H302
Ethane-1,2-diol	(CAS-No.) 107-21-1 (EC No.) 203-473-3 (EC index No.) - 603-027-00-1	0 - 0.5	H302, H373

The product does not contain impurities or additives that could affect product's labelling and classification according to Regulation (EC) No 1272/2008 (CLP).

Hazard Class Acute Tox. 4 (H302) is not applied for product taking into account total general toxicity calculation bases on additivity approach (ATEmix > 5000 mg/kg bw).

Full text of hazard classes and H-statements : see section 16.

3.2. Mixtures

Not applicable

SECTION 4. FIRST-AID MEASURES

4.1. Description of first aid measures

First-aid measures general

In all cases of doubt, or when symptoms persist, seek medical advice. Show this safety data sheet to the doctor in attendance.

First-aid measures after inhalation

Move any exposed person to fresh air at once. If not breathing, give artificial respiration. Get medical attention immediately.

First-aid measures after skin contact

Remove contaminated clothing and wash skin with plenty of running water, under a shower if affected area is large enough to warrant this. Get medical attention if irritation develops or persists.

First-aid measures after eye contact

Rinse immediately eye with plenty of low pressure water for at least 15 minutes. Remove any contact lenses. Get medical attention immediately.

First-aid measures after ingestion

Potential for aspiration if swallowed. Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after ingestion: Almost no irritative effects, danger of aspiration when vomited; systemic effects following intake of very high doses.

In case of absorption: most likely are acidosis, disturbances in the nervous system (e.g. headache, dizziness, slow reflexes, unconsciousness, coma) and disturbances in kidney function.

Symptoms/effects after inhalation:	From high concentrations of the aerosol aggravating effects / unspecific irritative effects in the upper respiratory tract; in extreme cases difficulties in breathing and absorptive effects.
Symptoms/effects after skin contact:	No or only very weak irritation, systemic effects not expected.
Symptoms/effects after eye contact:	Temporary burning, pain, blepharospasm, blurred vision (possible superficial changes in the corneal epithelium); generally quickly reversible.

4.3. Indication of any immediate medical attention and special treatment needed

Advice to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media	Water spray or fog, alcohol-resistant foam, dry extinguishing media, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable extinguishing media	Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Fire hazard:	Combustible material. Vapours are heavier than air and may spread along floors.
Explosion hazard:	Vapours can form explosive mixtures with air in case of intense heating.
Hazardous decomposition products in case of fire:	Carbon monoxide, carbon dioxide, carbonyl compounds, dioxolan derivatives other unidentified substances.

5.3. Advice for firefighters

Firefighting instructions:	In case of fire: Evacuate the area of all non-essential personnel. Fight fire remotely due to the risk of explosion. Containers exposed to intense heat from fires should be cooled with large quantities of water. Fight fire with normal precautions from a reasonable distance.
Protection during firefighting:	Self-Contained Breathing Apparatus must be worn when approaching a fire in confined space. Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Select fire fighter's clothing approved to relevant standards (in EU – EN469).
Further information:	Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. ACCIDENTAL RELEASE MEASURE

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	Remove sources of ignition. No smoking. Avoid contact with skin, eyes and clothing. Evacuate unnecessary personnel.
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6.1.2. For emergency responders

Emergency procedures	Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapours, mist or gas. Ensure adequate
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ventilation. Keep unprotected persons away. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

6.2. Environmental precautions

Keep away from drains, surface and ground water. Prevent further leakage or spillage if safe to do so. Ventilate contaminated area thoroughly.

6.3. Methods and material for containment and cleaning up

For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).

For large amounts: Pump off product.

Dispose of absorbed material in accordance with local regulations.

6.4. Reference to other sections

SECTION 8: Exposure controls/personal protection. SECTION 13: Disposal considerations.

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Precautions for safe handling	Protection against fire, explosion and spillage. Avoid breathing of or direct contact with material. Use local exhaust extraction over processing area. Handle and open container with care in a well-ventilated area. Keep containers closed when not in use. Do not empty into drains. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Do not pressurize drum containers to empty. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.
Hygiene measures	Do not breathe gas/fumes/ vapor/spray. Wash thoroughly after handling. Wear suitable protective clothing and gloves. DO NOT eat, drink or smoke in product area. Avoid contact with skin, eyes and clothing.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	Keep away from heat, sparks, and flame. Keep away from sources of ignition. Keep container tightly closed and dry. Protect from air. Protect from atmospheric humidity. Protect contents from the effects of light. Do not cut, drill, grind, weld or perform similar operations on or near containers.
Incompatible materials	Oxidizing materials.
Storage area	Store in a cool, dry, well-ventilated area.
Storage temperature:	From -50 to 50 °C
Packaging materials	Aluminum, stainless steel 1.4439, high density polyethylene (HDPE), light-impervious.

7.3. Specific end use(s)

No data available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. Occupational Exposure Limits

2,2'-(ethylenedioxy)diethanol (CAS No.112-27-6)

	LTEL TWA ppm	LTEL TWA (MAK), mg/m ³	STEL ppm	STEL mg/m ³	Note
Germany (AGS)		1000 (1)	-	2000 (1; 2)	(1) Inhalable aerosol and vapour Reference period- 8 hours. (2) Reference period - 15 minutes
Germany (DFG)	-	1000 (1)	-	2000 (1; 2)	(1) Inhalable aerosol and vapour Reference period- 8 hour. (2) Reference period - 15 minutes
Romania	114	700	163	1000 (1)	(1) Inhalable aerosol and vapour
Switzerland	-	1000	-	2000	Inhalable aerosol

8.1.2. DNEL/ PNEC values

2,2'-(ethylenedioxy)diethanol (CAS No.112-27-6)

DNEL/DMEL (Workers)

Acute - systemic effects, dermal	No adverse effect observed
Acute - systemic effects, inhalation	No adverse effect observed
Acute - local effects, dermal	No adverse effect observed
Acute - local effects, inhalation	(DNEL) 50 mg/m ³ Most sensitive endpoint: irritation (respiratory tract).
Long-term - systemic effects, dermal	(DNEL) 40 mg/kg bw/day. Most sensitive endpoint: repeated dose toxicity.
Long-term - systemic effects, inhalation	No adverse effect observed
Long-term - local effects, dermal	No adverse effect observed
Long-term - local effects, inhalation	No adverse effect observed
Eyes, local effects	No adverse effect observed

DNEL/DMEL (General population)

Acute - systemic effects, dermal	No adverse effect observed
Acute - systemic effects, inhalation	No adverse effect observed
Acute - systemic effects, oral	No adverse effect observed
Acute - local effects, dermal	No adverse effect observed
Acute - local effects, inhalation	(DNEL) 25 mg/m ³ Most sensitive endpoint: irritation (respiratory tract).
Long-term - systemic effects, dermal	(DNEL) 20 mg/kg bw/day Most sensitive endpoint: repeated dose toxicity
Long-term - systemic effects, inhalation	No adverse effect observed
Long-term - systemic effects, oral	No adverse effect observed
Long-term - local effects, dermal	No adverse effect observed
Long-term - local effects, inhalation	No adverse effect observed
Eyes, local effects	No adverse effect observed

PNEC (water)	
PNEC aqua (freshwater)	10 mg/L
PNEC aqua (marine water)	1 mg/L
PNEC aqua (intermittent, freshwater)	20 mg/L
PNEC (Sediment)	
PNEC sediment (freshwater)	46 mg/kg sediment dw
PNEC sediment (marine water)	4.6 mg/kg sediment dw
PNEC (Soil)	
PNEC soil	3.32 mg/kg soil dw
PNEC (Oral)	
PNEC oral (secondary poisoning)	No potential for bioaccumulation.
PNEC (STP)	
PNEC sewage treatment plant	10 mg/L

8.2. Exposure controls

Appropriate engineering controls:

Use explosion-proof ventilation equipment. Provide easy access to water supply and eye wash facilities. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Hand protection:

Chemical resistant protective gloves (EN 374). Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374):

- butyl rubber (butyl) - 0.7 mm coating thickness;
- nitrile rubber (NBR) - 0.4 mm coating thickness.

Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing. Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Safety glasses with side-shields conforming to EN 166.

Skin and body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

Environmental exposure controls:

Do not contaminate water sources or sewer.

Other information:

Hygiene measures: Observe good industrial hygiene practices. Do not get in eyes. Avoid contact with skin. Wash contaminated clothing before reuse. When using do not smoke. Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state at 20 °C and 101.3 kPa	Liquid
Colour:	Colourless
Odour:	Nearly odourless
Melting / freezing point	-7.0 °C
Boiling point	286.5 °C at 1013 hPa Remark: Colour of the substance shifts to yellow - brown above 243 °C
Relative density	1.13 g/cm ³ at 15 °C
Vapour pressure	0.001 hPa at 24.7 °C
Surface tension	42.5 mN/m at 20 °C
Water solubility	1000 g/L at 20 °C
Partition coefficient n-octanol/water (log value)	- 1.75 at 25 °C
Flash point	176 at 1 013.25 hPa
Flammability	Non flammable. Material must be moderately heated before ignition will occur
Explosive properties	Non explosive
Lower explosion limit	0.9% (55g/m ³)
Upper explosion limit	9.2% (580 g/m ³)
Auto-ignition temperature	347 °C at 1013 hPa
Oxidising properties	No oxidising properties
Viscosity	47.8 mPa*s at 20° C (dynamic)
Granulometry	Not applicable
Stability in organic solvents and identity of relevant degradation products	Not applicable
Dissociation constant	Not applicable

9.2. Other information

Not available.

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated. No corrosive effect on metal. Formation of flammable gases: Forms no flammable gases in the presence of water.

10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions

Reacts with strong oxidizing agents.

10.4. Conditions to avoid

Avoid heat, sparks, flames. Avoid humidity. Avoid daylight. Disregard of the conditions mentioned may result in undesirable decomposition reaction.

10.5. Incompatible materials

Strong oxidizing agents: Permanganates, Peroxides, Strong acid, Strong alkali, Isocyanate and others.

10.6. Hazardous decomposition products

No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition or combustion may generate smoke, carbon monoxide and carbon dioxide, carbonyl compounds, dioxolan derivatives.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity CLP classification (Regulation (EC) No 1272/2008): no classification acute toxicity required.
The presence in the product of classified impurities does not affect the classification of the product (refer to Section 3).

<i>2,2'-(ethylenedioxy)diethanol (CAS No.112-27-6)</i>	
LD50, oral, rat, male/female	>16 mL/kg bw (key study)
LC50, inhalation, rat, male/female	>5.2 mg/L air (4h) (key study)
LD50, dermal, rabbit, male/female	16 mL/kg bw (key study)

Skin corrosion/irritation CLP classification (Regulation (EC) No 1272/2008): no classification required.

Additional information No skin irritation were found in rabbits when applicated the undiluted test substance under occlusive conditions. No erythema or eschar formation, no edema formation. Other skin irritation or effects: none.

Serious eye damage/irritation CLP classification (Regulation (EC) No 1272/2008): no classification required.

Additional information No eye irritation was seen, given the test substance undiluted into the eyes of rabbits (Draize test). No corneal injury in any of 6 eyes, iritis in 6, minor (transient) conjunctival irritation in 6 (with moderate to substantial discharge in 5) with 0.1 ml; all healed at 24 hours.

Respiratory tract irritation No relevant information available.

Respiratory or skin sensitisation No adverse effect observed (not sensitising). CLP classification (Regulation (EC) No 1272/2008): no classification required.

Additional information Skin sensitization (human assay): not sensitizing.
Skin sensitization (Guinea pig maximisation test): not sensitizing (equivalent or similar to OECD Guideline 406).

Germ cell mutagenicity Genetic toxicity: no adverse effect observed (negative).

CLP classification (Regulation (EC) No 1272/2008): no classification required.

Additional information *Genetic toxicity: in vitro* (bacterial systems): negative (OECD TG 471, EU Method B.13/14, EPA OPPTS 870.5100).

Genetic toxicity: in vivo: testing is deemed unnecessary as triethylene glycol is negative in CHO chromosomal aberration, sister chromatid exchange and mutation assays and is negative in the Ames test.

Carcinogenicity CLP classification (Regulation (EC) No 1272/2008): no classification required.

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<i>2,2'-(ethylenedioxy)diethanol (CAS No.112-27-6)</i>	
NOAEL (carcinogenicity), oral, rat, male	1210 mg/kg bw/day (migrated information: read-across from supporting substance (diethylene glycol))
NOAEL (carcinogenicity), oral, rat, female	1160 mg/kg bw/day (migrated information: read-across from supporting substance (diethylene glycol))

Toxicity for reproduction CLP classification (Regulation (EC) No 1272/2008): no classification required.

<i>2,2'-(ethylenedioxy)diethanol (CAS No.112-27-6)</i>	
NOAEL (effects on fertility), oral, mouse	6780 mg/kg/day (Parental toxicity)(NTP Program's RACB protocol) 6780 mg/kg/day (F1 generation)(NTP Program's RACB protocol)
NOEL (maternal toxicity), oral, mouse	5 ml/kg/day (overall effects) (EPA TSCA Testing Guidelines)
NOEL (developmental toxicity), oral, mouse	0.5 ml/kg/day (overall effects) (EPA TSCA Testing Guidelines)
NOEL (maternal toxicity), oral, rat	1 ml/kg/day (overall effects) (EPA TSCA Testing Guidelines) (read-across)
NOEL (developmental toxicity), oral, rat	5 ml/kg/day (overall effects) (EPA TSCA Testing Guidelines) (read-across)

STOT-single exposure CLP classification (Regulation (EC) No 1272/2008): no classification required. No relevant information available.

Repeated dose toxicity

<i>2,2'-(ethylenedioxy)diethanol (CAS No.112-27-6)</i>	
NOAEL subchronic, oral, rat, male/female	20,000 ppm (1522 mg/kg diet)(OECD TG 408)
NOAEC, subchronic (13 weeks), inhalation, rat	1 mg/L air (migrated information: read-across from supporting substance) (Test material: Polyethylene glycol 200)

Aspiration hazard Not available.

Other effects Not available.

SECTION 12. ECOLOGICAL INFORMATION**12.1. Toxicity**

Not expected to be toxic to aquatic life.

<i>2,2'-(ethylenedioxy)diethanol (CAS No.112-27-6)</i>	
Fish (Short-term toxicity)	
LC50 (96h)	>10000 mg/L - <i>Lepomis macrochirus</i> (freshwater) (static fish test)
LC50 (96h)	69800 mg/L - <i>Pimephales promelas</i> (freshwater) (flow trough acute fish toxicity test)
LC50 (96h)	54800 mg/L - <i>Danio rerio</i> (freshwater) (OECD validation study of the zebrafish embryo acute toxicity test (ZFET))
Fish (Long-term toxicity)	
NOEC (7 d)	15380 mg/L - <i>Pimephales promelas</i> (freshwater) (EPA 600/4-89/001)
LC50 (28 d):	> 1500 mg/L - <i>Menidia peninsulae</i> (saltwater) (ASTM E-47.01)
Aquatic invertebrates (Short-term toxicity)	
EC50 (48 h)	> 10000 mg/L - <i>Daphnia Magna</i> (freshwater) (basic method for the implementation of DIN 38412/11)

LC50 (48 h)	35000 mg/L - <i>Daphnia Magna</i> (based on: mortality)
Aquatic invertebrates (Long-term toxicity)	
NOEC (7 d)	8590 mg/L - <i>Ceriodaphnia dubia</i> (freshwater) (EPA 600/4-89/001)
NOEC (21 d)	> 15000 mg/L - <i>Daphnia Magna</i> (freshwater) (ASTM E 47.01, Draft No. 1)
NOEC (23 d)	>= 1000 mg/L - <i>Americamysis bahia</i> (saltwater) (ASTM E-47.01, Draft No. 2)
Algae and aquatic plants (Short-term toxicity)	
NOEC (72 h)	100 mg/L - <i>Pseudokirchneriella subcapitata</i> (OECD Guideline 201) (Growth Inhibition Test) (read-across; test substance - pentaethylene glycol)
Toxicity to aquatic micro-organisms	
EC10 (30 min)	> 1 995 mg/L - <i>Activated sludge, industrial</i> (Activated Sludge Respiration Inhibition Test)
TTC (toxic threshold concentration) = TGK (Toxische Grenzkonzentration), which is comparable with EC5 (16 h)	320 mg/L - <i>Pseudomonas putida</i> (freshwater) (Method: cell growth inhibition test)
12.2. Persistence and degradability	
Abiotic degradation:	<u>Hydrolysis:</u> No data on hydrolysis are available. <u>Phototransformation in air:</u> Half-life (DT50): 10.6 h (estimated by calculation)
Biodegradation in water:	Ready biodegradable. % Degradation of test substance(OECD Guideline 301 A): 7 after 1 d 14 after 3 d 93 after 5 d 100 after 7 d (Read-across; test substance - ethylene glycol)
Biodegradation in soil:	No data on biodegradation in soil are available.
Persistence and degradability	After evaporation or exposure to the air triethylene glycol will be rapidly degraded by photochemical processes. No data on hydrolysis are available. However, glycols are generally regarded as stable towards hydrolysis. Triethylene glycol is readily biodegradable according to OECD criteria.
12.3. Environmental distribution	
Adsorption (soil)	Based upon a calculated log Koc adsorption triethylene glycol to solid soil phase is not expected. log Koc = 1 (calculated)(SRC PCKOCWIN v1.66)
Volatilization	From the water surface the substance will not evaporate into the atmosphere. Henry's law constant : 3.0989E-06 Pa*m ³ /mol at 25 °C (calculated)(SRC HENRYWIN v3.10)
12.4. Bioaccumulative potential	
Aquatic bioaccumulation:	The calculated low log Pow (- 1.75 at 25 °C) and the calculated log BCF (3.16) give no indication for a potential for bioaccumulation

	(EPIWIN v3.20). Accumulation of the substance in organisms is not to be expected.
Secondary poisoning:	Based on the available information, there is no indication of a bioaccumulation potential and, hence, secondary poisoning is not considered relevant

12.5. Mobility in soil

Biodegradation in soil:	In accordance with column 2 of REACH Annex IX, no simulation tests in soil are required, since triethylenglycole readily biodegradable according to OECD criteria.
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12.6. Results of PBT and vPvB assessment

Regarding all available data on biotic and abiotic degradation, bioaccumulation and toxicity it can be stated that the substance does not fulfill the PBT criteria (not PBT) and not the vPvB criteria (not vPvB).

12.7. Other adverse effects

Not available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste disposal
recommendations

Waste treatment methods: Must be disposed of or incinerated in accordance with local regulations.

Contaminated packaging: should be emptied as far as possible. 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.

Uncontaminated packaging can be re-used.

Packs that cannot be cleaned should be disposed of in the same manner as the contents.

European List of Waste
(LoW) code

Not available.

SECTION 14. TRANSPORT INFORMATION

14.1. Land transport (ADR/ RID)

Not regulated.

14.2. Inland waterway transport (ADN)

Not regulated.

14.3. Sea transport (IMDG)

Not regulated.

14.4. Air transport (IATA/ICAO)

Not regulated.

14.5. Special precautions for user

Always transport in closed containers. Ensure that persons transporting the product know what to do in the event of an accident or spillage. For information regarding Exposure Controls/Personal Protection see Section 8 of this Safety Data Sheet.

14.6. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

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

15.1.1. EU-Regulations

Authorisations and/or restrictions on use (Annex XVII): Not applicable.

2,2'-(ethylenedioxy)diethanol (CAS No.112-27-6) is not on the REACH Candidate List.

2,2'-(ethylenedioxy)diethanol (CAS No.112-27-6) is not on the REACH Annex XIV List.

Other information, restriction and prohibition regulations Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer. Annex II - Not listed.

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances- (SEVESO III): Not listed.

Directive 2013/39/EU priority substances in the field of water policy (amending Directive 2006/60/EC – Water Framework Directive and Directive 2008/105/EC on environmental quality standards in the field of water policy): Not listed.

Regulation (EC) No 850/2004 on persistent organic pollutants: Annex III – Not listed.

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals: Not listed.

15.1.2. National regulations

Germany German Water Hazard Class: Substance No.202.
WGK 1 - low hazard to waters.

15.2. Chemical safety assessment

Chemical Safety Report has been performed for 2,2'-(ethylenedioxy)diethanol (CAS No.112-27-6).

SECTION 16. OTHER INFORMATION

16.1. Indication of changes

Version	Date of change	Section	Description of changes
Version: 1.0	12/02/2016	All	First issued.
Version: 2.0	16/01/2019	1-16	SDS has been corrected in according to new data of Registration dossier and Chemical Safety Report

16.2. Abbreviations and acronyms

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AGS	The German Committee on Hazardous Substances (Ausschuss für Gefahrstoffe – AGS)
BCF	Bioconcentration factor
DFG	Germany Research Foundation (Deutsche Forschungsgemeinschaft - DFG)
DNEL	Derived No Effect Level
HGPRT	Hypoxanthine-guanine phosphoribosyltransferase (HGPRT) is an enzyme encoded in humans by the HPRT1 gene
IMDG	International Maritime Dangerous Goods
ICAO-TI	Technical Instructions for the Safe Transport of Dangerous Goods by Air
K _{oc}	Adsorption coefficient

Kow	octanol-water partition coefficient
LC50	Lethal Concentration to 50 % of a test population
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)
LOEC	Lowest Observable Effect Concentration
LTEL	Long Term Exposure Limit
MAK	Maximum concentration at the Workplace (Maximale Arbeitsplatzkonzentration)
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
OECD	Organization for Economic Co-operation and Development
PNEC	Predicted No Effect Concentration
PBT	Persistent, bioaccumulative, toxic chemical
vPvB	Very Persistent, Very Bioaccumulative
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SCOEL	Scientific Committee on Occupational Exposure Limits
STEL	Short Term Exposure Limit
STP	sewage treatment plant
(STOT) RE	Specific Target Organ Toxicity Repeated Exposure
TTC	Toxic Threshold Concentration) = TGK (Toxische Grenzkonzentration)
TWA	Time Weighted Average
UN	United Nations

16.3. Full text of H- and EUH-statements:

H302	Acute Tox. 4 (oral)	Harmful if swallowed
H373	STOT RE2	May cause damage to organs through prolonged or repeated exposure. (Route of exposure- Oral. Affected organs- kidney)

16.4. List of ES (exposure scenario) given in Annex to the extended SDS

Since the substance is not classified as hazardous, the generation of exposure scenario(s) for the identified uses is not required by Art. 14 of EC Regulation REACH

16.5. Key literature references and sources

CHEMICAL SAFETY REPORT to 2,2'-(ETHYLENEDIOXY)DIETHANOL (CAS No.112-27-6), 2015

OECD SIDS Dossier on the HPV Chemical. Triethylene Glycol (CAS No. 112-27-6), OECD, 2004, Revised submission: January 26, 2007.

GESTIS Substance Database:

http://gestis.itrust.de/nxt/gateway.dll/gestis_en/000000.xml?f=templates&fn=default.htm&vid=gestiseng:sdbeng

GESTIS - International limit values for chemical agents (Occupational exposure limits, OELs): <https://www.dguv.de/ifa/gestis/gestis-internationale-grenzwerte-fuer-chemische-substanzen-limit-values-for-chemical-agents/index-2.jsp>

EU DIRECTIVES :

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

Regulation (EC) No 1272/2008 REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and

2,2'-(ETHYLENEDIOXY)DIETHANOL

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1999/45/EC, and amending Regulation (EC) No 1907/2006.

Regulations. Commission regulation (EU) no 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

Training advice

Personnel handling the product has to be acquainted demonstrably with its hazardous properties, with health and environmental protection principles related to the product and first aid principles.

DISCLAIMER

This information is based on our current level of knowledge. This information may be subject to revision as new knowledge and experience becomes available, and SIBUR makes no warranties and assumes no liability in connection with any use of this information. Since SIBUR cannot be aware of all aspects of your business and the impact the REACH Regulation has for your company, SIBUR strongly encourages you to get familiar with the REACH Regulation in order to comply with its requirements and timelines.

END OF SAFETY DATA SHEET