MEGlobal Europe GmbH encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

Section 1. Identification of the substance/preparation and of the company/undertaking

1.1 Product identifiers
Product Name
DIETHYLENE GLYCOL HIGH PURITY

Chemical Name: Diethylene glycol
CAS-No. 111-46-6
EC-No. 203-872-2
REACH Registration Number
01-2119457857-21-0012
01-2119457857-21-0013
01-2119457857-21-0014
01-2119457857-21-0015
01-2119457857-21-0016
01-2119457857-21-0017
01-2119457857-21-0018
01-2119457857-21-0019

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses
Manufacture of substance, industrial Use as an intermediate, industrial Use as process chemical, industrial Distribution of substance, industrial. Formulation and (re)packing of substances and mixtures. Polymer processing, industrial Use in paints and coatings, industrial Use in Cleaning Agents, industrial Use in lubricants, industrial Use in metal-working fluids, industrial Functional Fluids, industrial Use in laboratories, industrial Production of polymers, filled polymers, foams, coatings, adhesives and sealants, industrial Use in paints, coatings, adhesives, sealants, foams, polymers and filled polymers, professional Use in Cleaning Agents, professional Use in metal-working fluids, professional Functional Fluids, professional Use in laboratories, professional Use in paints, coatings and surface treatment products, consumer Use in Cleaning Agents, consumer Use in biocidal products, consumer Use in heat transfer and hydraulic fluids, consumer Use in adhesives and sealants, consumer Production of rigid foam, consumer For details on use descriptors and exposure scenarios, please refer to the extended part of the Safety Data Sheet.
Uses advised against
Pharmaceuticals.

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION
MEGlobal Europe GmbH
Bachtobelstrasse 3

8810 Horgen
Switzerland
Customer Information Number: 41 44 728 2593
http://www.meglobal.biz/
SDSQuestion@dow.com

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 0041 447 28 2820
Local Emergency Contact: 00 31 115 69 4982

Section 2. Hazards Identification

2.1 Classification of the substance or mixture

Classification - REGULATION (EC) No 1272/2008

Acute toxicity (Oral)	Category 4	H302	Harmful if swallowed.
Specific target organ toxicity - repeated exposure (Oral)	Category 2	H373	May cause damage to organs through prolonged or repeated exposure if swallowed.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn	R22	Harmful if swallowed.

2.2 Label elements

Labelling - REGULATION (EC) No 1272/2008

Hazard pictograms

Signal Word: Danger

Hazard statements:

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

Precautionary Statements:

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash thoroughly after handling.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P330 Rinse mouth.
P314 Get medical attention if you feel unwell.
P405 Store locked up.
P501 Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device.

2.3 Other Hazards

No information available.

Section 3. Composition/information on ingredients

3.1 Substance

This product is a substance.

CAS-No. / EC-No. / Index	REACH No.	Amount	Component	Classification: REGULATION (EC) No 1272/2008
CAS-No. 111-46-6 **EC-No.** 203-872-2 **Index** 603-140-00-6	01-2119457857-21	>= 99.0 - <= 100.0 %	Diethylene glycol	Acute Tox., 4, H302 STOT RE, 2, H373

CAS-No. / EC-No. / Index	Amount	Component	Classification: 67/548/EEC
CAS-No. 111-46-6 **EC-No.** 203-872-2 **Index** 603-140-00-6	>= 99.0 - <= 100.0 %	Diethylene glycol	Xn: R22

For the full text of the H-Statements mentioned in this Section, see Section 16.
See Section 16 for full text of R-phrases.

Section 4. First-aid measures

4.1 Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Inhalation: Move person to fresh air; if effects occur, consult a physician.
Skin Contact: Immediately flush skin with water while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Destroy contaminated leather items such as shoes, belts, and watchbands. Suitable emergency safety shower facility should be immediately available.
Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.
Ingestion: Seek medical attention immediately. Do not induce vomiting. If person is fully conscious give 1 cup or 8 ounces (240 ml) of water. If medical advice is delayed and if an adult has swallowed several ounces of chemical, then give 3-4 ounces (1/3-1/2 Cup) (90-120 ml) of hard liquor such as 80 proof whiskey. For children, give proportionally less liquor at a dose of 0.3 ounce (1 ½ tsp.) (8 ml) liquor for each 10 pounds of body weight, or 2 ml per kg body weight [e.g., 1.2 ounce (2 1/3 tbsp.) for a 40 pound child or 36 ml for an 18 kg child].

4.2 Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

4.3 Indication of immediate medical attention and special treatment needed

Due to structural analogy and clinical data, this material may have a mechanism of intoxication similar to ethylene glycol. On that basis, treatment similar to ethylene glycol intoxication may be of benefit. In cases where several ounces (60 - 100 ml) have been ingested, consider the use of ethanol and hemodialysis in the treatment. Consult standard literature for details of treatment. If ethanol is used, a therapeutically effective blood concentration in the range of 100 - 150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenase

and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol (Brent, J. et al., New England Journal of Medicine, Feb. 8, 2001, 344:6, p. 424-9): loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. If burn is present, treat as any thermal burn, after decontamination. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Section 5. Fire Fighting Measures

5.1 Extinguishing Media

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

5.2 Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.
Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.
Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.
6.3 Methods and materials for containment and cleaning up: Contain spilled material if possible. Collect in suitable and properly labeled containers. Small spills: Absorb with materials such as: Cat litter. Sand. Sawdust. Vermiculite. Zorb-all®. Hazorb®. Large spills: Dike area to contain spill.

Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

Section 7. Handling and Storage

7.1 Precautions for safe handling

Handling

General Handling: Avoid contact with eyes, skin, and clothing. Do not swallow. Wash thoroughly after handling. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Do not store near food, foodstuffs, drugs or potable water supplies. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure.

7.3 Specific end uses

See the technical data sheet on this product for further information.

Section 8. Exposure Controls / Personal Protection

8.1 Control parameters

Exposure Limits

Component	List	Type	Value
Diethylene glycol	AIHA WEEL	TWA	10 mg/m3
	UK WEL	TWA	101 mg/m3 23 ppm

Derived No Effect Level (DNEL)

Workers

Potential Health Effects	Possible route(s) of exposure:	Value
Acute - systemic effects	Skin Contact	no data available
Acute - systemic effects	Inhalation	no data available
Acute - local effects	Skin Contact	no data available
Acute - local effects	Inhalation	no data available
Long-term - systemic effects	Skin Contact	106 mg/kg bw/day
Long-term - systemic effects	Inhalation	no data available
Long-term - local effects	Skin Contact	no data available
Long-term - local effects	Inhalation	60 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value	Remarks
Fresh water	10 mg/l	
Marine water	1 mg/l	
Intermittent releases	199.5 mg/l	
Sediment	20.9 mg/kg	
Soil	1.53 mg/kg	
STP	10 mg/l	

8.2 Exposure controls

Personal Protection

Eye/Face Protection: Use safety glasses (with side shields). Safety glasses (with side shields) should be consistent with EN 166 or equivalent.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. When handling hot material, protect skin from thermal burns as well as from skin absorption.

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Use gloves with insulation for thermal protection (EN 407), when needed. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2.

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Section 9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical State	Liquid.
Color	Colorless
Odor	odourless
Odor Threshold	No test data available
pH	No test data available
Melting Point	-6.5 °C *Literature*
Freezing Point	-6.5 °C *Literature*
Boiling Point (760 mmHg)	245 °C *Literature* .
Flash Point - Closed Cup	138 °C *Literature*
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	**Lower**: 2.0 %(V) *Calculated* **Upper**: 12.3 %(V) *Estimated.*
Vapor Pressure	0.008 hPa @ 25 °C *Literature*
Vapor Density (air = 1)	3.65 *Literature*
Specific Gravity (H2O = 1)	1.18 *Literature*
Solubility in water (by weight)	100 % @ 20 °C *Literature*

Partition coefficient, n-octanol/water (log Pow)	-1.98 *Estimated.*
Autoignition Temperature	229 °C *Literature*
Decomposition Temperature	No test data available
Dynamic Viscosity	30 mPa.s @ 25 °C *Literature*
Kinematic Viscosity	30 mm2/s *Literature*
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other information

Liquid Density	1.18 g/cm3 @ 20 °C *Literature*
Molecular Weight	No test data available
Henry's Law Constant (H)	7.96E-10 atm*m3/mole; 25 °C Estimated.

Section 10. Stability and Reactivity

10.1 Reactivity
No dangerous reaction known under conditions of normal use.

10.2 Chemical stability
Thermally stable at recommended temperatures and pressures.

10.3 Possibility of hazardous reactions
Polymerization will not occur.

10.4 Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

10.5 Incompatible Materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

10.6 Hazardous decomposition products
Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Alcohols. Ethers.

Section 11. Toxicological Information

11.1 Information on toxicological effects
Acute Toxicity
Ingestion
Oral toxicity is expected to be moderate in humans due to diethylene glycol even though tests with animals show a lower degree of toxicity. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure.
LD50, Rat, male 19,600 mg/kg
Estimated. Lethal Dose, Human, adult 65 ml
LD50, Rat 12,565 mg/kg
Aspiration hazard
Based on physical properties, not likely to be an aspiration hazard.
Dermal
Prolonged skin contact is unlikely to result in absorption of harmful amounts. Repeated skin contact may result in absorption of harmful amounts. Massive contact with damaged skin or of material sufficiently hot to burn skin may result in absorption of potentially lethal amounts.
LD50, Rabbit 13,330 mg/kg
Inhalation
At room temperature, exposure to vapor is minimal due to low volatility. With good ventilation, single exposure is not expected to cause adverse effects. If material is heated or areas are poorly ventilated,

vapor/mist may accumulate and cause respiratory irritation and symptoms such as headache and nausea.
LC50, 4 h, Aerosol, Rat > 4.6 mg/l
LC50, 4 h, Rat > 4.4 mg/l

Eye damage/eye irritation
May cause slight temporary eye irritation. Corneal injury is unlikely.

Skin corrosion/irritation
Prolonged contact is essentially nonirritating to skin.

Sensitization
Skin
Did not cause allergic skin reactions when tested in humans. Did not cause allergic skin reactions when tested in guinea pigs.
Respiratory
No relevant data found.

Repeated Dose Toxicity
In humans, effects have been reported on the following organs: Kidney. Gastrointestinal tract. In humans, symptoms may include: Headache. Nausea and/or vomiting. Abdominal discomfort. In animals, effects have been reported on the following organs: Liver.

Chronic Toxicity and Carcinogenicity
Diethylene glycol has been tested for carcinogenicity in animal studies and is not believed to pose a carcinogenic risk to man.

Developmental Toxicity
Diethylene glycol has caused toxicity to the fetus and some birth defects at maternally toxic, high doses in animals. Other animal studies have not reproduced birth defects even at much higher doses that caused severe maternal toxicity.

Reproductive Toxicity
Diethylene glycol did not interfere with reproduction in animal studies except at very high doses.

Genetic Toxicology
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Section 12. Ecological Information

12.1 Toxicity
Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

Fish Acute & Prolonged Toxicity
LC50, fathead minnow (Pimephales promelas), flow-through, 96 h: 75,200 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, 48 h, immobilization: 48,900 mg/l
Aquatic Plant Toxicity
EC50, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum), biomass growth inhibition, 96 h: > 100 mg/l
Toxicity to Micro-organisms
EC50, OECD 209 Test; activated sludge, 3 h: > 1,000 mg/l

12.2 Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
OECD Biodegradation Tests: Based on analogy.

Biodegradation	Exposure Time	Method	10 Day Window
90 - 100 %	20 d	OECD 301A Test	pass
82 - 98 %	28 d	OECD 302C Test	Not applicable

12.3 Bioaccumulative potential
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): -1.98 Estimated.

Bioconcentration Factor (BCF): 100; fish; Measured

12.4 Mobility in soil
Mobility in soil: Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process., Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient, soil organic carbon/water (Koc): < 1 Estimated.
Henry's Law Constant (H): 7.96E-10 atm*m3/mole; 25 °C Estimated.

12.5 Results of PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects
This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

Section 13. Disposal Considerations

13.1 Waste treatment methods
This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 91/689/EEC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

Section 14. Transport Information

ROAD & RAIL
NOT REGULATED

OCEAN
NOT REGULATED

AIR
NOT REGULATED

INLAND WATERWAYS
NOT REGULATED

Section 15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
European Inventory of Existing Commercial Chemical Substances (EINECS)
This product is on the EINECS inventory.

15.2 Chemical Safety Assessment
A Chemical Safety Assessment has been carried out for this substance.

Section 16. Other Information

Hazard statement in the composition section

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

Risk-phrases in the Composition section

R22	Harmful if swallowed.

Revision

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

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