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Safety Data Sheet (SDS)

Revision / Review Date: 12/11/14

1. Chemical Product and Company Identification

Product Name: Diethylene glycol (DEG)
Distributed By: HB Chemical
1665 Enterprise Parkway
Twinsburg Oh 44087
Phone - 330-920-8023
MSDS Prepared By (w Suppliers Input): HB Chemical
Chemical Name / Family: 2,2'-Oxydiethanol
Chemical Formula: C₄H₁₀O₃
Molecular Weight: 106.12 g/mol
Product Use: Chemical intermediate
OSHA Status: Hazardous
CAS NO: 111-46-6

For emergency health, safety, and environmental information, calls 330-920-8023
For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300

2. Hazard(s) Identification

Warning:



Primary Routes of Entry: Inhalation, ingestion, skin absorption, skin contact, eye contact.
Eye Contact: Moderately irritating to eyes.
Skin Contact: May cause moderate irritation to skin.
Ingestion: Harmful if swallowed. May cause drowsiness and dizziness. May cause damage to organs (kidney) through prolonged or repeated exposure if swallowed.
Inhalation: May cause respiratory tract irritation.
Pre-existing medical conditions: Kidney problems may be aggravated by exposure to this.

3. Composition / Information on Ingredients

Chemical Name	CAS #	Concentration
Diethylene glycol	111-46-6	95-100%

4. First Aid Measures

Inhalation:

Allow the victim to rest in a well-ventilated area. Seek immediate medical attention

Eyes:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient/anti-bacterial cream. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

5. Fire-Fighting Measures

Suitable Extinguishing Media:

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

Special Fire Fighting Procedures:

SMALL FIRE: Use dry chemical powder, CO₂, sand or earth.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet. Wear full protective clothing and self-contained breathing apparatus.

Hazardous Combustion Products:

These products are carbon oxides.

Flammability of the Product:

May be combustible at high temperature

Unusual fire and explosion hazards:

Slightly flammable to flammable in presence of open flames and sparks, of heat. When heated to decomposition, it emits acrid smoke and irritating fumes.

6. Accidental Release Measures

Steps to be taken in case material is spilled:

Small Spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the

contaminated surface and dispose of, according to local and regional authority requirements.

Large Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Environmental Disposal Information:

Do not let product enter drains. Prevent further leakage or spillage if safe to do so.

Waste Disposal:

Offer surplus and non-recyclable solutions to a licensed disposal company. Dispose of as unused product.

Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Methods and materials for containment and cleaning up:

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. Handling and Storage:

Empty Containers:

Empty containers pose a fire risk, evaporate the residue under a fume hood.

Precautions to be taken in handling:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage:

Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container tightly closed. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents. Must be stored upright.

8. Exposure Controls / Personal Protection

Exposure Controls:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Respiratory Protection:

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use

respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand and skin protection:

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye Protection:

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

Body Protection:

Complete suit protecting against chemicals, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Other Precautions:

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

9. Physical and Chemical Properties

<u>Physical Form:</u>	Slightly viscous liquid
<u>Appearance & Odor:</u>	Clear / Odorless
<u>Specific Gravity:</u>	1.12 (Water = 1)
<u>Solubility in Water</u>	Completely miscible
<u>Flash Point, TAG CC F.</u>	143 °C (289 °F) - closed cup
<u>Evaporation Rate (Water ~ 1)</u>	< 0.01 - (Butyl acetate = 1)
<u>Vapor Pressure (mm Hg):</u>	0.01 mm of Hg (@ 20°C)
<u>pH (1% soln/water):</u>	7 [Neutral.]
<u>Vapor Density (Air ~ 1)</u>	3.66 (Air = 1)
<u>Boiling Point (°F) Initial</u>	245.8°C (474.4°F)
<u>Auto ignition Temperature, °C</u>	372 °C (702 °F) at 1,013.25 hPa (760.00 mmHg)
<u>Melting point:</u>	-8°C (17.6°F)
<u>Relative density:</u>	1.118 g/cm ³ at 25 °C (77 °F)
<u>Partition coefficient: noctanol/water:</u>	log Pow: -2.0
<u>Surface tension:</u>	48.5 mN/m at 25 °C (77 °F)
<u>Relative vapour density:</u>	3.66 - (Air = 1.0)

10. Stability and Reactivity

<u>Stability:</u>	This product is stable.
<u>Incompatibility (Materials to Avoid):</u>	Slightly reactive to reactive with oxidizing agents, strong acid and strong bases.
<u>Conditions to Avoid:</u>	Heating in air. Exposure to moisture.

11. Toxicological Information

<u>Acute toxicity to animals:</u>	Acute oral toxicity (LD50): 12565 mg/kg [Hamster]. Acute dermal toxicity (LD50): 11890 mg/kg [Hamster].
<u>Chronic Effects on Humans:</u>	Effects due to ingestion or repeated exposure include blood, kidneys, the nervous system, drowsiness, gastrointestinal disturbance, liver disorder, muscle weakness.
<u>Other Toxic Effects on Humans:</u>	Experimentally tumorigen by inhalation. Exposure can cause nausea, headache and vomiting.
<u>Symptoms and signs of poisoning are:</u>	Confusion, dizziness, kidney injury, unconsciousness, convulsions, nausea, headache, vomiting, pulmonary edema and liver irregularities may occur. Effects may be delayed.

12. Ecological Information

<u>Mobility:</u>	Dissolves in water. If product enters soil, one or more constituents will be mobile and may contaminate groundwater
<u>Products of Biodegradation:</u>	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
<u>Toxicity to aquatic life:</u>	Practically nontoxic.

13. Disposal Considerations

<u>Waste disposal:</u>	Recover or recycle if possible. 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. Remove all packaging for recovery or waste disposal. Do not dispose into the environment, in drains or in water courses. Waste product should not be allowed to contaminate soil or water.
<u>Container Disposal:</u>	Dispose in accordance with prevailing regulations, national, and local laws and preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

14. Transport Information

DOT Classification: Not dangerous goods.

IMDG: Not dangerous goods.

IATA: Not dangerous goods.

15. Regulatory Information

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

WHMIS (Canada): Not controlled under WHMIS (Canada).

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards: Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components: No components are subject to the Massachusetts Right to Know Act.

<u>Pennsylvania Right To Know Components:</u>	CAS-No	Revision Date
Diethylene glycol	111-46-6	1989-08-11

<u>New Jersey Right To Know Components:</u>	CAS-No	Revision Date
Diethylene glycol	111-46-6	1989-08-11

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. Other Information

The above information has been compiled from what we believe to be credible sources. To our knowledge the information is accurate and reliable, however, it is not guaranteed. Any recommendations issued by HB Chemical personnel or literature is derived from experience and by no means should be taken as fact or construed as a recommendation to violate of any law, regulation or patent. It is the users responsibility to determine the suitability of any HB supplied material in their application. The individual conditions of each customer are well outside of our control and we cannot be held liable for its functionality and use. Please contact our office should you need specific information beyond what is supplied above. As with all Chemical usage safety precautions beyond the stated are highly recommended.