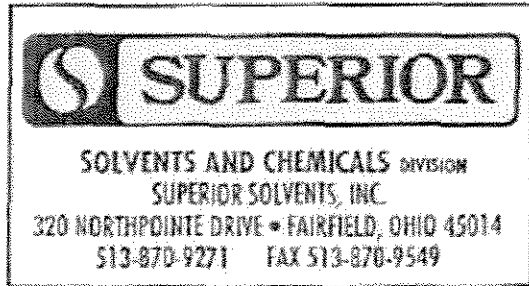


Distributed By:
SAL Chemical
3036 Birch Drive
Weirton, WV 26062
304-748-8200



MATERIAL SAFETY DATA SHEET

Diethylene Glycol

2. INGREDIENTS:

MATERIAL	CAS#	% BY WT.	PEL (OSHA)	TLV (EH40)
Diethylene Glycol	111-46-6	> 99%	None	TWA (8h) = 23 ppm

3. HAZARDS IDENTIFICATION:

HAZARD RATING SYSTEM (NFPA): HEALTH:1 FLAMMABILITY:0 REACTIVITY:0

KEY: 0 - Minimal, 1 - Slight, 2 - Moderate, 3 - Serious, 4 - Severe

POTENTIAL HEALTH EFFECTS:

Routes of Exposure: Inhalation, Ingestion, Skin Contact/Absorption, Eye Contact

EYE: Overexposure to vapor can cause temporary blurring of vision. May cause minor eye irritation.

SKIN: Can be absorbed through skin and can cause skin irritation. Repeated, prolonged exposure may cause slight flaking, tenderness, and softening of skin.

INGESTION: The predominant hazard associated with this product is ingestion of large quantities at a single time. During the first 12 hours, the patient may experience central nervous system effects such as headache, weakness, nausea, dizziness, loss of judgement and coordination. In mild cases, the patient may appear to be drunk but without the breath odor of alcohol. In more severe cases the patient will experience cardiopulmonary symptoms including mild high blood pressure, abnormally fast heartbeat and elevated breathing rate.

Convulsions and coma are possible. Kidney complications, including slow or no production of urine may be expected 24 to 72 hours after ingestion. Injury to the liver may also occur.

INHALATION: Overexposure to glycol and glycol ether vapors or mists can cause respiratory tract irritation. In general, this effect becomes noticeable with airborne concentrations of approximately 60 ppm. Cough and a burning sensation in the trachea are symptoms of inhalation exposures above 80 ppm. Overexposure to glycols and glycol ethers can cause central nervous system depression. Symptoms include headache, weakness, nausea, vomiting, dizziness, loss of coordination and increased heart rate. Seizures, convulsions, coma and death are possible at extremely high concentrations.

SIGNS AND SYMPTOMS OF OVEREXPOSURE: Same as above.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Persons with preexisting kidney or liver diseases may have their conditions aggravated by ingestion of or overexposure to this product. Material and/or its emissions may aggravate preexisting eye disease.

OTHER HEALTH INFORMATION: Spills can cause slipping hazard.

4. FIRST AID MEASURES

Eyes: Check for and remove contact lenses. Immediately flush eyes with large amounts of water for 15 minutes, lifting lower and upper lids. Do not use eye ointment. Obtain medical attention if pain, blinking, tears or redness persist.

Skin: Product is not expected to present a significant skin hazard under anticipated conditions of normal use.

Inhalation: If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. If breathing is difficult, 100% humidified oxygen should be administered by a qualified individual. Keep individual warm and at rest. Prompt action is essential.

Ingestion: If swallowed, give two glasses of water to drink if victim is completely conscious and alert. Never give anything by mouth to a person who is not fully conscious. Induce vomiting only upon the advice of a physician. Obtain emergency medical attention.

Notes to Physician: Ingestion of lower molecular weight glycols have produced an accumulation of glycolate and glyoxalate which form lactate and results in metabolic acidosis, renal failure, heart failure, and pulmonary edema. Kidney insufficiency has been reported after two or three days of ingestion. The kidney failure may be caused by accumulation of calcium oxalate crystals. Crystalluria can be an early sign of glycol poisoning. The decision to induce or not induce emesis in ingestions must be carefully considered. Measures to decrease absorption may be useful. If the patient has signs of esophageal or gastrointestinal tract irritation or burns, or has evidence of a decreased sensorium, a depressed gag reflex, or impending shock, induced emesis should be avoided.

5. FIRE FIGHTING MEASURES:

FLAMMABLE PROPERTIES

FLASH POINT: 152 °C (301 °F)

FLAMMABILITY LIMITS

Lower Flammability Limit: No data

Upper Flammability Limit: No data

EXTINGUISHING MEDIA: Use dry chemical, "alcohol" foam, Carbon Dioxide, or Halon.

HAZARDOUS COMBUSTION PRODUCTS: Combustion gases may contain CO, CO₂, irritating and acrid combustion products.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Material will burn after the water content has evolved. Do not direct a solid stream of water or foam into hot, burning pools as this may cause frothing and increase the intensity of the fire.

FIRE FIGHTING PROTECTIVE CLOTHING: Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.

6. ACCIDENTAL RELEASE MEASURES:

EMERGENCY CONTACTS:

CHEMTREC: 1-800-424-9300

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Prevent flow to sewers and public waters as it may contaminate said water. Restrict usage to prevent slip/fall hazard. Soak up small spills with inert solids. Dike and recover large land spills. Notify appropriate authorities if product enters any waterways.

7. HANDLING AND STORAGE:

Avoid extreme temperatures. For small spills, absorb or cover with dry earth, sand, or other inert non-combustible absorbent material and place into waste containers for later disposal. Contain large spills to maximize product recovery or disposal. Product on surfaces can cause slippery conditions. Practice reasonable care and cleanliness. Avoid breathing spray mists if generated. Prevent entry into waterways or sewers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

Respiratory Protection: Vaporization or misting is not expected at ambient temperatures. Therefore, the need for respiratory protection is not anticipated under normal use conditions and with adequate ventilation. If elevated airborne concentrations above applicable workplace exposures are anticipated, a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter should be used. Protection factors vary depending on the type of respirator used.

Ventilation: Adequate general ventilation is required, local exhaust is recommended if possible.

Protective Gloves: Use gloves constructed of glycol-resistant materials such as butyl rubber or polyvinyl chloride-coated. Use heat-protective gloves when handling product at elevated temperatures.

Eye Protection: Safety goggles, and if splashing is anticipated, use a face shield. Emergency eyewash should be available.

Engineering Controls: Keep containers closed when not in use.

Personal Hygiene: If product-handling results in skin contact, wash hands and other exposed areas with mild soap and water before eating, drinking, smoking, or using the toilet facilities. Promptly remove soiled clothing and wash before reuse.

9. PHYSICAL PROPERTIES:

BOILING POINT:	242 - 252 °C
MELTING / FREEZING POINT:	-10 °C
FLASH POINT:	152 °C
AUTO-IGNITION TEMPERATURE:	225 °C
DENSITY:	1117 kg/m ³ @ 20 °C
VAPOR PRESSURE @ 20 °C:	1,3 Pa
WATER SOLUBILITY:	Easily soluble in cold water, hot water
APPEARANCE:	Colorless
ODOR:	Odorless
KINEMATIC VISCOSITY:	33 mm ² /s @ 20 °C

10. STABILITY AND REACTIVITY:

STABILITY: Stable

CONDITIONS TO AVOID: Heat, flames, and sparks.

MATERIALS TO AVOID: Strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: No additional hazardous decomposition products were identified other than the combustion products mentioned in section 5 of this MSDS.

HAZARDOUS POLYMERIZATION: Not expected to occur.

11. TOXICOLOGICAL INFORMATION:

ORAL (LD50): Acute: 12565 mg/kg [Rat], 13300 mg/kg [Mouse], 2690 mg/kg [Rabbit]

DERMAL (LD50): Acute: 11890 mg/kg [Rabbit]

DIETHYLENE GLYCOL:

The major hazard from diethylene glycol occurs following the ingestion of relatively large single doses. DEG can cause central nervous system depression and hydropic degenerative lesions in the liver and kidney. Anuria from tubular degeneration can prove fatal within a few days. In a 1937 case study, 105 fatalities occurred among 353 people who ingested a solution of sulfanilamide in an aqueous mixture containing 72% DEG. The symptoms included nausea, dizziness, and pain in the kidney region. In a few days, oliguria and anuria, with death resulting from uremic poisoning (Amdur, Doull, and Klaasen, 1991). Autopsies revealed that the principal signs of intoxication were in liver congestion and fatty degeneration (AIHA, 1999).

Reproductive toxicity was noted in a mouse continuous breeding study with large doses of DEG in drinking water. In addition, health effects including liver and kidney disease were noted in studies with pregnant rats receiving undiluted DEG. Relevance of these studies to human health is not certain.

12. ECOLOGICAL INFORMATION:

ECOTOXICITY:

Acute LC50 for fathead minnows, >100 ppm/96 hrs (Static Test Environment)

Acute LC50 for water flea Daphnia Magna, 0.3 - 1 ppm/96hrs (Static Test Environment)

No effect level, Selenastrum Capricornutum, 100 ppm (Static Test Environment)

Analysis for ecological effects has not been conducted on this product. However, if spilled, this product and any contaminated soil or water may be harmful to human, animal, and aquatic life. Also, the coating action associated with this product can be harmful or fatal to aquatic life and waterfowl.

ENVIRONMENTAL FATE: This product is miscible in water and is expected to readily disperse in marine environments.

13. DISPOSAL CONSIDERATIONS:

WASTE DISPOSAL METHOD: Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition. Conditions of use may cause this material to become a "hazardous waste," as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a "hazardous waste" at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 thru 40 CFR 271). State and/or local regulations may be more restrictive. Contact the RCRA/Superfund Hotline at (800) 424-9346 or your regional U.S. EPA office for guidance concerning case specific disposal issues. Empty drums and pails retain residue. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose this product's empty container to heat, flame, or other ignition sources. DO NOT attempt to clean it. Empty drums and pails should be drained completely, properly bunged or sealed, and promptly sent to a reconditioner.

14. TRANSPORT INFORMATION: Not dangerous for conveyance under UN, IMO, ADR/RID and IATA/ICAO codes

15. REGULATORY INFORMATION:

EC label / EC number:	203-872-2
EC label name:	DIETHYLENE GLYCOL
EC classification:	Harmful
EC symbols:	(Xn) Harmful
EC risk phrases:	(R22) Harmful if swallowed
EC safety phrases:	(S2) Keep out of the reach of children. (S46) If swallowed, seek medical advice immediately and show this container or label
TSCA (USA):	Listed