

IN CASE OF TRANSPORTATION EMERGENCY CONTACT:

CHEMTREC:(800) 424-9300

ALL OTHER INQUIRIES:
(770) 904-7042 // www.ciscochem.com
266 Rue Cezzan Lavonia, GA 30553



1. IDENTIFICATION

PRODUCT NAME: ETHYLENE GLYCOL

SYNONYMS: EG

CAS NUMBER: 107-21-1

2. HAZARDS IDENTIFICATION

HMIS (USA): Health - 2, Fire - 1, Reactivity - 0

MATERIAL USE: antifreeze, humectant, plasticiser, hydraulic fluid, solvent

3. COMPOSITION

ETHYLENE GLYCOL 100% (107-21-1)

4. FIRST AID MEASURES

SKIN: Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thor-oughly cleaned or laundered.

EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.

INHALATION: Remove from contaminated area promptly. CAUTION: Rescuer must not endanger him- self! If breathing stops, administer artificial respiration and seek medical aid promptly.

INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

NOTE: Inadvertent inhalation of vomited material may seriously damage the lungs. The risk and danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity product. The stomach should only be emptied under medical supervision, after the installation of an airway to protect the lungs.

NOTE TO DOCTOR: Following gastric emptying, administration of ethanol and calcium gluconate may be helpful. If kidney function is normal, give 4 litres of fluid daily to increase glycol excretion. If renal function is poor, dialysis should be used to speed glycol elimination.

5. FIRE FIGHTING MEASURES

FLASH POINT: 111 c (closed cup)

AUTOIGNITION TEMPERATURE: 398 c

FLAMMABLE LIMITS: 3.2% - 15%

COMBUSTION PRODUCTS: carbon monoxide, nitrogen oxides, smoke, part oxidized hydrocarbon fragments

FIREFIGHTING PRECAUTIONS: foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water – water jet spreads flames; firefighters must wear SCBA

STATIC DISCHARGE: will not accumulate a static charge

MECHANICAL IMPACT: not sensitive

CHEMICAL STABILITY: stable; will not polymerize
REACTIVE WITH: strong oxidizing agents; strong alkalies, strong acids
DECOMPOSITION PRODUCTS: none apart from Hazardous Combustion Products

6. ACCIDENTAL RELEASE MEASURES

LEAK PRECAUTION: dyke to control spillage and prevent environmental contamination.

HANDLING SPILL: recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep & pick up using non-sparking plastic aluminium shovel & store in closed containers for recycling or disposal.

7. HANDLING AND STORAGE

Store and use a cool dry environment, away from sources of ignition, heat and oxidizing agents. Do not cut, drill, weld or grind on or near this container. Avoid prolonged contact with skin and wash work clothes frequently. An eye bath and safety shower should be available near the workplace. This product is very sweet – keep away from children or animals – deal promptly with spills.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

CEV* ppm: 50*

LD50 ORAL: 1650**

SKIN (mg/kg): 9500

LC50ppm INHALATION: 10,900

*Note: This is a CEV or Ceiling Exposure Value, Not TLV or TWAEV. **Note: Oral LD50 varies substantially among species.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR & APPEARANCE: clear, colorless, hygroscopic odorless, syrupy liquid with a sweet taste

ODOR THRESHOLD: not known – odorless (Note: Odor is usually a sign of impure product.) VAPOUR PRESSURE: 0.05mmHg/0.007IPa (20 c)

EVAPORATION RATE (butyl Acetate=1): not known – essentially not volatile

VAPOR DENSITY (air=1): 2.1 BOILING RANGE: 198 c FREEZING POINT: -13 c

SPECIFIC GRAVITY: 1.115 (20/20 c) WATER SOLUBILITY: complete

HMS (USA): Health - 2, Fire - 1, Reactivity - 0

MATERIAL USE: antifreeze, humectant, plasticiser, hydraulic fluid, solvent

IN OTHER SOLVENTS: soluble in many alcohols, ketones, ethers, esters; limited in hydrocarbons

VISCOSITY: 21 centipoise (20 c)

PH: neutral

CARCINOGENIC PROPERTIES & NOTIFICATIONS: Tumorigen in rodents given high, but sub lethal doses; not a human carcinogen.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: Incompatible materials, ignition sources, moisture, excess heat.

Incompatibilities with Other Materials: Chlorosulfonic acid, dimethyl terephthalate, oleum, phosphorus pentasulfide, silvered-copper wire, sodium hydroxide, sulfuric acid, titanium butoxide. Causes ignition at room temperature with chromium trioxide, potassium permanganate, and sodium peroxide. Causes ignition at 100C with ammonium dichromate, silver chlorate, sodium chloride, and uranyl nitrate.

Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

Hazardous Polymerization: Has not been reported.

11. TOXICOLOGICAL INFORMATION

EFFECTS ACUTE EXPOSURE

SKIN CONTACT: virtually no effect
SKIN ABSORPTION: slight; no toxic effects anticipated by this route
EYE CONTACT: mildly irritating, will not damage eyes
INHALATION: vapor highly irritating (above ~80ppm); exposure unlikely due to low vapor pressure
INGESTION: product is an alcohol, absorption causes some similar symptoms, initially stimulating & in- toxicating, later depression followed by convulsions & coma, cardiopulmonary failure can occur, survival may be followed by renal failure & even death (Chronic, below) after ~3 days
EFFECTS OF CHRONIC EXPOSURE
GENERAL: prolonged absorption may cause deterioration of vision and kidney damage, Note: Mam- ma- lian metabolism of E.G creates oxalic acid whose toxicity & renal crystalisation are likely to be responsible for the lethal renal effects.
SENSITISING: not a sensitizer (just 2 cases of human sensitization have been reported)
REPRODUCTIVE EFFECT: teratogen in rodents given high, but sublethal doses; no known effect in hu- man
SYNERGISTIC WITH: not known
ESTIMATED LD50: 1650 - 2000mg/kg (oral,Crat), 4700 - 5000mg/kg (oral, rat), 5500mg/kg (oral, mouse & dog); 6600mg/kg (oral, guinea pig); 9500mg.kg (skin, rabbit)
ESTIMATED LC50: 80,000ppm [2000MG/M3] (inhalation, mouse), 10,900ppm [27,500MG/M3] (inha- lation, rat).

12. ECOLOGICAL INFORMATION

This product cannot accumulate in living tissue; this product is readily and rapidly (~4days) biodegrade- able in the presence of oxygen; anaerobic biodegradation in ~7days; no particularly toxic to marine life (plant or animal).

13. DISPOSAL CONSIDERATIONS

DO NOT FLUSH TO SEWER; may be incinerated in approved facility.

14. TRANSPORT INFORMATION

USA 49 CFR

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, NOS Technical Name: CONTAINS ETHYLENE GLYCOL

Hazard Class: 9

ID Number: NA 3082

Packing Group: PG III

15. REGULATORY INFORMATION

ALLOWABLE TOLERANCE: Ethylene glycol is exempted from the requirement of a tolerance when used as a antifreeze or deactivator for all pesticides used before crop emerges from soil and in herbicides before or after crop emerges in accordance with good agricultural practice as inert (or occasionally active) ingredients ingredients in pesticide formulations applied to growing crops only. Ethylene glycol as a com- ponent of pesticide fl

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ons is exempt from the requirement of a tolerance when used in foliar applications to peanut plants.

OSHA STANDARDS

Vacated 1989 OSHA PEL Ceiling value 50 ppm (125 mg/cu m) is still enforced in some states.

NIOSH RECOMMENDATIONS

NIOSH questioned whether the OSHA PEL proposed for ethylene glycol [ceiling 50 ppm] is adequate to protect workers from recognized health hazards.

THRESHOLD LIMIT VALUES

Ceiling Limit: 100 mg/cu m. /Aerosol only/; Not classifiable as a human carcinogen.

ATMOSPHERIC STANDARDS: Listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, amended in 1990, directs EPA to set standards requir- ing major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in specific performance based standards for all air emission sources that emit one or more of the listed pollutants. Ethylene glycol is included on this list.

FEDERAL & STATE DRINKING WATER GUIDELINES

EPA 7000 ug/l [QR] [REF – 146]

Arizona 5500 ug/l [QR] [REF – 146]

Florida 14,000 ug/l [QR] [REF – 146]

Massachusetts 14,000 ug/l [QR] [REF – 146]

Maine 5500 ug/l [QR] [REF – 146]

Minnesota 10000 ug/l [QR] [REF – 146]

North Carolina 7000 ug/l [QR] [REF – 146]
New Hampshire 7000 ug/l [QR] [REF – 146]
New Jersey 290 ug/l [QR] [REF – 146]

CERCLA REPORTABLE QUANTITIES: Persons in charge of vessels or facilities are required to notify the National Response Center (NRC) immediately, when there is a release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 5000 lb or 2270 kg. The NRC toll free number is (800) 424-8802; In the Washington D.C metropolitan area (202) 426-2675. The rule for determining when notification is required is stated in 40 CFR 302.4. (section IV. D.3.b).

FIFRA REQUIREMENTS

Ethylene glycol is exempted from the requirement of a tolerance when used as a antifreeze or deactivator for all pesticides used before crop emerges from soil and in herbicides before or after crop emerges in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Ethylene glycol as a component of pesticide formulations is exempt from the requirement of a tolerance when used in foliar applications to peanut plants.

FDA REQUIREMENTS

Ethylene glycol is an indirect food additive for use only as a component of adhesives.

16. OTHER INFORMATION

DISCLAIMER OF LIABILITY

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