



## Safety Data Sheet

### 1. PRODUCT IDENTIFICATION

|              |  |
|--------------|--|
| Name         | <b>Glycol Ether EE</b>   |
| Synonyms     | 2-ethoxyethanol; ethylene glycol monoethyl ether; ethylene glycol ethyl ether; EE  |
| CAS#         | 110-80-5   |
| Europe EC#   | 203-804-1  |
| Product Uses | solvent in coatings, inks; leather dyeing; emulsions; anti-freeze in aviation fuel |

### 2. HAZARDS

**Quick Guide:** flammable liquid; toxic (*even more so because of the pleasant odour*), may be toxic by skin absorption, central nervous depressant; suspected reproductive toxin in males

#### Canada – WHMIS

Key:  
<93°C

#### B 3, D 1B, D 2A, D 2B

B 2 – Flash Point <38°C, B 3 – Flash Point >38°C &



D 1 – Immediately Toxic, D 2 – Chronic Toxicity

C – Oxidising Substance, E – Corrosive, F – Reactive Substance

#### U.S.A. – HMIS

Key:

#### Health – 3, Fire – 2, Reactivity – 0

0=minimal, 1=slight, 2=moderate, 3=serious, 4=severe



### 3. COMPOSITION

|                 | %    | TWAEV / TLV<br>mg/m <sup>3</sup> | LD <sub>50</sub> (mg/kg)<br>ORAL | LD <sub>50</sub> (mg/kg)<br>SKIN | LC <sub>50</sub> ppm<br>INHALATION |
|-----------------|------|----------------------------------|----------------------------------|----------------------------------|------------------------------------|
| 2-ethoxyethanol | 100% | 5 / 18 (skin)                    | 950                              | 3310                             | 2410                               |

### 4. FIRST AID

|             |   |
|-------------|---|
| SKIN:       | Wash with plenty of water. Remove contaminated clothing and do not reuse until thoroughly 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. <b>CAUTION: Rescuer must not endanger himself!</b> 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. |

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

### 5. FIRE FIGHTING & FLAMMABILITY

|                            |   |
|----------------------------|---|
| Flash Point                | 43°C / 110°F (closed cup)   |
| Autoignition Temperature   | 235°C / 455°F   |
| Flammable Limits           | 1.7% – 15.6%  |
| Combustion Products        | carbon monoxide, nitrogen oxides, smoke, part oxidised 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 Charge Accumulation | cannot accumulate a static charge on agitation or pumping   |

**Please ensure that this MSDS is given to, and explained to people using this product.**

## 6. ACCIDENTAL RELEASE MEASURES

**Summer Fire Potential:** above 40°C / 100°F, blanket spill with foam as a precaution against accidental ignition. Take care to avoid sparks – do not operate (turn on OR off) electrical appliances near spill, unless explosion proof.

Leak Precaution dyke to control spillage and prevent environmental contamination  
 Handling Spill ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep & pick up using plastic or aluminium shovel, & store in closed containers for recycling or disposal

## 7. HANDLING & STORAGE

Store in a cool, dry environment, preferably in original containers, away from sources of ignition & oxidising agents.

This product may react with oxygen in the air to form explosive or flammable peroxides (*accelerated by ultraviolet radiation and heat*). (NOTE: *these peroxides are unlikely to be dangerous unless the product is distilled to dryness – which must never be attempted.*) Ensure that containers are full & tightly sealed. If prolonged storage of a part container is anticipated, flush headspace with dry nitrogen gas prior to sealing to prevent oxidation. Empty containers may contain a flammable/explosive vapour. Ensure that containers, empty or full, are tightly sealed unless in use.

Avoid breathing product vapour. Use with adequate ventilation. If dealing with a spill, and ventilation is impossible or impractical, wear a suitable respirator (see Part 8).

Never cut, drill, weld or grind on or near this container. Avoid contact with skin and wash work clothes frequently. An eye bath and safety shower must be available near the workplace.

## 8. EXPOSURE CONTROL & PERSONAL PROTECTION

|                      |  |                     |            |
|----------------------|--|---------------------|------------|
| <b>Ontario TWAEV</b> | 5ppm / 18mg/m <sup>3</sup>   | <b>Ontario STEV</b> | not listed |
| ACGIH TLV            | 5ppm / 18mg/m <sup>3</sup>   |                     |            |
| OSHA PEL             | 200ppm / 740mg/m <sup>3</sup>  |                     |            |
| Ventilation          | mechanical ventilation may be required to control airborne titre to regulated limits; if product is handled in sealed equipment, respirators with organic vapour cartridge should be available for “escape” should ventilation or containment fail; <i>store respirators in airtight containers (“Tupperware” or “Zip-Lock”)</i> |                     |            |
| Hands                | butyl or “Tychem” gloves should be worn – <i>other types may protect; consult supplier to confirm suitability</i>  |                     |            |
| Eyes                 | safety glasses with side shields – <i>always protect the eyes</i>  |                     |            |
| Clothing             | wear impermeable (above) apron, boots, & long sleeves if there is any danger of splashing,   |                     |            |

## 9. PHYSICAL PROPERTIES

|   |  |
|---|--|
| Odour & Appearance                            | clear, colourless liquid with a pleasant ether odour             |
| Odour Threshold                               | below 0.5ppm   |
| Vapour Pressure                               | 0.51mHg / 3.8kPa (20°C / 68°F)                                   |
| Evaporation Rate ( <i>Butyl Acetate = 1</i> ) | 0.4  |
| Vapour Density (air = 1)                      | 3.1  |
| Boiling Range                                 | 135°C / 275°F  |
| Freezing Point                                | -70°C / -94°F  |
| Specific Gravity                              | 0.93 (20/20°C)   |
| Water Solubility                              | complete   |
| Also soluble in                               | most organic solvents  |
| Viscosity                                     | 2.1centipoise (20°C / 68°F)                                      |
| pH  | none – ( <i>does not liberate hydrogen ions when dissolved</i> ) |
| Conversion Factor                             | 1ppm = 3.68mg/m <sup>3</sup>                                     |
| Molecular Weight                              | 90grams per mole   |

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**10. REACTIVITY**

|                                |   |
|--------------------------------|---|
| Dangerously Reactive With      | strong oxidising agents, strong alkalies, strong acids  |
| Also Reactive With             | softens polyvinylchloride (PVC), ABS, polyesters & certain other plastics & elastomers                                      |
| Stability                      | stable: forms explosive peroxides on prolonged contact with air ( <i>faster in ultraviolet light</i> ); will not polymerize |
| Decomposes in Presence of      | fire heat   |
| Decomposition Products         | apart from Hazardous Combustion Products, explosive peroxides may form in fire  |
| Sensitive to Mechanical Impact | no  |

**11. TOXICITY****Effects, Acute Exposure**

|                 |  |
|-----------------|--|
| Skin Contact    | mild irritant  |
| Skin Absorption | yes; toxic effects may occur by this route – <i>both from the liquid &amp; the vapour</i>  |
| Eye Contact     | moderately irritating  |
| Inhalation      | headache, nasal discharge, coughing, chest pain, nausea, dizziness, vomiting   |
| Ingestion       | effects similar to “inhalation”, metabolic acidosis, persistent fatigue & insomnia, & paresthesia of extremities – <i>not a route of industrial exposure</i> |

**Effects, Chronic Exposure**

|                               |  |
|-------------------------------|--|
| General                       | prolonged exposure may cause dermatitis & skin cracking; <i>accidental ingestion of 40ml caused central nervous effects &amp; delayed acidosis, followed by reversible renal insufficiency &amp; liver damage;</i> |
| Sensitising                   | not a sensitiser in humans or animals  |
| Carcinogen/Tumorigen          | experimental carcinogen of unknown relevance to humans; not classified as a tumorigen or carcinogen in humans by IARC, ACGIH, or NTP   |
| Reproductive Effect           | fetotoxic at doses causing no maternal effects, ingestion causes reduced fertility (various causes) in male rats; no known effect in humans  |
| Mutagen                       | no known effect on humans; equivocal effects in animals  |
| Synergistic With              | ethanol (in rodents)   |
| LD <sub>50</sub> (oral)       | 1745, 2125, 2300, 2460, 2800, 3000, 3220, 3525, 4460, 5000-5490 & 8100mg/kg (rat), 1520, 2450, 4000 & 4830mg/kg (mouse), 950, 1400 & 2140, mg/kg (guinea pig), 1275, 1485, 3100 & 3530mg/kg (rabbit)               |
| LD <sub>50</sub> (skin)       | 3310mg/kg (rabbit), 3900mg/kg (rat)  |
| LC <sub>50</sub> (inhalation) | 2000, 2650, 4075-4350, 4500, 4890-5700 & 5350ppm (rat), 1820, 2410ppm (mouse), 3000ppm (guinea pig)  |

*NOTE: The very large number of toxicity tests reported (above) reflects the level of concern around this substance.*

**12. ECOLOGICAL INFORMATION**

|                                    |  |
|------------------------------------|--|
| Bioaccumulation                    | rapidly eliminated from the body ( <i>biological ½-life ~8hrs</i> ); cannot bioaccumulate;   |
| Biodegradation                     | biodegrades readily & rapidly in the presence of oxygen; 100% in 14days, 65% in 5days, >50% in 1day, >60% in 20days, 85% in 21days & <i>others</i> |
| Abiotic Degradation                | reacts with atmospheric hydroxyl radicals; 5% gone in 12hr, estimated ½-life in air ~1 day (2 studies)   |
| Mobility in soil, water            | water soluble; moves readily in soil & water   |
| <b>Aquatic Toxicity</b>            |  |
| LC <sub>50</sub> (Fish, 96hr)      | >10,000mg/litre (Lepomis macrochirus & Menidia beryllina), 16,400mg/litre (Poecilia reticulata, 7dy)   |
| EC <sub>50</sub> (Crustacea, 48hr) | >10,000mg/litre (Daphnia magna), >100mg/litre (Gammarus fasciatus & Helisoma trivolvis, 96hr), >10,000mg/litre (Artemia salina, 24hr)              |
| EC <sub>50</sub> (Algae, 72hr)     | >1000mg/litre (Scenedesmus subspicatus)  |
| EC <sub>50</sub> (Bacteria)        | >5000mg/litre (“aerobic microorganisms”)   |
| EC <sub>10</sub> (Bacteria)        | 1725mg/litre (Pseudomonas putida)  |

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**13. DISPOSAL**

Waste Disposal Containers **do not flush to sewer**, recycle solvent if possible, may be incinerated in approved facility  
**Drums** should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.  
**Pails** must be vented and thoroughly dried prior to crushing and recycling.  
**IBCs** (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs). Steel containers must be inspected, pressure tested & recertified every 5 years.  
*Never cut, drill, weld or grind on or near this container, even if empty*

**14. TRANSPORT CLASSIFICATION**

|                  |               |                                 |
|------------------|---------------|---------------------------------|
| Canada TDG       | PIN           | UN-1171                         |
| AND              | Shipping Name | ethylene glycol monoethyl ether |
| U.S.A. 49 CFR    | Class         | 3                               |
|                  | Packing Group | III                             |
| Marine Pollutant |               | not a marine pollutant          |
| ERAP Required    |               | NO                              |

**EMERGENCY INFORMATION**

|        |                        |                |
|--------|------------------------|----------------|
| Canada | Call CANUTEC (collect) | (613) 996-6666 |
| U.S.A. | Call CHEMTREC          | (800) 424-9300 |

**15. REGULATIONS**

|                       |   |
|-----------------------|---|
| Canada DSL            | on inventory  |
| U.S.A. TSCA           | on inventory  |
| Europe EINECS         | on inventory  |
| Europe Classification | Toxic   |
| Europe Risk Phrases   | <b>R: 10, 20/21/22, 60, 61</b> – <i>Flammable. Harmful by inhalation, in contact with skin, &amp; if swallowed. May impair fertility. May cause harm to the unborn child.</i> |
| Europe Safety Phrases | <b>S: 53, 45</b> – <i>Avoid exposure – obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately.</i>                |

**16. OTHER INFORMATION**

Prepared for Megaloid Laboratories by Peter Bursztyn, (705) 734-1577  
 Data from **RTECS**, **HSDB** (Haz. Substance Data Base), **Cheminfo** (CCOHS), **IUCLID** Datasheets (ESIS – European Chem. Substance Info. System), & others.  
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