Product Name: Glycol Ether DPnB

Safety Data Sheet

1. PRODUCT IDENTIFICATION

Name: Glycol Ether DPnB
Synonyms: 1-(2-butoxy-1-methylethoxy)-2-propanol; n-butoxypropoxypropanol; dipropylene glycol n-butyl ether
CAS#: 29911-28-2
Europe EC#: 249-951-5
Product Uses: solvent

2. HAZARDS

Quick Guide: combustible liquid; no health hazards

Canada – WHMIS
Key: not controlled under WHMIS
B 2 – Flash Point <38°C, B 3 – Flash Point >38°C & <93°C
D 1 – Immediately Toxic, D 2 – Chronic Toxicity
C – Oxidising Substance, E – Corrosive, F – Reactive Substance

U.S.A. – HMIS
Key: Health – 0, Fire – 1, Reactivity – 0
0= minimal, 1= slight, 2= moderate, 3= serious, 4= severe

3. COMPOSITION

<table>
<thead>
<tr>
<th>%</th>
<th>TWAEV / TLV mg/m³</th>
<th>LD₅₀ (mg/kg) ORAL</th>
<th>LD₅₀ (mg/kg) SKIN</th>
<th>LC₅₀ ppm INHALATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipropylene Glycol n-Butyl Ether</td>
<td>100%</td>
<td>not listed</td>
<td>1475</td>
<td>5340</td>
</tr>
</tbody>
</table>

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. CAUTION: Rescuer must not endanger himself! 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 100°C / 213°F (Setaflash, closed cup) – also reported as 111°C / 231°F
Autoignition Temperature 189°C / 372°F and 194°C / 381°F
Flammable Limits 0.6% – 20.4% (at elevated temperatures – 145°C & 180°C)
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 probably 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

Leak Precaution:  
- Use dikes 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, shovel & store in closed containers for recycling or disposal.

7. HANDLING & STORAGE

Store in a cool, dry environment, away from sources of ignition, heat, strong acids and oxidising agents.

This product may react with oxygen in air to form explosive or flammable peroxides; **never distil to dryness**. Ensure that containers are full and tightly sealed. If prolonged storage of a part container is anticipated, flush headspace with dry nitrogen gas prior to sealing. Empty containers may contain a flammable / explosive vapour. Always ensure that containers, whether empty or full, or part full, are tightly sealed unless in use.

Never 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 must be available near the workplace.

8. EXPOSURE CONTROL & PERSONAL PROTECTION

**Ontario TWAEV**  
- not listed

**ACGIH TLV**  
- not listed

**OSHA PEL**  
- not listed

**STEL**  
- not listed

Ventilation:  
- no special mechanical ventilation required

Hands:  
- no special protective gloves required; neoprene may be worn – **other types may also protect**

Eyes:  
- safety glasses with side shields – **always protect the eyes**

Clothing:  
- no special protective clothing required

9. PHYSICAL PROPERTIES

**Odour & Appearance**:  
- clear, colourless liquid with mild ether odour

**Odour Threshold**:  
- not known

**Vapour Pressure**:  
- 0.068mmHg / 0.0091kPa (25°C / 77°F)

**Evaporation Rate** (Butyl Acetate = 1):  
- 0.006

**Vapour Density (air = 1)**:  
- 6.6

**Boiling Range**:  
- 230°C / 446°F

**Freezing Point**:  
- below -75°C / -103°F

**Specific Gravity**:  
- 0.911 (25/25°C)

**Water Solubility**:  
- 45 grams per litre (20°C / 68°F)

- Also soluble in: most organic solvents, limited solubility in glycols and methanol

**Viscosity**:  
- 4.2centipoise (25°C / 77°F)

**pH**:  
- none – **(does not liberate hydrogen ions when dissolved)**

**Conversion Factor**:  
- 1ppm = 7.77mg/m³

**Molecular Weight**:  
- 190grams per mole

10. REACTIVITY

**Dangerously Reactive With**:  
- strong oxidising agents

**Also Reactive With**:  
- none known

**Stability**:  
- stable; will not polymerize

**Decomposes in Presence of**:  
- not known

**Decomposition Products**:  
- none apart from Hazardous Combustion Products

**Sensitive to Mechanical Impact**:  
- no

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11. **TOXICITY**

**Effects, Acute Exposure**
- **Skin Contact**: little or no effect
- **Skin Absorption**: yes, but no toxic effects likely by this route
- **Eye Contact**: slightly irritating
- **Inhalation**: little to no effect anticipated due to low vapour pressure at ambient temperatures. 
  
  *Saturation vapour concentration @ 20°C = 90ppm; LC50 > 265ppm*
- **Ingestion**: not known – may cause stomach discomfort and diarrhoea

**Effects, Chronic Exposure**
- **General**: prolonged exposure may cause drying of skin, leading to dermatitis
- **Sensitising**: not a sensitisier in humans or animals
- **Carcinogen/Tumorigen**: not considered a tumorigen or a carcinogen in humans or animals
- **Reproductive Effect**: no known effect in humans or animals
- **Mutagen**: no known effect on humans or animals
- **Synergistic With**: not known
- **LD50 (oral)**: 1475-4400mg/kg (rat – 4 tests), 2160mg/kg (mouse)
- **LD50 (skin)**: 5340 & 6488mg/kg (rabbit), *Lyondell data > 2000mg/kg (rat) – no mortality seen*
- **LC50 (inhalation)**: > 2040mg/m³/263ppm (rat) – no mortality seen


12. **ECOLOGICAL INFORMATION**

- **Bioaccumulation**: probably not a bioaccumulator due to moderately high water solubility
- **Biodegradation**: one test showed 0% biodegradation in 28 days, another 49% biodegradation under the same test conditions (OECD 301D), both in domestic sewage sludge and another (modified OECD) showed 91%
  
  *in 28 days and 60% in 10 days*
- **Abiotic Degradation**: not known – no data available
- **Mobility in soil, water**: water soluble; moves readily in soil and water
- **Aquatic Toxicity**
  - **LC50 (Fish, 96hr)**: 841mg/litre (Poeckilia reticulata)*
  - **LC50 (Crustacea, 48hr)**: >1000mg/litre (Daphnia magna) – *only 2 of 20 individuals lost swimming ability after 48hr*
  - **EC50 (Algae)**: 556mg/litre (“green algae”) – *predicted from ECOSAR modelling*
  - **EC100 (Bacteria)**: >1.56mg/litre (Salmonella typhimurium)*


13. **DISPOSAL**

- **Waste Disposal**: **do not flush to sewer**, recycle solvent if possible, local regulations may permit disposal in sanitary landfill, may be incinerated in approved facility
- **Containers**
  - **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*

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14. TRANSPORT CLASSIFICATION

| Canada TDG | PIN | UN - not regulated for transport |
| AND | Shipping Name | not regulated for transport |
| U.S.A. 49 CFR | Class & Packing Group | not regulated for transport |
| 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 |

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.
Preparation Date: January 2004 Revision Date: February 2007, February 2010, February 2013

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