**Product Name: Glycol Ether PnB**

**Safety Data Sheet**

1. **PRODUCT IDENTIFICATION**

Name: Glycol Ether PnB

Synonyms: 1-butoxy-2-propanol; n-butoxypropanol; propylene glycol n-butyl ether

CAS#: 5131-66-8

Europe EC#: 225-878-4

Product Uses: solvent in coatings, printing inks, cleaners, lubricants

2. **HAZARDS**

**Quick Guide:** combustible liquid, may irritate skin & eyes

**Canada – WHMIS**

Key: B 3, D 2B

- 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

**U.S.A. – HMIS**

Key: Health – 1/2, Fire – 2, 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>100%</td>
<td>not listed</td>
<td>2940</td>
<td>1340</td>
<td>not known</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:** 62°C / 144°F (closed cup, Lyondell); 63°C / 145°F (Dow)
- **Autoignition Temperature:** 260°C / 500°F
- **Flammable Limits:** 1.1% - 15%
- **Combustion Products:** carbon monoxide, nitrogen oxides, smoke, irritating aldehydes & other compounds
- **Firefighting Precautions:** foam, dry chemical, water spray, water jet spreads flames; firefighters must wear SCBA
- **Static Charge Accumulation:** not known – may accumulate a static charge on agitation or pumping; but other glycol ethers have sufficiently high electrical conductivity to prevent this

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

Leak Precaution: dyke to control spillage and prevent environmental contamination.

Handling Spill:
- ventilate contaminated area; recover free liquid with suitable pumps; 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 and oxidising agents.

This product may react with oxygen in the air to form explosive or flammable peroxides. Although this product has a lower tendency to peroxidise than other glycol ethers, 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.

Avoid breathing product vapour. If product is handled hot, use a sealed apparatus to prevent vapour escape into the workplace. 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 should 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; if handled hot, sealed apparatus should be used to contain vapour.
- Hands: butyl or “Viton” gloves – *consult supplier to confirm suitability*
- Eyes: safety glasses with side shields – *always protect the eyes*
- Clothing: butyl or “Viton” apron, long sleeves, boots should be worn if splashing is possible

9. **PHYSICAL PROPERTIES**

- Odour & Appearance: clear, colourless, liquid with mild pleasant ether odour
- Odour Threshold: not known
- Vapour Pressure: 1.05mmHg / 0.14kPa (25°C / 77°F)
- Evaporation Rate (*Butyl Acetate = 1*): 0.08
- Vapour Density (air = 1): 4.6
- Boiling Range: 171°C / 340°F
- Freezing Point: -80°C / -112°F
- Specific Gravity: 0.879 (25/25°C)
- Water Solubility: 52 grams per litre
- Also soluble in most organic solvents
- Viscosity: 2.8centipoise (25°C / 77°F)
- pH: none – (does not liberate hydrogen ions when dissolved)
- Conversion Factor: 1ppm = 5.38mg/m³
- Molecular Weight: 132grams per mole

10. **REACTIVITY**

- Dangerously Reactive With: strong oxidising agents; strong acids, epoxides, aldehydes
- Also Reactive With: alkali metals, alkaline earth metals; metal hydrides release hydrogen gas & a strong alkali; attacks some elastomers (eg: PVC, polyurethane)
- Stability: stable; will not polymerize

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Decomposes in Presence of oxygen – Glycol Ethers tend to form explosive peroxides on prolonged contact with air
Decomposition Products explosive peroxides – PnB appears less prone to peroxidation than other glycol ethers
Sensitive to Mechanical Impact no

11. TOXICITY

Effects, Acute Exposure
Skin Contact moderate skin irritant*
Skin Absorption yes; total body immersion apart, no toxic effects likely by this route
Eye Contact moderate* or severe eye irritant in animal tests
Inhalation does not readily form a vapour unless temperature is raised; vapour not irritating & no central nervous effects expected at ambient temperature
Ingestion not known – ingestion could cause dizziness, drowsiness, nausea – *not a route of industrial exposure

Effects, Chronic Exposure
General prolonged exposure may cause dermatitis, although no cases have been reported
Sensitising not a sensitisers 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) 2940, 3300*, 4975 & 5230mg/kg (rat)
LD₅₀ (skin) 1340 & 3130mg/kg (rabbit) & >2000mg/kg (rabbit) – *no mortality at 2000mg/kg*
LC₅₀ (inhalation) not known – rats exposed to 600ppm for 31 days, 7 hr/day showed no ill effects*


12. ECOLOGICAL INFORMATION

Bioaccumulation rapidly eliminated; not a bioaccumulator; biological ½-life unknown
Biodegradation degrades readily in the presence of oxygen; >60% in 28 days & >90% in 28 days*
Abiotic Degradation reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 4-5hr* (PnB)
Mobility in soil, water water soluble; moves readily in soil and water

Aquatic Toxicity
LC₅₀ (Fish, 96hr) 560-1000mg/litre (Poecilia reticulata)*
EC₅₀ (Crustacea, 48hr) >1000mg/litre (Daphnia magna)
EC₅₀ (Algae) not known – 42% growth inhibition seen at 1000mg/litre (Selenastrum capricornutum)
EC₅₀ (Bacteria) no data


13. DISPOSAL

Waste Disposal do not flush to sewer, recycle solvent if possible, may be incinerated in approved facility
Containers Drums should be re-used. 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 |
| U.S.A. 49 CFR | PIN | NA-1993 |
| Shipping Name | COMBUSTIBLE LIQUIDS N.O.S. (Glycol Ether PnB) |
| Class | 3, combustible |
| Packing Group | not regulated for transport |
| Marine Pollutant | not a marine pollutant |
| ERAP Required | NO |

15. REGULATIONS

| Canada DSL | on inventory |
| U.S.A. TSCA | on inventory |
| Europe EINECS | on inventory |
| China IECSC | on inventory |
| Japan ENCS | on inventory |
| Korea ECI | on inventory |
| Philippines PICCS | on inventory |
| Australia AICS | on inventory |
| New Zealand NZLoC | on inventory |
| Europe Classification | Harmful |
| Europe Risk Phrases | R: 36/38 – Irritating to eyes & skin |
| Europe Safety Phrases | S: 24/25, 26, 37 – Avoid contact with skin & eyes. In case of contact with eyes rinse immediately with plenty of water and seek medical advice. Wear suitable gloves. |

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: December 2003 Revision Date: December 2006, December 2009, December 2012

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