

Glycol Ether PNB

Version 1.0

Revision Date 09/05/2014

Print Date 11/20/2014

SDS No.: BE1584

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Glycol Ether PNB
CAS Number: Propanol, 1(or 2)-butoxy-(CAS# 29387-86-8, EINECS# 249-598-7)
Chemical characterization : Aliphatic Propylene Glycol Ethers
Chemical Name : 1-Butoxy-2-Propanol
Synonyms : Propylene Glycol (Mono) Butyl Ether; Propylene Glycol n-Butyl Ether; PNB

Use of the Substance/Mixture : Solvent

Company : Lyondell Chemical Company
LyondellBasell Tower, Suite 300
1221 McKinney St.
P.O. Box 2583
Houston Texas 77252-2583

Telephone : Customer Service 888 777-0232
Product Safety 800 700-0946

Emergency telephone : CHEMTREC USA 800-424-9300
LYONDELL 800-245-4532


E-mail address : product.safety@lyondellbasell.com

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

| | |
|---|------------|
| Flammable liquids | Category 4 |
| Skin irritation | Category 2 |
| Eye irritation | Category 2 |
| Specific target organ systemic toxicity - single exposure | Category 3 |

GHS Classification Scale (1= severe hazard; 4= slight hazard)

Label elements

Hazard symbols : 

Signal Word : Warning

Hazard Statements : H227 Combustible liquid.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

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Precautionary Statements**: Prevention**

P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
 P264 Wash skin thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P312 Call a POISON CENTER or doctor/ physician if you feel unwell.
 P362 Take off contaminated clothing and wash before reuse.

Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.

Other hazards

No additional information available.

3. Composition/information on ingredients**Substances****Ingredients**

| Chemical Name | CAS-No. EC-No. | Weight % | Component Type |
|---------------------|-------------------|----------|----------------|
| 1-Butoxy-2-Propanol | 5131-66-8 | > 95.0 % | A |
| 2-Butoxy-1-Propanol | 15821-83-7 | <=5.0 % | C |

Key:

(A) Substance

(C) Impurity

SECTION 4. FIRST AID MEASURES**First aid procedures**

General advice

: Consult a physician/doctor if necessary.
 Take proper precautions to ensure your own health and safety

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before attempting rescue and providing first aid. For specific information refer to the Emergency Overview in Section 2 of this SDS.

Show this material safety data sheet to the doctor in attendance.

- If inhaled : If overcome by exposure, remove victim to fresh air immediately.
Give oxygen or artificial respiration as needed.
Obtain emergency medical attention.
- In case of skin contact : Immediately remove contaminated clothing.
Wash skin thoroughly with mild soap and water.
Flush with lukewarm water for 15 minutes.
If sticky, use waterless cleaner first.
Seek medical attention if ill effect or irritation develops.
- In case of eye contact : Immediately flush eyes thoroughly with plenty of water and continue flushing for at least 15 minutes.
Seek medical attention if discomfort persists.
- If swallowed : If large quantity swallowed, give lukewarm water (pint/ 1/2 litre) if victim completely conscious/alert.
Do not induce vomiting. Risk of damage to lungs exceeds poisoning risk.
Obtain emergency medical attention.

Notes to physician

- Treatment : Treat symptomatically.
Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.
If ingested, following gastric emptying, either by induced vomiting or gastric lavage with cuffed endotracheal tube in place, administer an aqueous slurry of activated charcoal followed by a cathartic.

SECTION 5. FIRE-FIGHTING MEASURES**Flammable properties**

- Flash point : 155.98 °F (68.88 °C)
Method: (ASTM D93)
- Autoignition temperature : 500 °F (260 °C)
at 1,013 hPa (760 mm Hg)
- Lower explosion limit : 1.1 vol%
- Upper explosion limit : 9.0 vol%
- Flammability (solid, gas) : Not applicable

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Fire fighting

Suitable extinguishing media : SMALL FIRE: Use dry chemical, CO2, water spray or regular foam. LARGE FIRE: Use water spray, water fog or regular foam. Do not use straight streams.

Unsuitable extinguishing media : Do not use solid water stream - may spread fire.

Protective equipment and precautions for firefighters

Specific hazards during fire fighting : When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined.
Vapors may be heavier than air.
May travel long distances along the ground before igniting and flashing back to vapor source.
Fine sprays/mists may be combustible at temperatures below normal flash point.
When heated above the flash point, releases flammable vapors.
Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
Move containers from fire area if it can be done without risk.
Cool containers with flooding quantities of water until well after fire is out.
Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
Always stay away from tanks engulfed in fire.
For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Special protective equipment for fire-fighters : Wear positive pressure self-contained breathing apparatus (SCBA).
Structural firefighter's protective clothing will only provide limited protection.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Eliminate all sources of ignition.
Ensure adequate ventilation.
Use personal protective equipment.

Environmental precautions : Do not allow contact with soil, surface or ground water.
Do not discharge product into the aquatic environment without pretreatment (biological treatment plant).
Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.

Methods for containment /
Methods for cleaning up : Eliminate all sources of ignition.
All equipment used when handling this product must be grounded.
Do not touch or walk through spilled material.

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Stop leak if you can do it without risk.
Prevent entry into waterways, sewers, basements or confined areas.
A vapor suppressing foam may be used to reduce vapors.
Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
Use clean non-sparking tools to collect absorbed material.

Additional advice : See Section 15: Regulatory Information.

SECTION 7. HANDLING AND STORAGE**Handling**

Advice on safe handling : For industrial use only.
Keep container tightly closed when not in use.
The potential for peroxide formation is enhanced when this solvent is used in processes such as distillation.
Use only non-sparking tools.
Properly ground containers before beginning transfer.
When transferring propylene glycol ethers with flash points at or below 60 °C (140 °F) into fixed site vessels, the vessel should be purged and inerted prior to transfer.
Propylene glycol ethers may be transferred into air atmospheres if the temperature of the product and the ambient temperature within the shipping container are both at least 16.7 °C (30 °F) less than the product's flash point. After loading, nitrogen blanketing is required if the contents of the transportation container could exceed a temperature of 16.7 °C (30 °F) less than the product flash point during any subsequent transportation activities.
If the product flash point is less than 16.7 °C (30 °F) above either the ambient temperature of the transportation container or the storage temperature of the product, the container should be purged and inerted with nitrogen prior to loading and nitrogen blanketed after loading.
Handle empty containers with care.
Flammable/combustible residue remains after emptying.
The purging of all empty shipping containers, regardless of the flashpoint, is recommended when received with air atmospheres.
Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair.
Use adequate personal protective equipment.
Observe precautions pertaining to confined space entry.

Storage

Requirements for storage areas and containers : Store only in tightly closed, properly vented containers away from heat, sparks, open flame and strong oxidizing agents.
Some plastics/rubbers are attacked by Glycol Ethers/Ether Esters.
This product will absorb water if exposed to air.
Store in properly lined steel/stainless steel to avoid slight

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discoloration from mild steel/copper.
For fixed site operations, this product and other propylene glycol ethers with flash points at or below 60 °C (140 °F) should be stored under nitrogen blanketing.

8. Exposure controls/personal protection**Control parameters****Ingredients with workplace control parameters**

Consult local authorities for acceptable exposure limits.

Exposure controls**Engineering measures**

Either local exhaust or general room ventilation is usually required.
If handling results in mist or aerosols, special ventilation may be [needed].

Personal protective equipment

- Respiratory protection : No occupational exposure limit(s) have been established for this material or its components.
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Hand protection : Wear chemical resistant gloves such as:
Neoprene.
- Eye and face protection : Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor.
- Skin and body protection : When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn.
The equipment must be cleaned thoroughly after each use.
- Hygiene measures : Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use.
Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
Use good personal hygiene practices.
Wash hands before eating, drinking, smoking, or using toilet facilities.
Take off contaminated clothing and wash before reuse.

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

| | |
|----------------|--------------------|
| Physical state | : liquid |
| Color | : Colorless. |
| Odor | : Ether-like odor. |

Safety data

| | |
|--|---|
| Flash point | : 155.98 °F (68.88 °C) Method: (ASTM D93) |
| Lower explosion limit | : 1.1 vol% |
| Upper explosion limit | : 9.0 vol% |
| Flammability (solid, gas) | : Not applicable |
| Oxidizing properties | : Not considered an oxidizing agent. |
| Autoignition temperature | : 500 °F (260 °C) at 1,013 hPa (760 mm Hg) |
| Molecular weight | : 132.2 g/mol |
| Decomposition temperature | : not determined |
| pH | : no data available |
| Melting point/freezing point | : < -121 °F (-85 °C) at 1,013 hPa (760 mm Hg) |
| Boiling point/boiling range | : 329 - 347 °F (165 - 175 °C) at 1,013 hPa (760 mm Hg) |
| Vapor pressure | : 1.4 hPa (1.1 mm Hg) at 77 °F (25 °C) |
| Density | : 0.88 g/cm ³ at 68 °F (20 °C) |
| Bulk density | : No Data Available. |
| Water solubility | : 52 g/l at 68 °F (20 °C) |
| Partition coefficient: n-octanol/water | : log Pow: 1.2 at 68 °F (20 °C) |

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| | |
|------------------------|---|
| Viscosity, dynamic | : 2.8 mPa.s at 77 °F (25 °C) |
| Viscosity, kinematic | : 3.85 mm ² /s at 68 °F (20 °C) |
| Relative vapor density | : 4.6 |
| Evaporation rate | : no data available |
| Explosive properties | : No Data Available. |

SECTION 10. STABILITY AND REACTIVITY

| | |
|----------------------------------|--|
| Reactivity | : Will not occur. |
| Chemical stability | : Stable under recommended storage conditions. |
| Conditions to avoid | : Extended contact with air or oxygen. The potential for peroxide formation is enhanced when this solvent is used in processes such as distillation. Heat, sparks, open flame, other ignition sources, and oxidizing conditions. Ignition may occur at temperatures below those published in the literature as autoignition or ignition temperatures. |
| Materials to avoid | : Air or oxygen. Strong acids. Strong oxidizing agents. |
| Hazardous decomposition products | : No Data Available. |
| Thermal decomposition | : Thermal decomposition may produce carbon monoxide and other toxic vapors. |
| Hazardous reactions | : Not expected to occur. Stable. |

SECTION 11. TOXICOLOGICAL INFORMATION

| | |
|----------------------------|---|
| Product Summary | : The below given information is based on the assessment of the product including impurities. |
| Acute toxicity | |
| Acute oral toxicity | : Based on acute toxicity values, not classified. |

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| | |
|---|---|
| | : LD50: 3,300 mg/kg Species: Rat |
| Acute inhalation toxicity | : Based on acute toxicity values, not classified. : LC50: > 3.4 mg/l Exposure time: 4 HOURS |
| Acute dermal toxicity | : Based on acute toxicity values, not classified. : LD50: > 2,000 mg/kg Species: Rat |
| Skin corrosion/irritation | : Classified Causes skin irritation. |
| Serious eye damage/eye irritation | : Classified Causes serious eye irritation. |
| Respiratory or skin sensitization | : Respiratory sensitization Not classified No study available. : Skin sensitization Not classified No adverse effect observed. |
| Chronic toxicity | |
| Carcinogenicity | : Not classified No study available. |
| Germ cell mutagenicity | : Not classified No adverse effect observed. |
| Reproductive toxicity | |
| Effects on fertility / Effects on or via lactation | : Not classified No adverse effect observed. |
| Effects on Development | : Not classified No adverse effect observed. |
| Target Organ Systemic | : Classified |

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Toxicant - Single exposure

: May cause drowsiness or dizziness.

**Target Organ Systemic
Toxicant - Repeated
exposure**

: Based on repeated exposure toxicity values, not classified.

Aspiration hazard: Based on physico-chemical values or lack of human evidence,
not classified.**12. ECOLOGICAL INFORMATION****Ecotoxicology Assessment**

Acute aquatic toxicity : Based on acute aquatic toxicity values, not classified.

Chronic aquatic toxicity : Not classified, based on readily biodegradability and low acute toxicity.

Toxicity to fish

: Acute toxicity to fish is low.

**Toxicity to daphnia and
other aquatic invertebrates**

: Acute toxicity to freshwater and marine invertebrates is very low.

Toxicity to algae

: Acute toxicity to aquatic plants very low.

Toxicity to bacteria

: Low toxicity to microorganisms.

**Toxicity to fish (Chronic
toxicity)**

: no data available

**Toxicity to daphnia and
other aquatic invertebrates
(Chronic toxicity)**

: no data available

Persistence and degradability**Biodegradability**: 90 %
Rapidly degradable.
(After 28 days in a ready biodegradability test)**Bioaccumulative potential****Bioaccumulation**

: Bioconcentration factor (BCF): 2.87

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Method: (QSAR calculated value)

This material is not expected to bioaccumulate.

Mobility in soil**Distribution among environmental compartments**: Stability in water
no data available: Stability in soil
no data available
Low absorption to soil particulates predicted**Additional advice
Environmental fate and pathways**

: No additional information available.

Results of PBT and vPvB assessment

Not applicable.

Other adverse effects**Additional ecological information**

: No additional information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Further information

: Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes.
Comply with federal, state, or local regulations for disposal.**SECTION 14. TRANSPORT INFORMATION****DOT**

UN number

: NA1993

Description of the goods

: Combustible liquid, n.o.s.
(PROPYLENE GLYCOL MONOBUTYL ETHER)

Class

: CL

Packing group

: III

Labels

: 3

SECTION 15. REGULATORY INFORMATION

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Propanol, 1(or2)-butoxy-(CAS# 29387-86-8, EINECS# 249-598-7) is a composition of the isomers 1-butoxy-2-propanol (major isomer, CAS# 5131-66-8, EINECS #225-878-4) and 2-butoxy-1-propanol (minor isomer, CAS# 15821-83-7). The major isomer CAS# 5131-66-8 is listed on all existing inventories.

If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.

SARA 302/304

This product contains no known chemicals regulated under SARA 302/304.

SARA 311/312

Based upon available information, this material is classified as the following health and/or physical hazards according to Section 311 & 312:

Fire Hazard.

Immediate (Acute) Health Hazard.

SARA 313

This product contains no known chemicals regulated under SARA 313.

State Reporting

This material is not known to contain a chemical substance known to the State of California to cause cancer, reproductive, or developmental toxicity under California Proposition 65. However, LyondellBasell has not tested for the presence of listed chemical substances.

This product contains no known chemicals regulated by New Jersey's Worker and Community Right to Know Act.

No components are subject to the Massachusetts Right to Know Act.

This product contains no known chemicals regulated by Pennsylvania's Right to Know Act.

Other international regulations**Global Inventory Status**

The ingredients of this product are compliant with the following chemical inventory requirements or exemptions.

*Additional Explanatory Status Statements follow the table, as necessary.

| Country/Region | Inventory | Status Description |
|--------------------------|-----------|--------------------------------|
| Australia | AICS | Compliant |
| Canada | DSL | Compliant |
| China | IECSC | Compliant |
| Europe | REACH | See REACH Compliance Statement |
| Japan | ENCS | Compliant |
| Korea | KECI | Compliant |
| New Zealand | NZIoC | Compliant |
| Philippines | PICCS | Compliant |
| United States of America | TSCA | Compliant |

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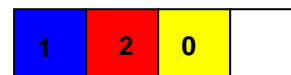
REACH status

If the product has been purchased from any company of the LyondellBasell group of companies registered in the European Union, we confirm that the chemical substance in this product has been pre-registered or, where required under REACH, registered, and that we have the intention to proceed with any required registration in accordance with the deadlines set forth in REACH. (Regulation (EU) No. 1907/2006)

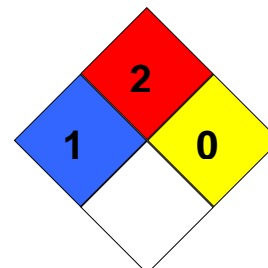
Contact product.safety@lyondellbasell.com for additional global inventory information.

SECTION 16. OTHER INFORMATION**Further information****HMIS Classification**

: Health Hazard: 1
Flammability: 2
Physical hazards: 0

**NFPA Classification**

: Health Hazard: 1
Fire Hazard: 2
Instability: 0

**Other Information**

HMIS rating scale (0 = minimal hazard; 4 = severe hazard)

NFPA rating scale (0 = minimal hazard; 4 = severe hazard)

Material safety datasheet sections which have been updated:

Updated format Revised Section(s): 1 2 3 8 11 12 15 Revision Date August 31 2014

Disclaimer

This document is generated for the purpose of distributing health, safety, and environmental data.

Information is correct to the best of our knowledge at the date of the SDS publication.

It is not a specification sheet nor should any displayed data be construed as a specification.

Before using a product sold by a company of the LyondellBasell family of companies, users should make their own independent determination that the product is suitable for the intended use and can be used safely and legally. SELLER MAKES NO WARRANTY; EXPRESS OR IMPLIED (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY WARRANTY) OTHER THAN AS SEPARATELY AGREED TO BY THE PARTIES IN A CONTRACT.

This product(s) may not be used in:

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Disclaimer

(i) any U.S. FDA Class I, Health Canada Class I, and/or European Union Class I medical devices, without prior notification to Seller for each specific product and application; or (ii) the manufacture of any of the following, without prior written approval by Seller for each specific product and application: U.S. FDA Class II Medical Devices; Health Canada Class II or Class III Medical Devices; European Union Class II Medical Devices; film, overwrap and/or product packaging that is considered a part or component of one of the aforementioned medical devices; packaging in direct contact with a pharmaceutical active ingredient and/or dosage form that is intended for inhalation, injection, intravenous, nasal, ophthalmic (eye), digestive, or topical (skin) administration; tobacco related products and applications, electronic cigarettes and similar devices, and pressure pipe or fittings that are considered a part or component of a nuclear reactor. Additionally, the product(s) may not be used in: (i) U.S. FDA Class III Medical Devices; Health Canada Class IV Medical Devices; European Class III Medical Devices; (ii) applications involving permanent implantation into the body; (iii) life-sustaining medical applications; and (iv) lead, asbestos or MTBE related applications. All references to U.S. FDA, Health Canada, and European Union regulations include another country's equivalent regulatory classification.

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Language Translations

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