



Philippine Prosperity Chemicals, Inc.

## MATERIAL SAFETY DATA SHEET

Date Reviewed :  
November 23, 2009

### ETHYLENE GLYCOL MONOBUTYL ETHER

#### 1. PRODUCT AND COMPANY IDENTIFICATION

*Product Name:* ETHYLENE GLYCOL MONOBUTYL ETHER  
*Product Code:* EGBE  
*Product Type* Chemical Solvent  
*Company:* Philippine Prosperity Chemicals, Inc.  
*Office Address:* U1201 Picadilly Star Building  
4<sup>th</sup> Ave. cor 27<sup>th</sup> St. Fort Bonifacio Global City, Taguig  
*Plant Addresses:* (1) LMG Bulk Terminal – Pinamucan, Batangas  
(2) Nagtahan Terminal Inc. – Pandacan, Manila  
(3) PPCI In-land Bulk Terminal – Guiguinto, Bulacan  
*Contact Numbers:* Tel: (632) 621-3104 to 09  
Fax: (632) 659-6874  
*Emergency Numbers:* Mobile: 0917.5845496 / 0917.5845509

#### 2. COMPOSITION/INFORMATION ON INGREDIENTS

*Substance Formal Name:* 2-Butoxyethanol  
*Substance Chemical Formula:* HO(CH<sub>2</sub>)<sub>2</sub>OC<sub>4</sub>H<sub>9</sub>  
*Common name:* Butyl Cellosolve  
*Synonyms:* Butyl Oxitol, Ethylene Glycol Monobutyl Ether, Ethylene Glycol Butyl Ether (EGBE), Butyl Glycol (BG), Dowanol  
*Chemical Abstract Service Registry Number (CAS RNs):* 111-76-2

#### 3. HAZARDS IDENTIFICATION

*Emergency overview:* Combustible liquid and vapor! Harmful by inhalation, when contact in skin and if swallowed. It is irritating to respiratory system. Causes eye irritation, affects central nervous system, blood and blood forming organs, kidneys, liver and lymphoid system.

*Human Health Hazards:*

*Inhalation:* Causes irritation to the respiratory tract. Symptoms may include sore throat, coughing, headache, nausea and shortness of breathing.

*Ingestion:* Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea. May cause systemic poisoning with symptoms paralleling those of inhalation.

*Skin Contact:* May cause irritation resulting to redness and pain. May be absorbed through the skin with possible systemic effects.



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<i>Eye Contact:</i>	Vapors are irritating to the eyes and may produce immediate pain, redness and tearing. Splashes can cause severe pain, stinging and swelling.
<i>Chronic Exposure:</i>	Prolonged or repeated exposures can cause damage to the liver, kidneys, lymphoid system, blood and blood-forming organs.
<i>Aggravation of Pre-existing Conditions:</i>	Persons with pre-existing skin disorders, eye problems, impaired liver, kidney, blood, respiratory or lymphoid system function may be more susceptible to the effects of the substance.

#### 4. FIRST AID MEASURES

<i>Inhalation:</i>	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention immediately.
<i>Ingestion:</i>	Obtain medical attention immediately. Do not induce vomiting unless directed to do so by a medical personnel. Never give anything by mouth to an unconscious person.
<i>Skin Contact:</i>	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If persistent irritation occurs, obtain medical attention. Wash clothing before reuse.
<i>Eye Contact:</i>	Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. If persistent irritation occurs, obtain medical attention.

#### 5. Fire Fighting Measure

<i>Fire:</i>	Combustible liquid! Flash point: 67 °C (152.6 °F) Auto ignition temperature: 242 °C (467.6 °F) Flammable limits in air based on pure BCS % by volume: Lower Flammable Limit: 1.1; Upper Flammable Limit: 12.7
<i>Explosion:</i>	Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Sensitive to static discharge.
<i>Extinguishing media:</i>	Dry chemical, alcohol-resistant foam or carbon dioxide. Water spray may only be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors.
<i>Unsuitable extinguishing media:</i>	Do not use a solid stream or jet of water, since the stream will scatter and spread the fire.



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*Special Firefighting Procedure:* Stay upwind. Use self-contained breathing apparatus and protective clothing. Vapor may explode if ignited in an enclosed area. Cool exposed containers with water.

*Special Information:* All storage areas should be provided with adequate firefighting facilities and equipment. The liquid produces a vapor that forms explosive mixtures with air especially in conditions at above flash point temperatures. In the event of a fire, contact the nearest fire station. For the company's own firefighters, they should wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

### 6. ACCIDENTAL CONTROL MEASURES

*Personal precautions:* Avoid contact with skin and eyes. Ventilate area of leak or spill thoroughly. Do not breathe vapor. Remove all heat or ignition sources. Evacuate the area of all non-essential personnel. Shut off leaks, if possible without personal risk.

*Personal protection:* Wear appropriate personal protective equipment (PPE) as specified in Section 8.

*Environmental precautions:* Contain and recover liquid when possible with an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand or earth) and place in a chemical waste container. Do not use combustible materials such as saw dust. Use non-sparking tools and equipment. Prevent from spreading or entering into drains, ditches, rivers and other waterways by using sand, earth or other appropriate barriers.

*Clean-up methods - small spillage:* Remove all ignition sources and ventilate area. Evacuate all non-essential personnel. Stop leak if without risk. Dilute with water and mop up, or absorb with an inert dry material and place in a sealable container. Label and seal waste containers for product recovery or appropriate disposal (see Section 13).

*Clean-up methods – large spillage:* For large liquid spills (say more than a drum), remove all ignition sources. Evacuate all non-essential personnel. Stop leak if possible and without risk. Do not flush away residues with water. Blanket spill with alcohol resistant foam to limit evaporation or dike area to contain spill and absorb with earth, sand or other non-combustible material. Transfer to a labeled, sealable container for product recovery or proper disposal. Wear appropriate protective clothing to minimize contact with skin. Allow residues to evaporate or soak up with a suitable absorbent material and dispose safely and appropriately (see Section 13).

### 7. HANDLING AND STORAGE



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<i>Handling:</i>	Protect self against physical damage. Avoid contact with skin, eyes and clothing. Do not breathe vapor. Use only in well ventilated areas.
<i>Handling temperature:</i>	Ambient.
<i>Storage:</i>	Keep container tightly closed in a cool, dry and well-ventilated place. Outside or detached storage is preferred. Separate from oxidizing materials. Storage and use areas should be No Smoking areas. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.
<i>Storage temperature:</i>	Ambient. Avoid handling above 67 °C; otherwise the product may form flammable/explosive vapor-air mixtures.
<i>Product transfer:</i>	Containers should be bonded and grounded for transfers to avoid static sparks.
<i>Recommended materials:</i>	For containers or container linings, use mild steel or stainless steel. Refer to appropriate sources or compatibility charts if using internal coating materials.
<i>Unsuitable materials:</i>	Most plastic, aluminum, natural neoprene or nitrile rubbers.
<i>Other Information:</i>	EGBE is available from PPCI in bulk and in drums. Details are available upon request.

### **8. EXPOSURE CONTROL / PERSONAL PROTECTION**

<i>Engineering Control Measure / Ventilation System:</i>	A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, <i>Industrial Ventilation, A Manual of Recommended Practices</i> , most recent edition, for details.
<i>Occupational Exposure Limit and Standard:</i>	American Conference of Governmental Industrial Hygienist (ACGIH)
<i>Limit type:</i>	Threshold Limit Value (TLV) - the level of exposure that the typical worker can experience without an unreasonable risk of disease or injury.
<i>Unit:</i>	Parts per million (ppm)
<i>Value:</i>	20
<i>Respiratory protection:</i>	Where local exhaust ventilation is not practicable, wear a full face-piece or a double cartridge respirator with organic vapor canister NPF 400. It may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, and whichever is lowest.



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<i>Respiratory protection:</i>	For emergencies or instances where the exposure levels are not known, use a full-face-piece positive-pressure air-supplied respirator. <b>WARNING:</b> Air purifying respirators do not protect workers in oxygen-deficient atmospheres.
<i>Hand protection:</i>	PVC gloves, chemical resistant gloves and nitrile gloves.
<i>Eye protection:</i>	Use chemical safety goggles with side shields or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.
<i>Body Protection:</i>	Wear impervious protective clothing such as one-piece overall, including safety shoes or boots, gloves, laboratory coat, apron or any appropriate cotton-made clothing to prevent skin contact.
<i>Specific Hygiene Measures:</i>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Always maintain and practice good housekeeping.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<i>Appearance:</i>	Clear, colorless liquid
<i>Odor:</i>	Mild Odor
<i>Initial boiling point:</i>	168 °C (334.4 °F)
<i>Final boiling point:</i>	173 °C (343.4 °F)
<i>Freezing point:</i>	-70 °C (-94 °F)
<i>Vapor Pressure:</i>	0.08 kPa @ 20 °C
<i>Specific Gravity:</i>	0.902 @ 20 °C
<i>Solubility:</i>	Miscible in water
<i>Dynamic viscosity:</i>	3.3 centipoise (cP) @ 25 °C
<i>Vapor density (air=1):</i>	4.07
<i>Flash point:</i>	67 °C
<i>Auto-ignition temperature:</i>	242 °C
<i>Upper flammable limit in air:</i>	12.7 % (v/v)
<i>Lower flammable limit in air:</i>	1.10 % (v/v)
<i>Molecular weight:</i>	118.17 g/mole
<i>Evaporation rate, (NBAC = 1):</i>	0.07



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### 10. STABILITY AND REACTIVITY

<i>Stability:</i>	Stable under normal temperature and pressure for use and storage. Hygroscopic. Can be degraded by moisture.
<i>Conditions to avoid:</i>	Heat, flames, ignition sources and incompatibles. Slowly decomposed by moisture.
<i>Materials to avoid:</i>	Reacts with strong oxidizers and strong bases. May attack aluminum at high temperatures.
<i>Hazardous decomposition products:</i>	Carbon dioxide and carbon monoxide may form when heated to decomposition.

### 11. TOXICOLOGICAL INFORMATIONS

<i>Basis for assessment:</i>	Information given is based on product data.
<i>Oral rat, LD<sub>50</sub></i>	470 mg/kg
<i>Inhalation rat, LC<sub>50</sub></i>	450 ppm /4 Hour
<i>Skin rabbit, LD<sub>50</sub></i>	220 mg/kg
<i>Eye irritation:</i>	Slight irritant.
<i>Skin irritation:</i>	Slight irritant.
<i>Human effects:</i>	Repeated exposure causes hemolysis. Irritant to respiratory tract. Investigated as a tumorigenic, mutagenic, and reproductive effector.

### 12. ECOLOGICAL INFORMATION

<i>Basis for assessment:</i>	Information given is based on product data.
<i>Environmental Fate:</i>	
<i>Water:</i>	When released into water, this material is not expected to evaporate significantly and may only biodegrade to a moderate extent.
<i>Soil:</i>	When released into the soil, this material is not expected to evaporate significantly, may also leach into groundwater and may only biodegrade to a moderate extent.
<i>Air:</i>	When released into the air, this material is expected to be readily degraded by reaction with photochemical-produced hydroxyl radicals. This material is expected to have a half-life of less than 1 day.
<i>Bioaccumulation:</i>	This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate.



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<i>Environmental Toxicity:</i>	The LC <sub>50</sub> /96-hour values for fish are over 100 mg/L. This material is not expected to be toxic to aquatic life.
<i>Sewage treatment:</i>	Practically non-toxic, EC <sub>50</sub> > 1000 mg/L, to organisms in sewage treatment plants.

### **13. Disposal Considerations**

<i>Precautions:</i>	Refer to Sections 7 before handling the product or containers.
<i>Waste disposal:</i>	Whatever BCS cannot be saved for recovery or treating, it should be managed in an appropriate and approved waste disposal facility. Care should in any case be taken to ensure disposal is compliant with statutory and regulatory requirements or local environmental laws.
<i>Product disposal:</i>	This product is not suitable for disposal by either landfill or via local sewers, drains, natural streams or rivers. The following advice only applies to the product as supplied. Processing, use or contamination of this product may change the waste management options.
<i>Container disposal:</i>	Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not pressure cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. Send to drum handlers that clean, recondition or metal reclaimer. Disposal of container and unused contents must be in accordance to local regulatory requirements and environmental laws.

### **14. TRANSPORT INFORMATION**

<i>UN Number:</i>	2369
<i>Hazard Class:</i>	3 (Flammable Liquid)
<i>Proper shipping name:</i>	BUTYL CELLOSOLVE
<i>Packing Group:</i>	III (Flash point = 67 °C)

### **15. OTHER INFORMATION**

Philippine Prosperity Chemicals, Inc. provides the information contained herein in good faith and was obtained from sources which we believe are reliable. However, the information is provided without any warranty. The condition or methods of handling storage, use and disposal are beyond our control and may be beyond our knowledge. For this and any other reasons, we don't assume responsibility and disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use and disposal of the product. This document is intended only as a guideline to the appropriate precautionary handling of the material by properly trained personnel using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.