



# Safety Data Sheet - Version 5.0

Preparation Date 8/31/2015

Latest Revision Date (If Revised)

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1 Product Identifier

Chemical Name 2-Butoxyethanol

Catalogue # B692895

### 1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Product Uses To be used only for scientific research and development. Not for use in humans or animals.

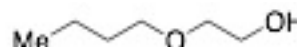
### 1.3 Details of the Supplier of the Safety Data Sheet

Company Toronto Research Chemicals  
2 Brisbane Road  
Toronto, ON M3J 2J8  
CANADA

Telephone +14166659696

FAX +14166654439

Email orders.trc@lgcgroup.com



### 1.4 Emergency Telephone Number

Emergency# +1(416) 665-9696 between 0800-1700 (GMT-5)

## 2. HAZARDS IDENTIFICATION

### 2.1/2.2 Classification of the Substance or Mixture and Label Elements

#### GHS Hazards Classification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Flammable Liquids (Category 4)

Acute Toxicity, Oral (Category 4)

Acute Toxicity, Inhalation (Category 4)

Acute Toxicity, Dermal (Category 4)

Skin Irritation (Category 2)

Eye Damage/Irritation (Category 2A)

#### GHS Hazards Identification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Signal Word Warning



#### GHS Hazard Statements

H227 Combustible liquid and vapour.

H302 Harmful if swallowed.

H332 Harmful if inhaled.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

#### GHS Precautionary Statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301/P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P332/P313 If skin irritation occurs: Get medical advice/ attention.

P403 Store in a well-ventilated place.

## 2.3 Unclassified Hazards/Hazards Not Otherwise Classified

No data available.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

**Molecular Formula:** C<sub>4</sub>H<sub>10</sub>O

**Molecular Weight:** 118.17

**CAS Registry #:** 111-76-2

**EC#:** 203-905-0

### Synonyms

2-Butoxy-1-ethanol; 2-Butoxyethanol; 2-n-Butoxyethanol; 3-Oxa-1-heptanol; BCS; Bikanol B 1; Buchiseru; Butyl Cellosolve; Butyl Cellu-Sol; Butyl Glysol; Butyl Oxitol; Butyl Glycol; Butyl Icinol; Butyl Monoether Glycol; C4E1; Chimec NR; DB Solvent; Dabco PM 300; Dowanol EB; EGBE; Eastman EB; Ektasolve EB; Ethylene Glycol Butyl Ether; Ethylene Glycol Mono-n-butyl Ether; Ethylene Glycol Monobutyl Ether; Ethylene Glycol n-Butyl Ether; Gafcol EB; Glycol EB; Glycol Butyl Ether; Glycol Monobutyl Ether; K Foam Lo; Mearcell 3532; Minex BDH; Monobutyl Glycol Ether; NSC 60759; O-Butyl Ethylene Glycol; Poly-Solv EB; SG; Simple Green; n-Butyl Cellosolve; ?-Butoxyethanol

### 3.2 Mixtures

Not a mixture.

## 4. FIRST AID MEASURES

### 4.1 Description of First Aid Measures

#### General Advice

If medical attention is required, show this safety data sheet to the doctor.

#### If Inhaled

If inhaled, move person to fresh air. If not breathing, give artificial respiration and consult a physician.

#### In Case of Skin Contact

Wash affected area with soap and water. Consult a physician if any exposure symptoms are observed.

#### In Case of Eye Contact

Immediately rinse eyes with plenty of water for at least 15 minutes. Consult a physician.

#### If Swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting unless advised to do so by a physician or Poison Control Center. Seek medical attention.

### 4.2 Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

### 4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

No data available.

## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing Media

#### Conditions of flammability

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No Smoking.

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special Hazards Arising from the Substance or Mixture

Carbon oxides

### 5.3 Advice for Firefighters

Wear self contained breathing apparatus for fire fighting if necessary. Use personal protection equipment.

### 5.4 Further Information

No data available.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Avoid contact with skin, eyes or clothing.

### Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### Method and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### 7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Ventilation and proper handling are to be used to prevent the formation of vapours and mists. Remove all sources of ignition and take precautionary measures to prevent the buildup of electrostatic discharge (ground and bond containers as appropriate). No smoking, eating or drinking around this material. Wash hands after use.

### 7.2 Conditions for Safe Storage, Including any Incompatibilities

Ensure container is kept securely closed before and after use. Keep in a well ventilated area and do not store with strong oxidizers or other incompatible materials (see Section 10).

Storage conditions: 4°C

### 7.3 Specific End Uses

For scientific research and development only. Not for use in humans or animals.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control Parameters

Components	CAS-No.	Value	Control parameters	Basis
2-Butoxyethanol	111-76-2	TWA	20.000000 ppm 97.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required			
		TWA	20.000000 ppm	Canada. British Columbia OEL
		TWAEV	20.000000 ppm 97.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	20.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)

### 8.2 Exposure Controls

#### Appropriate Engineering Controls

A laboratory fumehood or other appropriate form of local exhaust ventilation should be used to avoid exposure.

#### Personal Protective Equipment

All recommendations below are advisory in nature and a risk assessment should be performed by the employer/end user prior to use of this product. The type of protective equipment must be selected based on the amount and concentration of the dangerous material being used in the workplace.

#### Eye/Face Protection

Safety glasses or safety goggles. All equipment should have been tested and approved under appropriate standards, such as NIOSH (US), CSA (Canada), or EN 166 (EU).

#### Skin Protection

Gloves should be used when handling this material. Gloves are to be inspected prior to use. Contaminated gloves are to be removed using proper glove removal technique so that the outer surface of the glove does not contact bare skin. Dispose of contaminated gloves after use in compliance with good laboratory practices and local requirements.

Gloves used for incidental exposures (splash protection) should be designated as "low chemical resistant" or "waterproof" by EU standard EN 374. Unrated gloves are not recommended.

Suggested gloves: AnsellPro nitrile gloves style 92-500 or 92-600, 5 mil thickness.

Penetration time has not been determined.

Gloves used for prolonged direct exposure (immersion) should be designated “chemical resistant” as per EN 734 with the resistance codes corresponding to the anticipated use of the material.  
Suggested gloves: AnsellPro Viton/Butyl gloves style 38-612, 4/8 mil thickness.  
Penetration time has not been determined.

These recommendations may not apply if the material is mixed with any other chemical, or dissolved into a solution. A risk assessment must be performed to ensure the gloves will still offer acceptable protection.

**Body Protection**

Fire resistant (Nomex) lab coat or coveralls.

**Respiratory Protection**

Recommended respirators are NIOSH-approved OV/Multi-Gas/P95 or CEN-approved ABEK-P2 respirators. These are to be only used as a backup to local exhaust ventilation or other engineering controls. If the respirator is the only means of protection, a full-face supplied air respirator must be used.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**9.1 Information on Basic Physical and Chemical Properties**

- |  |  |
|--|--|
| <b>A) Appearance</b><br>Colourless Oil   | <b>B) Odour</b><br>No data available.  |
| <b>C) Odour Threshold</b><br>No data available.                                    | <b>D) pH</b><br>No data available.   |
| <b>E) Melting Point/Freezing Point</b><br>No Data Available                        | <b>F) Initial Boiling Point/Boiling Range</b><br>No data available.                        |
| <b>G) Flash point</b><br>67 °C (153 °F) - closed cup                               | <b>H) Evaporation Rate</b><br>No data available.   |
| <b>I) Flammability (Solid/Gas)</b><br>No data available.                           | <b>J) Upper/Lower Flammability/Explosive Limits</b><br>Lower: 1.1%(V)      Upper: 12.7%(V) |
| <b>K) Vapour Pressure</b><br>13 hPa (10 mmHg) at 81 °C (178 °F)                    | <b>L) Vapour Density</b><br>4.08 (Air = 1.0)   |
| <b>M) Relative Density</b><br>No data available.                                   | <b>N) Solubility</b><br>Chloroform (Soluble), Methanol (Sparingly)                         |
| <b>O) Partition Coefficient: n-octanol/water</b><br>log Pow: 0.81 at 25 °C (77 °F) | <b>P) Auto-Ignition Temperature</b><br>230 °C (446 °F) at 1,013 hPa (760 mmHg)             |
| <b>Q) Decomposition Temperature</b><br>No data available.                          | <b>R) Viscosity</b><br>3.642 mm2/s at 20 °C (68 °F)  |
| <b>S) Explosive Properties</b><br>No data available.                               | <b>T) Oxidizing Properties</b><br>No data available.                                       |

**9.2 Other Information**

no data available

**10. STABILITY AND REACTIVITY**

**10.1 Reactivity**

No data available.

**10.2 Chemical Stability**

No data available.

**10.3 Possibility of Hazardous Reactions**

No data available.

**10.4 Conditions to Avoid**

Heat, flames and sparks.

**10.5 Incompatible Materials**

Strong oxidizing agents.

**10.6 Hazardous Decomposition Products**

Other decompositions products: No data available. In the event of fire: see section 5.

**11. TOXICOLOGICAL INFORMATION**

**11.1 Information on Toxicological Effects**

**A) Acute Toxicity**

LD50 Oral: Rat - male - 880 mg/kg

Inhalation LC50: No data available.

**Dermal LD50:** Rabbit - male - 1,060 mg/kg

**Intraperitoneal LD50:** Rat - 220 mg/kg

**Intravenous LD50:** Rat - 307 mg/kg

**B) Skin Corrosion/Irritation**

Moderate skin irritant.

**C) Serious Eye Damage/Irritation**

Moderate eye irritant.

**D) Respiratory or Skin Sensitization**

No data available

**E) Germ Cell Mutagenicity**

No data available

**F) Carcinogenicity**

Limited evidence of a carcinogenic effect.

This compound has been designated as Group 3: Not classifiable as to its carcinogenicity in humans.

**G) Reproductive Toxicity/Teratogenicity**

Limited laboratory results have shown reproductive toxicity/teratogenicity in animal models.

**H) Single Target Organ Toxicity - Single Exposure**

No data available

**I) Single Target Organ Toxicity - Repeated Exposure**

No data available

**J) Aspiration Hazard**

No data available

**K) Potential Health Effects and Routes of Exposure**

**Inhalation**

May be harmful if inhaled. Causes respiratory tract irritation.

**Ingestion**

Harmful if swallowed.

**Skin**

Harmful if absorbed through skin. Causes skin irritation.

**Eyes**

Causes eye irritation.

**L) Signs and Symptoms of Exposure**

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated.

**M) Additional Information**

RTECS: KJ8575000

## **12. ECOLOGICAL INFORMATION**

### **12.1 Toxicity**

**Toxicity to fish:** static test LC50 - Oncorhynchus mykiss (rainbow trout) - 1,474 mg/l - 96 h

(Method: OECD Test Guideline 203)

**Toxicity to daphnia and other aquatic invertebrates:** Immobilization EC50 - Daphnia magna (Water flea) -

1,550 mg/l - 48 h (Method: OECD Test Guideline 202)

**Toxicity to algae:** Growth inhibition EC50 - Pseudokirchneriella subcapitata (green algae) - 1,840 mg/l - 72 h

(Method: OECD Test Guideline 201)

### **12.2 Persistence and Degradability**

aerobic

Result: 90.4 % - Readily biodegradable

Method: OECD Test Guideline 301B

Remarks: The 10 day time window criterion is not fulfilled.

### **12.3 Bioaccumulative Potential**

No data available.

### **12.4 Mobility in Soil**

No data available.

### **12.5 Results of PBT and vPvB Assessment**

No data available.

### **12.6 Other Adverse Effects**

No data available.

## **13. DISPOSAL CONSIDERATIONS**

### **13.1 Waste Treatment Methods**

#### **A) Product**

Product may be burned in an incinerator equipped with afterburner and scrubber. Excess and expired materials are to be offered to a licensed hazardous material disposal company. Ensure that all Federal and Local regulations regarding the disposal and destruction of this material are followed.

#### **B) Contaminated Packaging**

Dispose of as above.

#### **C) Other Considerations**

Product is not to be disposed of in sanitary sewers, storm sewers, or landfills.

## **14. TRANSPORT INFORMATION**

### **14.1 UN Number**

DOT (US): UN1993                      IATA: N/A                      IMDG: N/A                      ADR/RID: N/A

### **14.2 UN Proper Shipping Name**

DOT (US)/IATA:

Combustible liquid, n.o.s. (2-Butoxyethanol)

IMDG/ARD/RID:

Not dangerous goods.

### **14.3 Transport Hazard Class(es)**

DOT (US): None                      IATA: N/A                      IMDG: N/A                      ADR/RID: N/A

### **14.4 Packing Group**

DOT (US): III                      IATA: N/A                      IMDG: N/A                      ADR/RID: N/A

### **14.5 Environmental Hazards**

DOT (US): None                      IATA: None                      IMDG: None                      ADR/RID: None

### **14.6 Special Precautions for User**

None

## **15. REGULATORY INFORMATION**

This safety data sheet complies with the requirements of WHMIS (Canada), OSHA 1910.1200 (US), and EU Regulation EC No. 1907/2006 (European Union).

### **15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture**

#### **A) Canada**

**DSL/NDSL Status:** This product or a component of this product is registered on the Canadian DSL/NDSL.

#### **B) United States**

**TSCA Status:** This product or a component is listed on the US EPA TSCA.

#### **C) European Union**

**ECHA Status:** This product or a component is registered with the EU ECHA.

### **15.2 Chemical Safety Assessment**

No data available

## **16. OTHER INFORMATION**

### **16.1 Revision History**

Original Publication Date:        8/31/2015

### **16.2 List of Abbreviations**

LD50	Median lethal dose of a substance required to kill 50% of a test population.
LC50	Medial lethal concentration of a substance required to kill 50% of a test population.
LDLo	Lowest known lethal dose
TDLo	Lowest known toxic dose
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances

### **16.3 Further Information**

Copyright 2015. Toronto Research Chemicals Inc. Copies may be made for internal use only. The above information is believed to be correct to the best of our knowledge, but is to be only used as a guide. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Please take all due care when handling this product.

