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# ETHYLENE GLYCOL MONOETHYL ETHER

MSDS Number: E2600 --- Effective Date: 11/17/99

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## 1. Product Identification

**Synonyms:** 2-Ethoxyethanol; Cellosolve(R)

**CAS No.:** 110-80-5

**Molecular Weight:** 90.12

**Chemical Formula:** C<sub>2</sub>H<sub>5</sub>OCH<sub>2</sub>CH<sub>2</sub>OH

**Product Codes:**

J.T. Baker: 9058, L210

Mallinckrodt: 1843, 5079

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## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
2-Ethoxyethanol	110-80-5	100%	Yes

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## 3. Hazards Identification

### Emergency Overview

**WARNING! FLAMMABLE LIQUID AND VAPOR. MAY FORM EXPLOSIVE PEROXIDES IN AIR. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM, BLOOD AND BLOOD FORMING ORGANS, REPRODUCTIVE SYSTEM, LIVER AND KIDNEYS. POSSIBLE BIRTH DEFECT HAZARD. MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA. MAY CAUSE IRRITATION TO SKIN.**

**J.T. Baker SAF-T-DATA<sup>(tm)</sup>** Ratings (Provided here for your convenience)

Health Rating: 3 - Severe (Life)

Flammability Rating: 2 - Moderate

Reactivity Rating: 1 - Slight

Contact Rating: 3 - Severe (Life)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

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### Potential Health Effects

#### Inhalation:

Causes irritation to the respiratory tract. Symptoms may include sore throat, coughing, headache, nausea and shortness of breath. High concentrations have a narcotic effect.

#### Ingestion:

Swallowing may cause nausea, vomiting, abdominal pain, breathing difficulties, weakness. Liver and kidney damage may result from swallowing large quantities of the material.

#### Skin Contact:

May cause irritation with redness and pain. May be absorbed through the skin with possible systemic effects.

#### Eye Contact:

Vapors are irritating and may produce immediate pain, redness and tearing. Splashes can cause severe pain, stinging, swelling.

#### Chronic Exposure:

Prolonged exposure may cause injury to bone marrow, blood cells, kidney, liver and reproductive system. A suspected human reproductive and birth defect hazard.

#### Aggravation of Pre-existing Conditions:

Persons with pre-existing blood or central nervous system disorders may be more susceptible to the effects of this substance.

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## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

**Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician.

**Skin Contact:**

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

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## 5. Fire Fighting Measures

**Fire:**

Flash point: 43C (109F) CC

Autoignition temperature: 235C (455F)

Flammable limits in air % by volume:

l<sub>el</sub>: 1.7; u<sub>el</sub>: 15.7

Flammable liquid.

May produce a floating fire hazard in extreme fire conditions.

**Explosion:**

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Sealed containers may rupture when heated. Contact with strong oxidizers may cause fire. Vapors can flow along surfaces to distant ignition source and flash back. Sensitive to static discharge.

**Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide. Water spray may be used to keep fire exposed containers cool. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

J. T. Baker SOLUSORB(R) solvent adsorbent is recommended for spills of this product.

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## 7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. 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. Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperatures and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions.

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## 8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**

-OSHA Permissible Exposure Limit (PEL):

200 ppm (TWA) skin

-ACGIH Threshold Limit Value (TLV):

5 ppm (TWA) skin

**Ventilation System:**

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, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded, a half-face organic vapor respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece organic vapor respirator may be worn up to 50

times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. (Butyl).

**Eye Protection:**

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. Physical and Chemical Properties

**Appearance:**

Clear, colorless liquid.

**Odor:**

Mild pleasant odor.

**Solubility:**

Miscible in water.

**Density:**

0.93 @ 20C/20C

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

100

**Boiling Point:**

135C (275F)

**Melting Point:**

-70C (-94F)

**Vapor Density (Air=1):**

3.1

**Vapor Pressure (mm Hg):**

3.8 @ 20C (68F)

**Evaporation Rate (BuAc=1):**

0.32

## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage. Do not distill to dryness. Avoid excessive temperatures or prolonged reflux, such as in batch distillations. Formation of explosive peroxides has been reported from auto-oxidation. Reported to dissolve aluminum from scratched or heated aluminum surfaces.

**Hazardous Decomposition Products:**

Carbon dioxide and carbon monoxide may form when heated to decomposition.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Strong oxidizers, strong acids, strong bases, copper, aluminum.

**Conditions to Avoid:**

Heat, flame, ignition sources, air, incompatibles

## 11. Toxicological Information

**Toxicological Data:**

Oral rat LD50: 2125 mg/kg; inhalation rat LC50: 2000 ppm/7H; irritation eye rabbit, standard Draize: 50 mg moderate; skin rabbit, standard Draize: 500 mg open mild; investigated as a tumorigen, mutagen, reproductive effector.

**Reproductive Toxicity:**

In laboratory animals, this compound has caused both birth defects and damage to the reproductive system. Exposure to this compound has also caused decreased sperm counts in humans.

-----\Cancer Lists\-----

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
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2-Ethoxyethanol (110-80-5)	No	No	None

## 12. Ecological Information

**Environmental Fate:**

When released into the soil, this material may evaporate to a moderate extent. When released into the soil, this material may leach into groundwater. When released into the soil, this material may biodegrade to a moderate extent. When released to water, this material is expected to quickly evaporate. When released into water, this material may biodegrade to a moderate extent. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life of less than 1 day.

**Environmental Toxicity:**

The LC50/96-hour values for fish are over 100 mg/l. This material is not expected to be toxic to aquatic life.

**13. Disposal Considerations**

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

**14. Transport Information****Domestic (Land, D.O.T.)**

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**Proper Shipping Name:** ETHYLENE GLYCOL MONOETHYL ETHER

**Hazard Class:** 3

**UN/NA:** UN1171

Packing Group: III

**Information reported for product/size:** 20L

**International (Water, I.M.O.)**

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**Proper Shipping Name:** ETHYLENE GLYCOL MONOETHYL ETHER

**Hazard Class:** 3.3

**UN/NA:** UN1171

Packing Group: III

**Information reported for product/size:** 20L

**15. Regulatory Information**

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
2-Ethoxyethanol (110-80-5)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

Ingredient	Korea	--Canada--		Phil.
		DSL	NDSL	
2-Ethoxyethanol (110-80-5)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

Ingredient	-SARA 302-		-----SARA 313-----	
	RQ	TPQ	List	Chemical Catg.
2-Ethoxyethanol (110-80-5)	No	No	Yes	No

-----\Federal, State & International Regulations - Part 2\-----

Ingredient	CERCLA	-RCRA-	-TSCA-
		261.33	8(d)
2-Ethoxyethanol (110-80-5)	1000	U359	No

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: Yes  
 SARA 311/312: Acute: Yes      Chronic: Yes      Fire: Yes      Pressure: No  
 Reactivity: Yes      (Pure / Liquid)

**WARNING:**

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

**Australian Hazchem Code:** 2S

**Poison Schedule:** No information found.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

**16. Other Information**

**NFPA Ratings:** Health: **2** Flammability: **2** Reactivity: **3**

**Label Hazard Warning:**

WARNING! FLAMMABLE LIQUID AND VAPOR. MAY FORM EXPLOSIVE PEROXIDES IN AIR. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM, BLOOD AND BLOOD FORMING ORGANS, REPRODUCTIVE SYSTEM, LIVER AND KIDNEYS. POSSIBLE BIRTH DEFECT HAZARD. MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA. MAY CAUSE IRRITATION TO SKIN.

**Label Precautions:**

- Avoid breathing vapor or mist.
- Avoid contact with eyes, skin and clothing.
- Keep away from heat, sparks and flame.
- Keep container tightly closed.
- Wash thoroughly after handling.
- Use only with adequate ventilation.

**Label First Aid:**

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases call a physician.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

New 16 section MSDS format, all sections have been revised.

**Disclaimer:**

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