SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Eastman(TM) EB Solvent

Product No.: EAN 902270, 00650-00, P0065001, P0065002, P0065003, P0065004, P0065005, P0065006, P006500N, E00650E1, E00650E2, E00650E3, P0065007, P0065008, P0065009, P0065010, P0065011

Synonyms, Trade Names: 00650-00

Additional identification
Chemical name: 2-butoxyethanol
CAS-No.: 111-76-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Solvent
Uses advised against: None known.

1.3 Details of the supplier of the safety data sheet

Manufacturer / Supplier
Eastman Chemical Company
200 South Wilcox Drive
Kingsport, TN 37660-5280 US
+14232292000

Visit our website at www.EASTMAN.com or email emnmsds@eastman.com

1.4 Emergency telephone number:

For emergency health, safety, and environmental information, call 1-423-229-4511 or 1-423-229-2000.

For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300 or call 423-229-2000.

SECTION 2: Hazards identification

WARNING!
COMBUSTIBLE LIQUID AND VAPOR
HARMFUL IF INHALED, ABSORBED THROUGH SKIN, OR SWALLOWED
CAUSES SKIN AND EYE IRRITATION
MAY CAUSE BLOOD DISORDERS BASED ON ANIMAL DATA
PEROXIDE FORMER

SECTION 3: Composition/information on ingredients

3.1 / 3.2 Substances / Mixtures
General information:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Concentration</th>
<th>Additional identification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve</td>
<td>100%</td>
<td>CAS-No.: 111-76-2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC No.: 203-905-0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>INDEX No.: 603-014-00-0</td>
<td></td>
</tr>
</tbody>
</table>

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
# This substance has workplace exposure limit(s).
PBT: persistent, bioaccumulative and toxic substance.
vPvB: very persistent and very bioaccumulative substance.

SECTION 4: First aid measures

4.1 Description of first aid measures

**Inhalation:** Move to fresh air. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Eye contact:** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

**Skin contact:** Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

**Ingestion:** Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed:

May irritate and cause redness and pain.

4.3 Indication of any immediate medical attention and special treatment needed

**Hazards:** Glycol Ethers: Some glycol ethers cause adverse effects in animals that include the reproductive system, offspring, blood, kidney and liver.

**Treatment:** Treat symptomatically.

SECTION 5: Firefighting measures

**General fire hazards:** Combustible liquid and vapor. USE WATER WITH CAUTION. Material will float and may ignite on surface of water.

5.1 Extinguishing media

**Suitable extinguishing media:** Water spray. Dry chemical. Carbon Dioxide. Alcohol foam.

**Unsuitable extinguishing media:** None known.
5.2 Special hazards arising from the substance or mixture:
Forms peroxides of unknown stability.

5.3 Advice for firefighters

Special Fire Fighting Procedures:
Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters:
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:
Wear appropriate personal protective equipment.

6.2 Environmental precautions:
Avoid release to the environment.

6.3 Methods and material for containment and cleaning up:
Eliminate sources of ignition. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Large Spillages: Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.

Notification Procedures:
In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SECTION 7: Handling and storage:

7.1 Precautions for safe handling:
Avoid contact with eyes, skin, and clothing. Avoid breathing mists or vapors. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. Minimize exposure to air. After opening, purge container with nitrogen before reclosing. Periodically test for peroxide formation on long-term storage. Do not allow to evaporate to near dryness. Do not distill to near dryness. Addition of water or appropriate reducing materials will lessen peroxide formation.

7.2 Conditions for safe storage, including any incompatibilities:
Keep container tightly closed and in a well-ventilated place. Store away from heat and light.

7.3 Specific end use(s):
Solvent
SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

If exposure limits have not been established, maintain airborne levels to an acceptable level.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Type</th>
<th>Exposure Limit values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve</td>
<td>TWA</td>
<td>20 ppm</td>
<td>US. ACGIH Threshold Limit Values (01 2010)</td>
</tr>
<tr>
<td></td>
<td>PEL</td>
<td>50 ppm 240 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
</tbody>
</table>

Biological limit values

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Exposure Limit values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve (Butoxyacetic acid (BAA), with hydrolysis: Sampling time: End of shift.)</td>
<td>200 mg/g (Creatinine in urine)</td>
<td>ACGIH BEL (01 2010)</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Appropriate engineering controls:

Good general ventilation (typically 10 air changer per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment


Eye/face protection: Wear safety glasses with side shields (or goggles) and a face shield. Wear a full-face respirator, if needed.

Skin protection

Hand protection: Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

Other: No data available.
Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Hygiene measures: Observe good industrial hygiene practices.

Environmental Controls: No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical State: Liquid
Form: Liquid
Color: Colorless
Odor: Slight
Odor Threshold: 0.48 ppm
pH: No data available.
Freezing Point: -75 °C
Boiling Point: 169 °C
Flash Point: 62 °C (Tag closed cup)
Evaporation Rate: 0.1
Flammability (solid, gas): No data available.
Flammability Limit - Upper (%): No data available.
Flammability Limit - Lower (%): No data available.
Vapor pressure: 0.8 mbar (20 °C)
Vapor density (air=1): 4
Specific Gravity: 0.902 (20 °C)

Solubility(ies)

Solubility in Water: Completely Soluble
Solubility (other): No data available.
Partition coefficient (n-octanol/water): Pow: 6.46 log Pow: 0.81
Autoignition Temperature: No data available.
Decomposition Temperature: 127.7 °C (DSC) 21.7 J/g
Viscosity: 3.65 mm²/s (20 °C)
Explosive properties: No data available.
Oxidizing properties: No data available.

Other information

Minimum ignition temperature: 238 °C (ASTM D2155)
SECTION 10: Stability and reactivity

10.1 Reactivity: None known.

10.2 Chemical stability: Stable

10.3 Possibility of hazardous reactions: Forms peroxides of unknown stability.

10.4 Conditions to avoid: Heat, sparks, flames.

10.5 Incompatible materials: Strong oxidizing agents.

10.6 Hazardous decomposition products: Carbon Dioxide. Carbon Monoxide.

SECTION 11: Toxicological information

Information on likely routes of exposure

Inhalation: Harmful if inhaled. May cause respiratory irritation.

Ingestion: Harmful if swallowed.

Skin contact: Toxic in contact with skin. Causes skin irritation.

Eye contact: Causes serious eye irritation.

11.1 Information on toxicological effects

Acute Toxicity

Oral
Product: No data available.

Specified substance(s)
2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve
Oral LD-50: (Rat): 1,746 mg/kg
Oral LD-50: (Mouse): 1,519 mg/kg
Oral LD-50: (Guinea Pig): 1,414 mg/kg

Dermal
Product: No data available.

Specified substance(s)
2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve
Dermal LD-50: (Rabbit): 435 mg/kg
Dermal LD-50: (Guinea Pig): > 2,000 mg/kg (only dose tested)

Inhalation
Product: No data available.

Specified substance(s)
2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve
LC50 (Rat, 4 h): 450 - 486 ppm
LC50 (Mouse, 7 h): 700 ppm
LC50 (Guinea Pig, Female., 1 h): > 633 ppm
LC50 (Guinea Pig, Male, ): > 691 ppm

Repeated dose toxicity
Product: No data available.
 Specified substance(s) No data available.
 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve

Skin corrosion/irritation:
Product: No data available.
 Specified substance(s) (Guinea Pig, 24 h): strong
 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve
 (Rabbit, 24 h): moderate

Serious eye damage/eye irritation:
Product: No data available.
 Specified substance(s) (Rabbit): moderate
 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve

Respiratory or skin sensitization:
Product: No data available.
 Specified substance(s) Skin Sensitization: (Human) - Not a skin sensitizer.
 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve

Germ cell mutagenicity
In vitro
Product: No data available.
 Specified substance(s) No data available.
 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve

In vivo
Product: No data available.
 Specified substance(s) No data available.
 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve

Carcinogenicity
Product: No data available.
 Specified substance(s) No data available.
2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve

Reproductive toxicity
Product: No data available.
Specified substance(s)
No data available.

Specific target organ toxicity - single exposure
Product: No data available.
Specified substance(s)
No data available.

Specific target organ toxicity - repeated exposure
Product: No data available.
Specified substance(s)
No data available.

Aspiration hazard
Product: No data available.
Specified substance(s)
No data available.

Other adverse effects: No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity

Fish
Product: No data available.
Specified substance(s)
2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve
LC-50 (goldfish, 24 h): 1,650 - 1,700 mg/l
LC-50 (Fathead Minnow, 96 h): 2,137 mg/l
LC-50 (Bluegill Sunfish, 96 h): 1,490 mg/l
LC-50 (Guppy, 168 h): 983 mg/l

Aquatic invertebrates
Product: No data available.
Specified substance(s)
Chronic Toxicity

Fish
Product: No data available.
Specified substance(s) 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve No data available.

Aquatic invertebrates
Product: No data available.
Specified substance(s) 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve No data available.

Toxicity to Aquatic Plants
Product: No data available.
Specified substance(s) 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve No data available.

12.2 Persistence and degradability

Biodegradation
Product: No data available.
Specified substance(s) 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve No data available.

Biological Oxygen Demand:
Product: No data available.
Specified substance(s) 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve BOD-5: 1,300 mg/g BOD-20: 1,800 mg/g

Chemical Oxygen Demand:
Product: No data available.
Specified substance(s) 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve 2,180 mg/g

BOD/COD ratio
Product: No data available.
Specified substance(s)  
2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve  
No data available.

12.3 Bioaccumulative potential  
Product:  
No data available.

Specified substance(s)  
2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve  
No data available.

12.4 Mobility in soil:  
No data available.

Known or predicted distribution to environmental compartments  
2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve  
No data available.

12.5 Results of PBT and vPvB assessment:  
No data available.

2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve  
No data available.

12.6 Other adverse effects:  
No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods  
General information:  
No data available.

Disposal Methods:  
Dispose of waste and residues in accordance with local authority requirements. Incinerate. Since emptied containers retain product residue, follow label warnings even after container is emptied.

SECTION 14: Transport information

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

DOT  
Class combustible liquid, Packing group III for quantities of 450 liters (119 gallons) or more; not regulated for smaller quantities

Possible Shipping Description(s):
NA 1993 Combustible liquid, n.o.s. (ethylene glycol monobutyl ether) combustible liquid III

IMDG - International Maritime Dangerous Goods Code
Class not regulated

Possible Shipping Description(s):
not regulated

IATA
Class not regulated
Possible Shipping Description(s):
not regulated

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.
WHMIS (Canada) Status: controlled
WHMIS (Canada) Hazard Classification: B/3, D/1/A, D/2/B

SARA 311-312 Hazard Classification(s):
- immediate (acute) health hazard
- delayed (chronic) health hazard
- fire hazard

US EPCRA (SARA Title III) Section 313 - Toxic Chemical List
2-BUTOXYETHANOL (ETHYLENE GLYCOL MONOBUTYL ETHER) (GLYCOL ETHER CATEGORY)

OSHA: hazardous
TSCA (US Toxic Substances Control Act): This product is listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): This product is listed on the DSL. Any impurities present in this product are exempt from listing.

AICS / NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme): This product is listed on AICS or otherwise complies with NICNAS.

MITI (Japanese Handbook of Existing and New Chemical Substances): This product is listed in the Handbook or has been approved in Japan by new substance notification.

ECL (Korean Toxic Substances Control Act): This product is listed on the Korean inventory or otherwise complies with the Korean Toxic Substances Control Act.

Philippines Inventory (PICCS): This product is listed on the Philippine Inventory or otherwise complies with PICCS.

Inventory of Existing Chemical Substances in China: All components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).

SECTION 16: Other information

HMIS® Hazard Ratings: Health - 2*, Flammability - 2, Chemical Reactivity - 1

HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Revision Information: Not relevant.

Key literature references and sources for data: No data available.

Training information: No data available.

Issue Date: 10/03/2011

SDS No: 0001

Disclaimer: This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.