Section 1 - Product and Company Information

Product Name: 2-BUTOXYETHYL ACETATE, 99%
Product Number: 307289
Brand: ALDRICH
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAINT LOUIS MO 63103 US
Technical Phone: 314 771 5765
Emergency Phone: 414 273 3850 Ext. 5996
Fax: 800 325 5052

Section 2 - Composition/Information on Ingredient

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-ACETOXY-2-BUTOXYETHANE</td>
<td>112-07-2</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Formula: C8H16O3
Synonyms: Acetic acid, 2-butoxyethyl ester *
          2-Butoxyethanol acetate * 2-Butoxyethyl acetate *
          2-Butoxyethylester kyseliny octove (Czech) *
          Butyl cellosolve acetate * Butylcelosolvacetat (Czech) *
          Butylglycol acetate * Ektasolve EB acetate *
          Ethylene glycol monobutyl ether acetate *
          Glycol monobutyl ether acetate
RTECS Number: KJ8925000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Harmful.
May form explosive peroxides. Harmful by inhalation and in contact with skin. Irritating to eyes, respiratory system and skin.

HMIS RATING
HEALTH: 1*
FLAMMABILITY: 2
REACTIVITY: 0

NFPA RATING
HEALTH: 1
FLAMMABILITY: 2
REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures
ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLAMMABLE HAZARDS
PeroxideFormer: Yes

EXPLOSION HAZARDS
May form peroxides of unknown stability.

FLASH POINT
169 °F  76 °C Method: closed cup

EXPLOSION LIMITS
Lower: 0.88 % Upper: 8.54 %

AUTOIGNITION TEMP
340 °C

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Combustible liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.
Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place.
Unsuitable: Minimize exposure to air. If peroxide formation is suspected, do not open or move container.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Safety shower and eye bath. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS
Country  Source  Type  Value
USA  NIOSH  TWA  5 PPM (SK)

EXPOSURE LIMITS
Country  Source  Type  Value
Poland  NDS  100 MG/M3
Poland  NDSCh  300
Poland  NDSP  -

Section 9 - Physical/Chemical Properties

Appearance  Physical State: Clear liquid
Color: Colorless

Property  Value  At Temperature or Pressure
Molecular Weight  160.22 AMU
pH  N/A
BP/BP Range  192 °C  760 mmHg
MP/MP Range  N/A
Freezing Point  N/A
Vapor Pressure  0.29 mmHg  20 °C
Vapor Density  5.5 g/l
Saturated Vapor Conc.  N/A
SG/Density  0.94 g/cm3
Bulk Density  N/A
Odor Threshold  N/A
Volatile%  N/A
VOC Content  N/A
Water Content  N/A
Solvent Content  N/A
Evaporation Rate  N/A
Viscosity  N/A
Surface Tension  N/A
Partition Coefficient  N/A
Section 10 - Stability and Reactivity

STABILITY
Stable. Conditions of Instability: Upon exposure to air, product may slowly degrade, forming peroxides, which can be unstable. Materials to Avoid: Strong oxidizing agents, Strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: Causes skin irritation. Skin Absorption: Harmful if absorbed through skin. Readily absorbed through skin. Eye Contact: Causes eye irritation. Inhalation: Harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

SIGNS AND SYMPTOMS OF EXPOSURE
In laboratory studies with this material, birth defects, fetotoxicity, embryolethality, anemia, bone marrow damage, hemolysis, immunosuppression, and damage to the male reproductive tissues have been observed.

TOXICITY DATA

Oral
Rat
2400 mg/kg
LD50

Oral
Mouse
3200 mg/kg
LD50
Skin
Rabbit
1500 mg/kg
LD50

IRRITATION DATA

Skin
Rabbit
500 mg
Remarks: Open irritation test

Eyes
Rabbit
500 mg
24H
Remarks: Mild irritation effect

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact a licensed professional waste disposal service to dispose of this material. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Combustible liquid, n.o.s.
UN#: 1993
Class: COMBUSTIBLE LIQUID
Packing Group: Packing Group III
Hazard Label: None
PIH: Not PIH

IATA
Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION
Symbol of Danger: Xn
Indication of Danger: Harmful.
R: 20/21
Risk Statements: Harmful by inhalation and in contact with skin.
S: 24
Safety Statements: Avoid contact with skin.

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Harmful.
Risk Statements: May form explosive peroxides. Harmful by inhalation and in contact with skin. Irritating to eyes, respiratory system and skin.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: Yes
DEMINIMIS: 1%
NOTES: This product is subject to SARA section 313 reporting requirements - glycol ethers.
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.
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