Section 1 - Product and Company Information

Product Name                 ETHYL VINYL ETHER, 99%
Product Number               422177
Brand                        ALDRICH
Company                      Sigma-Aldrich Canada, Ltd
Address                      2149 Winston Park Drive
                              Oakville ON L6H 6J8 CA
Technical Phone:             9058299500
Fax:                         9058299292
Emergency Phone:             800-424-9300

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>ETHYL VINYL ETHER, 99%</td>
<td>109-92-2</td>
<td>No</td>
</tr>
</tbody>
</table>

Formula         C4H8O
Synonyms        Agrisynth EVE * Ethene, ethoxy * Ether, vinyl ethyl * Ethyl vinyl ether * EVE * Vinamar * Vinyl ethyl ether
RTECS Number:   KO0710000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Flammable (USA) Extremely Flammable (EU). Harmful. Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes and respiratory system. Lachrymator.

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.

Section 5 - Fire Fighting Measures

EXPLOSION HAZARDS
Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions. Forms explosive mixtures in air.

FLASH POINT
EXPLOSION LIMITS
Lower: 1.4 %   Upper: 28 %

AUTOIGNITION TEMP
180 °C

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Vapor may travel considerable distance to source of ignition and flash back. Extremely flammable.
Specific Method(s) of Fire Fighting: Use water spray to cool fire-exposed containers.

EXPOSURE HAZARD(S)
Material: Lachrymator. Harmful liquid and fumes.

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area. Shut off all sources of ignition.

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

METHODS FOR CLEANING UP
Cover with an activated carbon adsorbent, take up and place in closed containers. Transport outdoors. Ventilate area and wash spill site after material pickup is complete.

HANDLING
User Exposure: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Handle with care.

STORAGE
Suitable: Keep tightly closed. Keep away from heat, sparks, and open flame.
Store at 2-8°C

SPECIAL REQUIREMENTS
May develop pressure. Open carefully. Air sensitive.

ENGINEERING CONTROLS
Use only in a chemical fume hood. Safety shower and eye bath.
PERSONAL PROTECTIVE EQUIPMENT

Eye: Use safety shield.
Other: Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling. Remove and wash contaminated clothing promptly.

Section 9 - Physical/Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Color: Colorless</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Form: Clear liquid</td>
<td></td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>72.11 AMU</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>BP/MP Range</td>
<td>34.0 - 36.0 °C</td>
<td></td>
</tr>
<tr>
<td>MP/MP Range</td>
<td>- 116.0 °C</td>
<td></td>
</tr>
<tr>
<td>Freezing Point</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>560 mmHg</td>
<td>20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>2.5 g/l</td>
<td></td>
</tr>
<tr>
<td>Saturated Vapor Conc.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>SG/Density</td>
<td>0.753 g/cm³</td>
<td></td>
</tr>
<tr>
<td>Bulk Density</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Volatile%</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>VOC Content</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Water Content</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Solvent Content</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Surface Tension</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Decomposition Temp.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>- 50.8 °F</td>
<td>Method: closed cup</td>
</tr>
<tr>
<td></td>
<td>- 46.0 °C</td>
<td></td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>Lower: 1.4 %</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper: 28 %</td>
<td></td>
</tr>
<tr>
<td>Flammability</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Autoignition Temp</td>
<td>180 °C</td>
<td></td>
</tr>
<tr>
<td>Refractive Index</td>
<td>1.376</td>
<td></td>
</tr>
<tr>
<td>Optical Rotation</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous Data</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Solubility</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Materials to Avoid: Oxidizing agents, Oxygen Avoid contact with acid.

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

Section 11 - Toxicological Information
ROUTE OF EXPOSURE
Multiple Routes: Vapor or mist is irritating to the eyes, mucous membranes, and upper respiratory tract. Harmful if swallowed, inhaled, or absorbed through skin.

TARGET ORGAN(S) OR SYSTEM(S)
Damage to the liver.

SIGNS AND SYMPTOMS OF EXPOSURE
Damage to the liver. Warning: inhalation or ingestion may produce an intense excited state followed by unconsciousness and respiratory paralysis. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

TOXICITY DATA

Oral
Rat
8160 UL/KG
LD50

Skin
Rat
> 20000 mg/kg
LD50

Inhalation
Mouse
324,000 mg/m3
LC50
Remarks: Behavioral: General anesthetic.

Skin
Rabbit
>20 ML/KG
LD50

IRRITATION DATA

Skin
Rabbit
500 mg
Remarks: Open irritation test

CHRONIC EXPOSURE - MUTAGEN

Species: Hamster
Dose: 17900 PPM
Cell Type: ovary
Mutation test: Sister chromatid exchange

Section 12 - Ecological Information
No data available.

Section 13 - Disposal Considerations
APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is
highly flammable. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Vinyl ethyl ether, inhibited
UN#: 1302
Class: 3
Packing Group: Packing Group I
Hazard Label: Flammable liquid
PIH: Not PIH

IATA
Proper Shipping Name: Vinyl ethyl ether, stabilized
IATA UN Number: 1302
Hazard Class: 3
Packing Group: I

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION
Symbol of Danger: F+-Xi
Indication of Danger: Extremely Flammable. Irritant.
R: 12-19-36/37/38
Risk Statements: Extremely flammable. May form explosive peroxides. Irritating to eyes, respiratory system and skin.
S: 3/7-16-23-26-33-36
Safety Statements: Keep container tightly closed in a cool place. Keep away from sources of ignition - no smoking. Do not breathe vapor. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take precautionary measures against static discharges. Wear suitable protective clothing.

US CLASSIFICATION AND LABEL TEXT
Risk Statements: Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes and respiratory system.
Safety Statements: Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take precautionary measures against static discharges. Wear suitable protective clothing. Keep container tightly closed in a cool well-ventilated place.
US Statements: Lachrymator.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No
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
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.

Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.