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

1.1. Product identifier
Product form: Mixture
Product name: 2-Chloroethyl Vinyl Ether Standard
Product code: AL0-101227
Product group: Trade product

1.2. Relevant identified uses of the substance or mixture and uses advised against
1.2.1. Relevant identified uses
Main use category: Laboratory Use
Industrial/Professional use spec: Industrial
For professional use only
Use of the substance/mixture: Certified reference material for laboratory use only

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet
Phenova
6390 Joyce Dr. Suite 100
80403 Golden, CO - United States
T 1-866-942-2978 - F 1-866-283-0269
info@phenova.com - www.phenova.com

1.4. Emergency telephone number
Emergency number: ChemTel Assistance (US/Canada) 1-800-255-3924
ChemTel Assistance (International) +1 813-248-0585

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP]
Flam. Liq. 2 H225
Acute Tox. 3 (Oral) H301
Acute Tox. 3 (Dermal) H311
STOT SE 1 H370

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
F: R11
T: R23/24/25
T: R39/23/24/25
Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. Label elements
Labeling according to Regulation (EC) No. 1272/2008 [CLP]
Hazard pictograms (CLP):
GHS02
GHS06
GHS08

Signal word (CLP): Danger
Hazardous ingredients: 2-chloroethyl vinyl ether, methanol
Hazard statements (CLP):
H225 - Highly flammable liquid and vapor
H301+H311 - Toxic if swallowed or in contact with skin
H370 - Causes damage to organs
Precautionary statements (CLP):
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P271 - Use only outdoors or in a well-ventilated area.

No labeling applicable.

2.3. Other hazards
No additional information available.

SECTION 3: Composition/information on ingredients

3.1. Substance
Not applicable.

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>methanol (Component)</td>
<td>(CAS No) 67-56-1</td>
<td>99.8</td>
<td>Flam. Liq. 2, H225, Acute Tox. 3 (Oral), H301, Acute Tox. 3 (Dermal), H311, Acute Tox. 3 (Inhalation), H331, STOT SE 1, H370</td>
</tr>
<tr>
<td></td>
<td>(EC no) 200-659-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(EC index no) 603-001-00-X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-chloroethylvinyl ether (Component)</td>
<td>(CAS No) 110-75-8</td>
<td>0.2</td>
<td>Flam. Liq. 2, H225, Acute Tox. 3 (Oral), H301, Skin Irrit. 2, H315, Eye Irrit. 2, H319, STOT SE 3, H335</td>
</tr>
<tr>
<td></td>
<td>(EC no) 203-799-6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>Specific concentration limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>methanol (Component)</td>
<td>(CAS No) 67-56-1</td>
<td>(3 &lt;= C &lt; 10) STOT SE 2, H371</td>
</tr>
<tr>
<td></td>
<td>(EC no) 200-659-6</td>
<td>(C &gt;= 10) STOT SE 1, H370</td>
</tr>
<tr>
<td></td>
<td>(EC index no) 603-001-00-X</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: Never give anything by mouth to an unconscious person. Call a POISON CENTER or doctor/physician. IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

First-aid measures after skin contact: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Immediately call a poison center or doctor/physician. Wash with plenty of soap and water. Wash contaminated clothing before reuse.

First-aid measures after eye contact: Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Immediately call a poison center or doctor/physician.

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

Symptoms/injuries after skin contact: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Toxic in contact with skin.

Symptoms/injuries after ingestion: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard: Highly flammable liquid and vapor.

Explosion hazard: May form flammable/explosive vapor-air mixture.
5.3. Advice for firefighters

**Firefighting instructions**
Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

**Protection during firefighting**
Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protection equipment and emergency procedures

**6.1.1. For non-emergency personnel**
**Emergency procedures**
Evacuate unnecessary personnel.

**6.1.2. For emergency responders**
**Protective equipment**
Equip cleanup crew with proper protection. Avoid breathing dust/fume/gas/mist/vapors/spray.
**Emergency procedures**
Ventilate area.

6.2. Environmental precautions
Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up
**Methods for cleaning up**
Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
**Additional hazards when processed**
Handle empty containers with care because residual vapors are flammable.
**Precautions for safe handling**
Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No open flames. No smoking. Use only non-sparking tools.
**Hygiene measures**
Do not eat, drink or smoke when using this product. Gently wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities
**Technical measures**
Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.
**Storage conditions**
Keep in fireproof place. Keep container tightly closed. Keep container tightly closed and in a well-ventilated place. Keep away from any flames or sparking source.
**Incompatible products**
Strong bases. Strong acids.
**Incompatible materials**
Sources of ignition. Direct sunlight. Heat sources.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Exposure controls
**Appropriate engineering controls**
Either local exhaust or general room ventilation is usually required.
**Personal protective equipment**

- **Hand protection**
  Wear chemically resistant protective gloves. Wear suitable gloves resistant to chemical penetration.
- **Eye protection**
  Chemical goggles or safety glasses. Safety glasses.
- **Skin and body protection**
  Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact.
- **Respiratory protection**
  Where exposure through inhalation may occur from use, respiratory protection equipment is recommended.
- **Other information**
  Do not eat, drink or smoke during use.
## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>characteristic</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Highly flammable liquid and vapor</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Not established. Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

### 10.3. Possibility of hazardous reactions

Not established.

### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame.

### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products


## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Acute toxicity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>Toxic if swallowed. Dermal: Toxic in contact with skin.</td>
</tr>
</tbody>
</table>

#### 2-Chloroethyl Vinyl Ether Standard

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE CLP (oral)</td>
<td>100.000 mg/kg body weight</td>
</tr>
<tr>
<td>ATE CLP (dermal)</td>
<td>300.000 mg/kg body weight</td>
</tr>
</tbody>
</table>

#### 2-chloroethylvinyl ether (110-75-8)

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>250 mg/kg (Rat)</td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>250.000 mg/kg body weight</td>
</tr>
<tr>
<td>ATE CLP (dermal)</td>
<td>3354.000 mg/kg body weight</td>
</tr>
</tbody>
</table>

#### methanol (67-56-1)

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 5000 mg/kg (Rat; BASF test; Literature study; 1187-2769 mg/kg bodyweight; Rat; Weight of evidence)</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>15800 mg/kg (Rabbit; Literature study)</td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>100.000 mg/kg body weight</td>
</tr>
<tr>
<td>ATE CLP (dermal)</td>
<td>300.000 mg/kg body weight</td>
</tr>
<tr>
<td>ATE CLP (gases)</td>
<td>700,000 ppm/l/4h</td>
</tr>
<tr>
<td>ATE CLP (vapors)</td>
<td>3.000 mg/l/4h</td>
</tr>
<tr>
<td>ATE CLP (dust, mist)</td>
<td>0.500 mg/l/4h</td>
</tr>
</tbody>
</table>
### 2-Chloroethyl Vinyl Ether Standard

#### Safety Data Sheet

according to Regulation (EC) No. 453/2010

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**Skin corrosion/irritation**: Not classified
- Based on available data, the classification criteria are not met

**Serious eye damage/irritation**: Not classified
- Based on available data, the classification criteria are not met

**Respiratory or skin sensitization**: Not classified
- Based on available data, the classification criteria are not met

**Germ cell mutagenicity**: Not classified
- Based on available data, the classification criteria are not met

**Carcinogenicity**: Not classified
- Based on available data, the classification criteria are not met
- May cause cancer

**Reproductive toxicity**: Not classified
- Based on available data, the classification criteria are not met

**Specific target organ toxicity (single exposure)**: Causes damage to organs.

**Specific target organ toxicity (repeated exposure)**: Not classified
- Based on available data, the classification criteria are not met

**Aspiration hazard**: Not classified
- Based on available data, the classification criteria are not met

**Potential Adverse human health effects and symptoms**: Toxic if swallowed. Toxic in contact with skin.

---

### SECTION 12: Ecological information

12.1. **Toxicity**

<table>
<thead>
<tr>
<th>Compound</th>
<th>LC50 fish 1</th>
<th>LC50 fish 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-chloroethylvinyl ether (110-75-8)</td>
<td>350 mg/l (96 h; Lepomis macrochirus; Static system)</td>
<td>452 mg/l (24 h; Lepomis macrochirus; Static system)</td>
</tr>
<tr>
<td>Methanol (67-56-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50 fish 1</td>
<td>15400 mg/l (96 h; Lepomis macrochirus; Lethal)</td>
<td></td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>&gt; 10000 mg/l (48 h; Daphnia magna; Lethal)</td>
<td></td>
</tr>
<tr>
<td>LC50 fish 2</td>
<td>10800 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss)</td>
<td></td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
<td>24500 mg/l (48 h; Daphnia magna; Locomotor effect)</td>
<td></td>
</tr>
<tr>
<td>Threshold limit other aquatic organisms 1</td>
<td>6600 mg/l (16 h; Pseudomonas putida)</td>
<td></td>
</tr>
<tr>
<td>Threshold limit algae 1</td>
<td>530 mg/l (192 h; Microcystis aeruginosa)</td>
<td></td>
</tr>
<tr>
<td>Threshold limit algae 2</td>
<td>8000 mg/l (168 h; Scenedesmus quadricauda)</td>
<td></td>
</tr>
</tbody>
</table>

12.2. **Persistence and degradability**

<table>
<thead>
<tr>
<th>Compound</th>
<th>Persistence and degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Chloroethyl Vinyl Ether Standard</td>
<td>Not established.</td>
</tr>
<tr>
<td>2-chloroethylvinyl ether (110-75-8)</td>
<td>Biodegradability in soil: no data available.</td>
</tr>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>0.6 - 1.12 g O₂ /g substance</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>1.42 g O₂ /g substance</td>
</tr>
<tr>
<td>ThOD</td>
<td>1.5 g O₂ /g substance</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>0.8 % ThOD</td>
</tr>
</tbody>
</table>

12.3. **Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Compound</th>
<th>Bioaccumulative potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Chloroethyl Vinyl Ether Standard</td>
<td>Not established.</td>
</tr>
<tr>
<td>2-chloroethylvinyl ether (110-75-8)</td>
<td>Low potential for bioaccumulation (Log Kow &lt; 4).</td>
</tr>
<tr>
<td>Methanol (67-56-1)</td>
<td>Low potential for bioaccumulation (BCF &lt; 500).</td>
</tr>
<tr>
<td>BCF fish 1</td>
<td>&lt; 10 (72 h; Leuciscus idus)</td>
</tr>
<tr>
<td>BCF fish 2</td>
<td>1 (72 h; Cyprinus carpio; Blood)</td>
</tr>
<tr>
<td>Log Pow</td>
<td>0.70 - 1.28 (Calculated)</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>Low potential for bioaccumulation (BCF &lt; 500).</td>
</tr>
</tbody>
</table>

---
## 2-Chloroethyl Vinyl Ether Standard
### Safety Data Sheet
according to Regulation (EC) No. 453/2010

### 12.4. Mobility in soil

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>methanol (67-56-1)</td>
<td>0.023 N/m (20 °C)</td>
</tr>
</tbody>
</table>

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

Additional information: Avoid release to the environment

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

- Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations.
- Additional information: Handle empty containers with care because residual vapors are flammable.
- Ecology - waste materials: Avoid release to the environment. Hazardous waste due to toxicity.

### SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

#### 14.1. UN number

<table>
<thead>
<tr>
<th>UN-No. (ADR)</th>
<th>UN-No.(IATA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>1992</td>
</tr>
</tbody>
</table>

#### 14.2. UN proper shipping name

<table>
<thead>
<tr>
<th>Proper Shipping Name (ADR)</th>
<th>Proper Shipping Name (IATA)</th>
<th>Proper Shipping Name (IMDG)</th>
<th>Proper Shipping Name (ADN)</th>
<th>Transport document description (ADR)</th>
</tr>
</thead>
</table>

#### 14.3. Packing group

- Class (ADR): 3
- Classification code (ADR): FT1
- Class (IATA): 3
- Class (IMDG): 3
- Class (ADN): 3
- Subsidiary risks (ADR): 6.1
- Hazard labels (ADR): 3, 6.1

#### 14.4. Packing group

- Packing group (ADR): II
- Packing group (IATA): II

#### 14.5. Environmental hazards

Other information: No supplementary information available.

#### 14.6. Special precautions for user

##### 14.6.1. Overland transport

- Hazard identification number (Kemler No.): 336
- Classification code (ADR): FT1
2-Chloroethyl Vinyl Ether Standard

Safety Data Sheet

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Orange plates

Special provision (ADR) : 274
Transport category (ADR) : 2
Tunnel restriction code (ADR) : D/E
Limited quantities (ADR) : 1L
Excepted quantities (ADR) : E2

14.6.2. Transport by sea

No additional information available

14.6.3. Air transport

CAO packing instructions (IATA) : 364
CAO max net quantity (IATA) : 60L
PCA packing instructions (IATA) : 352
PCA Limited quantities (IATA) : Y341
PCA limited quantity max net quantity (IATA) : 1L
PCA max net quantity (IATA) : 1L
PCA Excepted quantities (IATA) : E2
ERG code (IATA) : 3HP

14.6.4. Inland waterway transport

Carriage prohibited (ADN) : No

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions
Contains no REACH candidate substance
Contains no REACH Annex XIV substances.

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information


Other information : None.

PHV SDS EU

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