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

1.1. Product identifier

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product form</td>
<td>Substance</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Substance name</td>
<td>ALLYLOXY(TRIETHYLENE OXIDE), METHYL ETHER, 95%</td>
</tr>
<tr>
<td>Product code</td>
<td>ENEA0375</td>
</tr>
<tr>
<td>Formula</td>
<td>C10H20O4</td>
</tr>
<tr>
<td>Synonyms</td>
<td>2,5,8,11-TETRAOXATETRADEC-13-ENE; ALLYL ALCOHOL ETHOXYLATE, METHYL ETHER (EO = 3)</td>
</tr>
<tr>
<td>Chemical family</td>
<td>POLYETHER</td>
</tr>
</tbody>
</table>

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

1.2.1. Relevant identified uses

Use of the substance/mixture: Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

GELEST INC.
Fritz-Klatte-Strasse 8
65933 Frankfurt
Germany
T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM
info@gelestde.com - www.gelestde.com

1.4. Emergency telephone number

Emergency number: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 4

H302

Full text of H statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP): !

Signal word (CLP): Warning

Hazard statements (CLP): H302 - Harmful if swallowed.

Precautionary statements (CLP): P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P330 - Rinse mouth.
2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

<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>2,5,8,11-Tetraoxatetradec-13-ene</td>
<td>(CAS-No.) 19685-21-3 (EC-No.) 243-224-6</td>
<td>&gt; 95</td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
<tr>
<td>Allyloxy(diethylene oxide), methyl ether</td>
<td>(CAS-No.) 13752-97-1</td>
<td>&lt; 5</td>
<td>Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302</td>
</tr>
<tr>
<td>Allyloxy(tetraethylene oxide), methyl ether</td>
<td>(CAS-No.) 96220-75-6</td>
<td>&lt; 5</td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact: Wash with plenty of water/....

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion: Never give anything by mouth to an unconscious person. Get medical advice/attention.

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

Symptoms/effects after inhalation: No information available.

Symptoms/effects after skin contact: May cause skin irritation.

Symptoms/effects after eye contact: May cause eye irritation.

Symptoms/effects after ingestion: Harmful 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

5.2. Special hazards arising from the substance or mixture
Fire hazard: Combustible liquid. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Advice for firefighters
Firefighting instructions: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
General measures: Remove ignition sources. Use special care to avoid static electric charges.
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.

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
Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

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
Precautions for safe handling
Avoid all eye and skin contact and do not breathe vapour and mist. Provide good ventilation in process area to prevent formation of vapour. Use only non-sparking tools.

Hygiene measures
Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities
Technical measures
Ground/bond container and receiving equipment.

Storage conditions
Keep container tightly closed. May freeze if stored <0°C.

Incompatible materials
Oxidizing agent.

Storage area
Store in a well-ventilated place. Store away from heat.

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:
Provide local exhaust or general room ventilation.

Personal protective equipment:
Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:
Neoprene or nitrile rubber gloves

Eye protection:
Chemical goggles. Contact lenses should not be worn

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
NIOSH-certified organic vapor (black cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state
Liquid

Appearance
Clear liquid.

Molecular mass
204.26 g/mol

Colour
Pale yellow.

Odour
No data available

Odour threshold
No data available

Refractive index
No additional information available
ALLYLOXY(TRIETHYLENE OXIDE), METHYL ETHER, 95%
Safety Data Sheet

pH : No data available
Relative evaporation rate (butylacetate=1) : No data available
Melting point : No data available
Freezing point : < 0 °C
Boiling point : 75 - 85 °C @ 0.5 mm Hg
Flash point : 80 °C
Auto-ignition temperature : No data available
 Decomposition temperature : No data available
Flammability (solid, gas) : Combustible liquid
Vapour pressure : < 0.1 mm Hg @ 20°C
Relative vapour density at 20 °C : > 1
Relative density : 0.957
% Volatiles : < 3 %
Solubility : Slightly. Soluble in water.
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Explosive limits : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
No additional information available

10.4. Conditions to avoid
Heat. Open flame. Sparks.

10.5. Incompatible materials
Oxidizing agent.

10.6. Hazardous decomposition products
Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Harmful if swallowed.

**ALLYLOXY(TRIETHYLENE OXIDE), METHYL ETHER, 95% (19685-21-3)**
ATE CLP (oral) 1500 mg/kg bodyweight

**Allyloxy(diethylene oxide), methyl ether (13752-97-1)**
LD50 oral rat 1500 mg/kg (data for PEG 2-6) analogs
ATE CLP (oral) 1500 mg/kg bodyweight

**2,5,8,11-Tetraoxatetradec-13-ene (19685-21-3)**
LD50 oral rat 1500 mg/kg (data for PEG 2-6) analogs
ATE CLP (oral) 1500 mg/kg bodyweight

**Allyloxy(tetraethylene oxide), methyl ether (96220-75-6)**
LD50 oral rat 1500 mg/kg (data for PEG 2-6) analogs
ATE CLP (oral) 1500 mg/kg bodyweight

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
ALLYLOXY(TRIETHYLENE OXIDE), METHYL ETHER, 95%
Safety Data Sheet

Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified
Symptoms/effects after inhalation : No information available.
Symptoms/effects after skin contact : May cause skin irritation.
Symptoms/effects after eye contact : May cause eye irritation.
Symptoms/effects after ingestion : Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity
Acute aquatic toxicity : Not classified
Chronic aquatic toxicity : Not classified

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Product/Packaging disposal recommendations : Incinerate. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number
In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number
UN-No. (ADR) : Not applicable
UN-No. (IMDG) : Not applicable
UN-No. (IATA) : Not applicable
UN-No. (ADN) : Not applicable
UN-No. (RID) : Not applicable

14.2. UN proper shipping name
Proper Shipping Name (ADR) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable
Proper Shipping Name (ADN) : Not applicable
Proper Shipping Name (RID) : Not applicable

14.3. Transport hazard class(es)
ADR
Transport hazard class(es) (ADR) : Not applicable

IMDG
Transport hazard class(es) (IMDG) : Not applicable
ALLYLOXY(TRIETHYLENE OXIDE), METHYL ETHER, 95%
Safety Data Sheet

14.4. Packing group

IATA
Transport hazard class(es) (IATA) : Not applicable

ADN
Transport hazard class(es) (ADN) : Not applicable

RID
Transport hazard class(es) (RID) : Not applicable

14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : This product is Combustible as defined by the US Department of Transportation (DOT). It is regulated for transport in the US in container > 119 gallons (450 liters). The product is not regulated for transport by the IATA, ADR/RID, ADNR or the IMDG regulations.

14.6. Special precautions for user

- Overland transport
  No data available

- Transport by sea
  No data available

- Air transport
  No data available

- Inland waterway transport
  No data available

- Rail transport
  No data available

14.7. Transport in bulk according to Annex II of Marpol 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

No REACH Annex XVII restrictions
ALLYLOXY(TRIETHYLENE OXIDE), METHYL ETHER, 95% is not on the REACH Candidate List
ALLYLOXY(TRIETHYLENE OXIDE), METHYL ETHER, 95% is not on the REACH Annex XIV List
ALLYLOXY(TRIETHYLENE OXIDE), METHYL ETHER, 95% is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

% Volatiles : < 3 %

15.1.2. National regulations

Germany
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands
ALLYLOXY(TRIETHYLENE OXIDE), METHYL ETHER, 95%
Safety Data Sheet

<table>
<thead>
<tr>
<th>Description</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>SZW-lijst van kankerverwekkende stoffen</td>
<td>The substance is not listed</td>
</tr>
<tr>
<td>SZW-lijst van mutagene stoffen</td>
<td>The substance is not listed</td>
</tr>
<tr>
<td>NIET-limitatieve lijst van voor de voortplanting giflige stoffen – Borstvoeding</td>
<td>The substance is not listed</td>
</tr>
<tr>
<td>NIET-limitatieve lijst van voor de voortplanting giflige stoffen – Vruchtbaarheid</td>
<td>The substance is not listed</td>
</tr>
<tr>
<td>NIET-limitatieve lijst van voor de voortplanting giflige stoffen – Ontwikkeling</td>
<td>The substance is not listed</td>
</tr>
</tbody>
</table>

Denmark

Class for fire hazard: Class III-1
Store unit: 50 liter
Classification remarks: Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed
Danish National Regulations: Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information: Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>H- and EUH-statements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 4 (Oral)</td>
<td>Acute toxicity (oral), Category 4</td>
</tr>
<tr>
<td>Flamm. Liq. 3</td>
<td>Flammable liquids, Category 3</td>
</tr>
<tr>
<td>H226</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
</tbody>
</table>

SDS EU (REACH Annex II) - Custom

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

© 2019 Gelest Inc. Morrisville, PA 19067