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

1.1. Product identifier

<table>
<thead>
<tr>
<th>Characteristic</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>METHYL 10-UNDECENOATE, 96%</td>
</tr>
<tr>
<td>Product code</td>
<td>ENEM2450</td>
</tr>
<tr>
<td>Formula</td>
<td>C12H22O2</td>
</tr>
<tr>
<td>Synonyms</td>
<td>METHYL UNDECYLENATE 10-UNDECENOIC ACID, METHYL ESTER</td>
</tr>
<tr>
<td>Chemical family</td>
<td>ESTER</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
- Hazardous to the aquatic environment — Acute Hazard, Category 1: H400

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)**: ![GHS07](image1.png) ![GHS09](image2.png)

- **Signal word (CLP)**: Warning
- **Hazard statements (CLP)**: H302 - Harmful if swallowed. H400 - Very toxic to aquatic life.
- **Precautionary statements (CLP)**: P264 - Wash hands thoroughly after handling.
**METHYL 10-UNDECENOATE, 96%**

Safety Data Sheet

P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment.
P330 - Rinse mouth.
P301+P312 - IF SWALLOWED: Call a doctor if you feel unwell.
P391 - Collect spillage.
P501 - Dispose of contents/container to licensed waste disposal facility.

### 2.3. Other hazards

No additional information available

### SECTION 3: Composition/Information on ingredients

#### 3.1. Substances

**Substance type**

Mono-constituent

**Name**

METHYL 10-UNDECENOATE, 96%

**CAS-No.**

111-81-9

**EC-No.**

203-910-8

### 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/…. Get medical advice/attention.

**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 mild 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

**Suitable extinguishing media**


**Unsuitable extinguishing media**

None known.

#### 5.2. Special hazards arising from the substance or mixture

**Fire hazard**

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**

Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers.

**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**

6.1.1. **For non-emergency personnel**

- **Protective equipment**: Wear protective equipment as described in Section 8.
- **Emergency procedures**: Evacuate unnecessary personnel.

6.1.2. **For emergency responders**

- **Protective equipment**: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal 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**

- **For containment**: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
- **Methods for cleaning up**: Clean up any spills as soon as possible, using an absorbent material to collect it. Collect spillage.

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

7.2. **Conditions for safe storage, including any incompatibilities**

- **Storage conditions**: Keep container tightly closed.
- **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:**

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. 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
**METHYL 10-UNDECENOATE, 96%**
Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear liquid.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>198.3 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>Mild.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.437</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>-24 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>124 °C @ 10 mm Hg</td>
</tr>
<tr>
<td>Flash point</td>
<td>115 °C</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>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&lt; 0.1 mm Hg @ 25°C</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.882</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>&lt; 3 %</td>
</tr>
<tr>
<td>Solubility</td>
<td>Water: 1.5 g/l</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive 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
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.

**METHYL 10-UNDECENOATE, 96% (111-81-9)**

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE CLP (oral)</td>
<td>1653 mg/kg bodyweight</td>
</tr>
</tbody>
</table>

**Methyl 10-undecenoate (111-81-9)**

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>1653 mg/kg</td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>1653 mg/kg bodyweight</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity : Not classified
Bacterial screening (Ames Test) show the substance not to be a mutagen.
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 mild 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
Ecology - general : Very toxic to aquatic life.
Acute aquatic toxicity : Very toxic to aquatic life.
Chronic aquatic toxicity : Not classified

Methyl 10-undecenoate (111-81-9)

<table>
<thead>
<tr>
<th>Test</th>
<th>LC50 EC50</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td>0.756 mg/l</td>
<td>Oncorhynchus mykiss (rainbow trout)</td>
</tr>
<tr>
<td>Daphnia</td>
<td>1.8 mg/l</td>
<td>Daphnia magna (Water flea) OECD 202, Part 1</td>
</tr>
<tr>
<td>Algae</td>
<td>0.38 mg/l</td>
<td>Selenastrum capricornutum (green algae)</td>
</tr>
</tbody>
</table>

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
No additional information available

SECTION 13: Disposal considerations
13.1. Waste treatment methods
Sewage disposal recommendations : Do not dispose of waste into sewer.
Product/ Packaging disposal recommendations : Incinerate. Dispose in a safe manner in accordance with local/national regulations.
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) : 3082
UN-No. (IMDG) : 3082
UN-No. (IATA) : 3082
UN-No. (ADN) : 3082
UN-No. (RID) : 3082

14.2. UN proper shipping name
Proper Shipping Name (ADR) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Proper Shipping Name (IATA) : Environmentally hazardous substance, liquid, n.o.s.
Proper Shipping Name (ADN) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Proper Shipping Name (RID) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
METHYL 10-UNDECENOATE, 96%
Safety Data Sheet

Transport document description (ADR): UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (METHYL 10-UNDECENOATE), 9, III, (E)

Transport document description (IMDG): UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (METHYL 10-UNDECENOATE), 9, III, MARINE POLLUTANT

Transport document description (IATA): UN 3082 Environmentally hazardous substance, liquid, n.o.s. (METHYL 10-UNDECENOATE), 9, III

Transport document description (ADN): UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (METHYL 10-UNDECENOATE), 9, III

Transport document description (RID): UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (METHYL 10-UNDECENOATE), 9, III

14.3. Transport hazard class(es)

ADR
Transport hazard class(es) (ADR): 9
Danger labels (ADR): 9

IMDG
Transport hazard class(es) (IMDG): 9
Danger labels (IMDG): 9

IATA
Transport hazard class(es) (IATA): 9
Hazard labels (IATA): 9

ADN
Transport hazard class(es) (ADN): 9
Danger labels (ADN): 9

RID
Transport hazard class(es) (RID): 9
Danger labels (RID): 9
METHYL 10-UNDECENOATE, 96%
Safety Data Sheet

### 14.4. Packing group

| Packing group (ADR) | : III |
| Packing group (IMDG) | : III |
| Packing group (IATA) | : III |
| Packing group (ADN) | : III |
| Packing group (RID) | : III |

### 14.5. Environmental hazards

| Dangerous for the environment | : Yes |
| Marine pollutant | : Yes |
| Other information | : No supplementary information available |

### 14.6. Special precautions for user

**- Overland transport**

- Classification code (ADR) : M6
- Special provisions (ADR) : 274, 335, 601, 375
- Limited quantities (ADR) : 5l
- Excepted quantities (ADR) : E1
- Packing instructions (ADR) : P001, IBC03, LP01, R001
- Special packing provisions (ADR) : PP1
- Mixed packing provisions (ADR) : MP19
- Portable tank and bulk container instructions (ADR) : T4
- Portable tank and bulk container special provisions (ADR) : TP1, TP29
- Tank code (ADR) : LGBV
- Vehicle for tank carriage : AT
- Transport category (ADR) : 3
- Special provisions for carriage - Packages (ADR) : V12
- Special provisions for carriage - Loading, unloading and handling (ADR) : CV13
- Hazard identification number (Kemler No.) : 90
- Orange plates

| Tunnel restriction code (ADR) | : E |
| EAC code | : <3Z |

**- Transport by sea**

- Special provisions (IMDG) : 274, 335, 969
- Limited quantities (IMDG) : 5 L
- Excepted quantities (IMDG) : E1
- Packing instructions (IMDG) : P001, LP01
- Special packing provisions (IMDG) : PP1
- IBC packing instructions (IMDG) : IBC03
- Tank instructions (IMDG) : T4
- Tank special provisions (IMDG) : TP2, TP29
- EmS-No. (Fire) : F-A
- EmS-No. (Spillage) : S-F
- Stowage category (IMDG) : A

**- Air transport**

- PCA Excepted quantities (IATA) : E1
- PCA Limited quantities (IATA) : Y964
- PCA limited quantity max net quantity (IATA) : 30kgG
- PCA packing instructions (IATA) : 964
- PCA max net quantity (IATA) : 450L
- CAO packing instructions (IATA) : 964
METHYL 10-UNDECENOATE, 96%
Safety Data Sheet

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

15.1.1. EU-Regulations
No REACH Annex XVII restrictions
METHYL 10-UNDECENOATE, 96% is not on the REACH Candidate List
METHYL 10-UNDECENOATE, 96% is not on the REACH Annex XIV List
METHYL 10-UNDECENOATE, 96% 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
Reference to AwSV : Water hazard class (WGK) 3, Highly hazardous to water (Classification according to VwVwS, Annex 3; ID No. 2248)

Netherlands
SZW-lijst van kankerverwekkende stoffen : METHYL 10-UNDECENOATE, 96% is listed
SZW-lijst van mutagene stoffen : The substance is not listed
15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

<table>
<thead>
<tr>
<th>Abbreviations</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND:</td>
<td>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</td>
</tr>
</tbody>
</table>

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>Acute Tox. 4 (Oral)</th>
<th>Acute toxicity (oral), Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute 1</td>
<td>Hazardous to the aquatic environment — Acute Hazard, Category 1</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life.</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