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

1.1. Product identifier

<table>
<thead>
<tr>
<th>Product form</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Substance name</td>
<td>1-OCTENE</td>
</tr>
<tr>
<td>Product code</td>
<td>ENEO3280</td>
</tr>
<tr>
<td>Formula</td>
<td>C8H16</td>
</tr>
<tr>
<td>Synonyms</td>
<td>n-OCTENE, CAPRYLENE</td>
</tr>
<tr>
<td>Chemical family</td>
<td>HYDROCARBON</td>
</tr>
</tbody>
</table>

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

Use of the substance/mixture: Chemical intermediate
For research and industrial use only

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

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

GHS-US classification
Flam. Liq. 2 H225
Aquatic Acute 1 H400

Full text of H statements: see section 16

2.2. Label elements

GHS-US labeling
Hazard pictograms (GHS-US):

- GHS02
- GHS09

Signal word (GHS-US): Danger
Hazard statements (GHS-US):
- H225 - Highly flammable liquid and vapor
- H400 - Very toxic to aquatic life

Precautionary statements (GHS-US):
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P201 - Keep away from heat, open flames, sparks. - No smoking
- P233 - Keep container tightly closed
- P240 - Ground/Bond container and receiving equipment
- P241 - Use explosion-proof electrical equipment
- P242 - Use only non-sparking tools
- P243 - Take precautionary measures against static discharge
- P273 - Avoid release to the environment
- P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse skin with water/shower
- P370+P378 - In case of fire: Use water spray or fog, foam, carbon dioxide, dry chemical to extinguish
- P391 - Collect spillage
- P403+P235 - Keep in a cool place
- P501 - Dispose of contents/container to licensed waste disposal facility

2.3. Other hazards

No additional information available
2.4. Unknown acute toxicity (GHS US)
No data available

SECTION 3: Composition/Information on ingredients

3.1. Substance

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Name</th>
<th>CAS No</th>
<th>EC no</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-constituent</td>
<td>1-OCTENE</td>
<td>111-66-0</td>
<td>203-893-7</td>
</tr>
</tbody>
</table>

3.2. Mixture
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 victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact: Wash with plenty of soap and 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/injuries after inhalation: May cause irritation to the respiratory tract.

Symptoms/injuries after skin contact: May cause mild skin irritation.

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

Symptoms/injuries after ingestion: May be harmful if swallowed.

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: None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard: Highly flammable liquid and vapor. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

Explosion hazard: May form flammable/explosive vapor-air mixture.

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 vapor and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Eliminate every possible source of ignition. Use special care to avoid static electric charges.

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. 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

| Additional hazards when processed | Handle empty containers with care because residual vapors are flammable. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. |
| Precautions for safe handling | Avoid all eye and skin contact and do not breathe vapor and mist. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent accumulation of vapors. Take precautionary measures against static discharge. Use only non-sparking tools. |
| 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

| Technical measures | Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment. |
| Storage conditions | Keep container tightly closed. Keep in a cool place. |
| 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 |
| Appearance | Clear liquid. |
| Molecular mass | 112.21 g/mol |
| Color | No data available |
| Odor | strong. |
| Odor threshold | No data available |
| Refractive index | 1.409 |
| pH | No data available |
| Relative evaporation rate (butyl acetate=1) | ~ 1 |
| Melting point | < -102 °C |
| Freezing point | No data available |
| Boiling point | 121 - 122 °C |
1-OCTENE
Safety Data Sheet

Flash point: 21 °C
Auto-ignition temperature: 221 °C
Decomposition temperature: No data available
Flammability (solid, gas): Highly flammable liquid and vapor
Vapor pressure: 13 mm Hg @ 20°C
Relative vapor density at 20 °C: 3.9
Relative density: 0.714
VOC content: 100 %
Solubility: Insoluble 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
Oxidizing properties: No data available
Explosion limits: 0.7 - 6.8 vol % (lower; upper)

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: Not classified

1-Octene (111-66-0)
LD50 oral rat: > 5000 mg/kg ; >10,000 mg/kg
LD50 dermal rabbit: > 2000 mg/kg
LC50 inhalation rat (ppm): 8050 ppm/4h
ATE US (gases): 8050.000 ppmV/4h
ATE US (vapors): 40.200 mg/l/4h

2-Ethylhexene (1632-16-2)
LD50 intraperitoneal mouse: 100 mg/kg
LC50 inhalation rat (ppm): 4000 ppm/4h
ATE US (gases): 4000.000 ppmV/4h
Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
Specific target organ toxicity (single exposure): Not classified
Specific target organ toxicity (repeated exposure): Not classified

Ames test (histidine reversion) is negative, i.e not a mutagen
## 1-OCTENE

### Safety Data Sheet

<table>
<thead>
<tr>
<th>Aspiration hazard</th>
<th>Not classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms/injuries after inhalation</td>
<td>May cause irritation to the respiratory tract.</td>
</tr>
<tr>
<td>Symptoms/injuries after skin contact</td>
<td>May cause mild skin irritation.</td>
</tr>
<tr>
<td>Symptoms/injuries after eye contact</td>
<td>May cause eye irritation.</td>
</tr>
<tr>
<td>Symptoms/injuries after ingestion</td>
<td>May be harmful if swallowed.</td>
</tr>
</tbody>
</table>

### SECTION 12: Ecological information

#### 12.1. Toxicity

**Ecology - general**: Very toxic to aquatic life.

<table>
<thead>
<tr>
<th><strong>1-Octene (111-66-0)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>1 mg/l</td>
</tr>
</tbody>
</table>

#### 12.2. Persistence and degradability

No additional information available

#### 12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th><strong>1-Octene (111-66-0)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>4.57 (at 25 °C)</td>
</tr>
</tbody>
</table>

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

**Effect on ozone layer**: No additional information available

**Effect on the global warming**: No known effects from this product.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

**Sewage disposal recommendations**: Do not dispose of waste into sewer.

**Waste disposal recommendations**: Incinerate. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

**Additional information**: Handle empty containers with care because residual vapors are flammable.

**Ecology - waste materials**: Avoid release to the environment.

### SECTION 14: Transport information

#### 14.1. UN number

<table>
<thead>
<tr>
<th><strong>UN-No.(DOT)</strong></th>
<th>3295</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOT NA no.</strong></td>
<td>UN3295</td>
</tr>
</tbody>
</table>

#### 14.2. UN proper shipping name

**Proper Shipping Name (DOT)**: Hydrocarbons, liquid, n.o.s. (1-OCTENE)

**Class (DOT)**: 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

**Hazard labels (DOT)**: 3 - Flammable liquid

### Packing group (DOT)

II - Medium Danger

<table>
<thead>
<tr>
<th><strong>DOT Packaging Exceptions (49 CFR 173.xxx)</strong></th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOT Packaging Non Bulk (49 CFR 173.xxx)</strong></td>
<td>202</td>
</tr>
<tr>
<td><strong>DOT Packaging Bulk (49 CFR 173.xxx)</strong></td>
<td>242</td>
</tr>
</tbody>
</table>

#### 14.3. Additional information

**Emergency Response Guide (ERG) Number**: 128

**Other information**: No supplementary information available.
### Transport by sea

**DOT Vessel Stowage Location**: B - (i) The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

### Air transport

**DOT Quantity Limitations Passenger aircraft/rail**: 5 L (49 CFR 173.27)

**DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)**: 60 L

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

**1-Octene (111-66-0)**
- Listed on the United States TSCA (Toxic Substances Control Act) inventory

**2-Ethylhexene (1632-16-2)**
- Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

**1-Octene (111-66-0)**
- Listed on the AICS (Australian Inventory of Chemical Substances)
- Listed on the Canadian DSL (Domestic Substances List)
- Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
- Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
- Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
- Listed on the Korean ECL (Existing Chemicals List)
- Listed on NZIoC (New Zealand Inventory of Chemicals)
- Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
- Listed on INSQ (Mexican National Inventory of Chemical Substances)
- Listed on CICR (Turkish Inventory and Control of Chemicals)

**2-Ethylhexene (1632-16-2)**
- Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
- Listed on the Canadian DSL (Domestic Substances List)
- Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
- Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
- Listed on KECI (Korean Existing Chemicals Inventory)

#### 15.3. US State regulations

**1-OCTENE(111-66-0)**

<table>
<thead>
<tr>
<th>U.S. State</th>
<th>Proposition 65</th>
<th>Carcinogens List</th>
<th>Non-significant risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**1-Octene (111-66-0)**

<table>
<thead>
<tr>
<th>U.S. State</th>
<th>Proposition 65</th>
<th>Carcinogens List</th>
<th>Non-significant risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**2-Ethylhexene (1632-16-2)**

<table>
<thead>
<tr>
<th>U.S. State</th>
<th>Proposition 65</th>
<th>Carcinogens List</th>
<th>Non-significant risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**1-Octene (111-66-0)**

<table>
<thead>
<tr>
<th>U.S. State</th>
<th>Right To Know List</th>
<th>Non-significant risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - Massachusetts</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>U.S. - Pennsylvania</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
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.

Full text of H-phrases:

| H225  | Highly flammable liquid and vapor |
| H315  | Causes skin irritation           |
| H320  | Causes eye irritation            |
| H400  | Very toxic to aquatic life       |

HMIS III Rating

Health: 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability: 3 Serious Hazard
Physical: 0 Minimal Hazard

Prepared by safety and environmental affairs.

Date of issue: 08/29/2016 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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