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>CYCLOPENTENE</td>
</tr>
<tr>
<td>Product code</td>
<td>ENEC0650</td>
</tr>
<tr>
<td>Formula</td>
<td>C5H8</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

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@gelestede.com - www.gelestede.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]

Flammable liquids, Category 2  
Acute toxicity (oral), Category 4

H225
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):  
![GHS02]  
![GHS07]

Signal word (CLP): Danger

Hazard statements (CLP):

H225 - Highly flammable liquid and vapour.
H302 - Harmful if swallowed.

Precautionary statements (CLP):

P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
2.3. Other hazards
No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono-constituent</td>
<td>CYCLOPENTENE</td>
<td>142-29-0</td>
<td>205-532-9</td>
</tr>
</tbody>
</table>

<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>Cyclopentene</td>
<td>(CAS-No.) 142-29-0 (EC-No.) 205-532-9</td>
<td>95 - 100</td>
<td>Flam. Liq. 2, H225 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/…. 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: May cause irritation to the respiratory tract.

Symptoms/effects after skin contact: May cause mild skin irritation. May be harmful in contact with skin.

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


Unsuitable extinguishing media: None known.

5.2. Special hazards arising from the substance or mixture

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

Explosion hazard: May form flammable/explosive vapour-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 vapour 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 vapours are flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Precautions for safe handling
Avoid all eye and skin contact and do not breathe vapour and mist. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent formation of vapour. 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. Store in sealed containers below 15°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:
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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear liquid</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>68.12 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>strong</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.421</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>&gt; 1</td>
</tr>
<tr>
<td>Melting point</td>
<td>-73 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>44 - 45 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>-29 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>395 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Highly flammable liquid and vapour.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>315 mm Hg @ 30°C</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>2.35</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.771</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>100 %</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in water</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>1.5 vol % (lower)</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.

**CYCLOPENTENE (142-29-0)**

ATE CLP (oral) 1656 mg/kg bodyweight
Cyclopentene (142-29-0)

LD50 oral rat: 1656 mg/kg
LD50 dermal rabbit: 1.59 ml/kg
LC50 inhalation rat (ppm): 16000 ppm/4h
ATE CLP (oral): 1656 mg/kg bodyweight
ATE CLP (gases): 16000 ppmv/4h

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified

None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

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
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. Dispose of contents/container to licensed waste disposal facility.
Additional information: Handle empty containers with care because residual vapours are flammable.
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): 2246
UN-No. (IMDG): 2246
UN-No. (IATA): 2246
UN-No. (ADN): 2246
UN-No. (RID): 2246
### 14.2. UN proper shipping name

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name (ADR)</td>
<td>CYCLOPENTENE</td>
</tr>
<tr>
<td>Proper Shipping Name (IMDG)</td>
<td>CYCLOPENTENE</td>
</tr>
<tr>
<td>Proper Shipping Name (IATA)</td>
<td>Cyclopentene</td>
</tr>
<tr>
<td>Proper Shipping Name (ADN)</td>
<td>CYCLOPENTENE</td>
</tr>
<tr>
<td>Proper Shipping Name (RID)</td>
<td>CYCLOPENTENE</td>
</tr>
<tr>
<td>Transport document description (ADR)</td>
<td>UN 2246 CYCLOPENTENE, 3, II, (D/E)</td>
</tr>
<tr>
<td>Transport document description (IMDG)</td>
<td>UN 2246 CYCLOPENTENE, 3, II (-30°C c.c.)</td>
</tr>
<tr>
<td>Transport document description (IATA)</td>
<td>UN 2246 Cyclopentene, 3, II</td>
</tr>
<tr>
<td>Transport document description (ADN)</td>
<td>UN 2246 CYCLOPENTENE, 3, II</td>
</tr>
<tr>
<td>Transport document description (RID)</td>
<td>UN 2246 CYCLOPENTENE, 3, II</td>
</tr>
</tbody>
</table>

### 14.3. Transport hazard class(es)

#### ADR

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport hazard class(es) (ADR)</td>
<td>3</td>
</tr>
<tr>
<td>Danger labels (ADR)</td>
<td>3</td>
</tr>
</tbody>
</table>

#### IMDG

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport hazard class(es) (IMDG)</td>
<td>3</td>
</tr>
<tr>
<td>Danger labels (IMDG)</td>
<td>3</td>
</tr>
</tbody>
</table>

#### IATA

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport hazard class(es) (IATA)</td>
<td>3</td>
</tr>
<tr>
<td>Hazard labels (IATA)</td>
<td>3</td>
</tr>
</tbody>
</table>

#### ADN

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport hazard class(es) (ADN)</td>
<td>3</td>
</tr>
<tr>
<td>Danger labels (ADN)</td>
<td>3</td>
</tr>
</tbody>
</table>

#### RID

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport hazard class(es) (RID)</td>
<td>3</td>
</tr>
<tr>
<td>Danger labels (RID)</td>
<td>3</td>
</tr>
</tbody>
</table>
14.4. Packing group

Packing group (ADR) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

14.5. Environmental hazards

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

14.6. Special precautions for user

- Overland transport
  Classification code (ADR) : F1
  Limited quantities (ADR) : 1l
  Excepted quantities (ADR) : E2
  Packing instructions (ADR) : P001, IBC02
  Special packing provisions (ADR) : B8
  Mixed packing provisions (ADR) : MP19
  Portable tank and bulk container instructions (ADR) : T7
  Portable tank and bulk container special provisions (ADR) : TP2
  Tank code (ADR) : L1.5BN
  Vehicle for tank carriage : FL
  Transport category (ADR) : 2
  Special provisions for carriage - Operation (ADR) : S2, S20
  Hazard identification number (Kemler No.) : 33
  Orange plates :  
  Tunnel restriction code (ADR) : D/E
  EAC code : 3YE

- Transport by sea
  Packing instructions (IMDG) : P001
  IBC packing instructions (IMDG) : IBC02
  IBC special provisions (IMDG) : B8
  Tank instructions (IMDG) : T7
  Tank special provisions (IMDG) : TP2
  EmS-No. (Fire) : F-E
  EmS-No. (Spillage) : S-D
  Stowage category (IMDG) : E
  Flash point (IMDG) : -30°C c.c.

- Air transport
  PCA Excepted quantities (IATA) : E2
  PCA Limited quantities (IATA) : Y341
  PCA limited quantity max net quantity (IATA) : 1L
  PCA packing instructions (IATA) : 353
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions
CYCLOPENTENE is not on the REACH Candidate List
CYCLOPENTENE is not on the REACH Annex XIV List
CYCLOPENTENE 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: 100 %

15.1.2. National regulations

Germany

Reference to AwSV: Water hazard class (WGK) 2, Significantly hazardous to water (KBwS-Beschluss; ID No. 8306)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV: Is not subject of the 12. BimSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen: The substance is not listed
SZW-lijst van mutagene stoffen: The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding: The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid: The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling: The substance is not listed

Print date: 10/04/2019 EN (English) SDS ID: ENEC0650 8/9
Denmark
Classification remarks: Emergency management guidelines for the storage of flammable liquids must be followed

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:
- Acute Tox. 4 (Oral) Acute toxicity (oral), Category 4
- Flam. Liq. 2 Flammable liquids, Category 2
- H225 Highly flammable liquid and vapour.
- H302 Harmful if swallowed.

SDS EU (REACH Annex II) - Custom
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