## SECTION 1: Identification

### 1.1. Identification

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product form</td>
<td>Substance</td>
</tr>
<tr>
<td>Substance name</td>
<td>cis-3-Hexenyl formate</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>33467-73-1</td>
</tr>
<tr>
<td>Product code</td>
<td>(US) W01734</td>
</tr>
<tr>
<td>Formula</td>
<td>C7H12O2</td>
</tr>
<tr>
<td>Synonyms</td>
<td>(Z)-3-Hexen-1-yl formate / Hex-3-enyl formate, (cis-) / 3-Hexenyl formate, (3Z)- / cis-3-Hexen-1-yl formate / 3-Hexen-1-ol, 1-formate, (3Z)- / cis-3-Hexenyl formate / 3-Hexen-1-ol, formate, (3Z)- / (Z)-Hex-3-enyl formate / Formate, 3-hexen-1-yl, (Z)-</td>
</tr>
</tbody>
</table>

### 1.2. Recommended use and restrictions on use

Use of the substance/mixture: Flavor and/or Fragrance

### 1.3. Supplier

Synerzine  
5340 Hwy 42 S  
Ellenwood, Georgia 30294 - USA  
T 404-524-6744 - F 404-577-1651  
info@synerzine.com - www.synerzine.com

### 1.4. Emergency telephone number

Emergency number: Infotrac 1-800-535-5053 (Contract# 102471) Dial +1-352-323-3500 when outside the US

## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture

**GHS-US classification**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable liquids Category 3</td>
<td>H226 - Flammable liquid and vapour</td>
</tr>
<tr>
<td>Skin corrosion/irritation Category 2</td>
<td>H315 - Causes skin irritation</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation Category 2A</td>
<td>H319 - Causes serious eye irritation</td>
</tr>
</tbody>
</table>

Full text of H statements: see section 16

### 2.2. GHS Label elements, including precautionary statements

**GHS-US labeling**

Hazard pictograms (GHS-US):

- ![Flammable Liquid](image)
- ![Caution](image)

Signal word (GHS-US): Warning

Hazard statements (GHS-US):

- H226 - Flammable liquid and vapour
- H315 - Causes skin irritation
- H319 - Causes serious eye irritation

Precautionary statements (GHS-US):

- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking, heat, hot surfaces, open flames, sparks
- P233 - Keep container tightly closed.
- P240 - Ground/Bond container and receiving equipment
- P241 - Use explosion-proof electrical, lighting, ventilating equipment
- P242 - Use only non-sparking tools.
- P243 - Take precautionary measures against static discharge.
- P264 - Wash hands, forearms and face thoroughly after handling.
- P280 - Wear eye protection, face protection, protective clothing, protective gloves.
- P302+P352 - If on skin: Wash with plenty of soap and water
- P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
- P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing

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P313 - Take off contaminated clothing and wash before reuse.
P370+P378 - In case of fire: Use alcohol resistant foam, dry sand to extinguish.
P403+P235 - Store in a well-ventilated place. Keep cool.
P501 - Dispose of contents/container to an approved waste disposal plant

2.3. Other hazards which do not result in classification
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>cis-3-Hexenyl formate</td>
<td>(Main constituent)</td>
<td>98 - 100</td>
<td>Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2A, H319</td>
</tr>
</tbody>
</table>

Full text of hazard classes and 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 after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)
No additional information available

4.3. Immediate medical attention and special treatment, if necessary
Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

5.2. Specific hazards arising from the chemical
Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

5.3. Special protective equipment and precautions for fire-fighters
Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
Emergency procedures : Ventilate spillage area.

6.1.2. For emergency responders
Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up : Take up liquid spill into absorbent material.
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Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Appropriate engineering controls
Appropriate engineering controls: Ensure good ventilation of the work station.
Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Liquid
Appearance: Clear, colorless liquid.
Color: colorless
Odor: Green citrus, fresh, fruity odor waxy
Odor threshold: No data available
pH: No data available
Melting point: Not applicable
Freezing point: No data available
Boiling point: 154 - 156 °C
Flash point: 113 °F TCC
Relative evaporation rate (butyl acetate=1): No data available
Flammability (solid, gas): Not applicable
Vapor pressure: No data available
Relative vapor density at 20 °C: No data available
Relative density: No data available
Specific gravity / density: 0.908 - 0.918 g/ml
Molecular mass: 128.17 g/mol
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Solubility: Propylene glycol. insoluble in water. soluble in alcohols.
Log Pow: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosion limits: No data available
Explosive properties: No data available
Oxidizing properties: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>cis-3-Hexenyl formate (33467-73-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes skin irritation.
Serious eye damage/irritation: Causes serious eye irritation.
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
Aspiration hazard: Not classified

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available
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12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods
Waste treatment methods: Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT

Transport document description: UN3272 Esters, n.o.s., 3, III
UN-No.(DOT): UN3272
Proper Shipping Name (DOT): Esters, n.o.s.
Class (DOT): 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Packing group (DOT): III - Minor Danger
Hazard labels (DOT): 3 - Flammable liquid

DOT Packaging Non Bulk (49 CFR 173.xxx): 203
DOT Packaging Bulk (49 CFR 173.xxx): 242
DOT Special Provisions (49 CFR 172.102): B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable.
IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F) or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.

DOT Packaging Exceptions (49 CFR 173.xxx): 150
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 220 L
DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

Other information: No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

Transport document description (IMDG): UN 3272 ESTERS, N.O.S., 3, III
UN-No. (IMDG): 3272
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<table>
<thead>
<tr>
<th>Proper Shipping Name (IMDG)</th>
<th>ESTERS, N.O.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class (IMDG)</td>
<td>3 - Flammable liquids</td>
</tr>
<tr>
<td>Packing group (IMDG)</td>
<td>III - substances presenting low danger</td>
</tr>
<tr>
<td>Limited quantities (IMDG)</td>
<td>5L</td>
</tr>
</tbody>
</table>

Air transport

Transport document description (IATA) : UN 3272 Esters, n.o.s., 3, III
UN-No. (IATA) : 3272
Proper Shipping Name (IATA) : Esters, n.o.s.
Class (IATA) : 3 - Flammable Liquids
Packing group (IATA) : III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations
cis-3-Hexenyl formate (33467-73-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA
cis-3-Hexenyl formate (33467-73-1)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations
cis-3-Hexenyl formate (33467-73-1)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations
cis-3-Hexenyl formate (33467-73-1)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECS (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations
No additional information available

SECTION 16: Other information

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H226</th>
<th>Flammable liquid and vapour</th>
</tr>
</thead>
<tbody>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
</tbody>
</table>

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.
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<table>
<thead>
<tr>
<th>Hazard Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health</strong></td>
<td>2 Moderate Hazard - Temporary or minor injury may occur</td>
</tr>
<tr>
<td><strong>Flammability</strong></td>
<td>1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semisolids having a flash point above 200 F. (Class IIIB)</td>
</tr>
<tr>
<td><strong>Physical</strong></td>
<td>0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.</td>
</tr>
<tr>
<td><strong>Personal protection</strong></td>
<td>C - Safety glasses, Gloves, Synthetic apron</td>
</tr>
</tbody>
</table>

*Synerzine US*

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.