

**SECTION 1: Identification****1.1. Identification**

Product form : Substance  
 Substance name : Bicyclo[3.1.1]hept-3-en-2-ol, 4,6,6-trimethyl-  
 Chemical name : Verbenol  
 CAS-No. : 473-67-6  
 Product code : (US) W1796  
 Formula : C<sub>10</sub>H<sub>16</sub>O  
 Synonyms : 4,6,6-Trimethylbicyclo[3.1.1]hept-3-en-2-ol / Verbenol / Pin-2-en-4-ol / 2,6,6-Trimethylbicyclo[3.1.1]hept-2-en-4-ol / 4,6,6-Trimethylbicyclo[3.1.1]hept-3-en-2-ol / 2-Pinen-4-ol / 4,6,6-Trimethylbicyclo[3.1.1]hept-3-en-2-one

**1.2. Recommended use and restrictions on use**

No additional information available

**1.3. Supplier**

Synerzine  
 5340 Hwy 42 S  
 Ellenwood, Georgia 30294 - USA  
 T 404-524-6744 - F 404-577-1651  
[info@synerzine.com](mailto:info@synerzine.com) - [www.synerzine.com](http://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**

Flammable liquids Category H227 Combustible liquid  
 4

Full text of H statements : see section 16

**2.2. GHS Label elements, including precautionary statements****GHS-US labeling**

Signal word (GHS-US) : Warning  
 Hazard statements (GHS-US) : H227 - Combustible liquid  
 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  
 P280 - Wear eye protection, face protection, protective clothing, protective gloves.  
 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**

| Name                                                                 | Product identifier | %        | GHS-US classification |
|----------------------------------------------------------------------|--------------------|----------|-----------------------|
| Bicyclo[3.1.1]hept-3-en-2-ol, 4,6,6-trimethyl-<br>(Main constituent) | (CAS-No.) 473-67-6 | 70 - 100 | Flam. Liq. 4, H227    |

Full text of hazard classes and H-statements : see section 16

**3.2. Mixtures**

Not applicable

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### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

|                                       |                                                                            |
|---------------------------------------|----------------------------------------------------------------------------|
| First-aid measures general            | : If you feel unwell, seek medical advice (show the label where possible). |
| 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

|                              |                                                  |
|------------------------------|--------------------------------------------------|
| Suitable extinguishing media | : Water spray. Dry powder. Foam. Carbon dioxide. |
|------------------------------|--------------------------------------------------|

#### 5.2. Specific hazards arising from the chemical

|             |                                                                                      |
|-------------|--------------------------------------------------------------------------------------|
| Fire hazard | : Combustible liquid.                                                                |
| 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. No open flames, no sparks, and no smoking. |
|----------------------|-----------------------------------------------------------------------|

##### 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. Notify authorities if product enters sewers or public waters. |
| 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. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. 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

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### 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                                  | : A colorless to pale yellow liquid. |
| Color                                       | : colorless to pale yellow           |
| Odor                                        | : Pine minty                         |
| Odor threshold                              | : No data available                  |
| pH                                          | : No data available                  |
| Melting point                               | : Not applicable                     |
| Freezing point                              | : No data available                  |
| Boiling point                               | : 214 - 215 °C                       |
| Flash point                                 | : 184 °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                  | : 0.962 - 0.967 g/cm <sup>3</sup>    |
| Solubility                                  | : No data available                  |
| 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.

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### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

### 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 |
| 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 |
| 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

### 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 | : NA1993 Combustible liquid, n.o.s., 3, III                     |
| UN-No.(DOT)                    | : NA1993                                                        |
| Proper Shipping Name (DOT)     | : Combustible liquid, n.o.s.                                    |
| Class (DOT)                    | : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120 |

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|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Packing group (DOT)                                              | : III - Minor Danger                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| DOT Packaging Non Bulk (49 CFR 173.xxx)                          | : 203                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DOT Packaging Bulk (49 CFR 173.xxx)                              | : 241                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DOT Symbols                                                      | : D - Proper shipping name for domestic use only, or to and from Canada, G - Identifies PSN requiring a technical name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| DOT Special Provisions (49 CFR 172.102)                          | : 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).<br>T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2)<br>T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)<br>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. |
| 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

#### Air transport

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

No additional information available

### 15.2. International regulations

#### CANADA

Bicyclo[3.1.1]hept-3-en-2-ol, 4,6,6-trimethyl- (473-67-6)

Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

Bicyclo[3.1.1]hept-3-en-2-ol, 4,6,6-trimethyl- (473-67-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### National regulations

Bicyclo[3.1.1]hept-3-en-2-ol, 4,6,6-trimethyl- (473-67-6)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on the Japanese ISHL (Industrial Safety and Health Law)

Listed on NZIoC (New Zealand Inventory of Chemicals)

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:

H227

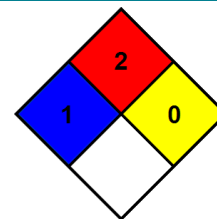
Combustible liquid

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- NFPA health hazard : 1 - Materials that, under emergency conditions, can cause significant irritation.
- 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.



### Hazard Rating

- Health : 1 Slight Hazard - Irritation or minor reversible injury possible
- Flammability : 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)
- Physical : 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.
- Personal protection : B  
B - Safety glasses, Gloves

### 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*