

SECTION 1: Identification**1.1 Product identifier**

Product name Clementine
Brand True Terpenes

1.4 Supplier's details

Name True Terpenes
Address Portland , Oregon

Telephone (888) 954-8550
email info@TrueTerpenes.com

1.5 Emergency phone number(s)

Poison Control Help Line:
1 (800) 222-1222

SECTION 2: Hazard identification**2.1 Classification of the substance or mixture**

Not a hazardous substance or mixture.

2.2 GHS label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Other hazards which do not result in classification

Not a hazardous substance or mixture.

SECTION 3: Composition/information on ingredients**3.2 Mixtures****Hazardous components**

1. Terpinolene
Concentration <= 38 % (Volume)
EC no. 209-578-0

CAS no. 586-62-9

- Flammable liquids (chapter 2.6), Cat. 4
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 1
- Hazardous to the aquatic environment - long-term hazard (chapter 4.1), Cat. 1

H227 Combustible liquid
H410 Very toxic to aquatic life with long lasting effects

2. Ocimene

Concentration ≥ 15 % (Volume)
CAS no. 13877-91-3

- Flammable liquids (chapter 2.6), Cat. 3

H226 Flammable liquid and vapor

3. Beta Caryophyllene

Concentration ≥ 10 % (Volume)
CAS no. 87-44-5

4. Myrcene

Concentration ≤ 9 % (Volume)
CAS no. 123-35-3

- Aspiration hazard (chapter 3.10), Cat. 1
- Eye damage/irritation (chapter 3.3), Cat. 2A
- Flammable liquids (chapter 2.6), Cat. 3
- Skin corrosion/irritation (chapter 3.2), Cat. 2

H226 Flammable liquid and vapor
H226 Flammable liquid and vapor
H304 May be fatal if swallowed and enters airways
H315 Causes skin irritation
H319 Causes serious eye irritation

5. Limonene

Concentration ≤ 5 % (Volume)
EC no. 227-813-5
CAS no. 5989-27-5

- Acute toxicity, dermal (chapter 3.1), Cat. 5
- Acute toxicity, oral (chapter 3.1), Cat. 5
- Aspiration hazard (chapter 3.10), Cat. 1
- Flammable liquids (chapter 2.6), Cat. 3
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 1

- Hazardous to the aquatic environment - long-term hazard (chapter 4.1), Cat. 1
- Sensitization, skin (chapter 3.4), Cat. 1
- Skin corrosion/irritation (chapter 3.2), Cat. 2

H226	Flammable liquid and vapor
H303+H313	May be harmful if swallowed or in contact with skin
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

6. Beta Pinene

Concentration	>= 4 % (Volume)
EC no.	No data available.
CAS no.	127-91-3

- Acute toxicity, dermal (chapter 3.1), Cat. 4
- Acute toxicity, inhalation (chapter 3.1), Cat. 4
- Acute toxicity, oral (chapter 3.1), Cat. 4
- Aspiration hazard (chapter 3.10), Cat. 1
- Eye damage/irritation (chapter 3.3), Cat. 2A
- Flammable liquids (chapter 2.6), Cat. 3
- Sensitization, skin (chapter 3.4), Cat. 1
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Specific target organ toxicity, single exposure (chapter 3.8), Cat. 3

H226	Flammable liquid and vapor
H302+H312+H332	Harmful if swallowed, in contact with skin or if inhaled
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H335	May cause respiratory irritation

7. Humulene

Concentration	>= 3 % (Volume)
CAS no.	6753-98-6

- Eye damage/irritation (chapter 3.3), Cat. 2A
- Flammable liquids (chapter 2.6), Cat. 4
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Specific target organ toxicity, single exposure (chapter 3.8), Cat. 3

H227	Combustible liquid
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

8. Alpha Pinene

Concentration <= 3 % (Volume)
CAS no. 80-56-8

- Aspiration hazard (chapter 3.10), Cat. 1
- Flammable liquids (chapter 2.6), Cat. 3
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 3
- Sensitization, skin (chapter 3.4), Cat. 1
- Skin corrosion/irritation (chapter 3.2), Cat. 2

H226 Flammable liquid and vapor
H304 May be fatal if swallowed and enters airways
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H402 Harmful to aquatic life

9. Alpha Phellandrene

Concentration >= 2 % (Volume)
CAS no. 99-83-2

- Aspiration hazard (chapter 3.10), Cat. 1
- Eye damage/irritation (chapter 3.3), Cat. 2A
- Flammable liquids (chapter 2.6), Cat. 3
- Sensitization, respiratory (chapter 3.4), Cat. 1
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Specific target organ toxicity, single exposure (chapter 3.8), Cat. 3

H226 Flammable liquid and vapor
H304 May be fatal if swallowed and enters airways
H315 Causes skin irritation
H315+H320 Causes skin and eye irritation
H319 Causes serious eye irritation
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 May cause respiratory irritation

10. Alpha Bisabolol

Concentration >= 2 % (Volume)
CAS no. 515-69-5

- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 2
- Hazardous to the aquatic environment - long-term hazard (chapter 4.1), Cat. 2

H401 Toxic to aquatic life
H411 Toxic to aquatic life with long lasting effects

11. Linalool

Concentration <= 2 % (Volume)
EC no. 201-134-4
CAS no. 78-70-6

- Acute toxicity, dermal (chapter 3.1), Cat. 4
- Acute toxicity, oral (chapter 3.1), Cat. 5
- Eye damage/irritation (chapter 3.3), Cat. 2A
- Flammable liquids (chapter 2.6), Cat. 4
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 3
- Skin corrosion/irritation (chapter 3.2), Cat. 2

H227 Combustible liquid
H303 May be harmful if swallowed
H312 Harmful in contact with skin
H315 Causes skin irritation
H315+H320 Causes skin and eye irritation
H319 Causes serious eye irritation
H402 Harmful to aquatic life

12. Terpeneol

Concentration <= 2 % (Volume)
CAS no. 8000-41-7

- Eye damage/irritation (chapter 3.3), Cat. 2A
- Skin corrosion/irritation (chapter 3.2), Cat. 2

H315 Causes skin irritation
H319 Causes serious eye irritation

13. Delta 3 Carene

Concentration <= 2 % (Volume)
EC no. 236-719-3
CAS no. 13466-78-9

- Aspiration hazard (chapter 3.10), Cat. 1
- Flammable liquids (chapter 2.6), Cat. 3
- Sensitization, skin (chapter 3.4), Cat. 1
- Skin corrosion/irritation (chapter 3.2), Cat. 2

H226 Flammable liquid and vapor
H304 May be fatal if swallowed and enters airways
H315 Causes skin irritation
H317 May cause an allergic skin reaction

14. Phytol

Concentration <= 2 % (Volume)

CAS no. 7541-49-3

- Eye damage/irritation (chapter 3.3), Cat. 2A
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Specific target organ toxicity, single exposure (chapter 3.8), Cat. 3

H315 Causes skin irritation
H319 Causes serious eye irritation
H335 May cause respiratory irritation

15. Nerolidol

Concentration <= 1 % (Volume)
CAS no. 7212-44-4

- Eye damage/irritation (chapter 3.3), Cat. 2A
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 1
- Hazardous to the aquatic environment - long-term hazard (chapter 4.1), Cat. 1

H319 Causes serious eye irritation
H410 Very toxic to aquatic life with long lasting effects

16. Caryophyllene Oxide

Concentration < 1 % (Volume)
CAS no. 1139-30-6

- Acute toxicity, dermal (chapter 3.1), Cat. 5
- Eye damage/irritation (chapter 3.3), Cat. 2A
- Skin corrosion/irritation (chapter 3.2), Cat. 2

H313 May be harmful in contact with skin
H315 Causes skin irritation
H319 Causes serious eye irritation

17. Fenchol

Concentration < 1 % (Volume)
CAS no. 1632-73-1

- Eye damage/irritation (chapter 3.3), Cat. 2A
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 3
- Hazardous to the aquatic environment - long-term hazard (chapter 4.1), Cat. 3
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Specific target organ toxicity, single exposure (chapter 3.8), Cat. 3

H315 Causes skin irritation
H319 Causes serious eye irritation
H335 May cause respiratory irritation
H412 Harmful to aquatic life with long lasting effects

18. Pulegone

Concentration < 1 % (Volume)
CAS no. 89-82-7

- Acute toxicity, dermal (chapter 3.1), Cat. 5
- Acute toxicity, oral (chapter 3.1), Cat. 4
- Flammable liquids (chapter 2.6), Cat. 4
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 3
- Hazardous to the aquatic environment - long-term hazard (chapter 4.1), Cat. 3
- Skin corrosion/irritation (chapter 3.2), Cat. 3

H227 Combustible liquid
H302 Harmful if swallowed
H313 May be harmful in contact with skin
H316 Causes mild skin irritation
H351 Suspected of causing cancer
H402 Harmful to aquatic life
H412 Harmful to aquatic life with long lasting effects

19. Eucalyptol

Concentration < 1 % (Volume)
CAS no. 470-82-6

- Flammable liquids (chapter 2.6), Cat. 3

H226 Flammable liquid and vapor

20. Borneol

Concentration < 1 % (Volume)
CAS no. 507-70-0

- Flammable solids (chapter 2.7), Cat. 2

H228 Flammable solid

21. Valencene

Concentration < 1 % (Volume)
CAS no. 4630-07-3

- Acute toxicity, oral (chapter 3.1), Cat. 4

H302 Harmful if swallowed

22. Alpha Cedrene

Concentration < 1 % (Volume)
CAS no. 469-61-4

- Eye damage/irritation (chapter 3.3), Cat. 2A
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 1
- Hazardous to the aquatic environment - long-term hazard (chapter 4.1), Cat. 1
- Skin corrosion/irritation (chapter 3.2), Cat. 2

H315 Causes skin irritation
H319 Causes serious eye irritation
H410 Very toxic to aquatic life with long lasting effects

23. Camphene

Concentration < 1 % (Volume)
CAS no. 79-92-5

- Eye damage/irritation (chapter 3.3), Cat. 2A
- Flammable solids (chapter 2.7), Cat. 2
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 1
- Hazardous to the aquatic environment - long-term hazard (chapter 4.1), Cat. 1

H228 Flammable solid
H319 Causes serious eye irritation
H410 Very toxic to aquatic life with long lasting effects

24. Geraniol

Concentration < 1 % (Volume)
EC no. 203-377-1
CAS no. 106-24-1

- Eye damage/irritation (chapter 3.3), Cat. 1
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 3
- Sensitization, skin (chapter 3.4), Cat. 1
- Skin corrosion/irritation (chapter 3.2), Cat. 2

H315 Causes skin irritation
H317 May cause an allergic skin reaction
H318 Causes serious eye damage
H402 Harmful to aquatic life

25. Menthol

Concentration < 1 % (Volume)
CAS no. 89-78-1

- Acute toxicity, oral (chapter 3.1), Cat. 5
- Eye damage/irritation (chapter 3.3), Cat. 1
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 3

- Hazardous to the aquatic environment - long-term hazard (chapter 4.1), Cat. 3
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Specific target organ toxicity, single exposure (chapter 3.8), Cat. 3

H303	May be harmful if swallowed
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation
H402	Harmful to aquatic life
H412	Harmful to aquatic life with long lasting effects

26. Para-Cymene

Concentration	< 1 % (Volume)
CAS no.	99-87-6

- Acute toxicity, oral (chapter 3.1), Cat. 5
- Aspiration hazard (chapter 3.10), Cat. 1
- Eye damage/irritation (chapter 3.3), Cat. 2A
- Flammable liquids (chapter 2.6), Cat. 3
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 2
- Hazardous to the aquatic environment - long-term hazard (chapter 4.1), Cat. 2
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Specific target organ toxicity, single exposure (chapter 3.8), Cat. 3

H226	Flammable liquid and vapor
H303	May be harmful if swallowed
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H315+H320	Causes skin and eye irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H401	Toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

27. Geranyl Acetate

Concentration	< 1 % (Volume)
CAS no.	105-87-3

- Eye damage/irritation (chapter 3.3), Cat. 2A
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 2
- Sensitization, skin (chapter 3.4), Cat. 1
- Skin corrosion/irritation (chapter 3.2), Cat. 2
- Specific target organ toxicity, single exposure (chapter 3.8), Cat. 3

H315	Causes skin irritation
H315+H320	Causes skin and eye irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation

H335
H401May cause respiratory irritation
Toxic to aquatic life**SECTION 4: First-aid measures****4.1 Description of necessary first-aid measures**

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact	Wash off with soap and plenty of water. Consult a physician.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Personal protective equipment for first-aid responders	No data available.

4.2 Most important symptoms/effects, acute and delayed

No data available.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

No data available.

SECTION 5: Fire-fighting measures**5.2 Specific hazards arising from the chemical**-----
Terpinolene: Carbon oxides.-----
Limonene: Static charges generated by emptying package in or near flammable vapor may cause flash fire. Fire may produce irritating, corrosive and / or toxic gases.-----
Phytol: No data available.-----
Caryophyllene Oxide: Hazardous decomposition products formed under fire conditions. Carbon oxides.

Pulegone: Static charges generated by emptying package in or near flammable vapor may cause flash fire. Fire may produce irritation, corrosive and / or toxic gases.

Borneol: Unsuitable extinguishing agents: water with full jet.

Menthol: Static charges generated by emptying package in or near flammable vapor may cause flash fire. Fire may produce irritating, corrosive and / or toxic gases.

Explosion hazard: Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.2 Environmental precautions

No data available.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition. No smoking. Take measures to prevent the buildup of electrostatic charge. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Container which are opened must be carefully resealed and kept upright to prevent leakage.

Specific end use(s)

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

SECTION 8: Exposure controls/personal protection**8.2 Appropriate engineering controls**

No data available.

8.3 Individual protection measures, such as personal protective equipment (PPE)**Eye/face protection**

No data available.

Skin protection

No data available.

Body protection

No data available.

Respiratory protection

No data available.

Thermal hazards

No data available.

Control banding approach

No data available.

Environmental exposure controls

No data available.

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties**

Appearance/form (physical state, color, etc.)	No data available.
Odor	No data available.
Odor threshold	No data available.
pH	No data available.
Melting point/freezing point	No data available.
Initial boiling point and boiling range	No data available.
Flash point	No data available.
Evaporation rate	No data available.
Flammability (solid, gas)	No data available.
Upper/lower flammability limits	No data available.
Vapor pressure	No data available.
Vapor density	No data available.
Relative density	No data available.
Solubility(ies)	No data available.
Partition coefficient: n-octanol/water	No data available.

Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Viscosity	No data available.
Explosive properties	No data available.
Oxidizing properties	No data available.

SECTION 10: Stability and reactivity

10.5 Incompatible materials

Terpinolene: Heat, flames and sparks.

Ocimene: No data available.

Beta Caryophyllene: Strong oxidizing agents.

Myrcene: Strong oxidizing agents. Heat, flames and sparks.

Beta Pinene: Strong oxidizing agents. Heat, flames, and sparks. Vapors may form explosive mixture with air.

Alpha Pinene: Vapors may form explosive mixture with air. Heat, flames and sparks. Strong oxidizing agents.

Linalool: Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials. Strong oxidizing agents.

Terpineol: Oxidizing agents.

Eucalyptol: Strong oxidizing agents, strong acids, acid chlorides, acid anhydrides.

Borneol: No further relevant information available.

Geraniol: Strong oxidizing agents, acid chlorides, acid anhydrides.

Menthol: Keep away from heat, sparks and open flame. Avoid temperatures exceeding the flash point. Minimize dust generation and accumulation. Contact with incompatible materials. Strong oxidizing agents.

10.6 Hazardous decomposition products

Terpinolene: No data available.

Limonene: No hazardous decomposition products if stored and handled as indicated.

Valencene: Hazardous decomposition products formed under fire conditions. Carbon oxides.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Terpinolene: No data available.

Limonene: Maybe fatal if swallowed and enters airways. May be harmful in contact with skin. May cause an allergic skin reaction.

Alpha Phellandrene: LD50 Oral: Rat, > 5,700 mg/kg

Alpha Bisabolol: Dermal LD50 Rabbit: > 15,000 mg/kg

Oral LD50 Rat: > 20,000 mg/kg

Linalool: LD50 Oral: Rat, 2,790 mg/kg
LD50 Dermal: Rabbit, 2,000 mg/kg

Caryophyllene Oxide: LD50 Oral: Rat, > 5,000 mg/kg
LD50 Dermal: Rabbit, > 2,000 mg/kg

Pulegone: LD50 Oral: Rat, 470 mg/kg
LD50 Dermal: Rabbit, 3,090 mg/kg

Menthol: LD50 Oral: Rat, 2,600 mg/kg

Para-Cymene: LD50 Dermal: Rabbit, > 5,000 mg/kg
LD50 Oral: Rat, 4,750 mg/kg

Geranyl Acetate: LD50 Oral: Rat, 6,330 mg/kg

Remarks:
Behavioral: Somnolence (general depressed activity).
Behavioral: Coma

// ----- From the Suggestion report (09/13/2017, 2:10 PM) ----- //

ATE (inhalation, gaseous) of mixture: 112500 ppmv

Skin corrosion/irritation

Terpinolene: No data available.

Limonene: Causes skin irritation.

Alpha Bisabolol: Prolonged skin contact may cause temporary irritation.

Linalool: Causes skin irritation.
Guinea Pig - skin irritation, 24h, Draize Test
Rabbit - irritant (OECD Guideline 405)

Caryophyllene Oxide: Rabbit, skin irritation, 24h

Pulegone: Causes mild skin irritation.

Borneol: No irritant effect.

Alpha Cedrene: Skin - rabbit - Skin irritation

Camphene: Rabbit, no skin irritation - 4 h (OECD Test Guideline 404)

Menthol: Causes skin irritation.
Rabbit: Irritating to skin.

Para-Cymene: Causes skin irritation.

The substance was moderately irritating when applied to intact or abraded rabbit skin for 24h under occlusion. Tested at 4% in petrolatum, it produced no irritation after a 48h closed-patch test in volunteers. Based on available data the classification criteria are not met.

Geranyl Acetate: Causes skin irritation.
Species: Rabbit
Result: Irritant
Method: OECD Guideline 405

Serious eye damage/irritation

Terpinolene: No data available.

Limonene: Direct contact with eyes may cause temporary irritation.
Eyes - rabbit. Result: No eye irritation.
(OECD Test Guideline 405)

Alpha Phellandrene: Causes serious eye irritation.

Linalool: Causes serious eye irritation.
Rabbit - moderate eye irritation, Draize Test
Rabbit - slightly irritating (OECD Guideline 405)

Borneol: No irritating effect.

Camphene: Rabbit, irritating to eyes - 24 h (OECD Test Guideline 405)

Menthol: Causes serious eye damage.
Rabbit: Mild eye irritation.

Para-Cymene: Causes serious eye irritation.
May be irritating. However, based on available data the classification criteria are not met.

Geranyl Acetate: Causes serious eye irritation.
Species: Rabbit
Result: Irritant
Method: OECD Guideline 405

Respiratory or skin sensitization

Terpinolene: No data available.

Limonene: May cause an allergic skin reaction.
Mouse. Result: May cause sensitisation by skin contact.
(OECD Test Guideline 429)

Alpha Phellandrene: May cause allergy or asthma symptoms or breathing difficulties if inhaled. This product is not expected to cause skin sensitization.

Alpha Bisabolol: Not a respiratory sensitizer.

Linalool: Patch-test / Human: Non-sensitizing
Draize test / Guinea Pig: Non-sensitizing

Pulegone: Not a respiratory sensitizer. This product is not expected to cause skin sensitization.

Borneol: No sensitizing effects known.

Menthol: Not a respiratory sensitizer.
Humans (Skin Sensitisation): No sensitizing effect at 8%

Para-Cymene: Not a respiratory sensitizer.

The substance tested at a concentration of 4% in petrolatum produced no sensitization reactions on 25 volunteers in a maximization test.

The product contains dipentene, classified as skin sensitizer (hazard statement present on the label).

Geranyl Acetate: Not a respiratory sensitizer.

May cause an allergic skin reaction.
Species: Guinea Pig
Result: Non-sensitizing

Germ cell mutagenicity

Terpinolene: No data available.

Limonene: Mouse

Lymphocyte
Result: Negative

Rat - Male
Result: Negative

Alpha Phellandrene: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Linalool: Results from a number of mutagenicity studies with microorganisms, mammalian cell cultures and mammals are available. Taking into account all of the information, there is no indication that the substance is mutagenic.

Camphene: Hamster (ovary)
Result: negative

Mouse (lymphocyte)
Result: negative

Mutagenicity (micronucleus test) mouse (male and female)
Result: negative

Para-Cymene: No mutagenicity was observed on bacteria (Ames test - strains TA 100 and TA 98).

Carcinogenicity

Terpinolene: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Ocimene: IARC: No component of this product, present levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product, present levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product, present levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product, present levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Beta Caryophyllene: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probably, possibly or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as probably, possibly or confirmed human carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as probably, possibly or confirmed human carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as probably, possibly or confirmed human carcinogen by OSHA.

Myrcene: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Limonene: IARC Monographs: Overall Evaluation of Carcinogenicity - CARVENE (CAS 5989-27-5) 3 Not classifiable as to carcinogenicity to humans.

OSHA: Specifically Regulated Substances (29 CFR 1910.1001-1050) Not listed.

Alpha Pinene: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Alpha Phellandrene: OSHA: Specifically Regulated Substances (29 CFR 1910.1001-1050) Not Listed.

Alpha Bisabolol: OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.

Phytol: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Caryophyllene Oxide: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Pulegone: IARC: Monographs, Overall Evaluation of Carcinogenicity
p-Menth-4(8)-en-3-one (CAS 89-82-7) 2B Possibly carcinogenic to humans.

OSHA: Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

Borneol: IARC: Substance is not listed.

NTP: Substance is not listed.

OSHA- Ca: Substance is not listed.

Valencene: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Terpinolene: No data available.

Limonene: This product is not expected to cause reproductive or developmental effects.

Summary of evaluation of the CMR properties

Terpinolene: No data available.

STOT-single exposure

Terpinolene: No data available.

Limonene: Not classified.

Alpha Phellandrene: May cause respiratory irritation.

Linalool: Not Classified.

Phytol: Inhalation - May cause respiratory irritation.

STOT-repeated exposure

Terpinolene: No data available.

Limonene: Repeated dose toxicity - mouse - male and female - No observed adverse effect level - 1,650 mg/kg -
Lowest observed adverse effect level - 3,300 mg/kg.

Alpha Phellandrene: Not classified.

Linalool: Not Classified.

Aspiration hazard

Terpinolene: No data available.

Alpha Bisabolol: Not an aspiration hazard.

SECTION 12: Ecological information

Toxicity

Terpinolene: No data available.

Limonene: Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Alpha Phellandrene: The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Alpha Bisabolol: EC10 *Pseudomonas putida*: > 10,000 mg/l, 16 hours

LC50 *Leuciscus idus* (Golden orfe): 4.6 - 10 mg/l, 96 hours

Linalool: Activated sludge of a predominantly domestic sewage: EC10, > 100 mg/l, 3 hours

Green Algae (*Chlamydomonas variabilis*): EC50, 88.3 mg/l, 96 hours DIN 38412 Part 9 static. The details of the toxic effect related to the nominal concentration.

Daphnia magna: EC50, 20 mg/l, 48 hours DIN 38412 Part 11 static. The details of the toxic effect related to the nominal concentration.

Ide, silver or golden orfe (*Leuciscus idus*): LC50, 22 - 46 mg/l, 96 hours DIN 38412 Part 15 static. The details of the toxic effect related to the nominal concentration.

Fish: LC50-R, 27.8 mg/l, 96 hours.

Pulegone: Water Flea (*Daphnia pulex*): EC50, 24.4 mg/l, 48 hours

Alpha Cedrene: EC50: *Daphnia pulex* (Water flea) - 0.044 mg/l - 48

Camphene: Fish: Flow-through test LC50 - *Brachydanio rerio* (zebrafish) - 0.72 mg/l - 96 h (OECD Test Guideline 203)

Daphnia and Other Aquatic Invertebrates: Semi-static test EC50 - Daphnia magna (water flea) - 0.72 mg/l - 48 h (OECD Test Guideline 202)

Algae: Static test EC50 - Desmodesmus subspicatus (scenedesmus subspicatus) - > 1,000 mg/l - 72 h (OECD Test Guideline 201)

Bacteria: Respiration inhibition EC50 - Sludge Treatment - > 1,000 mg/l - 3 h (OECD Test Guideline 209)

Menthol: Micro-organisms: EC50 306 mg/l, 3 hours

Daphnia magna: EC50 44.3 mg/l, 24 hours

Danio rerio: LC50 22.3 mg/l, 96 hours

Para-Cymene: Pseudokirchnerella subcapitata: EC50 5.8 mg/l, 72 hours
Water flea (Daphnia magna): LC50 4.3 - 10 mg/l, 48 hours
Fish: LC50 2 mg/l, 96 hours (Oryzias latipes)
Sheepshead minnow (Cyprinodon variegatus): LC50 36 - 64 mg/l, 96 hours
Sheepshead minnow (Cyprinodon variegatus): NOEC 10 mg/l, 96 hours

Geranyl Acetate: Green Algae (Chlamydomonas variabilis): EC50 3.72 mg/l, 72 hours OECD Guideline 201 static. The statement of the toxic effect relates to the analytically determined concentration.

Daphnia magna: EC50 14.1 mg/l, 48 hours Directive 84/449/EEC, C.2 static. The statement of the toxic effect relates to the analytically determined concentration.

Fish: LC50 68.12 mg/l, 96 hours Cyprinus carpio. OECD Guideline 203 static. The product has not been tested. The statement has been derived from products of a similar structure or composition.

Bacterium: EC10 >10,000 mg/l, 0.5 hours DIN 38412 Part 27 (draft) aquatic. The statement of the toxic effect relates to the analytically determined concentration. The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested.

Persistence and degradability

Terpinolene: No data available.

Limonene: Biodegradability: Result: 71% - Readily biodegradable. (OECD Test Guideline 301B)

Alpha Phellandrene: No data is available on the degradability of this product.

Linalool: Biological/Abiological Degradation
Test method: OECD 301D; EEC 92/69, C.4-E (aerobic), municipal sewage treatment plant effl.

Method of analysis: BOD of the ThOD
Degree of elimination: 60 - 70% (28 d)
Evaluation: Readily biodegradable (according to OECD criteria)

Camphene: Aerobic - Exposure time 28d. Result: 14% - not readily biodegradable (OECD Test Guideline 301C)

Menthol: Biodegradability:

Readily biodegradable
100%/28d, Modified OECD screening test

Readily biodegradable
79%/28d, Closed bottle test, OECD 301-D. (BOD[28]/COD)

Para-Cymene: A degradation of 83 - 95% was observed in a 14-day test (OECD 301 C - oxygen consumption measure).

Geranyl Acetate: Biological / Abiological Degradation
Test Method: OECD Guideline 301F (aerobic), activated sludge, domestic
Method of Analysis: BOD of the ThOD
Degree of Elimination: >70% (28d)
Evaluation: Readily biodegradable (according to OECD criteria)

Hydrolysis
Test Method: OECD Guideline 111 (abiotic)
pH7
Half-life: 1.539 h (25°C)

Environmental Mobility:
Transportation between environmental compartments:
Calculated absorption / water-soil
KOC: 1151
Log KOC: 3.06

Bioaccumulative potential

Terpinolene: No data available.

Linalool: Significant accumulation in organisms is not to be expected.

Camphene: Cyprinus carpio (Carp) - 56 d at 25°C - 0.015 mg/l

Bioconcentration factor (BCF): 432 - 922 (OECD Test Guideline 305C)

Menthol: Partition coefficient n-octanol / water (log Kow)
3.3

Para-Cymene: Partition coefficient n-octanol / water (log Kow)
4.1

Mobility in soil

Terpinolene: No data available.

Results of PBT and vPvB assessment

Terpinolene: No data available.

Other adverse effects

Terpinolene: No data available.

Limonene: EC50 Water Flea (*Daphnia pulex*) 69.6 mg/l, 48 hours
LC50 Fathead minnow (*Pimephales promelas*) 0.619 - 0.796 mg/l, 96 hours
LC50 Rainbow trout, donaldson trout (*Oncorhynchus mykiss*) 35 mg/l, 4 days
EC50 Activated sludge 3.94 mg/l

Alpha Bisabolol: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations**Disposal of the product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Contact a licensed professional waste disposal service to dispose of this material.

Disposal of contaminated packaging

Offer surplus and non-recyclable solutions to a licensed disposal company.

Waste treatment

No data available.

Sewage disposal

No data available.

SECTION 14: Transport information**DOT (US)**

UN Number:

Class:

Packing Group:

Proper Shipping Name:

Reportable quantity (RQ):

Marine pollutant:

Poison inhalation hazard:

IMDG

UN Number:

Class:

Packing Group:

EMS Number:

Proper Shipping Name:

IATA

UN Number:

Class:

Packing Group:

Proper Shipping Name:

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations specific for the product in question****CAA Section 112 HAPs List**

Not regulated.

CAA Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

CAA Section 112r Accidental Release Prevention (40 CFR 68.130)

Not regulated.

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any reproductive harm. This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm. This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm. This product does not contain any chemicals known to State of the California to cause cancer, birth defects, or any other reproductive harm.

CERCLA Hazardous Substance List (40 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)



Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

DSL Status

All components of this product are on the Canadian DSL list.

EPA

Substance is not listed.

Massachusetts Right to Know Components

No components are subject to the Massachusetts Right to Know Act. Chemical name: α -Pinene
CAS number: 80-56-8. No components are subject to the Massachusetts Right to Know Act.

New Jersey Right to Know Components

3,7-Dimethylocta-1,3,6-triene CAS No: 13877-91-3. Chemical Name: Caryophyllene
CAS Number: 87-44-5. Chemical Name: 7-Methyl-3-methyleneocta-1,6-diene,
CAS Number: 123-35-3. (-)-Pin-2(10)-ene, CAS No: 127-91-3. Chemical Name: Humulene
CAS Number: 6753-98-6. 2-Hexadecen-1-ol,3,7,11,15-tetramethyl- CAS-No: 7541-49-3. [1R-(1R*,4R*6R*,10S*)]-
4,12,12-Trimethyl-9-methylene-5-oxatricyclo[8.2.0.0.4,6]dodecane CAS-No. 1139-30-6. 3,3-Dimethyl-8,9-
dinorbornan-2-ol CAS-No. 1632-73-1. Cineole, CAS No. 470-82-6. (-)-alpha-Cedrene, CAS-No. 469-61-4. Chemical
Name: Camphene
CAS Number: 79-92-5. Chemical name: α -Pinene
CAS number: 80-56-8. No components are subject to the New Jersey Right to Know Act.

New regulation

NIOSH-Ca

Substance is not listed.

OSHA Hazards

Irritant. No known OSHA hazards.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Pennsylvania Right to Know Components

3,7-Dimethylocta-1,3,6-triene CAS No: 13877-91-3. Chemical Name: Caryophyllene
CAS Number: 87-44-5. Chemical Name: 7-Methyl-3-methyleneocta-1,6-diene,
CAS Number: 123-35-3. (-)-Pin-2(10)-ene, CAS No: 127-91-3. Chemical Name: Humulene
CAS Number: 6753-98-6. 2-Hexadecen-1-ol,3,7,11,15-tetramethyl- CAS-No: 7541-49-3. [1R-(1R*,4R*6R*,10S*)]-
4,12,12-Trimethyl-9-methylene-5-oxatricyclo[8.2.0.0.4,6]dodecane CAS-No. 1139-30-6. 3,3-Dimethyl-8,9-
dinorbornan-2-ol CAS-No. 1632-73-1. Cineole, CAS No. 470-82-6. (-)-alpha-Cedrene, CAS-No. 469-61-4. Chemical
Name: Camphene
CAS Number: 79-92-5. Chemical name: α -Pinene
CAS number: 80-56-8. No components are subject to the Pennsylvania Right to Know Act.

Proposition 65

Substance is not listed.

Right to Know Components (Pennsylvania, New Jersey, Massachusetts)

Terpineol, CAS No. 8000-41-7

Right to Know Components (Pennsylvania, New Jersey)

p-Mentha-1,4(8)-diene, CAS No. 586-62-9. 3-Carene, CAS-No. 13466-78-9. 3,7,11-Trimethyldodeca-1,6,10-trien-3-ol, mixed isomers, CAS-No. 7212-44-4. Geraniol, CAS No. 106-24-1

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 302 Extremely Hazardous Substance

Not listed.

SARA 304 Emergency Release Notification

Not regulated.

SARA 311 / 312

No SARA hazards.

SARA 311 / 312 Hazardous Chemical

Yes. Yes. No.

SARA 311 / 312 Hazards

Fire Hazard. Fire hazard, acute health hazard. Fire hazard, acute health hazard. Acute Health Hazard. Acute Health Hazard. Fire hazard, acute health hazard, chronic health hazard. No SARA Hazards.

SARA 311/312

Fire hazard.

SARA 311/312 Hazardous Chemical

Yes. No.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard. Fire hazard, acute health hazard.

SARA 313 (TRI Reporting)

Not regulated.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, Section 313. This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA Hazard Categories

Immediate Hazard - Yes

Delayed Hazard - No

Fire Hazard - Yes

Pressure Hazard - No

Reactivity Hazard - No. Immediate Hazard - No

Delayed Hazard - No

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard - No. Immediate Hazard - Yes

Delayed Hazard - Yes

Fire Hazard - Yes

Pressure Hazard - No

Reactivity Hazard - No. Immediate Hazard - Yes

Delayed Hazard - No

Fire Hazard - No

Pressure Hazard - No



Reactivity Hazard - No

SARA Section 313 (specific toxic chemical listings)

Substance is not listed.

SARA Section 355 (extremely hazardous substances)

Substance is not listed.

SDWA

Not regulated.

TLV

Substance is not listed.

TSCA

Substance is listed.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt.D)

Not regulated.

US California Proposition 65 - CRT: Listed Date / Carcinogenic Substance

p-Menth-4(8)-en-3-one (CAS 89-82-7)

Listed: April 18, 2014 Carcinogenic.

US California Proposition 65 CRT: Listed Substance

Not listed.

US Federal Regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

US Federal Regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

US Massachusetts RTK - Substance List

Not regulated.

US New Jersey Work and Community Right-to-Know Act

Not listed.

US Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US Rhode Island RTK

Not regulated.

US. California Proposition 65 - CRT: Listed Substance

p-Menth-4(8)-en-3-one (CAS 89-82-7)

US. California Proposition 65 CRT: Listed Substance

Not listed.

US. Massachusetts RTK - Substance List

Not regulated. CYMENE PARA (CAS 99-87-6)

US. New Jersey Worker and Community Right-to-Know Act

CARVENE (CAS 5989-27-5). Not listed. CYMENE PARA (CAS 99-87-6)

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed. CYMENE PARA (CAS 99-87-6)

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. Rhode Island RTK

Not regulated.

SECTION 16: Other information

True Terpenes cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available. The above information relates only to this product and not to its use in combination with any other material or any particular process and is designed only as guidance for the safe handling, use, processing, storage, transportation, disposal and should not be considered as a guarantee or quality specification. The above information is based on data provided by and collected from recognized sources such as distributors, manufactures, and technical groups and is considered to be accurate to the best of True Terpenes' knowledge as of the date of this document. It is the responsibility of the user to review all safety information about this product and determine its safety and suitability in their own processes and operations. Appropriate warnings and safe handling procedures should be provided to all handlers and users, taking into account the intended use and the specific conditions and factors relating to such use in accordance with all applicable laws and regulations.