

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
 Product name : ABSINTHE TTB APPROVED TERPENE FLAVOR  
 Product code : TBBS37

#### 1.2. Recommended use and restrictions on use

#### 1.3. Supplier

EXTRACT CONSULTANTS, LLC.  
 TERPENES - FLAVORS - BASES  
 PO BOX 11433, DENVER, CO 80211  
 www.extractconsultants.com  
 INFORMATION: 1-888-541-9089

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC - USA: 800-424-9300 International: +1 703-527-3887 / 1-800-424-9300  
 CCN 13010

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

Flammable liquids Category 2	Highly flammable liquid and vapor
Skin corrosion/irritation Category 2	Causes skin irritation
Serious eye damage/eye irritation Category 2A	Causes serious eye irritation
Skin sensitization, Category 1	May cause an allergic skin reaction
Specific target organ toxicity – Single exposure, Category 3, Narcosis	May cause drowsiness or dizziness
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	May cause respiratory irritation
Specific target organ toxicity (repeated exposure) Category 2	May cause damage to organs through prolonged or repeated exposure
Aspiration hazard Category 1	May be fatal if swallowed and enters airways

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

##### GHS US labeling

Hazard pictograms (GHS US) :



GHS02

GHS07

GHS08

Signal word (GHS US) :

Danger

Hazard statements (GHS US) :

Highly flammable liquid and vapor  
 May be fatal if swallowed and enters airways  
 Causes skin irritation  
 May cause an allergic skin reaction  
 Causes serious eye irritation  
 May cause respiratory irritation  
 May cause drowsiness or dizziness  
 May cause damage to organs through prolonged or repeated exposure

Precautionary statements (GHS US) :

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 Keep container tightly closed.  
 Ground/Bond container and receiving equipment.  
 Use explosion-proof electrical/ventilating/lighting equipment.  
 Use only non-sparking tools.  
 Take precautionary measures against static discharge.  
 Do not breathe dust/fume/gas/mist/vapors/spray.  
 Avoid breathing dust/fume/gas/mist/vapors/spray.

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

Wash hands, forearms and face thoroughly after handling.  
Use only outdoors or in a well-ventilated area.  
Contaminated work clothing must not be allowed out of the workplace.  
Wear protective gloves/protective clothing/eye protection/face protection.  
If swallowed: Immediately call a poison center or doctor.  
If on skin: Wash with plenty of water.  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
If inhaled: Remove person to fresh air and keep comfortable for breathing.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Call a poison center or doctor if you feel unwell.  
Get medical advice/attention if you feel unwell.  
Specific treatment (see supplemental first aid instruction on this label).  
Do NOT induce vomiting.  
If skin irritation occurs: Get medical advice/attention.  
If skin irritation or rash occurs: Get medical advice/attention.  
If eye irritation persists: Get medical advice/attention.  
Take off contaminated clothing and wash it before reuse.  
Wash contaminated clothing before reuse.  
In case of fire: Use media other than water to extinguish.  
Store in a well-ventilated place. Keep container tightly closed.  
Store in a well-ventilated place. Keep cool.  
Store locked up.  
Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

### 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

Not applicable

### 3.2. Mixtures

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

Name	Product identifier	%	GHS US classification
ETHYL ALCOHOL	(CAS-No.) 64-17-5	≥ 50	Flam. Liq. 2, H225 Eye Irrit. 2A, H319 STOT SE 3, H336 STOT SE 3, H335
D-LIMONENE	(CAS-No.) 5989-27-5	5 – 10	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304
trans-Anethole	(CAS-No.) 4180-23-8	5 – 10	Flam. Liq. 4, H227 Acute Tox. 3 (Inhalation:vapour), H331 Skin Sens. 1B, H317
VANILLIN	(CAS-No.) 121-33-5	1 – 5	Eye Irrit. 2A, H319
CITRAL	(CAS-No.) 5392-40-5	1 – 5	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Skin Sens. 1, H317 STOT RE 2, H373
BETA CARYOPHYLLENE	(CAS-No.) 87-44-5	1 – 5	Skin Sens. 1B, H317 Asp. Tox. 1, H304
BETA-PINENE	(CAS-No.) 127-91-3	1 – 5	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304
L-ALPHA-PINENE	(CAS-No.) 7785-26-4	1 – 5	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304
MYRCENE	(CAS-No.) 123-35-3	1 – 5	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Asp. Tox. 1, H304
EUGENOL	(CAS-No.) 97-53-0	1 – 5	Eye Irrit. 2A, H319 Skin Sens. 1B, H317

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

### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

- First-aid measures general : Call a physician immediately.
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell.
- First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
- First-aid measures after ingestion : Do not induce vomiting. Call a physician immediately.

#### 4.2. Most important symptoms and effects (acute and delayed)

- Symptoms/effects : May cause drowsiness or dizziness.
- Symptoms/effects after inhalation : May cause respiratory irritation.
- Symptoms/effects after skin contact : Irritation. May cause an allergic skin reaction.
- Symptoms/effects after eye contact : Eye irritation.
- Symptoms/effects after ingestion : Risk of lung edema.

#### 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 : Highly flammable liquid and vapor.
- Reactivity : Highly flammable liquid and vapor.

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

### 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. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin and eyes.

#### 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 : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes.

Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. 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

Technical measures : Ground/bond container and receiving equipment.

Storage conditions : Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

<b>ABSINTHE TTB APPROVED TERPENE FLAVOR</b>	
No additional information available	
<b>VANILLIN (121-33-5)</b>	
No additional information available	
<b>BETA-PINENE (127-91-3)</b>	
<b>USA - ACGIH - Occupational Exposure Limits</b>	
Local name	β-Pimene
ACGIH OEL TWA [ppm]	20 ppm
Remark (ACGIH)	TLV® Basis: Lung irr. Notations: DSEN; A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2022
<b>BETA CARYOPHYLLENE (87-44-5)</b>	
No additional information available	
<b>CITRAL (5392-40-5)</b>	
<b>USA - ACGIH - Occupational Exposure Limits</b>	
Local name	Citral

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

ACGIH OEL TWA [ppm]	5 ppm (IFV - Inhalable fraction and vapor)
Remark (ACGIH)	TLV® Basis: Body weight eff; URT irr; eye dam. Notations: Skin; DSEN; A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2021
<b>ETHYL ALCOHOL (64-17-5)</b>	
<b>USA - ACGIH - Occupational Exposure Limits</b>	
Local name	Ethanol
ACGIH OEL STEL [ppm]	1000 ppm
Remark (ACGIH)	URT irr
<b>USA - OSHA - Occupational Exposure Limits</b>	
Local name	Ethyl alcohol (Ethanol)
OSHA PEL (TWA) [1]	1900 mg/m <sup>3</sup>
OSHA PEL (TWA) [2]	1000 ppm
<b>D-LIMONENE (5989-27-5)</b>	
No additional information available	
<b>EUGENOL (97-53-0)</b>	
No additional information available	
<b>L-ALPHA-PINENE (7785-26-4)</b>	
No additional information available	
<b>trans-Anethole (4180-23-8)</b>	
No additional information available	
<b>MYRCENE (123-35-3)</b>	
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  
Color : COLORLESS TO YELLOW  
Odor : CHARACTERISTIC, MATCHING RETAINER SAMPLE  
Odor threshold : No data available  
pH : No data available

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: 12 °C
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	: 0.8263 (0.8163 – 0.8363)
Solubility	: Insoluble.
Partition coefficient n-octanol/water (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

Refractive index : 1.40105 (1.39105 – 1.41105)

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Highly flammable liquid and vapor.

### 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

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 (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

VANILLIN (121-33-5)	
LD50 oral rat	3300 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))
ATE US (oral)	3300 mg/kg body weight
BETA-PINENE (127-91-3)	
LD50 oral rat	4700 mg/kg (Rat, Oral)
ATE US (oral)	4700 mg/kg body weight
CITRAL (5392-40-5)	
LD50 oral rat	≈ 6800 mg/kg body weight Animal: rat
LD50 dermal rat	> 2000 mg/kg body weight Animal: rat, Remarks on results: other:

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

<b>CITRAL (5392-40-5)</b>	
ATE US (dermal)	2250 mg/kg body weight
<b>ETHYL ALCOHOL (64-17-5)</b>	
LD50 oral rat	10470 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 15800 mg/kg body weight (Rabbit, Experimental value, Dermal)
LC50 Inhalation - Rat	124.7 mg/l air (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (vapours), 14 day(s))
<b>D-LIMONENE (5989-27-5)</b>	
LD50 oral rat	> 2000 mg/kg body weight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 5000 mg/kg body weight (Equivalent or similar to OECD 402, 24 h, Rabbit, Read-across, Dermal, 7 day(s))
<b>EUGENOL (97-53-0)</b>	
LD50 oral rat	> 2000 mg/kg body weight (Equivalent or similar to OECD 423, Rat, Male / female, Experimental value, Oral)
LC50 Inhalation - Rat	> 2.6 mg/l air (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (aerosol))
<b>L-ALPHA-PINENE (7785-26-4)</b>	
ATE US (oral)	500 mg/kg body weight
<b>trans-Anethole (4180-23-8)</b>	
LD50 oral rat	1420 – 3000 mg/kg body weight (Rat, Male / female, Experimental value, Oral)
LD50 dermal rabbit	> 4900 mg/kg body weight (Equivalent or similar to EU Method B.3, 24 h, Rabbit, Male / female, Experimental value, Dermal, 14 day(s))
LC50 Inhalation - Rat	≥ 5.1 mg/l (OECD 403: Acute Inhalation Toxicity, 4 h, Rat, Male / female, Experimental value, Inhalation (aerosol))
ATE US (oral)	1420 mg/kg body weight
ATE US (vapors)	3 mg/l/4h
<b>MYRCENE (123-35-3)</b>	
LD50 oral rat	> 11390 mg/kg body weight Animal: rat
LD50 dermal rabbit	> 5000 mg/kg body weight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitization	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

<b>CITRAL (5392-40-5)</b>	
NOAEL (chronic,oral,animal/male,2 years)	60 mg/kg body weight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies), Remarks on results: other:
<b>ETHYL ALCOHOL (64-17-5)</b>	
IARC group	1 - Carcinogenic to humans
<b>D-LIMONENE (5989-27-5)</b>	
IARC group	3 - Not classifiable
<b>EUGENOL (97-53-0)</b>	
IARC group	3 - Not classifiable
<b>MYRCENE (123-35-3)</b>	
IARC group	2B - Possibly carcinogenic to humans

Reproductive toxicity : Not classified

STOT-single exposure : May cause drowsiness or dizziness. May cause respiratory irritation.

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

<b>ETHYL ALCOHOL (64-17-5)</b>	
STOT-single exposure	May cause drowsiness or dizziness. May cause respiratory irritation.

STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure.

<b>CITRAL (5392-40-5)</b>	
LOAEC (inhalation, rat, gas, 90 days)	68 ppm Animal: rat, Animal sex: female
NOAEL (oral, rat, 90 days)	100 mg/kg body weight Animal: rat, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
NOAEC (inhalation, rat, gas, 90 days)	34 ppm Animal: rat, Animal sex: female
NOAEL (subchronic, oral, animal/male, 90 days)	60 mg/kg body weight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

<b>MYRCENE (123-35-3)</b>	
LOAEL (oral, rat, 90 days)	250 mg/kg body weight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)
NOAEL (subchronic, oral, animal/male, 90 days)	500 mg/kg body weight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)
NOAEL (subchronic, oral, animal/female, 90 days)	250 mg/kg body weight Animal: mouse, Animal sex: female, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)

Aspiration hazard : May be fatal if swallowed and enters airways.

Viscosity, kinematic : No data available

Symptoms/effects : May cause drowsiness or dizziness.

Symptoms/effects after inhalation : May cause respiratory irritation.

Symptoms/effects after skin contact : Irritation. May cause an allergic skin reaction.

Symptoms/effects after eye contact : Eye irritation.

Symptoms/effects after ingestion : Risk of lung edema.

## 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.

<b>VANILLIN (121-33-5)</b>	
LC50 - Fish [1]	57 mg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value)
EC50 - Crustacea [1]	36.79 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
ErC50 algae	120 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)

<b>BETA-PINENE (127-91-3)</b>	
LC50 - Fish [1]	0.557 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Cyprinus carpio, Semi-static system, Fresh water, Weight of evidence, Other isomer)
ErC50 algae	0.826 mg/l (OECD 201: Alga, Growth Inhibition Test, 48 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Weight of evidence, Other isomer)

<b>BETA CARYOPHYLLENE (87-44-5)</b>	
EC50 - Crustacea [1]	> 0.17 mg/l Test organisms (species): Daphnia magna

<b>CITRAL (5392-40-5)</b>	
LC50 - Fish [1]	6.78 mg/l Test organisms (species): Leuciscus idus
EC50 - Crustacea [1]	6.8 mg/l Test organisms (species): Daphnia magna

<b>ETHYL ALCOHOL (64-17-5)</b>	
LC50 - Fish [1]	15300 mg/l (US EPA, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Lethal)



# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

<b>D-LIMONENE (5989-27-5)</b>	
LC50 - Fish [1]	720 µg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value)
EC50 - Crustacea [1]	0.307 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Experimental value, GLP)
LC50 - Fish [2]	702 µg/l Test organisms (species): Pimephales promelas
EC50 - Crustacea [2]	0.51 mg/l Test organisms (species): Daphnia magna
ErC50 algae	0.32 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)

<b>EUGENOL (97-53-0)</b>	
LC50 - Fish [1]	13 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Semi-static system, Fresh water, Experimental value, GLP)
EC50 - Crustacea [1]	1.13 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
ErC50 algae	24 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, GLP)

<b>trans-Anethole (4180-23-8)</b>	
LC50 - Fish [1]	7 mg/l (EU Method C.1, 96 h, Danio rerio, Semi-static system, Fresh water, Experimental value, GLP)
EC50 - Crustacea [1]	4.25 mg/l (ASTM E729-88, 48 h, Daphnia magna, Flow-through system, Experimental value)

<b>MYRCENE (123-35-3)</b>	
EC50 - Crustacea [1]	1.47 mg/l Test organisms (species): Daphnia magna

### 12.2. Persistence and degradability

<b>VANILLIN (121-33-5)</b>	
Persistence and degradability	Readily biodegradable in water.

<b>BETA-PINENE (127-91-3)</b>	
Persistence and degradability	Readily biodegradable in water.

<b>ETHYL ALCOHOL (64-17-5)</b>	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.8 – 0.967 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	1.7 g O <sub>2</sub> /g substance
ThOD	2.1 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0.43

<b>D-LIMONENE (5989-27-5)</b>	
Persistence and degradability	Readily biodegradable in water.
ThOD	3.29 g O <sub>2</sub> /g substance

<b>EUGENOL (97-53-0)</b>	
Persistence and degradability	Readily biodegradable in water.

<b>trans-Anethole (4180-23-8)</b>	
Persistence and degradability	Readily biodegradable in water.

### 12.3. Bioaccumulative potential

<b>VANILLIN (121-33-5)</b>	
Partition coefficient n-octanol/water (Log Pow)	1.17 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

<b>BETA-PINENE (127-91-3)</b>	
BCF - Fish [1]	1125 l/kg (BCFBAF v3.01, Pisces, Fresh water, QSAR, Other isomer)
Partition coefficient n-octanol/water (Log Pow)	4.425 (Similar product, Read-across, Equivalent or similar to OECD 107, 25 °C)
Bioaccumulative potential	Potential for bioaccumulation (4 ≤ Log Kow ≤ 5).

<b>ETHYL ALCOHOL (64-17-5)</b>	
BCF - Fish [1]	1 (Other, 72 h, Cyprinus carpio, Static system, Fresh water, Read-across)
Partition coefficient n-octanol/water (Log Pow)	-0.31 (Experimental value)

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

<b>ETHYL ALCOHOL (64-17-5)</b>	
Bioaccumulative potential	Not bioaccumulative.
<b>D-LIMONENE (5989-27-5)</b>	
BCF - Fish [1]	864.8 l/kg (BCFBAF v3.01, Pisces, QSAR, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	4.38 (Experimental value, Equivalent or similar to OECD 117, 37 °C)
Bioaccumulative potential	Potential for bioaccumulation ( $4 \leq \text{Log Kow} \leq 5$ ).
<b>EUGENOL (97-53-0)</b>	
Partition coefficient n-octanol/water (Log Pow)	1.83 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 30 °C)
Bioaccumulative potential	Low potential for bioaccumulation ( $\text{Log Kow} < 4$ ).
<b>trans-Anethole (4180-23-8)</b>	
BCF - Fish [1]	79.92 l/kg (Pisces, QSAR, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	3.388 (QSAR, KOWWIN, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation ( $\text{BCF} < 500$ ).

### 12.4. Mobility in soil

<b>VANILLIN (121-33-5)</b>	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.438 (log Koc, Experimental value)
Ecology - soil	Low potential for mobility in soil.
<b>BETA-PINENE (127-91-3)</b>	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.009 – 3.836 (log Koc, Calculated value, Other isomer)
Ecology - soil	Low potential for mobility in soil.
<b>ETHYL ALCOHOL (64-17-5)</b>	
Surface tension	22.31 mN/m (20 °C, 100 %)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.2 (log Koc, Experimental value)
Ecology - soil	Highly mobile in soil.
<b>D-LIMONENE (5989-27-5)</b>	
Surface tension	No data available in the literature
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.049 – 3.801 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Low potential for mobility in soil.
<b>EUGENOL (97-53-0)</b>	
Ecology - soil	No (test)data on mobility of the substance available.
<b>trans-Anethole (4180-23-8)</b>	
Surface tension	35 mN/m (25 °C)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	2.717 – 2.856 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Low potential for adsorption in soil.

### 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.  
Additional information : Flammable vapors may accumulate in the container.

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

### SECTION 14: Transport information

#### Department of Transportation (DOT)

In accordance with DOT

Transport document description (DOT)	: UN1197 Extracts, flavoring, liquid, 3, II
UN-No.(DOT)	: UN1197
Proper Shipping Name (DOT)	: Extracts, flavoring, liquid
Class (DOT)	: 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Packing group (DOT)	: II - Medium Danger
Hazard labels (DOT)	: 3 - Flammable liquid



DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT Special Provisions (49 CFR 172.102)	: 149 - When transported as a limited quantity or a consumer commodity, the maximum net capacity specified in 173.150(b)(2) of this subchapter for inner packaging may be increased to 5 L (1.3 gallons). IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). 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. T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3) 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. TP8 - A portable tank having a minimum test pressure of 1.5 bar (150 kPa) may be used when the flash point of the hazardous material transported is greater than 0 C (32 F).
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 60 L
DOT Vessel Stowage Location	: B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
Emergency Response Guide (ERG) Number	: 127
Other information	: No supplementary information available.

#### Transportation of Dangerous Goods

Transport document description (TDG)	: UN1197 EXTRACTS, FLAVOURING, LIQUID, 3, II
UN-No. (TDG)	: UN1197
Proper Shipping Name (TDG)	: EXTRACTS, FLAVOURING, LIQUID
TDG Primary Hazard Classes	: 3 - Class 3 - Flammable Liquids
Packing group (TDG)	: II - Medium Danger
Explosive Limit and Limited Quantity Index	: 5 L
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	: 5 L

#### Transport by sea

Transport document description (IMDG)	: UN 1197 EXTRACTS, FLAVOURING, LIQUID, 3, II
UN-No. (IMDG)	: 1197
Proper Shipping Name (IMDG)	: EXTRACTS, FLAVORING, LIQUID
Class (IMDG)	: 3 - Flammable liquids
Packing group (IMDG)	: II - substances presenting medium danger

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

Limited quantities (IMDG) : 5 L

### Air transport

Transport document description (IATA) : UN 1197 Extracts, flavouring, liquid, 3, II  
UN-No. (IATA) : 1197  
Proper Shipping Name (IATA) : Extracts, flavouring, liquid  
Class (IATA) : 3 - Flammable Liquids  
Packing group (IATA) : II - Medium Danger

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### **VANILLIN (121-33-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### **ETHYL ALCOHOL (64-17-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### **trans-Anethole (4180-23-8)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

### 15.2. International regulations

#### CANADA

#### **VANILLIN (121-33-5)**

Listed on the Canadian DSL (Domestic Substances List)

#### **BETA-PINENE (127-91-3)**

Listed on the Canadian DSL (Domestic Substances List)

#### **BETA CARYOPHYLLENE (87-44-5)**

Listed on the Canadian DSL (Domestic Substances List)

#### **CITRAL (5392-40-5)**

Listed on the Canadian DSL (Domestic Substances List)

#### **ETHYL ALCOHOL (64-17-5)**

Listed on the Canadian DSL (Domestic Substances List)

#### **D-LIMONENE (5989-27-5)**

Listed on the Canadian DSL (Domestic Substances List)

#### **EUGENOL (97-53-0)**

Listed on the Canadian DSL (Domestic Substances List)

#### **L-ALPHA-PINENE (7785-26-4)**

Listed on the Canadian NDSL (Non-Domestic Substances List)

#### **trans-Anethole (4180-23-8)**

Listed on the Canadian DSL (Domestic Substances List)

#### **MYRCENE (123-35-3)**

Listed on the Canadian DSL (Domestic Substances List)

### EU-Regulations

No additional information available

### National regulations

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

### BETA-PINENE (127-91-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on INSQ (Mexican National Inventory of Chemical Substances)

### BETA CARYOPHYLLENE (87-44-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

### CITRAL (5392-40-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on INSQ (Mexican National Inventory of Chemical Substances)

### ETHYL ALCOHOL (64-17-5)

Listed on IARC (International Agency for Research on Cancer)

### D-LIMONENE (5989-27-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on INSQ (Mexican National Inventory of Chemical Substances)

### EUGENOL (97-53-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on INSQ (Mexican National Inventory of Chemical Substances)

### L-ALPHA-PINENE (7785-26-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

### MYRCENE (123-35-3)

Listed on IARC (International Agency for Research on Cancer)  
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on INSQ (Mexican National Inventory of Chemical Substances)

### 15.3. US State regulations

This product can expose you to eugenyl methyl ether, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

 **WARNING:**

This product can expose you to d-pulegone, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

This product can expose you to estragole, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

This product can expose you to myrcene, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Component	State or local regulations
ETHYL ALCOHOL(64-17-5)	U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List

## SECTION 16: Other information

# ABSINTHE TTB APPROVED TERPENE FLAVOR

## Safety Data Sheet

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

Full text of H-phrases:

H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H227	Combustible liquid
H302	Harmful if swallowed
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
H331	Toxic if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H373	May cause damage to organs through prolonged or repeated exposure

SDS US (GHS HazCom 2012)

*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.*