

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Product name : Superman Ice Cream Solvent Free Terpene Flavor  
Product code : 77-7006-21

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

#### 1.3. Supplier

EXTRACT CONSULTANTS, LLC.  
TERPENES - FLAVORS - BASES  
2150 INDUSTRIAL DR, NILES MI 49120  
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 1025270

### SECTION 2: Hazard(s) identification

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

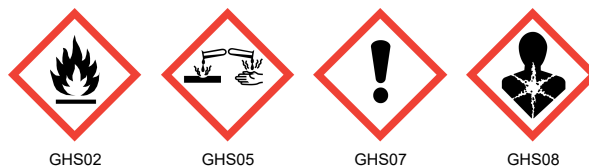
##### GHS US classification

Flammable liquids, Category 3	Flammable liquid and vapour.
Skin corrosion/irritation, Category 2	Causes skin irritation.
Serious eye damage/eye irritation, Category 1	Causes serious eye damage.
Skin sensitisation, Category 1	May cause an allergic skin reaction.
Reproductive toxicity, Category 2	Suspected of damaging fertility or the unborn child.
Aspiration hazard, Category 1	May be fatal if swallowed and enters airways.

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

##### GHS US labelling

Hazard pictograms (GHS US) :



Signal word (GHS US) :

Danger

Hazard statements (GHS US) :

Flammable liquid and vapour.  
May be fatal if swallowed and enters airways.  
Causes skin irritation.  
May cause an allergic skin reaction.  
Causes serious eye damage.  
Suspected of damaging fertility or the unborn child.

Precautionary statements (GHS US) :

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
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.  
Avoid breathing dust/fume/gas/mist/vapours/spray.  
Wash hands, forearms and face thoroughly after handling.  
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

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water/shower.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If exposed or concerned: Get medical advice/attention.

Immediately call a poison center or doctor.

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.

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 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

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Name	Product identifier	%	GHS US classification
D-LIMONENE	(CAS-No.) 5989-27-5	10 – 25	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304
BENZALDEHYDE	(CAS-No.) 100-52-7	5 – 10	Flam. Liq. 4, H227 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2A, H319 STOT SE 3, H335
CITRAL	(CAS-No.) 5392-40-5	5 – 10	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Skin Sens. 1, H317
LINALOOL	(CAS-No.) 78-70-6	5 – 10	Flam. Liq. 4, H227 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Skin Sens. 1B, H317
GERANYL ACETATE	(CAS-No.) 105-87-3	5 – 10	Skin Irrit. 2, H315 Skin Sens. 1B, H317
BETA-CARYOPHYLLENE	(CAS-No.) 87-44-5	5 – 10	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
BUTYL LACTATE	(CAS-No.) 138-22-7	1 – 5	Flam. Liq. 4, H227 Skin Irrit. 2, H315 Eye Dam. 1, H318
MYRCENE	(CAS-No.) 123-35-3	1 – 5	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Asp. Tox. 1, H304
NEROLIDOL	(CAS-No.) 7212-44-4	1 – 5	Eye Irrit. 2B, H320 Skin Sens. 1B, H317
ALPHA-TERPINENE	(CAS-No.) 99-86-5	1 – 5	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Eye Irrit. 2B, H320 Skin Sens. 1, H317 Asp. Tox. 1, H304
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
VANILLIN	(CAS-No.) 121-33-5	1 – 5	Eye Irrit. 2A, H319
TERPINOLENE	(CAS-No.) 586-62-9	1 – 5	Flam. Liq. 4, H227 Skin Sens. 1B, H317 Asp. Tox. 1, H304
ETHYL BUTYRATE	(CAS-No.) 105-54-4	1 – 5	Flam. Liq. 3, H226 Eye Irrit. 2A, H319
PIPERONAL	(CAS-No.) 120-57-0	1 – 5	Skin Sens. 1B, H317
GAMMA-TERPINENE	(CAS-No.) 99-85-4	0.1 – 1	Flam. Liq. 3, H226 Repr. 2, H361 Asp. Tox. 1, H304
P-CYMENE	(CAS-No.) 99-87-6	0.1 – 1	Flam. Liq. 3, H226 Acute Tox. 3 (Inhalation), H331 Acute Tox. 3 (Inhalation:vapour), H331 Repr. 2, H361 Asp. Tox. 1, H304

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.
First-aid measures after skin contact	: Rinse skin with water/shower. 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. Call a physician immediately.
First-aid measures after ingestion	: Do not induce vomiting. Call a physician immediately.

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

Symptoms/effects after inhalation	: No data available.
Symptoms/effects after skin contact	: Irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Risk of lung oedema.

### 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.
Unsuitable extinguishing media	: Do not use a heavy water stream.

### 5.2. Specific hazards arising from the chemical

Fire hazard	: Flammable liquid and vapour.
Explosion hazard	: No direct explosion hazard.
Reactivity	: Flammable liquid and vapour.

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
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

General measures	: Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.
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#### 6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray.

#### 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".
Emergency procedures	: Evacuate unnecessary personnel. Stop leak if safe to do so.

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

For containment	: Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.
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

Additional hazards when processed	: Not expected to present a significant hazard under anticipated conditions of normal use.
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. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray.

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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.  
 Packaging materials : Always store product in container of same material as original container.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

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No additional information available	
NEROLIDOL (7212-44-4)	
No additional information available	
ALPHA PINENE (7785-26-4)	
No additional information available	
GERANYL ACETATE (105-87-3)	
No additional information available	
ETHYL BUTYRATE (105-54-4)	
No additional information available	
PIPERONAL (120-57-0)	
No additional information available	
D-LIMONENE (5989-27-5)	
No additional information available	
TERPINOLENE (586-62-9)	
No additional information available	
GAMMA-TERPINENE (99-85-4)	
No additional information available	
P-CYMENE (99-87-6)	
No additional information available	
ALPHA-TERPINENE (99-86-5)	
No additional information available	
LINALOOL (78-70-6)	
No additional information available	
CITRAL (5392-40-5)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Citral
ACGIH® TLV® TWA	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 2024
MYRCENE (123-35-3)	
No additional information available	
BETA-CARYOPHYLLENE (87-44-5)	
No additional information available	
BUTYL LACTATE (138-22-7)	
USA - ACGIH - Occupational Exposure Limits	
Local name	n-Butyl lactate
ACGIH® TLV® TWA	5 ppm
Remark (ACGIH®)	URT irr

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

No additional information available

### VANILLIN (121-33-5)

No additional information available

### BENZALDEHYDE (100-52-7)

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

### Personal protective equipment:

Wear recommended personal protective equipment.

### Hand protection:

Protective gloves

### Eye protection:

Chemical goggles or safety glasses

### Skin and body protection:

Wear suitable protective clothing

### Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.



## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: COLORLESS TO YELLOW
Odour	: CHARACTERISTIC, MATCHING RETAINER SAMPLE
Odour threshold	: No data available
pH	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: 52 °C
Relative evaporation rate (butylacetate=1)	: No data available
Flammability	: Not applicable.
Vapour pressure	: No data available
Relative vapour density at 20°C	: No data available
Relative density	: 0.907 (0.897 – 0.917)
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

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Viscosity, dynamic	: No data available
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

### 9.2. Other information

Refractive index	: 1.47706 (1.46706 – 1.48706)
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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Flammable liquid and vapour.

### 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

<b>ALPHA PINENE (7785-26-4)</b>	
ATE US (oral)	500 mg/kg bodyweight
<b>GERANYL ACETATE (105-87-3)</b>	
LD50 oral rat	6300 mg/kg (Rat, Oral)
ATE US (oral)	6300 mg/kg bodyweight
<b>ETHYL BUTYRATE (105-54-4)</b>	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method), Remarks on results: other:
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Remarks on results: other:
LC50 Inhalation - Rat [ppm]	> 4000 ppm Animal: rat, Guideline: other:, Remarks on results: other:
<b>PIPERONAL (120-57-0)</b>	
LD50 oral rat	2700 mg/kg (Equivalent or similar to OECD 401, Rat, Male / female, Oral, 5 day(s))
LD50 dermal rat	> 5000 mg/kg (Equivalent or similar to OECD 402, 24 h, Rat, Male / female, Experimental value, Skin, 14 day(s))
ATE US (oral)	2700 mg/kg bodyweight
<b>D-LIMONENE (5989-27-5)</b>	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 5000 mg/kg bodyweight (Equivalent or similar to OECD 402, 24 h, Rabbit, Read-across, Dermal, 7 day(s))
<b>TERPINOLENE (586-62-9)</b>	
LD50 oral rat	4390 mg/kg (Rat)
LD50 dermal rabbit	> 5000 mg/kg (Rabbit)
ATE US (oral)	3775 mg/kg bodyweight

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<b>GAMMA-TERPINENE (99-85-4)</b>	
ATE US (oral)	3650 mg/kg bodyweight
<b>P-CYMENE (99-87-6)</b>	
LD50 oral rat	4750 mg/kg (Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 5000 mg/kg (Rabbit, Experimental value, Dermal, 14 day(s))
LC50 Inhalation - Rat	> 9.7 mg/l (5 h, Rat, Experimental value, Inhalation)
ATE US (oral)	4750 mg/kg bodyweight
ATE US (gases)	700 ppmv/4h
ATE US (vapours)	9.7 mg/l/4h
ATE US (dust,mist)	0.5 mg/l/4h
<b>ALPHA-TERPINENE (99-86-5)</b>	
ATE US (oral)	1680 mg/kg bodyweight
<b>LINALOOL (78-70-6)</b>	
ATE US (oral)	2790 mg/kg bodyweight
<b>CITRAL (5392-40-5)</b>	
LD50 oral rat	≈ 6800 mg/kg bodyweight Animal: rat
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Remarks on results: other:
<b>MYRCENE (123-35-3)</b>	
LD50 oral rat	> 11390 mg/kg bodyweight Animal: rat
LD50 dermal rabbit	> 5000 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)

<b>BETA-PINENE (127-91-3)</b>	
LD50 oral rat	4700 mg/kg (Rat, Oral)
ATE US (oral)	4700 mg/kg bodyweight

<b>VANILLIN (121-33-5)</b>	
LD50 oral rat	3300 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))
ATE US (oral)	3300 mg/kg bodyweight
ATE US (dermal)	2600 mg/kg bodyweight

<b>BENZALDEHYDE (100-52-7)</b>	
ATE US (oral)	1430 mg/kg bodyweight
ATE US (gases)	4500 ppmv/4h
ATE US (vapours)	11 mg/l/4h
ATE US (dust,mist)	1.5 mg/l/4h

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

<b>D-LIMONENE (5989-27-5)</b>	
IARC group	3 - Not classifiable

<b>CITRAL (5392-40-5)</b>	
NOAEL (chronic, oral, animal/male, 2 years)	60 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies), Remarks on results: other:

<b>MYRCENE (123-35-3)</b>	
IARC group	2B - Possibly carcinogenic to humans

Reproductive toxicity : Suspected of damaging fertility or the unborn child.

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STOT-single exposure : Not classified

<b>BENZALDEHYDE (100-52-7)</b>	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Not classified

<b>MYRCENE (123-35-3)</b>	
LOAEL (oral, rat, 90 days)	250 mg/kg bodyweight 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 bodyweight 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 bodyweight 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 after inhalation : No data available.

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

Symptoms/effects after eye contact : Serious damage to eyes.

Symptoms/effects after ingestion : Risk of lung oedema.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

<b>GERANYL ACETATE (105-87-3)</b>	
LC50 - Fish [1]	68.12 mg/l (DIN 38412: German standard methods for the examination of water, waste water and sludge, 96 h, Leuciscus idus, Static system, Fresh water, Read-across)
EC50 - Crustacea [1]	14.1 mg/l (EU Method C.2, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)

<b>ETHYL BUTYRATE (105-54-4)</b>	
LC50 - Fish [1]	≥ 100 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	116.6 mg/l Test organisms (species): Daphnia magna
NOEC (chronic)	28833 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	1483 mg/l Test organisms (species): other: Duration: '28 d'

<b>PIPERONAL (120-57-0)</b>	
LC50 - Fish [1]	2.5 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Cyprinus carpio, Static system, Fresh water, Experimental value, GLP)
EC50 - Crustacea [1]	52 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Nominal concentration)
ErC50 algae	31 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)

<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

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<b>D-LIMONENE (5989-27-5)</b>	
EC50 - Crustacea [2]	0.51 mg/l Test organisms (species): Daphnia magna
<b>P-CYMENE (99-87-6)</b>	
LC50 - Fish [1]	48 mg/l (EPA OPPTS 850.1075, 96 h, Cyprinodon variegatus, Static system, Salt water, Experimental value)
EC50 - Crustacea [1]	3.7 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Experimental value, GLP)
<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>MYRCENE (123-35-3)</b>	
EC50 - Crustacea [1]	1.47 mg/l Test organisms (species): Daphnia magna
<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>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)
LC50 - Fish [2]	123 mg/l Test organisms (species): Pimephales promelas
ErC50 algae	120 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)
LOEC (chronic)	10 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	5.9 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

### 12.2. Persistence and degradability

<b>GERANYL ACETATE (105-87-3)</b>	
Persistence and degradability	Readily biodegradable in water.
ThOD	2.6 g O <sub>2</sub> /g substance
<b>PIPERONAL (120-57-0)</b>	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
ThOD	1.71 g O <sub>2</sub> /g substance
<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>TERPINOLENE (586-62-9)</b>	
Persistence and degradability	Forming sediments in water. Biodegradability in soil: no data available. Adsorbs into the soil.
ThOD	3.294 g O <sub>2</sub> /g substance
<b>P-CYMENE (99-87-6)</b>	
Persistence and degradability	Readily biodegradable in water.
<b>BETA-PINENE (127-91-3)</b>	
Persistence and degradability	Readily biodegradable in water.
<b>VANILLIN (121-33-5)</b>	
Persistence and degradability	Readily biodegradable in water.

### 12.3. Bioaccumulative potential

<b>GERANYL ACETATE (105-87-3)</b>	
BCF - Other aquatic organisms [1]	1500 (Estimated value)

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<b>GERANYL ACETATE (105-87-3)</b>	
Partition coefficient n-octanol/water (Log Pow)	4.04 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method)
Bioaccumulative potential	Potential for bioaccumulation ( $4 \leq \text{Log Kow} \leq 5$ ).
<b>PIPERONAL (120-57-0)</b>	
Partition coefficient n-octanol/water (Log Pow)	1.2 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 35 °C)
Bioaccumulative potential	Low potential for bioaccumulation ( $\text{Log Kow} < 4$ ).
<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>TERPINOLENE (586-62-9)</b>	
Partition coefficient n-octanol/water (Log Pow)	4.23
<b>P-CYMENE (99-87-6)</b>	
Partition coefficient n-octanol/water (Log Pow)	4.8 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 20 °C)
Bioaccumulative potential	Potential for bioaccumulation ( $4 \leq \text{Log Kow} \leq 5$ ).
<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 ( $4 \leq \text{Log Kow} \leq 5$ ).
<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 ( $\text{Log Kow} < 4$ ).

### 12.4. Mobility in soil

<b>GERANYL ACETATE (105-87-3)</b>	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.06 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Low potential for mobility in soil.
<b>PIPERONAL (120-57-0)</b>	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1.1 (log Koc, Calculated 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>P-CYMENE (99-87-6)</b>	
Surface tension	No data available in the literature
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.17 (log Koc, SRC PCKOCWIN v2.0, QSAR)
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.

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VANILLIN (121-33-5)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.438 (log Koc, Experimental value)
Ecology - soil	Low potential for mobility in soil.

### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.
Additional information	: Flammable vapours may accumulate in the container. Do not re-use empty containers.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

Transport document description (DOT)	: UN1197 Extracts, liquid (Regulated for Bulk only), 3, III
UN-No. (DOT)	: UN1197
Proper Shipping Name (DOT)	: Extracts, liquid (Regulated for Bulk only)
Class (DOT)	: 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Packing group (DOT)	: III - Minor Danger
Hazard labels (DOT)	: 3 - Flammable liquid



DOT Packaging Non Bulk (49 CFR 173.xxx)	: 203
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT Special Provisions (49 CFR 172.102)	: B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T2 - 1.5 178.274(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.
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.
Emergency Response Guide (ERG) Number	: 127
Other information	: No supplementary information available.

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### Transportation of Dangerous Goods

Transport document description (TDG)	: UN1197 EXTRACTS, LIQUID (Regulated for Bulk only), 3, III
UN-No. (TDG)	: UN1197
Proper Shipping Name (TDG)	: EXTRACTS, LIQUID
TDG Primary Hazard Classes	: 3 - Class 3 - Flammable Liquids
Packing group (TDG)	: III - Minor Danger
Explosive Limit and Limited Quantity Index	: 5 L
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	: 60 L

### Transport by sea

Transport document description (IMDG)	: UN 1197 EXTRACTS, LIQUID, 3, III
UN-No. (IMDG)	: 1197
Proper Shipping Name (IMDG)	: EXTRACTS, LIQUID
Class (IMDG)	: 3 - Flammable liquids
Packing group (IMDG)	: III - substances presenting low danger
Limited quantities (IMDG)	: 5 L

### Air transport

Transport document description (IATA)	: UN 1197 Extracts, liquid, 3, III
UN-No. (IATA)	: 1197
Proper Shipping Name (IATA)	: Extracts, liquid
Class (IATA)	: 3 - Flammable Liquids
Packing group (IATA)	: III - Low danger

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### GERANYL ACETATE (105-87-3)

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

#### BUTYL LACTATE (138-22-7)

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

### 15.2. International regulations

#### CANADA

#### NEROLIDOL (7212-44-4)

Listed on the Canadian DSL (Domestic Substances List)

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

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

#### GERANYL ACETATE (105-87-3)

Listed on the Canadian DSL (Domestic Substances List)

#### ETHYL BUTYRATE (105-54-4)

Listed on the Canadian DSL (Domestic Substances List)

#### PIPERONAL (120-57-0)

Listed on the Canadian DSL (Domestic Substances List)

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<b>D-LIMONENE (5989-27-5)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>TERPINOLENE (586-62-9)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>GAMMA-TERPINENE (99-85-4)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>P-CYMENE (99-87-6)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>ALPHA-TERPINENE (99-86-5)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>LINALOOL (78-70-6)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>CITRAL (5392-40-5)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>MYRCENE (123-35-3)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>BETA-CARYOPHYLLENE (87-44-5)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>BUTYL LACTATE (138-22-7)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>BETA-PINENE (127-91-3)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>VANILLIN (121-33-5)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>BENZALDEHYDE (100-52-7)</b>
Listed on the Canadian DSL (Domestic Substances List)

### EU-Regulations

No additional information available

### National regulations

<b>NEROLIDOL (7212-44-4)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
<b>ALPHA PINENE (7785-26-4)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
<b>ETHYL BUTYRATE (105-54-4)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Listed on INSQ (Mexican National Inventory of Chemical Substances)
<b>PIPERONAL (120-57-0)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Listed on INSQ (Mexican National Inventory of Chemical Substances)
<b>D-LIMONENE (5989-27-5)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Listed on INSQ (Mexican National Inventory of Chemical Substances)
<b>TERPINOLENE (586-62-9)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Listed on INSQ (Mexican National Inventory of Chemical Substances)
<b>GAMMA-TERPINENE (99-85-4)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Listed on INSQ (Mexican National Inventory of Chemical Substances)

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### P-CYMENE (99-87-6)

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

### ALPHA-TERPINENE (99-86-5)

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

### LINALOOL (78-70-6)

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

### 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)

### 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)

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

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

### 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)

### VANILLIN (121-33-5)

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

### BENZALDEHYDE (100-52-7)

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

Prop 65 available upon request

Component	State or local regulations
ETHYL BUTYRATE(105-54-4)	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
TERPINOLENE(586-62-9)	U.S. - New Jersey - Right to Know Hazardous Substance List
P-CYMENE(99-87-6)	U.S. - Massachusetts - Right To Know List; U.S. - Pennsylvania - RTK (Right to Know) List
BUTYL LACTATE(138-22-7)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List
BENZALDEHYDE(100-52-7)	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

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Full text of H-statements:

H226	Flammable liquid and vapour.
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.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H320	Causes eye irritation
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H361	Suspected of damaging fertility or the unborn child.

SDS US (GHS HazCom 2012) [Prop65]

*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.*