



1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Number 1420
EC-No 288-922-1
CAS-No 8000-66-6
FEMA Numbers 2241

Manufacturer Apex Flavors, Inc.
 1371 Brass Mill Rd.
 Suite A
 Belcamp, MD 21017
 (410) 565-6600

Product name CARDAMOM OIL - PURE, THERAPEUTIC, FOOD GRADE
Pure substance/mixture Natural Complex Substance

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use No information available

1.3. Details of the supplier of the safety data sheet

For further information, please contact:

E-mail Address cpisano@apexflavors.com

1.4. Emergency telephone number

Emergency telephone Chemtrec: 1-800-424-9300 for US/ 703-527-3887 outside US

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

| | |
|-----------------------------------|-------------|
| Acute oral toxicity | Category 5 |
| Skin corrosion/irritation | Category 2 |
| Serious eye damage/eye irritation | Category 2A |
| Skin sensitization | Category 1 |
| Acute aquatic toxicity | Category 2 |
| Chronic aquatic toxicity | Category 2 |
| Flammable liquids | Category 4 |

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R-phrases mentioned in this Section, see Section 16

Symbol(s)

Xi - Irritant

N - Dangerous for the environment

2.2. Label elements**Signal Word**

Warning

Hazard Statements

H303 - May be harmful if swallowed

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H319 - Causes serious eye irritation

H411 - Toxic to aquatic life with long lasting effects

H227 - Combustible liquid

Precautionary Statements

P280 - Wear eye protection/ face protection

P321 - Specific treatment (see .? on this label)

P403 + P235 - Store in a well-ventilated place. Keep cool

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

P280 - Wear protective gloves/ eye protection/ face protection

2.3. Other information**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.1 Substances**

| Chemical Name | EC-No | CAS-No | Alternate CAS # | Weight % | Classification according to Directive 67/548/EEC or 1999/45/EC | Classification according to Regulation (EC) No. 1272/2008 [CLP] | REACH Registration Number |
|------------------|-----------|-----------|-----------------|----------|--|--|---------------------------|
| TERPINYL ACETATE | 201-265-7 | 80-26-2 | | 30-50% | - | Aquatic Acute 2 (H401) (EFFA) Skin Irrit. 3 (316) (EFFA) Aquatic Chronic 2 (H411) (EFFA) | No data available |
| LINALYL ACETATE | 204-116-4 | 115-95-7 | | 5-10% | - | Aquatic Acute 2 (H401) (EFFA) Eye Irrit. 1 (H319) (EFFA) Skin Irrit. 2 (315) (EFFA) Flam. Liq. 4 (H227)(EFFA) Aquatic Acute 2 (H401) Eye Irrit. 1 (H319) Skin Irrit. 2 (H315) | No data available |
| A-TERPINEOL | 202-680-6 | 98-55-5 | | 1-5% | XI; R38 | Eye Irrit. 1 (H319) Skin Irrit. 2 (H315) Acute Tox. 5 (H303) Flam. Liq. 4 (H227) | No data available |
| LIMONENE | 227-813-5 | 5989-27-5 | | 1-5% | R10, XI; R38, XI; R43, N; R50/53; | Aquatic Acute 1 (H400) Skin Sens. 1 (H317) Skin Irrit. 2 (H316) Asp. Tox. 1 (H304) Aquatic Chronic 1 (H410) Flam. Liq. 3 (H226) | No data available |

| | | | | | | | |
|-----------|-----------|-----------|--|------|---|---|-------------------|
| LINALLOOL | 201-134-4 | 78-70-6 | | 1-5% | XI; R38 | Aquatic Acute 3 (H402) Skin Irrit. 2 (H316) Acute Tox. 5 (H303) Flam. Liq. 4 (H227) | No data available |
| PINENES | 201-291-9 | 80-56-8 | | 1-5% | R10, XI; R43, N; R50/53, XN; R65; | Aquatic Acute 1 (H400) Skin Sens. 1 (H317) Skin Irrit. 3 (H316) Asp. Tox. 1 (H304) Aquatic Chronic 1 (H410) Acute Tox. 5 (H303) Flam. Liq. 3 (H226) | No data available |
| MYRCENE | 204-622-5 | 123-35-3 | | 1-5% | - | Eye Irrit. 1 (H319) (EFA) Skin Irrit. 2 (315) (EFA) Asp. Tox. 1 (H304) (EFA) Eye Irrit. 1 (H319) Skin Irrit. 2 (H315) | No data available |
| NEROLIDOL | 205-540-2 | 142-50-7 | | 1-5% | N; R50/53; | Aquatic Acute 1 (H400) Skin Irrit. 3 (H316) Aquatic Chronic 1 (H410) | No data available |
| GERANIOL | 203-377-1 | 106-24-1 | | 1-5% | XI; R38, XI; R41, XI; R43; | Aquatic Acute 3 (H402) Skin Sens. 1 (H317) Eye Dam. 1 (H318) Skin Irrit. 2 (H315) Acute Tox. 5 (H303) | No data available |
| CITRAL | 226-394-6 | 5392-40-5 | | <1 | XI; R38, XI; R43; | Aquatic Acute 2 (H401) Skin Sens. 1 (H317) Skin Irrit. 2 (H316) Acute Tox. 5 (H303) Acute Tox. 5 (H313) Flam. Liq. 4 (H227) | No data available |
| FARNESOL | 225-004-1 | 4602-84-0 | | <1 | XI; R36/38, XI; R43; | Skin Sens. 1 (H317) Eye Irrit. 1 (H319) Skin Irrit. 2 (H316) | No data available |

For the full text of the R-phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

4.1. Description of first aid measures

| | |
|---|--|
| General advice | If symptoms persist, call a physician |
| Eye contact | If symptoms persist, call a physician Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes Keep eye wide open while rinsing |
| Skin contact | If skin irritation persists, call a physician. Wash off immediately with plenty of water for at least 15 minutes. Wash off immediately with soap and plenty of water. Immediate medical attention is not required. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. |
| Ingestion | Do NOT induce vomiting. Drink plenty of water. Immediate medical attention is not required. Rinse mouth. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Call a physician. |
| Inhalation | If symptoms persist, call a physician. Move to fresh air. Immediate medical attention is not required. Move to fresh air in case of accidental inhalation of vapors or decomposition products. |
| Self-protection of the first aider | Use personal protective equipment |

4.2. Most important symptoms and effects, both acute and delayed

4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically May cause sensitization in susceptible persons

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Use Dry chemical Carbon dioxide CO₂ Water spray Alcohol-resistant foam

Extinguishing media which shall not be used for safety reasons

No information available

5.2. Special hazards arising from the substance or mixture

Special Hazard

None

5.3. Advice for firefighters

Special protective equipment for fire-fighters

As in any fire, wear self-contained breathing apparatus and full protective gear

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid contact with eyes and skin. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Pay attention to flashback. Take precautionary measures against static discharges.

See Section 12 for additional Ecological Information

6.2. Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust)

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Use personal protective equipment as required. Ensure adequate ventilation. Use only in area provided with appropriate exhaust ventilation. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from heat, sparks and open flame. No smoking. Do not breathe dust/fume/gas/mist/vapors/spray. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors).

7.2. Conditions for safe storage, including any incompatibilities

Keep out of the reach of children. Keep container tightly closed. Keep away from heat and sources of ignition. Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat. Keep in properly labeled containers.

7.3 Specific end use(s)

Exposure scenario N/A

Other Guidelines N/A

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

| Chemical Name | European Union | The United Kingdom | France | Spain | Germany |
|-----------------------|----------------|--------------------|---|---|--|
| LIMONENE 5989-27-5 | | | | | MAK: 20 ppm MAK: 110 mg/m ³ Ceiling / Peak: 40 ppm Ceiling / Peak: 220 mg/m ³ TWA: 20 ppm TWA: 110 mg/m ³ |
| PINENES 80-56-8 | | | | VLA-ED: 20 ppm VLA-ED: 113 mg/m ³ | |
| MYRCENE 123-35-3 | | | TWA: 1000 mg/m ³ STEL: 1500 mg/m ³ | | |

| Chemical Name | Italy | Portugal | The Netherlands | Finland | Denmark |
|-----------------------|-------|-------------|-----------------|--|---------|
| LIMONENE 5989-27-5 | | | | TWA: 25 ppm TWA: 140 mg/m ³ STEL: 50 ppm STEL: 280 mg/m ³ | |
| PINENES 80-56-8 | | TWA: 20 ppm | | | |

| Chemical Name | Austria | Sweden - Occupational Exposure Limits - TLVs (LLVs) | Switzerland | Poland | Norway |
|-----------------------|---------|--|--|--------|--|
| LIMONENE 5989-27-5 | | | STEL: 40 ppm STEL: 220 mg/m ³ MAK: 20 ppm MAK: 110 mg/m ³ | | TWA: 25 ppm TWA: 140 mg/m ³ STEL: 37.5 ppm STEL: 175 mg/m ³ |
| PINENES 80-56-8 | | 25 ppm NGV 150 mg/m ³ NGV | | | TWA: 25 ppm TWA: 140 mg/m ³ Skin STEL: 37.5 ppm STEL: 175 mg/m ³ |
| MYRCENE 123-35-3 | | | | | TWA: 40 ppm TWA: 275 mg/m ³ STEL: 60 ppm STEL: 343.75 mg/m ³ |

Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration (PNEC) No information available

8.2. Exposure controls

Engineering Controls

Ensure adequate ventilation, especially in confined areas

Personal protective equipment

Eye Protection

Tightly fitting safety goggles

Hand Protection

Protective gloves

Skin and body protection

Long sleeved clothing Chemical resistant apron Antistatic boots Impervious gloves

| | |
|--|--|
| Respiratory protection | When workers are facing concentrations above the exposure limit they must use appropriate certified respirators |
| General Hygiene Considerations | When using, do not eat, drink or smoke Wash contaminated clothing before reuse Provide regular cleaning of equipment, work area and clothing |
| Environmental Exposure Controls | Do not allow material to contaminate ground water system |

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| | | | |
|--|--|--------------------------|---------------------------|
| Physical state | liquid | Appearance | clear |
| Odor | penetrating and camphorous aroma of cardamom | Color | Colorless to pale yellow. |
| Property | Values | Method | |
| pH | | No information available | |
| Melting/freezing point | | No information available | |
| Boiling point/boiling range | | FCC Method | |
| Flash Point | 61 °C / 142 °F | Closed cup | |
| Evaporation rate | | FCC Method | |
| Flammability (solid, gas) | | No information available | |
| Flammability Limits in Air | | No information available | |
| Upper flammability limit | | | |
| lower flammability limit | | | |
| Vapor pressure mm Hg 20°C | | No information available | |
| Vapor density | | No information available | |
| Relative density | | No information available | |
| Specific Gravity @ 25C | 0.917 - 0.947 | FCC Method | |
| Specific Gravity @ 20C | 0.92 - 0.95 | FCC Method | |
| Refractive Index | 1.462 - 1.466 | FCC Method | |
| Water solubility | | No information available | |
| Partition coefficient: n-octanol/water | | No information available | |
| Autoignition temperature | | No information available | |
| Decomposition temperature | | No information available | |
| Viscosity, dynamic | | No information available | |
| Explosive properties | No information available | | |
| Oxidizing Properties | No information available | | |

9.2. Other information

| | |
|-------------------------|--------------------------|
| VOC Content(%) | 6 |
| Molecular Weight | No information available |

10. STABILITY AND REACTIVITY

10.1. Reactivity

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

Heat, flames and sparks

10.5. Incompatible materials

No materials to be especially mentioned

10.6. Hazardous decomposition products

None under normal use conditions

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

| | |
|-----------------------|--|
| Inhalation | There is no data available for this product |
| Eye contact | There is no data available for this product |
| Skin contact | There is no data available for this product |
| Ingestion | There is no data available for this product |
| Acute toxicity | 32.5% of the mixture consists of ingredient(s) of unknown toxicity |

The following values are calculated based on chapter 3.1 of the GHS document (Rev. 1, 2005):

| | |
|---------------|-----------------|
| Oral | 4,975.00 mg/kg |
| Dermal | 18,580.00 mg/kg |

| Chemical Name | Oral LD50 | Dermal LD50 | LC50 Inhalation |
|------------------|-----------------------|--|-----------------|
| TERPINYL ACETATE | 5075 mg/kg (Rat) | | |
| LINALYL ACETATE | = 13934 mg/kg (Rat) | | |
| A-TERPINEOL | 5170 mg/kg (Rat) | | |
| LIMONENE | 4400 mg/kg (Rat) | 2000 mg/kg (Rabbit) | |
| LINALOOL | 2790 mg/kg (Rat) | 5610 mg/kg (Rat) | |
| PINENES | 2100 mg/kg (Rat) | 5000 mg/kg (Rat) | |
| MYRCENE | > 5 g/kg (Rat) | > 5 g/kg (Rabbit) | |
| GERANIOL | 3600 mg/kg (Rat) | 5000 mg/kg (Rabbit) | |
| CITRAL | 4950 mg/kg (Rat) | 2250 mg/kg (Rabbit) 2000 mg/kg (Rat) | |
| FARNESOL | 6 g/kg (Rat) | | |

| | |
|----------------------------------|--------------------------|
| Skin corrosion/irritation | No information available |
| Eye damage/irritation | No information available |
| Sensitization | No information available |
| Germ Cell Mutagenicity | No information available |
| Carcinogenicity | No information available |

Specific target organ systemic toxicity (single exposure) No information available

Specific target organ systemic toxicity (repeated exposure) No information available

Target Organ Effects No information available

Aspiration hazard No information available

12. ECOLOGICAL INFORMATION

12.1. Toxicity**Ecotoxicity effects**

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

| Chemical Name | Toxicity to algae | Toxicity to fish | Toxicity to daphnia and other aquatic invertebrates |
|---------------|--|--|---|
| LIMONENE | | 0.619-0.796: 96 h Pimephales promelas mg/L LC50 flow-through 35: 96 h Oncorhynchus mykiss mg/L LC50 | |
| LINALOOL | 88.3: 96 h Desmodesmus subspicatus mg/L EC50 | 22-46: 96 h Leuciscus idus mg/L LC50 static | 20: 48 h Daphnia magna mg/L EC50 |
| PINENES | | 0.28: 96 h Pimephales promelas mg/L LC50 static | 41: 48 h Daphnia magna mg/L LC50 |
| CITRAL | 16: 72 h Desmodesmus subspicatus mg/L EC50 19: 96 h Desmodesmus subspicatus mg/L EC50 | 4.6-10: 96 h Leuciscus idus mg/L LC50 static | 7: 48 h Daphnia magna mg/L EC50 |

12.2. Persistence and degradability

No information available

12.3. Bioaccumulative potential

No information available

| Chemical Name | log Pow |
|---------------|---------|
| LINALOOL | 3.1 |
| PINENES | 4.1 |
| CITRAL | 2.76 |

12.4. Mobility in soil

No information available

12.5. Results of PBT and vPvB assessment**12.6. Other adverse effects**

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods**Waste from residues / unused products**

Dispose of in accordance with local regulations

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal

Other Information

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific Waste codes should be assigned by the user based on the application for which the product was used

14. TRANSPORT INFORMATION

DOT**IMDG / IMO****Proper shipping name**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (LIMONENE, PINENES)

| | |
|-------------------------|--|
| Hazard class | 9 |
| UN/ID No | 3082 |
| Packing Group | III |
| Marine pollutant | This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO |

ICAO/IATA

| | |
|-----------------------------|--|
| UN/ID No | 3082 |
| Proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (LIMONENE) |
| Hazard class | 9 |
| Packing Group | III |
| ERG Code | 171 |
| Marine Pollutant | P |

15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

WGK Classification

| Chemical Name | Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes |
|-----------------------------|---|
| LINALYL ACETATE 115-95-7 | Hazard Class 1 |
| LINALOOL 78-70-6 | Hazard Class 1 |
| CITRAL 5392-40-5 | Hazard Class 1 |

International Inventories

All of the components in the product are on the following Inventory lists: No information available.

| | |
|----------------------|---|
| TSCA | - |
| EINECS/ELINCS | - |
| DSL/NDSL | - |
| PICCS | - |
| ENCS | - |
| IECSC | - |
| AICS | - |
| KECL | - |

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

15.2. Chemical safety assessment

16. OTHER INFORMATION

Risk Combination Phrases

R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R36/38 - Irritating to eyes and skin
R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Full text of H-Statements referred to under sections 2 and 3

H402 - Harmful to aquatic life H317 - May cause an allergic skin reaction H318 - Causes serious eye damage H315 - Causes skin irritation H303 - May be harmful if swallowed H401 - Toxic to aquatic life H319 - Causes serious eye irritation H227 - Combustible liquid H304 - May be fatal if swallowed and enters airways H400 - Very toxic to aquatic life H316 - Causes mild skin irritation H410 - Very toxic to aquatic life with long lasting effects H313 - May be harmful in contact with skin H226 - Flammable liquid and vapor H411 - Toxic to aquatic life with long lasting effects

| | |
|----------------------|-----------------|
| Revision Date | 10-Jun-2016 |
| Revision Note | Not applicable. |
| Revision# | 2.01 |

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

WARNING/DISCLAIMER:

Apex Flavors, Inc.'s products are sold exclusively for use in food and drink for human consumption. These products have not been tested, nor have they been deemed safe, for inhalation or use in electronic smoking devices, electronic nicotine delivery systems, and electronic cigarettes or similar devices (collectively "E-Cigarettes"). In supplying this product(s), Apex Flavors, Inc. instructs, and purchasing recipient confirms, that this product(s) will not be used in connection with the manufacture and distribution of E-Cigarettes or any component thereof. Recipients of our products that use them outside of their intended use of food or drink do so at their own risk and without warranty, either expressed or implied, from Apex Flavors, Inc. or its suppliers. The user assumes all liability for loss, injury, damage, or expense resulting from such uses.

Disclaimer

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