



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

### 1.1. Product identifier

**Number** 1402  
**EC-No** 290-010-3  
**CAS-No** 8008-26-2  
**FEMA Numbers** 2631

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

**Product name** KEY LIME OIL - PURE, UNDILUTED, 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

Aspiration toxicity	Category 1
Acute oral toxicity	Category 5
Acute dermal toxicity	Category 5
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Skin sensitization	Category 1
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1
Flammable liquids	Category 3

**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

#### R-code(s)

R10 - Xi; R38 - R43 - N; R50-53

### 2.2. Label elements

**Signal Word**

Danger

**Hazard Statements**

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H317 - May cause an allergic skin reaction

H410 - Very toxic to aquatic life with long lasting effects

H304 - May be fatal if swallowed and enters airways

H226 - Flammable liquid and vapor

**Precautionary Statements**

P280 - Wear eye protection/ face protection

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

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician

P331 - Do NOT induce vomiting

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

**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
LIMONENE	227-813-5	5989-27-5		30-50%	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
A-TERPINEOL	202-680-6	98-55-5		5-10%	XI; R38	Eye Irrit. 1 (H319) Skin Irrit. 2 (H315) 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

P-CYMENE	202-796-7	99-87-6		1-5%	R10, N; R51/53, XN; R65;	Aquatic Acute 2 (H401) Skin Irrit. 3 (H316) Aquatic Chronic 2 (H411) Asp. Tox. 1 (H304) Acute Tox. 5 (H303) Flam. Liq. 3 (H226)	No data available
CITRAL	226-394-6	5392-40-5		1-5%	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

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

<b>General advice</b>	Immediate medical attention is required Show this material safety data sheet to the doctor in attendance. If symptoms persist, call a physician
<b>Eye contact</b>	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
<b>Skin contact</b>	Wash off immediately with plenty of water. Wash contaminated clothing before reuse. If skin irritation persists, call a physician. 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.
<b>Ingestion</b>	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.
<b>Inhalation</b>	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. Move to fresh air in case of accidental inhalation of vapors or decomposition products.
<b>Self-protection of the first aider</b>	Remove all sources of ignition 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 CO<sub>2</sub> 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**

Remove all sources of ignition. Evacuate personnel to safe areas. Ensure adequate ventilation. Use personal protective equipment. 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 further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. 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**

Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only in an area containing flame proof equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Use only in area provided with appropriate exhaust ventilation. Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray. Keep away from heat, sparks and open flame. No smoking. 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 tightly closed in a dry and cool place. Keep in properly labeled containers. Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat.

**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 <sup>3</sup> Ceiling / Peak: 40 ppm Ceiling / Peak: 220 mg/m <sup>3</sup> TWA: 20 ppm TWA: 110 mg/m <sup>3</sup>
PINENES				VLA-ED: 20 ppm	

80-56-8				VLA-ED: 113 mg/m <sup>3</sup>
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Chemical Name	Italy	Portugal	The Netherlands	Finland	Denmark
LIMONENE 5989-27-5				TWA: 25 ppm TWA: 140 mg/m <sup>3</sup> STEL: 50 ppm STEL: 280 mg/m <sup>3</sup>	
PINENES 80-56-8		TWA: 20 ppm			
P-CYMENE 99-87-6					TWA: 25 ppm TWA: 135 mg/m <sup>3</sup>

Chemical Name	Austria	Sweden - Occupational Exposure Limits - TLVs (LLVs)	Switzerland	Poland	Norway
LIMONENE 5989-27-5			STEL: 40 ppm STEL: 220 mg/m <sup>3</sup> MAK: 20 ppm MAK: 110 mg/m <sup>3</sup>		TWA: 25 ppm TWA: 140 mg/m <sup>3</sup> STEL: 37.5 ppm STEL: 175 mg/m <sup>3</sup>
PINENES 80-56-8		25 ppm NGV 150 mg/m <sup>3</sup> NGV			TWA: 25 ppm TWA: 140 mg/m <sup>3</sup> Skin STEL: 37.5 ppm STEL: 175 mg/m <sup>3</sup>
P-CYMENE 99-87-6		25 ppm NGV 140 mg/m <sup>3</sup> NGV			

**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** Antistatic boots Wear fire/ flame resistant/ retardant clothing Impervious gloves Long sleeved clothing Apron Chemical resistant apron  
**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 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

<b>Physical state</b>	liquid	<b>Appearance</b>	clear
<b>Odor</b>	fresh citrus	<b>Color</b>	yellow to brownish-green

<u>Property</u>	<u>Values</u>	<u>Method</u>
pH		No information available
Melting/freezing point		No information available
Boiling point/boiling range		FCC Method
Flash Point	46 °C / 115 °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	0.872 - 0.881	FCC Method
Specific Gravity @ 20C	0.875 - 0.884	FCC Method
Refractive Index	1.482 - 1.486	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
<b>Explosive properties</b>	No information available	
<b>Oxidizing Properties</b>	No information available	

### 9.2. Other information

<b>VOC Content(%)</b>	58
<b>Molecular Weight</b>	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**

<b>Inhalation</b>	There is no data available for this product
<b>Eye contact</b>	There is no data available for this product
<b>Skin contact</b>	There is no data available for this product
<b>Ingestion</b>	There is no data available for this product
<b>Acute toxicity</b>	34% 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):

<b>Oral</b>	4,095.00 mg/kg
<b>Dermal</b>	2,500.00 mg/kg
<b>Skin corrosion/irritation</b>	No information available
<b>Eye damage/irritation</b>	No information available
<b>Sensitization</b>	No information available
<b>Germ Cell Mutagenicity</b>	No information available
<b>Carcinogenicity</b>	No information available
<b>Specific target organ systemic toxicity (single exposure)</b>	No information available
<b>Specific target organ systemic toxicity (repeated exposure)</b>	No information available
<b>Target Organ Effects</b>	No information available
<b>Aspiration hazard</b>	No information available

## 12. ECOLOGICAL INFORMATION

**12.1. Toxicity**

**Ecotoxicity effects** Very 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	
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
PINENES	4.1
P-CYMENE	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**

<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal
<b>Other Information</b>	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**

<b>Proper shipping name</b>	FLAMMABLE LIQUID, N.O.S. (LIMONENE, PINENES)
<b>Hazard class</b>	3
<b>UN/ID No</b>	1993
<b>Packing Group</b>	III
<b>Marine pollutant</b>	This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO

**ICAO/IATA**

<b>UN/ID No</b>	1993
<b>Proper shipping name</b>	FLAMMABLE LIQUID, N.O.S. (LIMONENE, PINENES)
<b>Hazard class</b>	3
<b>Packing Group</b>	III
<b>ERG Code</b>	128

**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
CITRAL	Hazard Class 1



5392-40-5

**International Inventories**

All of the components in the product are on the following Inventory lists: Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP).

<b>TSCA</b>	Complies
<b>EINECS/ELINCS</b>	Complies
<b>DSL/NDSL</b>	Complies
<b>PICCS</b>	Complies
<b>ENCS</b>	Complies
<b>IECSC</b>	Complies
<b>AICS</b>	Complies
<b>KECL</b>	Complies

**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  
 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**

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

**Revision Date** 25-Jul-2016

**Revision Note** Not applicable.

**Revision#** 2.07

**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.

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