



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

1.1. Product identifier

Number 012

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

Product name PURE LEMON EXTRACT, NATURAL
Pure substance/mixture Mixture

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

Skin corrosion/irritation	Category 3
Serious eye damage/eye irritation	Category 2A
Skin sensitization	Category 1
Acute aquatic toxicity	Not classified for acute
Flammable liquids	Category 2

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

2.2. Label elements

**Signal Word**

Warning

Hazard Statements

H316 - Causes mild skin irritation

H317 - May cause an allergic skin reaction

H319 - Causes serious eye irritation

H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements

P280 - Wear eye protection/ face protection

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

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
ETHYL ALCOHOL	Present	64-17-5		90-100%	F; R11	Eye Irrit. 1 (H319) (EFFA) Flam. Liq. 2 (H225) (EFFA) Flam. Liq. 2 (H225)	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
PINENES	201-291-9	80-56-8		<1	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

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
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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

Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Ingestion	Clean mouth with water and drink afterwards plenty of water.
Inhalation	Move to fresh air.

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

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

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

Ensure adequate ventilation.

See Section 12 for additional Ecological Information

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so.

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.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

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
ETHYL ALCOHOL 64-17-5		STEL: 3000 ppm STEL: 5760 mg/m ³ TWA: 1000 ppm TWA: 1920 mg/m ³	TWA: 1000 ppm TWA: 1900 mg/m ³ STEL: 5000 ppm STEL: 9500 mg/m ³	STEL: 1000 ppm STEL: 1910 mg/m ³	TWA: 500 ppm TWA: 960 mg/m ³ Ceiling / Peak: 1000 ppm Ceiling / Peak: 1920 mg/m ³ Skin
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	

Chemical Name	Italy	Portugal	The Netherlands	Finland	Denmark
ETHYL ALCOHOL 64-17-5		TWA: 1000 ppm	Skin STEL: 1900 mg/m ³ TWA: 260 mg/m ³	TWA: 1000 ppm TWA: 1900 mg/m ³ STEL: 1300 ppm STEL: 2500 mg/m ³	TWA: 1000 ppm TWA: 1900 mg/m ³
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

ETHYL ALCOHOL 64-17-5	STEL 2000 ppm STEL 3800 mg/m ³ TWA: 1000 ppm TWA: 1900 mg/m ³	500 ppm NGV 1000 mg/m ³ NGV	STEL: 1000 ppm STEL: 1920 mg/m ³ TWA: 500 ppm TWA: 960 mg/m ³	TWA: 1900 mg/m ³	TWA: 500 ppm TWA: 950 mg/m ³ STEL: 625 ppm STEL: 1187.5 mg/m ³
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

Component	Ireland
ETHYL ALCOHOL 64-17-5 (90-100%)	STEL: 1000 ppm

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
Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

Environmental Exposure Controls No information available

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	liquid	Appearance	clear
Odor	typical of lemon	Color	yellow

<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	20 °C / 68 °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	0.803 - 0.823	FCC Method
Specific Gravity @ 20C	0.806 - 0.826	FCC Method
Refractive Index	1.3575 - 1.3775	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(%)	94.4931014478207
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	2.1886664% 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):

Dermal	64,180.00 mg/kg
Mist	71,833.34 mg/l

Chemical Name	Oral LD50	Dermal LD50	LC50 Inhalation
ETHYL ALCOHOL			124.7 mg/L (Rat) 4 h
LIMONENE	4400 mg/kg (Rat)	2000 mg/kg (Rabbit)	
PINENES	2100 mg/kg (Rat)	5000 mg/kg (Rat)	
CITRAL	4950 mg/kg (Rat)	2250 mg/kg (Rabbit) 2000 mg/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	Blood Central nervous system Eyes Liver Reproductive system Respiratory system Skin
Aspiration hazard	No information available

12. ECOLOGICAL INFORMATION**12.1. Toxicity**

Ecotoxicity effects	Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants
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Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
ETHYL ALCOHOL		12.0 - 16.0: 96 h Oncorhynchus mykiss mL/L LC50 static 100: 96 h Pimephales promelas mg/L LC50 static 13400 - 15100: 96 h Pimephales promelas mg/L LC50 flow-through	9268 - 14221: 48 h Daphnia magna mg/L LC50 2: 48 h Daphnia magna mg/L EC50 Static

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 Desmodemus subspicatus mg/L EC50 19: 96 h Desmodemus 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
ETHYL ALCOHOL	-0.32
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

14. TRANSPORT INFORMATION**DOT****IMDG / IMO**

Proper shipping name EXTRACTS, FLAVOURING, LIQUID
Hazard class 3
UN/ID No 1197
Packing Group II

ICAO/IATA

UN/ID No 1197
Proper shipping name EXTRACTS, FLAVOURING, LIQUID
Hazard class 3
Packing Group II
ERG Code 127

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
ETHYL ALCOHOL 64-17-5	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: Philippines (PICCS).

TSCA	-
EINECS/ELINCS	-
DSL/NDSL	-
PICCS	Complies
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

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 H225 - Highly flammable liquid and vapor

Revision Date	10-Sep-2015
Revision Note	Not applicable.
Revision#	1

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

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