



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

1.1. Product identifier

Number 545

Manufacturer Apex Flavors, Inc.
1361 Brass Mill Rd.
Suite E
Belcamp, MD 21017
(410) 565-6600

Product name YUZU EXTRACT, NATURAL
Pure substance/mixture Mixture

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

Recommended Use Not for direct consumption

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
Carcinogenicity	Category 1A
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 3
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

R-code(s)

R43 - R52/53

2.2. Label elements

**Signal Word**

Danger

Hazard Statements

H316 - Causes mild skin irritation
 H319 - Causes serious eye irritation
 H317 - May cause an allergic skin reaction
 H350 - May cause cancer
 H401 - Toxic to aquatic life
 H412 - Harmful to aquatic life with long lasting effects

H226 - Flammable liquid and vapor

Precautionary Statements

P280 - Wear eye protection/ face protection
 P321 - Specific treatment (see .? on this label)
 P201 - Obtain special instructions before use
 P281 - Use personal protective equipment as required
 P308 + P313 - IF exposed or concerned: Get medical advice/ attention
 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	200-578-6	64-17-5		50-90%	F; R11	Flam. Liq. 2 (H225) Eye Irrit. 1 (H319)	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. 1 (H315) 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. 1 (H315) Asp. Tox. 1 (H304) Aquatic Chronic 1 (H410)	No data available

						Acute Tox. 5 (H303) Flam. Liq. 3 (H226)	
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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 immediately with plenty of water, also under the eyelids, for at least 15 minutes If symptoms persist, call a physician
Skin contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. Wash off immediately with soap and plenty of water.
Ingestion	Do NOT induce vomiting. Drink plenty of water. Immediate medical attention is not required. Rinse mouth.
Inhalation	Move to fresh air. If symptoms persist, call a physician.
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 May cause sensitization in susceptible persons

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

Use personal protective equipment. Avoid contact with eyes and skin.

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. 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. Use personal protective equipment as required.

7.2. Conditions for safe storage, including any incompatibilities

Keep out of the reach of children. Keep container tightly closed. Keep containers tightly closed in a cool, 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	VME: 1000 ppm VME: 1900 mg/m ³ VLCT: 5000 ppm VLCT: 9500 mg/m ³	VLA-ED: 1000 ppm VLA-ED: 1910 mg/m ³	MAK: 500 ppm MAK: 960 mg/m ³ Ceiling / Peak: 1000 ppm Ceiling / Peak: 1920 mg/m ³ Skin TWA: 500 ppm TWA: 960 mg/m ³
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	STEL 2000 ppm STEL	500 ppm NGV 1000	STEL: 1000 ppm	NDS: 1900 mg/m ³	TWA: 500 ppm TWA:

64-17-5	3800 mg/m ³ MAK: 1000 ppm MAK: 1900 mg/m ³	mg/m ³ NGV	STEL: 1920 mg/m ³ MAK: 500 ppm MAK: 960 mg/m ³		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 (50-90%)	TWA: 1000 ppm TWA: 1900 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
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

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	characteristic of yuzu fruit	Color	very pale yellow
Property	Values	Method	
pH		No information available	
Melting/freezing point		No information available	
Boiling point/boiling range		FCC Method	
Flash Point	29 °C / 85 °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	0.8961 - 0.9261	FCC Method	
Specific Gravity @ 20C	0.8991 - 0.9291	FCC Method	
Refractive Index	1.3484 - 1.3784	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(%)	58.44
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	41.06% 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	7,023.00 mg/kg
Dermal	84,200.00 mg/kg

Inhalation	
Mist	68,447.35 mg/l

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	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
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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 10800: 24 h Daphnia magna mg/L EC50 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	

PINENES		mg/L LC50 0.28: 96 h Pimephales promelas mg/L LC50 static	41: 48 h Daphnia magna mg/L LC50
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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

12.4. Mobility in soil

No information available

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

Endocrine Disruptor Information .? is a suspected endocrine disruptor

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/ADR**

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

IMDG / IMO

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

ICAO/IATA

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

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

International Inventories

All of the components in the product are on the following Inventory lists: Canada (DSL/NDSL), China (IECSC), Japan (ENCS), Philippines (PICCS).

TSCA

-

EINECS/ELINCS

-

DSL/NDSL

Complies

PICCS

Complies

ENCS

Complies

IECSC

Complies

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

R52/53 - Harmful 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

H400 - Very toxic to aquatic life H317 - May cause an allergic skin reaction H315 - Causes skin irritation H304 - May be fatal if swallowed and enters airways H410 - Very toxic to aquatic life with long lasting effects H226 - Flammable liquid and vapor H225 - Highly flammable liquid and vapor H319 - Causes serious eye irritation H303 - May be harmful if swallowed

Revision Date 29-Jan-2026

Revision Note Not applicable.

Revision# 1.01

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

WARNING/DISCLAIMER:

Our ingredients have not been tested, nor have they been determined safe, for inhalation or use in any electronic smoking devices, electronic nicotine delivery systems, electronic cigarettes, or other similar devices (collectively "E-Cigarettes") or in any E-Liquids used with E-Cigarettes. By receiving Apex Flavors, Inc ingredients, the recipient

confirms that they will not use these ingredients in connection with the manufacture and distribution of E-Cigarettes, E-Liquids or any component thereof. WE DISCLAIM, TO THE FULLEST EXTENT PERMITTED BY LAW, ALL WARRANTIES, EXPRESS OR IMPLIED, and disclaim all liability in connection with the use of our ingredients in connection with E-Cigarettes and E-Liquids. All such risks are assumed by you and the user.

Disclaimer

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