



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

1.1. Product identifier

Number 245TTB
EC-No NA
CAS-No NA
FEMA Numbers NA

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

Product name KIWI FRUIT TYPE, NATURAL FLAVOR BLEND
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

Serious eye damage/eye irritation	Category 2A
Carcinogenicity	Category 1A
Acute aquatic toxicity	Category 2
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

Symbol(s)

F - Highly flammable

R-code(s)

F;R11

2.2. Label elements

**Signal Word**

Danger

Hazard Statements

H319 - Causes serious eye irritation

H350 - May cause cancer

H401 - Toxic to aquatic life

Precautionary Statements

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		30-50%	F; R11	Flam. Liq. 2 (H225) Flam. Liq. 2 (H225)	No data available
GLYCERINE	Present	56-81-5		30-50%	-	No data available	No data available
TRANS-2-HEXENAL	229-778-1	6728-26-3		<1	-	Aquatic Acute 2 (H401) (EFFA) Skin Sens. 1 (H317) (EFFA) Skin Irrit. 3 (316) (EFFA) Aquatic Chronic 2 (H411) (EFFA) Acute Tox. 4 (H302) (EFFA) Acute Tox. 3 (H311)(EFFA) Flam. Liq. 3 (H226)(EFFA)	No data available
ETHYL ACETATE	Present	141-78-6		<1	F; R11 Xi; R36 R66 R67	Eye Irrit. 1 (H319) (EFFA) Flam. Liq. 2 (H225) (EFFA) Eye Irrit. 1 (H319) (EUH066) Flam. Liq. 2 (H225) STOT SE 3 (H336) Eye Irrit. 2 (H319)	No data available
ISOAMYL ACETATE	Present	123-92-2		<1	R10	Aquatic Acute 3 (H402)	No data available

					R66	(EFFA) (EUH066) Flam. Liq. 3 (H226)	
Hexenal (Aldehyde C-6)	200-624-5	66-25-1		<1	-	Eye Irrit. 1 (H319) (EFFA) Skin Irrit. 3 (316) (EFFA) Flam. Liq. 3 (H226)(EFFA)	No data available
HEXYL ALCOHOL	Present	111-27-3		<1	Xn; R22	Aquatic Acute 3 (H402) (EFFA) Eye Irrit. 1 (H319) (EFFA) Skin Irrit. 3 (316) (EFFA) Acute Tox. 4 (H302) (EFFA) Acute Tox. 4 (H312)(EFFA) Flam. Liq. 3 (H226)(EFFA) Acute Tox. 4 (H302)	No data available
BENZALDEHYDE	Present	100-52-7		<1	Xn; R22	Acute Tox. 4 (H302) Aquatic Acute 2 (H401) (EFFA) Eye Irrit. 1 (H319) (EFFA) Skin Irrit. 3 (316) (EFFA) Acute Tox. 4 (H302) (EFFA) Flam. Liq. 4 (H227)(EFFA) Acute Tox. 4 (H332)(EFFA) Aquatic Acute 2 (H401) Eye Irrit. 1 (H319) Skin Irrit. 3 (H316) Acute Tox. 4 (H302) Acute Tox. 4 (H332)	No data available
LIMONENE	227-813-5	5989-27-5		<1	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

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	Immediate medical attention is required Show this material safety data sheet to the doctor in attendance.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Skin contact	Wash off immediately with plenty of water.
Ingestion	Clean mouth with water and drink afterwards plenty of water.
Inhalation	Move to fresh air.
Self-protection of the first aider	Remove all sources of ignition

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

Remove all sources of ignition. Evacuate personnel to safe areas. Ensure adequate ventilation.

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. 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.

7.2. Conditions for safe storage, including any incompatibilities

Keep tightly closed in a dry and cool place. 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
ETHYL ALCOHOL 64-17-5		STEL: 3000 ppm STEL: 5760 mg/m ³	VME: 1000 ppm VME: 1900 mg/m ³	VLA-ED: 1000 ppm VLA-ED: 1910 mg/m ³	MAK: 500 ppm MAK: 960 mg/m ³

		TWA: 1000 ppm TWA: 1920 mg/m ³	VLCT: 5000 ppm VLCT: 9500 mg/m ³		Ceiling / Peak: 1000 ppm Ceiling / Peak: 1920 mg/m ³ Skin TWA: 500 ppm TWA: 960 mg/m ³
GLYCERINE 56-81-5		STEL: 30 mg/m ³ TWA: 10 mg/m ³	TWA: 10 mg/m ³	TWA: 10 mg/m ³	TWA: 50 mg/m ³ Ceiling / Peak: 100 mg/m ³
ETHYL ACETATE 141-78-6		STEL: 400 ppm TWA: 200 ppm	TWA: 400 ppm TWA: 1400 mg/m ³	TWA: 400 ppm TWA: 1460 mg/m ³	TWA: 400 ppm TWA: 1500 mg/m ³ Ceiling / Peak: 800 ppm Ceiling / Peak: 3000 mg/m ³
ISOAMYL ACETATE 123-92-2	TWA 50 ppm TWA 270 mg/m ³ STEL 100 ppm STEL 540 mg/m ³	TWA: 50 ppm TWA: 270 mg/m ³	TWA: 50 ppm TWA: 270 mg/m ³ STEL: 100 ppm STEL: 540 mg/m ³	STEL: 100 ppm STEL: 540 mg/m ³ TWA: 50 ppm TWA: 270 mg/m ³	TWA: 50 ppm TWA: 270 mg/m ³ Ceiling / Peak: 50 ppm Ceiling / Peak: 270 mg/m ³
HEXYL ALCOHOL 111-27-3					TWA: 50 ppm TWA: 210 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

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
GLYCERINE 56-81-5		TWA: 10 mg/m ³		TWA: 20 mg/m ³	
ETHYL ACETATE 141-78-6		TWA: 400 ppm		TWA: 300 ppm TWA: 1100 mg/m ³ STEL: 500 ppm STEL: 1800 mg/m ³	TWA: 150 ppm TWA: 540 mg/m ³
ISOAMYL ACETATE 123-92-2	TWA: 50 ppm TWA: 270 mg/m ³ STEL: 100 ppm STEL: 540 mg/m ³	STEL: 100 ppm STEL: 540 mg/m ³ TWA: 50 ppm	STEL: 530 mg/m ³	TWA: 50 ppm TWA: 270 mg/m ³ STEL: 100 ppm STEL: 540 mg/m ³	TWA: 50 ppm TWA: 271 mg/m ³
Hexenal (Aldehyde C-6) 66-25-1				STEL: 10 ppm STEL: 42 mg/m ³	
BENZALDEHYDE 100-52-7				TWA: 1 ppm TWA: 4.4 mg/m ³ STEL: 4 ppm STEL: 17.4 mg/m ³ Ceiling: 4 ppm Ceiling: 17.4 mg/m ³	
LIMONENE 5989-27-5				TWA: 25 ppm TWA: 140 mg/m ³ STEL: 50 ppm STEL: 280 mg/m ³	

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 MAK: 1000 ppm MAK: 1900 mg/m ³	500 ppm NGV 1000 mg/m ³ NGV	STEL: 1000 ppm STEL: 1920 mg/m ³ MAK: 500 ppm MAK: 960 mg/m ³	NDS: 1900 mg/m ³	TWA: 500 ppm TWA: 950 mg/m ³ STEL: 625 ppm STEL: 1187.5 mg/m ³

GLYCERINE 56-81-5			STEL: 100 mg/m ³ TWA: 50 mg/m ³	TWA: 10 mg/m ³	
ETHYL ACETATE 141-78-6	STEL 600 ppm STEL 2100 mg/m ³ TWA: 300 ppm TWA: 1050 mg/m ³	150 ppm NGV 500 mg/m ³ NGV	STEL: 800 ppm STEL: 2800 mg/m ³ TWA: 400 ppm TWA: 1400 mg/m ³	STEL: 600 mg/m ³ TWA: 200 mg/m ³	TWA: 150 ppm TWA: 550 mg/m ³ STEL: 187.5 ppm STEL: 687.5 mg/m ³
ISOAMYL ACETATE 123-92-2	STEL 100 ppm STEL 540 mg/m ³ TWA: 50 ppm TWA: 270 mg/m ³	50 ppm NGV 270 mg/m ³ NGV	TWA: 50 ppm TWA: 260 mg/m ³	STEL: 500 mg/m ³ TWA: 250 mg/m ³	TWA: 50 ppm TWA: 260 mg/m ³ STEL: 75 ppm STEL: 325 mg/m ³
Hexenal (Aldehyde C-6) 66-25-1				NDSch: 80 mg/m ³ NDS: 40 mg/m ³	
BENZALDEHYDE 100-52-7				STEL: 40 mg/m ³ TWA: 10 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

Component	Ireland
ETHYL ALCOHOL 64-17-5 (30-50%)	TWA: 1000 ppm TWA: 1900 mg/m ³
GLYCERINE 56-81-5 (30-50%)	TWA: 10 mg/m ³
ETHYL ACETATE 141-78-6 (<1)	TWA: 200 ppm STEL: 400 ppm
ISOAMYL ACETATE 123-92-2 (<1)	TWA: 50 ppm TWA: 260 mg/m ³ STEL: 100 ppm STEL: 520 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

Antistatic boots Wear fire/ flame resistant/ retardant clothing 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 Provide regular cleaning of equipment, work area and clothing

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 kiwi	Color	colorless
Property	Values	Method	
pH		No information available	
Melting/freezing point		No information available	
Boiling point/boiling range		FCC Method	
Flash Point	19 °C / 67 °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	0.987 - 1.027	FCC Method	
Specific Gravity @ 20C	0.99 - 1.03	FCC Method	
Refractive Index	1.401 - 1.421	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(%)	96.97215
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 0.55365% 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 13,977.00 mg/kg

Dermal 16,531.00 mg/kg

Inhalation

Mist 317.99 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 Kidney 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

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
GLYCERINE		51 - 57: 96 h Oncorhynchus mykiss	500: 24 h Daphnia magna mg/L

		mL/L LC50 static	EC50
ETHYL ACETATE	3300: 48 h <i>Desmodesmus subspicatus</i> mg/L EC50	220 - 250: 96 h <i>Pimephales promelas</i> mg/L LC50 flow-through 484: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 flow-through 352 - 500: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 semi-static	560: 48 h <i>Daphnia magna</i> mg/L EC50 Static
Hexenal (Aldehyde C-6)		12-16.5: 96 h <i>Pimephales promelas</i> mg/L LC50 flow-through	
HEXYL ALCOHOL		89.7 - 106: 96 h <i>Pimephales promelas</i> mg/L LC50 flow-through 144: 96 h <i>Brachydanio rerio</i> mg/L LC50 static	201: 24 h <i>Daphnia magna</i> mg/L EC50
BENZALDEHYDE		10.6 - 11.8: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 flow-through 12.69: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 static 0.8 - 1.44: 96 h <i>Lepomis macrochirus</i> mg/L LC50 flow-through 6.8 - 8.53: 96 h <i>Pimephales promelas</i> mg/L LC50 flow-through 7.5: 96 h <i>Lepomis macrochirus</i> mg/L LC50 static	50: 24 h <i>Daphnia magna</i> mg/L EC50
LIMONENE		0.619-0.796: 96 h <i>Pimephales promelas</i> mg/L LC50 flow-through 35: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50	

12.2. Persistence and degradability

No information available

12.3. Bioaccumulative potential

No information available

Chemical Name	log Pow
ETHYL ALCOHOL	-0.32
GLYCERINE	-1.76
ETHYL ACETATE	0.6
HEXYL ALCOHOL	2.03
BENZALDEHYDE	1.48

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

UN/ID No 1993
Proper shipping name FLAMMABLE LIQUID, N.O.S. (ETHYL ALCOHOL, ETHYL BUTYRATE)
Hazard class 3
Packing Group II
ERG Code 128

IMDG / IMO

Proper shipping name FLAMMABLE LIQUID, N.O.S. (ETHYL ALCOHOL, ETHYL BUTYRATE)
Hazard class 3
UN/ID No 1993
Packing Group II
Marine pollutant This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO

ICAO/IATA

UN/ID No 1993
Proper shipping name FLAMMABLE LIQUID, N.O.S. (ETHYL ALCOHOL, ETHYL BUTYRATE)
Hazard class 3
Packing Group II
ERG Code 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
ETHYL ALCOHOL 64-17-5	Hazard Class 1
GLYCERINE 56-81-5	Hazard Class 1
ETHYL ACETATE 141-78-6	Hazard Class 1
ISOAMYL ACETATE 123-92-2	Hazard Class 1
Hexenal (Aldehyde C-6) 66-25-1	Hazard Class 1
HEXYL ALCOHOL 111-27-3	Hazard Class 1
BENZALDEHYDE 100-52-7	Hazard Class 2

International Inventories

All of the components in the product are on the following inventory lists: United States of America (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), China (IECSC), Philippines (PICCS).

TSCA Complies
EINECS/ELINCS Complies
DSL/NDSL Complies
PICCS Complies
ENCS -
IECSC Complies
AICS Complies
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

H302 - Harmful if swallowed H401 - Toxic to aquatic life H319 - Causes serious eye irritation H227 - Combustible liquid H332 - Harmful if inhaled H316 - Causes mild skin irritation H402 - Harmful to aquatic life H312 - Harmful in contact with skin H226 - Flammable liquid and vapor H225 - Highly flammable liquid and vapor H336 - May cause drowsiness or dizziness H400 - Very toxic to aquatic life H317 - May cause an allergic skin reaction H304 - May be fatal if swallowed and enters airways H410 - Very toxic to aquatic life with long lasting effects H411 - Toxic to aquatic life with long lasting effects H311 - Toxic in contact with skin EUH066 - Repeated exposure may cause skin dryness or cracking

Revision Date	19-Sep-2016
Revision Note	Not applicable.
Revision#	1.01

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.

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