APEX FLAVORS, INC.

SAFETY DATA SHEET.

This safety data sheet complies with the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Revision Date 07-Aug-2019 **Version** 5

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Code(s) 177BEV
Product name PEAR TYPE, NATURAL FLAVOR BLEND

Pure substance/mixture Mixture

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

Recommended Use Ingredient for further processing

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

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

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

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Acute toxicity - Inhalation (Dusts/Mists)	Category 2 - (H330)
Serious eye damage/eye irritation	Category 2 - (H319)
Carcinogenicity	Category 1A - (H350)
Flammable liquids	Category 3 - (H226)

2.2. Label elements

Product identifier
Contains BENZYL ALCOHOL, ETHYL ALCOHOL

Signal Word

Danger

Hazard Statements
H319 - Causes serious eye irritation
H330 - Fatal if inhaled
H350 - May cause cancer
H226 - Flammable liquid and vapor
Contains TRANS-2-HEXENAL EUH208 - May produce an allergic reaction

Precautionary Statements - EU (§28, 1272/2008)
P310 - Immediately call a POISON CENTER or doctor
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P320 - Specific treatment is urgent (see .? on this label)
P201 - Obtain special instructions before use
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P370 + P378 - In case of fire: Use .? to extinguish
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

2.3. Other information
No information available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	EC-No	CAS-No	Weight %	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH Registration Number
PROPYLENE GLYCOL	200-338-0	57-55-6	50-90%	No data available	No data available
ETHYL ALCOHOL	200-578-6	64-17-5	10-15%	Flam. Liq. 2 (H225) Eye Irrit. 1 (H319)	No data available
BENZYL ALCOHOL	202-859-9	100-51-6	1-5%	Acute Tox. 5 (H333) Acute Tox. 4 (H302)	No data available
ACETIC ACID	200-580-7	64-19-7	1-5%	Skin Corr. 1A (314) Eye Dam. 1 (H318) Flam. Liq. 3 (H226)	No data available
PROPIONIC ACID	201-176-3	79-09-4	<1%	Skin Corr. 1B (314) (EFFA) Eye Dam. 1 (H318) (EFFA) Acute Tox. 5 (H303)(EFFA) Flam. Liq. 3 (H226)(EFFA) Skin Corr. 1B (H314) Eye Dam. 1 (H318)	No data available
ISOAMYL ACETATE	Present	123-92-2	<1%	Aquatic Acute 3 (H402) (EFFA) (EUH066) Flam. Liq. 3 (H226)	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
HEXYL ALCOHOL	Present	111-27-3	<1%	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
ISOAMYL ALCOHOL	204-633-5	123-51-3	<1%	Flam. Liq. 3 (H226)(EFFA) Acute Tox. 4 (H332)(EFFA)	No data available

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
FURFURAL	Present	98-01-1	<1%	Acute Tox. 3 (H301) Carc. 2 (H351) (EFFA) Eye Irrit. 1 (H319) (EFFA) Skin Irrit. 2 (315) (EFFA) Acute Tox. 3 (H301) (EFFA) Acute Tox. 4 (H312)(EFFA) Flam. Liq. 4 (H227)(EFFA) Acute Tox. 3 (H331)(EFFA) Carc. 2 (H351) Eye Irrit. 1 (H319) Skin Irrit. 2 (H315) Acute Tox. 3 (H301) Acute Tox. 4 (H312) Acute Tox. 3 (H331) Acute Tox. 4 (H312) Skin Irrit. 2 (H315) STOT SE 3 (H335) Carc. 2 (H351) Acute Tox. 3 (H331) Eye Irrit. 2 (H319)	No data available
ISOBUTYL ACETATE	Present	110-19-0	<1%	Aquatic Acute 3 (H402) (EFFA) Flam. Liq. 2 (H225) (EFFA) (EUH066) Flam. Liq. 2 (H225)	No data available
METHYL N-AMYL KETONE FCC (2-Heptanone)	Present	110-43-0	<1%	Acute Tox. 4 (H302) Acute Tox. 4 (H302) (EFFA) Flam. Liq. 3 (H226)(EFFA) Acute Tox. 4 (H332)(EFFA) Flam. Liq. 3 (H226) Acute Tox. 4 (H332)	No data available
PINENES	201-291-9	80-56-8	<1%	Aquatic Acute 1 (H400) Skin Sens. 1 (H317) Skin Irrit. 1 (H315) Asp. Tox. 1 (H304) Aquatic Chronic 1 (H410) Acute Tox. 5 (H303) Flam. Liq. 3 (H226)	No data available

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

Full text of H- and EUH-phrases: see section 16

Section 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.

Inhalation Move to fresh air.

Skin contact Wash off immediately with plenty of water.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Self-protection of the first aider Remove all sources of ignition.

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

Main Symptoms No information available.

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

Note to physicians Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
No information available

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

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

For emergency responders
Use personal protection recommended in Section 8.

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

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Dam up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labeled containers.

6.4. Reference to other sections

See section 8 for more information. See section 13 for more information.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on 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.

General Hygiene Considerations
When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep tightly closed in a dry and cool place. Keep in properly labeled containers.

Incompatible products
None known based on information supplied.

7.3 Specific end use(s)

Risk Management Methods (RMM)
The information required is contained in this Material Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Chemical Name	European Union	The United Kingdom	France	Spain	Germany
PROPYLENE GLYCOL 57-55-6	-	STEL: 450 ppm STEL: 1422 mg/m³ STEL: 30 mg/m³ TWA: 150 ppm TWA: 474 mg/m³ TWA: 10 mg/m³	-	-	-
ETHYL ALCOHOL 64-17-5	-	STEL: 3000 ppm STEL: 5760 mg/m³ TWA: 1000 ppm TWA: 1920 mg/m³	VME: 1000 ppm VME: 1900 mg/m³ VLCT: 5000 ppm VLCT: 9500 mg/m³	VLA-ED: 1000 ppm VLA-ED: 1910 mg/m³	-
ACETIC ACID 64-19-7	TWA 10 ppm TWA 25 mg/m³	-	VLCT: 10 ppm VLCT: 25 mg/m³	VLA-EC: 15 ppm VLA-EC: 37 mg/m³ VLA-ED: 10 ppm VLA-ED: 25 mg/m³	-
PROPIONIC ACID 79-09-4	TWA 10 ppm TWA 31 mg/m³ STEL 20 ppm STEL 62 mg/m³	STEL: 15 ppm STEL: 46 mg/m³ TWA: 10 ppm TWA: 31 mg/m³	TWA: 10 ppm TWA: 31 mg/m³ STEL: 20 ppm STEL: 62 mg/m³	STEL: 20 ppm STEL: 62 mg/m³ TWA: 10 ppm TWA: 31 mg/m³	-
ISOAMYL ACETATE 123-92-2	TWA 50 ppm TWA 270 mg/m³ STEL 100 ppm STEL 540 mg/m³	TWA: 50 ppm TWA: 270 mg/m³	TWA: 50 ppm TWA: 270 mg/m³ STEL: 100 ppm STEL: 540 mg/m³	STEL: 100 ppm STEL: 540 mg/m³ TWA: 50 ppm TWA: 270 mg/m³	-
ISOAMYL ALCOHOL 123-51-3	-	STEL: 125 ppm STEL: 458 mg/m³ TWA: 100 ppm TWA: 366 mg/m³	TWA: 100 ppm TWA: 360 mg/m³	STEL: 125 ppm STEL: 458 mg/m³ TWA: 100 ppm TWA: 366 mg/m³	-
FURFURAL 98-01-1	-	STEL: 5 ppm STEL: 20 mg/m³ TWA: 2 ppm TWA: 8 mg/m³ Skin	STEL: 2 ppm STEL: 8 mg/m³	S* TWA: 2 ppm TWA: 8 mg/m³	-
ISOBUTYL ACETATE 110-19-0	-	STEL: 187 ppm STEL: 903 mg/m³ TWA: 150 ppm TWA: 724 mg/m³	TWA: 150 ppm TWA: 710 mg/m³ STEL: 200 ppm STEL: 940 mg/m³	TWA: 150 ppm TWA: 724 mg/m³	-
METHYL N-AMYL KETONE FCC (2-Heptanone) 110-43-0	S* TWA 50 ppm TWA 238 mg/m³ STEL 100 ppm STEL 475 mg/m³	STEL: 100 ppm STEL: 475 mg/m³ TWA: 50 ppm TWA: 237 mg/m³ Skin	TWA: 50 ppm TWA: 238 mg/m³ STEL: 100 ppm STEL: 475 mg/m³	S* STEL: 100 ppm STEL: 474 mg/m³ TWA: 50 ppm TWA: 237 mg/m³	-
PINENES 80-56-8	-	-	-	VLA-ED: 20 ppm VLA-ED: 113 mg/m³	-
Chemical Name	**Italy**	**Portugal**	**The Netherlands**	**Finland**	**Denmark**
ETHYL ALCOHOL 64-17-5	-	TWA: 1000 ppm	Skin STEL: 1900 mg/m³ TWA: 260 mg/m³	TWA: 1000 ppm TWA: 1900 mg/m³ STEL: 1300 ppm STEL: 2500 mg/m³	TWA: 1000 ppm TWA: 1900 mg/m³

BENZYL ALCOHOL 100-51-6	-	-	-	TWA: 10 ppm TWA: 45 mg/m³	-
ACETIC ACID 64-19-7	-	STEL: 15 ppm TWA: 10 ppm	-	TWA: 5 ppm TWA: 13 mg/m³ STEL: 10 ppm STEL: 25 mg/m³	TWA: 10 ppm TWA: 25 mg/m³
PROPIONIC ACID 79-09-4	TWA: 10 ppm TWA: 31 mg/m³ STEL: 20 ppm STEL: 62 mg/m³	STEL: 20 ppm STEL: 62 mg/m³ TWA: 10 ppm TWA: 31 mg/m³	STEL: 62 mg/m³ TWA: 31 mg/m³	TWA: 10 ppm TWA: 31 mg/m³ STEL: 20 ppm STEL: 61 mg/m³	TWA: 10 ppm TWA: 31 mg/m³
ISOAMYL ACETATE 123-92-2	TWA: 50 ppm TWA: 270 mg/m³ STEL: 100 ppm STEL: 540 mg/m³	STEL: 100 ppm STEL: 540 mg/m³ TWA: 50 ppm	STEL: 530 mg/m³	TWA: 50 ppm TWA: 270 mg/m³ STEL: 100 ppm STEL: 540 mg/m³	TWA: 50 ppm TWA: 271 mg/m³
ISOAMYL ALCOHOL 123-51-3	-	STEL: 125 ppm TWA: 100 ppm	-	TWA: 100 ppm TWA: 370 mg/m³ STEL: 150 ppm STEL: 550 mg/m³	TWA: 100 ppm TWA: 360 mg/m³
Hexenal (Aldehyde C-6) 66-25-1	-	-	-	STEL: 10 ppm STEL: 42 mg/m³	-
FURFURAL 98-01-1	-	TWA: 2 ppm	-	TWA: 2 ppm TWA: 8 mg/m³ STEL: 5 ppm STEL: 20 mg/m³ Skin	TWA: 2 ppm TWA: 7.9 mg/m³ Skin
ISOBUTYL ACETATE 110-19-0	-	TWA: 150 ppm	-	TWA: 150 ppm TWA: 720 mg/m³ STEL: 200 ppm STEL: 960 mg/m³	TWA: 150 ppm TWA: 710 mg/m³
METHYL N-AMYL KETONE FCC (2-Heptanone) 110-43-0	TWA: 50 ppm TWA: 238 mg/m³ STEL: 100 ppm STEL: 475 mg/m³ Skin	TWA: 50 ppm	TWA: 233 mg/m³	TWA: 50 ppm TWA: 240 mg/m³ STEL: 75 ppm STEL: 360 mg/m³ Skin	TWA: 50 ppm TWA: 238 mg/m³ Skin
PINENES 80-56-8	-	TWA: 20 ppm	-	-	-
Chemical Name	**Austria**	**Switzerland**	**Poland**	**Norway**	**Ireland**
PROPYLENE GLYCOL 57-55-6	-	-	-	TWA: 25 ppm TWA: 79 mg/m³ STEL: 37.5 ppm STEL: 118.5 mg/m³	TWA: 150 ppm TWA: 470 mg/m³ TWA: 10 mg/m³
ETHYL ALCOHOL 64-17-5	STEL 2000 ppm STEL 3800 mg/m³ MAK: 1000 ppm MAK: 1900 mg/m³	STEL: 1000 ppm STEL: 1920 mg/m³ MAK: 500 ppm MAK: 960 mg/m³	NDS: 1900 mg/m³	TWA: 500 ppm TWA: 950 mg/m³ STEL: 625 ppm STEL: 1187.5 mg/m³	TWA: 1000 ppm TWA: 1900 mg/m³
BENZYL ALCOHOL 100-51-6	-	-	NDS: 240 mg/m³	-	-
ACETIC ACID 64-19-7	STEL 20 ppm STEL 50 mg/m³ MAK: 10 ppm MAK: 25 mg/m³	STEL: 20 ppm STEL: 50 mg/m³ MAK: 10 ppm MAK: 25 mg/m³	NDSCh: 30 mg/m³ NDS: 15 mg/m³	TWA: 10 ppm TWA: 25 mg/m³ STEL: 20 ppm STEL: 37.5 mg/m³	TWA: 10 ppm TWA: 25 mg/m³ STEL: 15 ppm STEL: 37 mg/m³
PROPIONIC ACID 79-09-4	STEL 20 ppm STEL 62 mg/m³ TWA: 10 ppm TWA: 31 mg/m³	STEL: 20 ppm STEL: 60 mg/m³ TWA: 10 ppm TWA: 30 mg/m³	STEL: 45 mg/m³ TWA: 30 mg/m³	TWA: 10 ppm TWA: 30 mg/m³ STEL: 20 ppm STEL: 45 mg/m³	TWA: 10 ppm TWA: 31 mg/m³ STEL: 20 ppm STEL: 62 mg/m³
ISOAMYL ACETATE 123-92-2	STEL 100 ppm STEL 540 mg/m³ TWA: 50 ppm TWA: 270 mg/m³	TWA: 50 ppm TWA: 260 mg/m³	STEL: 500 mg/m³ TWA: 250 mg/m³	TWA: 50 ppm TWA: 260 mg/m³ STEL: 75 ppm STEL: 325 mg/m³	TWA: 50 ppm TWA: 260 mg/m³ STEL: 100 ppm STEL: 520 mg/m³
ISOAMYL ALCOHOL 123-51-3	STEL 200 ppm STEL 720 mg/m³ TWA: 100 ppm TWA: 360 mg/m³	STEL: 80 ppm STEL: 292 mg/m³ TWA: 20 ppm TWA: 73 mg/m³	STEL: 400 mg/m³ TWA: 200 mg/m³	TWA: 50 ppm TWA: 180 mg/m³ STEL: 75 ppm STEL: 225 mg/m³	TWA: 100 ppm TWA: 360 mg/m³ STEL: 125 ppm STEL: 450 mg/m³
Hexenal (Aldehyde C-6) 66-25-1	-	-	NDSCh: 80 mg/m³ NDS: 40 mg/m³	-	-
FURFURAL 98-01-1	Skin TWA: 5 ppm TWA: 20 mg/m³	Skin TWA: 2 ppm TWA: 8 mg/m³	STEL: 25 mg/m³ TWA: 10 mg/m³	TWA: 2 ppm TWA: 8 mg/m³ Skin	TWA: 2 ppm TWA: 8 mg/m³ STEL: 5 ppm

				STEL: 4 ppm STEL: 16 mg/m³	STEL: 20 mg/m³ Skin
ISOBUTYL ACETATE 110-19-0	STEL 100 ppm STEL 480 mg/m³ TWA: 100 ppm TWA: 480 mg/m³ Ceiling 100 ppm Ceiling 480 mg/m³	STEL: 200 ppm STEL: 960 mg/m³ TWA: 100 ppm TWA: 480 mg/m³	STEL: 400 mg/m³ TWA: 200 mg/m³	-	TWA: 150 ppm TWA: 700 mg/m³ STEL: 187 ppm STEL: 875 mg/m³
METHYL N-AMYL KETONE FCC (2-Heptanone) 110-43-0	Skin STEL 100 ppm STEL 473 mg/m³ TWA: 50 ppm TWA: 237 mg/m³	TWA: 50 ppm TWA: 235 mg/m³	STEL: 475 mg/m³ TWA: 238 mg/m³	TWA: 25 ppm TWA: 115 mg/m³ Skin STEL: 37.5 ppm STEL: 143.75 mg/m³	TWA: 50 ppm TWA: 238 mg/m³ STEL: 100 ppm STEL: 475 mg/m³ Skin
PINENES 80-56-8	-	-	-	TWA: 25 ppm TWA: 140 mg/m³ Skin STEL: 37.5 ppm STEL: 175 mg/m³	-

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/face protection Tightly fitting safety goggles.

Skin and body protection Antistatic boots. Wear fire/ flame resistant/ retardant clothing. Impervious gloves.

Respiratory protection NIOSH/MSHA approved respiratory protection is required to be worn.

Environmental Exposure Controls No information available.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state liquid
Appearance clear
Aroma pear-like
Color colorless to slightly yellow

Property	Values	• Method
pH		No information available
Melting/freezing point		No information available
Boiling point/boiling range		FCC Method
Flash Point	37 °C / 99 °F	Closed cup
Evaporation rate		FCC Method
Flammability (solid, gas)		No information available
Flammability Limits in Air		
Upper flammability limit		No information available
lower flammability limit		No information available
Vapor pressure mm Hg 20°C		No information available
Vapor density		No information available
Relative density		No information available
Specific Gravity @ 25C	0.9834 - 1.0134	FCC Method
Specific Gravity @ 20C	0.9864 - 1.0164	FCC Method
Refractive Index	1.385 - 1.415	FCC Method
Water solubility		No information available
Solubility in other solvents		No information available

Partition coefficient: n-octanol/water	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity, kinematic	No information available
Viscosity, dynamic	No information available
Explosive properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Softening point	No information available
Molecular Weight	No information available
VOC Content(%)	No information available
Density VALUE	No information available
Bulk Density VALUE	No information available

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

No data available.

10.2. Chemical stability

Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact	none.
Sensitivity to Static Discharge	Yes.

10.3. Possibility of hazardous reactions

Hazardous Reactions
None under normal processing.

10.4. Conditions to avoid

Heat, flames and sparks.

10.5. Incompatible materials

No information available.

10.6. Hazardous decomposition products

None under normal use conditions.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

Product Information
Product does not present an acute toxicity hazard based on known or supplied information.

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.

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 10,962.00 mg/kg
ATEmix (dermal) 10,641.00 mg/kg
ATEmix (inhalation-dust/mist) 0.48 mg/l
ATEmix (inhalation-vapor) 31.00 mg/l

Unknown Acute Toxicity

96.43325% of the mixture consists of ingredient(s) of unknown toxicity.
30.9832 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.
42.78325 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.
96.43325 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).
94.43325 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).
80.9832 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Oral LD50

Chemical Name	Oral LD50	Dermal LD50	LC50 Inhalation
PROPYLENE GLYCOL	20000 mg/kg (Rat)	20800 mg/kg (Rabbit)	
ETHYL ALCOHOL	7060 mg/kg (Rat)		124.7 mg/L (Rat) 4 h
BENZYL ALCOHOL	1230 mg/kg (Rat)	2000 mg/kg (Rabbit)	8.8 mg/L (Rat) 4 h
ACETIC ACID	3310 mg/kg (Rat)	1060 mg/kg (Rabbit)	11.4 mg/L (Rat) 4 h

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.

Reproductive toxicity 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, Teeth.

Aspiration hazard No information available.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity Harmful to aquatic life

30.3002% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
PROPYLENE GLYCOL	19000: 96 h Pseudokirchneriella subcapitata mg/L EC50	51600: 96 h Oncorhynchus mykiss mg/L LC50 static 41 - 47: 96 h Oncorhynchus mykiss mL/L LC50 static 51400: 96 h Pimephales promelas mg/L LC50 static 710: 96 h Pimephales promelas mg/L LC50	10000: 24 h Daphnia magna mg/L EC50 1000: 48 h Daphnia magna mg/L EC50 Static
ETHYL ALCOHOL	-	12.0 - 16.0: 96 h Oncorhynchus	9268 - 14221: 48 h Daphnia magna

		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	mg/L LC50 10800: 24 h Daphnia magna mg/L EC50 2: 48 h Daphnia magna mg/L EC50 Static
BENZYL ALCOHOL	35: 3 h Anabaena variabilis mg/L EC50	10: 96 h Lepomis macrochirus mg/L LC50 static 460: 96 h Pimephales promelas mg/L LC50 static	23: 48 h water flea mg/L EC50
ACETIC ACID	-	75: 96 h Lepomis macrochirus mg/L LC50 static 79: 96 h Pimephales promelas mg/L LC50 static	47: 24 h Daphnia magna mg/L EC50 65: 48 h Daphnia magna mg/L EC50 Static
PROPIONIC ACID	45.8: 72 h Desmodesmus subspicatus mg/L EC50 43: 96 h Desmodesmus subspicatus mg/L EC50	1: 96 h Pimephales promelas mg/L LC50 static 73 - 99.7: 96 h Lepomis macrochirus mg/L LC50 static 51: 96 h Oncorhynchus mykiss mg/L LC50 static	-
HEXYL ALCOHOL	-	89.7 - 106: 96 h Pimephales promelas mg/L LC50 flow-through 144: 96 h Brachydanio rerio mg/L LC50 static	201: 24 h Daphnia magna mg/L EC50
ISOAMYL ALCOHOL	493: 72 h Desmodesmus subspicatus mg/L EC50 181: 96 h Desmodesmus subspicatus mg/L EC50	700: 96 h Salmo gairdneri mg/L LC50 static	260: 48 h Daphnia magna mg/L EC50
Hexenal (Aldehyde C-6)	-	12-16.5: 96 h Pimephales promelas mg/L LC50 flow-through	-
FURFURAL	-	13.4 - 19.3: 96 h Pimephales promelas mg/L LC50 static 16.79 - 26.35: 96 h Pimephales promelas mg/L LC50 flow-through	29: 24 h Daphnia magna mg/L EC50
ISOBUTYL ACETATE	-	101: 48 h Leuciscus idus melanotus mg/L LC50 static 101 - 123: 48 h Leuciscus idus melanotus mg/L LC50 flow-through	168: 24 h Daphnia magna mg/L EC50
METHYL N-AMYL KETONE FCC (2-Heptanone)	-	126 - 137: 96 h Pimephales promelas mg/L LC50 flow-through	-
PINENES	-	0.28: 96 h Pimephales promelas mg/L LC50 static	41: 48 h Daphnia magna 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
BENZYL ALCOHOL	1.1
ACETIC ACID	-0.31
PROPIONIC ACID	0.33
HEXYL ALCOHOL	2.03
ISOAMYL ALCOHOL	1.28
FURFURAL	0.67
ISOBUTYL ACETATE	1.72
METHYL N-AMYL KETONE FCC (2-Heptanone)	1.98
PINENES	4.1

12.4. Mobility in soil

Mobility in soil
No information available.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

No information available

Chemical Name	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
FURFURAL	Group III Chemical	-	-

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty remaining contents.

Section 14: TRANSPORT INFORMATION

IMDG / IMO

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

DOT/ADR/RID

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

ICAO/IATA

14.1 UN/ID No 1197
14.2 Proper shipping name EXTRACTS, FLAVOURING, LIQUID
14.3 Hazard class 3
14.4 Packing Group III
14.5 Environmental hazard Not applicable
14.6 Special Provisions None

Section 15: REGULATORY INFORMATION

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

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Authorizations and/or restrictions on use:
This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This

product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Persistent Organic Pollutants
Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009 Not applicable

International Inventories

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

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

15.2. Chemical safety assessment

No information available

Section 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of R-phrases referred to under sections 2 and 3
R35 - Causes severe burns
R10 - Flammable
R20/22 - Harmful by inhalation and if swallowed

Full text of H-Statements referred to under section 3
H333 - May be harmful if inhaled
H302 - Harmful if swallowed
H402 - Harmful to aquatic life
H225 - Highly flammable liquid and vapor
H226 - Flammable liquid and vapor
H332 - Harmful if inhaled
H319 - Causes serious eye irritation
H312 - Harmful in contact with skin
H318 - Causes serious eye damage
H401 - Toxic to aquatic life
H317 - May cause an allergic skin reaction
H411 - Toxic to aquatic life with long lasting effects
H311 - Toxic in contact with skin
H303 - May be harmful if swallowed
H314 - Causes severe skin burns and eye damage
H400 - Very toxic to aquatic life
H315 - Causes skin irritation
H304 - May be fatal if swallowed and enters airways

H410 - Very toxic to aquatic life with long lasting effects
H301 - Toxic if swallowed
H351 - Suspected of causing cancer if inhaled
H227 - Combustible liquid
H331 - Toxic if inhaled
H335 - May cause respiratory irritation
EUH066 - Repeated exposure may cause skin dryness or cracking

Legend
SVHC: Substances of Very High Concern for Authorization:

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA:	Time weighted average	STEL:	Short term exposure limit
Ceiling:	Maximum limit value:	*	Skin designation

Revision Date 07-Aug-2019

Reason for revision: Not applicable.

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.