



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

Revision Date 21-Aug-2018

Version 1

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

1.1. Product identifier

Product Code(s) 329TTB
Product name CITRUS EXTRACT "MT. DEW" TYPE, NATURAL WONF

Pure substance/mixture Mixture
 Contains LIMONENE, ETHYL ALCOHOL

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

| | |
|--|----------------------|
| Serious eye damage/eye irritation | Category 2 - (H319) |
| Skin sensitization | Category 1 - (H317) |
| Carcinogenicity | Category 1A - (H350) |
| Chronic aquatic toxicity | Category 3 - (H412) |
| Flammable liquids | Category 3 - (H226) |

2.2. Label elements

Product identifier
 Contains LIMONENE, ETHYL ALCOHOL



Signal Word
Danger

Hazard Statements

H317 - May cause an allergic skin reaction
 H319 - Causes serious eye irritation
 H350 - May cause cancer
 H412 - Harmful to aquatic life with long lasting effects
 H226 - Flammable liquid and vapor

Precautionary Statements - EU (§28, 1272/2008)

P280 - Wear eye protection/ face protection
 P321 - Specific treatment (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
 P273 - Avoid release to the environment

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 |
|---------------|-----------|-----------|----------|---|---------------------------|
| ETHYL ALCOHOL | 200-578-6 | 64-17-5 | 50-90% | Flam. Liq. 2 (H225) Eye Irrit. 1 (H319) | No data available |
| LIMONENE | 227-813-5 | 5989-27-5 | 1-5% | 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% | 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 |
| P-CYMENE | 202-796-7 | 99-87-6 | <1% | 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 |

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

| | |
|---|---|
| Inhalation | Move to fresh air. 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. |
| Eye contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician. |
| Ingestion | Do NOT induce vomiting. Drink plenty of water. Immediate medical attention is not required. Rinse mouth. |
| Self-protection of the first aider | Use personal protective equipment. |

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 May cause sensitization in susceptible persons.

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 In the event of fire and/or explosion do not breathe fumes
May cause sensitization in susceptible persons

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

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

For emergency responders

Use personal protection recommended in Section 8.

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

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

Methods for cleaning up Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. After cleaning, flush away traces with water. Prevent product from entering drains.

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. Use personal protective equipment as required.

General Hygiene Considerations

When using, do not eat, drink or smoke. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities**Storage Conditions**

Keep out of the reach of children. Keep container tightly closed. Keep containers tightly closed in a cool, well-ventilated place.

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 |
|--------------------------|--|--|--|--|--|
| 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 | - |
| 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 | - | - | - |
| P-CYMENE 99-87-6 | - | - | - | - | TWA: 25 ppm TWA: 135 mg/m ³ |
| Chemical Name | Austria | Switzerland | Poland | Norway | Ireland |
| ETHYL ALCOHOL 64-17-5 | STEL 2000 ppm STEL 3800 mg/m ³ MAK: 1000 ppm MAK: | STEL: 1000 ppm STEL: 1920 mg/m ³ MAK: 500 ppm MAK: | NDS: 1900 mg/m ³ | TWA: 500 ppm TWA: 950 mg/m ³ STEL: 625 ppm STEL: | TWA: 1000 ppm TWA: 1900 mg/m ³ |

| | | | | | |
|-----------------------|------------------------|---|---|---|---|
| | 1900 mg/m ³ | 960 mg/m ³ | | 1187.5 mg/m ³ | |
| LIMONENE 5989-27-5 | - | STEL: 40 ppm 220 mg/m ³ MAK: 20 ppm 110 mg/m ³ | - | TWA: 25 ppm 140 mg/m ³ STEL: 37.5 ppm 175 mg/m ³ | - |
| PINENES 80-56-8 | - | - | - | TWA: 25 ppm 140 mg/m ³ Skin STEL: 37.5 ppm 175 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/face protection Tightly fitting safety goggles.

Skin and body protection Long sleeved clothing.

Environmental Exposure Controls Do not allow material to contaminate ground water system.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state liquid
Appearance clear
Odor citrus blend
Color light yellow to 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 | 24 °C / 76 °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 | 0.8998 - 0.9198 | FCC Method |
| Specific Gravity @ 20C | 0.9028 - 0.9228 | FCC Method |
| Refractive Index | 1.3544 - 1.3744 | 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

None known.

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) | 6,989.00 mg/kg |
| ATEmix (dermal) | 2,445.00 mg/kg |
| ATEmix (inhalation-dust/mist) | 66,598.12 mg/l |

Unknown Acute Toxicity

99.652375% of the mixture consists of ingredient(s) of unknown toxicity.

41.091575 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.

98.091575 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.

99.652375 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).

99.652375 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).
42.652375 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

| Chemical Name | Oral LD50 | Dermal LD50 | LC50 Inhalation |
|---------------|--------------------|-----------------------|------------------------|
| ETHYL ALCOHOL | 7060 mg/kg (Rat) | | 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) | |

| | |
|--|--|
| 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. |
| Aspiration hazard | No information available. |

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity Toxic to aquatic life Harmful to aquatic life with long lasting effects

41.08983% 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 |
|---------------|-------------------|--|---|
| 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 mg/L LC50 | - |
| 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 |
| PINENES | 4.1 |
| P-CYMENE | 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

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.

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.

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 | Complies |
| DSL/NDSL | Complies |
| EINECS/ELINCS | Complies |
| ENCS | Complies |
| IECSC | - |
| KECL | Complies |
| PICCS | Complies |
| AICS | Complies |

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

R43 - May cause sensitization by skin contact

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 section 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
 H401 - Toxic to aquatic life
 H316 - Causes mild skin irritation
 H411 - Toxic to aquatic life with long lasting effects

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 21-Aug-2018

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.