



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

1.1. Product identifier

Number 008, 008BEV, 008ICR, 008PGF, 008TTB

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

Product name PURE BERGAMOT 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/ Outside US Chemtel 813-248-0585

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 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)

Xi - Irritant

R-code(s)

R10 - 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

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) 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) | No data available |

| | | | | | | | |
|--|--|--|--|--|--|---------------------|--|
| | | | | | | Flam. Liq. 3 (H226) | |
|--|--|--|--|--|--|---------------------|--|

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 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. 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 | 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 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

Remove all sources of ignition. Evacuate personnel to safe areas. Ensure adequate ventilation. Use personal protective equipment.

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. 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. 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. 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 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 |
| 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 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 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 | bergamot | Color | Pale 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 | 21 °C / 70 °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 | 0.883 - 0.903 | FCC Method |
| Specific Gravity @ 20C | 0.886 - 0.906 | FCC Method |
| Refractive Index | 1.356 - 1.376 | 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(%) | 51.92 |
| 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 46.496% 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 7,095.00 mg/kg
Dermal 67,556.00 mg/kg

Inhalation
Mist 70,607.38 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.

| 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 |

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 |
| 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**

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

IMDG / IMO

| | |
|----------------------|--|
| Proper shipping name | EXTRACTS, FLAVOURING, LIQUID |
| Hazard class | 3 |
| UN/ID No | 1197 |
| 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 | 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 |

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), Korea (ECL), China (IECSC), Japan (ENCS), Philippines (PICCS).

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

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
R51/53 - 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 H316 - Causes mild 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 H303 - May be harmful if swallowed

Revision Date 20-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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