SAFETY DATA SHEET
In accordance with 29 CFR 1910.1200

Product: Pineapple Flavor (OS) 555666
Version: 1

Section 1. Identification of the substance or the mixture and of the supplier

1.1 Product Identifier
Product identifier: Pineapple Flavor (OS) 555666
Other identifiers: None

1.2 Relevant identified uses of the substance or mixture and uses advised against
Product uses: Flavours

1.3 Details of the supplier of the safety data sheet
Company name: Perfumer's Apprentice
Company address: 170 Technology Circle
                  Scotts Valley
                  CA 95066
                  USA
Contact: Elisabeth Hanson
E-Mail address: regulatory@perfumersapprentice.com
Company phone: +1 (831) 346 7234

1.4 Emergency telephone number
Emergency phone: +1 (831) 346 7234

Section 2. Hazards identification

2.1 Classification of the substance or mixture
Class and category of danger:
Skin Corrosion / Irritation Category 2
Eye Damage / Irritation Category 1
Sensitization - Skin Category 1
H315, Causes skin irritation.
H317, May cause an allergic skin reaction.
H318, Causes serious eye damage.

2.2 Label elements
Signal word: Danger
Hazard statements: H315, Causes skin irritation.
                  H317, May cause an allergic skin reaction.
                  H318, Causes serious eye damage.
Precautionary statements: P261, Avoid breathing vapour or dust.
                         P264, Wash hands and other contacted skin thoroughly after handling.
                         P272, Contaminated work clothing should not be allowed out of the workplace.
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P280, Wear protective gloves/eye protection/face protection.
P302/352, IF ON SKIN: Wash with plenty of soap and water.
P305/351/338, IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310, Immediately call a POISON CENTER or doctor/physician.
P333/313, If skin irritation or rash occurs: Get medical advice/attention.
P362, Take off contaminated clothing and wash before reuse.
P501, Dispose of contents/container to approved disposal site, in accordance with local regulations.

Pictograms: None

Other hazards: None

Section 3. Composition / Information on ingredients

3.2 Mixtures

Contains:

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS</th>
<th>EC</th>
<th>%</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lactic acid</td>
<td>50-21-5</td>
<td>200-018-0</td>
<td>10-20%</td>
<td>SCI 2-EDI 1: H315-H318</td>
</tr>
<tr>
<td>Allyl hexanoate</td>
<td>123-68-2</td>
<td>204-642-4</td>
<td>5-10%</td>
<td>FL 4-ATO 3-ATD 3-ATI 3: H227-H301-H311-H331</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141-78-6</td>
<td>205-500-4</td>
<td>5-10%</td>
<td>FL 2-EDI 2A-STO SE 3(NE); H225-H319-H336</td>
</tr>
<tr>
<td>Acetic acid</td>
<td>64-19-7</td>
<td>200-580-7</td>
<td>1-5%</td>
<td>FL 3-SCI 1A-EDI 1: H226-H314</td>
</tr>
<tr>
<td>2-Heptanone</td>
<td>110-43-0</td>
<td>203-767-1</td>
<td>1-5%</td>
<td>FL 3-ATO 4-ATI 4-STO SE 3(NE); H226-H303-H312-H336</td>
</tr>
<tr>
<td>Allyl heptanoate</td>
<td>142-19-8</td>
<td>205-527-1</td>
<td>1-5%</td>
<td>FL 4-ATO 3-ATD 3-ATI 3: H227-H301-H311-H331</td>
</tr>
<tr>
<td>Vanillin</td>
<td>121-33-5</td>
<td>204-465-2</td>
<td>1-5%</td>
<td>EDI 2A: H319</td>
</tr>
<tr>
<td>Allyl cyclohexanepropionate</td>
<td>2705-87-5</td>
<td>220-292-5</td>
<td>0.1-1%</td>
<td>ATO 4-ATD 4-ATI 4-SS 1; H302-H312-H317-H332</td>
</tr>
<tr>
<td>Geranyl acetate</td>
<td>105-87-3</td>
<td>203-341-5</td>
<td>0.1-1%</td>
<td>SCI 2-SS 1B: H315-H317</td>
</tr>
</tbody>
</table>

The exact percentage concentrations of components are being withheld as a trade secret.

Substances with Community workplace exposure limits, not listed above:

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS</th>
<th>EC</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Heptanone</td>
<td>110-43-0</td>
<td>203-767-1</td>
<td>1-5%</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141-78-6</td>
<td>205-500-4</td>
<td>1-10%</td>
</tr>
</tbody>
</table>
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Section 4. First-aid measures

4.1 Description of first aid measures

IF ON SKIN: Wash with plenty of soap and water.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

4.2 Most important symptoms and effects, both acute and delayed

Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye damage.

4.3 Indication of any immediate medical attention and special treatment needed

None expected, see Section 4.1 for further information.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable media: Carbon dioxide, Dry chemical, Foam.

5.2 Special hazards arising from the substance or mixture

In case of fire, may be liberated: Carbon monoxide, Unidentified organic compounds.

5.3 Advice for fire fighters:

In case of insufficient ventilation, wear suitable respiratory equipment.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Avoid inhalation. Avoid contact with skin and eyes. See protective measures under Section 7 and 8.

6.2 Environmental precautions:

Keep away from drains, surface and ground water, and soil.

6.3 Methods and material for containment and cleaning up:

Remove ignition sources. Provide adequate ventilation. Avoid excessive inhalation of vapours. Contain spillage immediately by use of sand or inert powder. Dispose of according to local regulations.

6.4 Reference to other sections:

Also refer to sections 8 and 13.
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Section 7. Handling and storage

7.1 Precautions for safe handling:
Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use personal protective equipment as required. Use in accordance with good manufacturing and industrial hygiene practices. Use in areas with adequate ventilation. Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities:

7.3 Specific end use(s):
Flavours: Use in accordance with good manufacturing and industrial hygiene practices.

Section 8. Exposure controls/personal protection

8.1 Control parameters
Workplace exposure limits:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS</th>
<th>EC</th>
<th>Description</th>
<th>ppm</th>
<th>mg/m³</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Heptanone</td>
<td>110-43-0</td>
<td>203-767-1</td>
<td>Long-term exposure limit (8-hour TWA reference period)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Short-term exposure limit (15-minute reference period)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141-78-6</td>
<td>205-500-4</td>
<td>Long-term exposure limit (8-hour TWA reference period)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Short-term exposure limit (15-minute reference period)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

8.2 Exposure Controls

Eye / Skin Protection
Wear protective gloves/eye protection/face protection

Respiratory Protection
Ensure adequate and ongoing ventilation is maintained in order to prevent build up of excessive vapour and to ensure occupational exposure limits are adhered to. If appropriate, and depending on your patterns and volumes of use, the following engineering controls may be required as additional protective measures: a) Isolate mixing rooms and other areas where this material is used or openly handled. Maintain these areas under negative air pressure relative to the rest of the plant. b) Employ the use of Personal protective equipment - an approved, properly fitted respirator with organic vapour cartridges or canisters and particulate filters. c) Use local exhaust ventilation around open tanks and other open sources of potential exposures in order to avoid excessive inhalation, including places where this material is openly weighed or measured. In addition, use general dilution ventilation of the work area to eliminate or reduce possible worker exposures. d) Use closed systems for transferring and processing this material. Also refer to Sections 2 and 7.

Perfumer's Apprentice, 170 Technology Circle, Scotts Valley, CA, 95066, USA
Section 9. Physical and chemical properties

**9.1 Information on basic physical and chemical properties**

- **Appearance**: Not determined
- **Odour**: Not determined
- **pH**: Not determined
- **Initial boiling point / range**: Not determined
- **Flash point**: > 93.5 °C
- **Vapour pressure**: Not determined
- **Relative density**: Not determined
- **Solubility(ies)**: Not determined

**9.2 Other information**: None available

Section 10. Stability and reactivity

**10.1 Reactivity:**

Presents no significant reactivity hazard, by itself or in contact with water.

**10.2 Chemical stability:**

Good stability under normal storage conditions.

**10.3 Possibility of hazardous reactions:**

Not expected under normal conditions of use.

**10.4 Conditions to avoid:**

Avoid extreme heat.

**10.5 Incompatible materials:**

Avoid contact with strong acids, alkalis or oxidising agents.

**10.6 Hazardous decomposition products:**

Not expected.

Section 11. Toxicological information

**11.1 Information on toxicological effects**

This mixture has not been tested as a whole for health effects. The health effects have been calculated using the methods outlined in 29 CFR 1910.1200.

- Causes skin irritation.
- May cause an allergic skin reaction.
- Causes serious eye damage.
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Assumed Toxicity Value (LD50 or ATE) for Acute Oral Toxicity: 2761
Assumed Toxicity Value (LD50 or ATE) for Acute Dermal Toxicity: 3584
Assumed Toxicity Value (LC50 or ATE) for Acute Inhalation Toxicity: Not Available

Inhalation Route: Not Available

Information about hazardous ingredients in the mixture

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS</th>
<th>EC</th>
<th>LD50/ATE Oral</th>
<th>LD50/ATE Dermal</th>
<th>LC50/ATE Inhalation</th>
<th>LC50 Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Heptanone</td>
<td>110-43-0</td>
<td>203-767-1</td>
<td>1600</td>
<td>Not available</td>
<td>11</td>
<td>Vapour</td>
</tr>
<tr>
<td>Allyl heptanoate</td>
<td>142-19-8</td>
<td>205-527-1</td>
<td>218</td>
<td>810</td>
<td>3</td>
<td>Vapour</td>
</tr>
<tr>
<td>Allyl hexanoate</td>
<td>123-68-2</td>
<td>204-642-4</td>
<td>300</td>
<td>300</td>
<td>3</td>
<td>Vapour</td>
</tr>
</tbody>
</table>

Refer to Sections 2 and 3 for additional information.

Section 12. Ecological information

12.1 Toxicity:
Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability: Not available

12.3 Bioaccumulative potential: Not available

12.4 Mobility in soil: Not available

12.5 Results of PBT and vPvB assessment:
This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6 Other adverse effects: Not available

Section 13. Disposal considerations

13.1 Waste treatment methods:
Dispose of in accordance with local regulations. Avoid disposing into drainage systems and into the environment. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Section 14. Transport information

14.1 UN number: Not classified

14.2 UN Proper Shipping Name: Not classified

14.3 Transport hazard class(es):
Sub Risk: Not classified

14.4. Packing Group: Not classified

14.5 Environmental hazards: Not environmentally hazardous for transport
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14.6 Special precautions for user: None additional

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:
Not classified

Section 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
None additional

15.2 Chemical Safety Assessment
A Chemical Safety Assessment has not been carried out for this product.

Section 16. Other information

Concentration % Limits: SCI 2=29.41% EDI 1=18.75% EDI 2=5.93% SS 1=40.00%

Total Fractional Values: SCI 2=3.40 EDI 1=5.33 EDI 2=16.85 SS 1=2.50

Key to revisions:
Not applicable

Key to abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATD 3</td>
<td>Acute Toxicity - Dermal Category 3</td>
</tr>
<tr>
<td>ATD 4</td>
<td>Acute Toxicity - Dermal Category 4</td>
</tr>
<tr>
<td>ATI 3</td>
<td>Acute Toxicity - Inhalation Category 3</td>
</tr>
<tr>
<td>ATI 4</td>
<td>Acute Toxicity - Inhalation Category 4</td>
</tr>
<tr>
<td>ATO 3</td>
<td>Acute Toxicity - Oral Category 3</td>
</tr>
<tr>
<td>ATO 4</td>
<td>Acute Toxicity - Oral Category 4</td>
</tr>
<tr>
<td>EDI 1</td>
<td>Eye Damage / Irritation Category 1</td>
</tr>
<tr>
<td>EDI 2A</td>
<td>Eye Damage / Irritation Category 2A</td>
</tr>
<tr>
<td>FL 2</td>
<td>Flammable Liquid, Hazard Category 2</td>
</tr>
<tr>
<td>FL 3</td>
<td>Flammable Liquid, Hazard Category 3</td>
</tr>
<tr>
<td>FL 4</td>
<td>Flammable Liquid, Hazard Category 4</td>
</tr>
<tr>
<td>H225</td>
<td>Highly flammable liquid and vapour.</td>
</tr>
<tr>
<td>H226</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>H227</td>
<td>Combustible liquid.</td>
</tr>
<tr>
<td>H301</td>
<td>Toxic if swallowed.</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H311</td>
<td>Toxic in contact with skin.</td>
</tr>
<tr>
<td>H312</td>
<td>Harmful in contact with skin.</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction.</td>
</tr>
</tbody>
</table>
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H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H332 Harmful if inhaled.
H336 May cause drowsiness or dizziness.
P210 Keep away from heat, sparks, open flames and hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical, ventilating and lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe vapour or dust.
P261 Avoid breathing vapour or dust.
P264 Wash hands and other contacted skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P274 Wear protective gloves/eye protection/face protection.
P280 Wash, rinse with plenty of soap and water.
P301/310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301/312 IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell.
P301/330/331 If swallowed: Rinse mouth. Do not induce vomiting.
P302/352 IF ON SKIN: Wash with plenty of soap and water.
P303/361/353 IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P304/340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305/351/338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P311 Call a POISON CENTRE or doctor/physician.
P312 Call a POISON CENTRE or doctor/physician if you feel unwell.
P330 Rinse mouth.
P332/313 If skin irritation occurs: Get medical advice/attention.
P333/313 If skin irritation or rash occurs: Get medical advice/attention.
P337/313 If eye irritation persists: Get medical advice/attention.
P361 Remove/Take off immediately all contaminated clothing.
P362 Take off contaminated clothing and wash before reuse.
P363 Wash contaminated clothing before reuse.
P370/378 In case of fire: Use carbon dioxide, dry chemical, foam for extinction.
P403/235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/container to approved disposal site, in accordance with local regulations.
SCI 1A Skin Corrosion / Irritation Category 1A
SCI 2 Skin Corrosion / Irritation Category 2
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<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SS 1</td>
<td>Sensitization - Skin Category 1</td>
</tr>
<tr>
<td>SS 1B</td>
<td>Sensitization - Skin Category 1B</td>
</tr>
<tr>
<td>STO-SE 3(NE)</td>
<td>Specific Target Organ Toxicity (Single Exposure) Category 3</td>
</tr>
</tbody>
</table>

The information in this safety data sheet is to the best of our knowledge true and accurate but all data, instructions, recommendations and/or suggestions are made without guarantee.