SAFETY DATA SHEET
In accordance with 29 CFR 1910.1200

Product: Mango Natural Concentrate 22348
Version: 1

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

1.1 Product Identifier
Product identifier: Mango Natural Concentrate 22348
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: (831)316-7137

1.4 Emergency telephone number
Emergency phone: ChemTel:1(800)255-3924, 01(813)248-0585 MIS6760377

Section 2. Hazards identification

2.1 Classification of the substance or mixture
Class and category of danger:
- Flammable Liquid, Hazard Category 2
- Skin Corrosion / Irritation Category 1B
- Eye Damage / Irritation Category 1
- Sensitization - Skin Category 1
- Specific Target Organ Toxicity (Single Exposure) Category 3
- H225, Highly flammable liquid and vapour.
- H314, Causes severe skin burns and eye damage.
- H317, May cause an allergic skin reaction.
- H335, May cause respiratory irritation.

2.2 Label elements
Signal word: Danger
Hazard statements:
- H225, Highly flammable liquid and vapour.
- H314, Causes severe skin burns and eye damage.
- H317, May cause an allergic skin reaction.
- H335, May cause respiratory irritation.
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Precautionary statements:

P210, Keep away from heat, sparks, open flames and hot surfaces. - No smoking.
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.
P264, Wash hands and other contacted skin thoroughly after handling.
P271, Use only outdoors or in a well-ventilated area.
P272, Contaminated work clothing should not be allowed out of the workplace.
P280, Wear protective gloves/eye protection/face protection.
P301/330/331, If swallowed: Rinse mouth. Do not induce vomiting.
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.
P333/313, If skin irritation or rash occurs: Get medical advice/attention.
P363, Wash contaminated clothing before reuse.
P370/378, In case of fire: Use carbon dioxide, dry chemical, foam for extinction.
P405, Store locked up.
P501, Dispose of contents/container to approved disposal site, in accordance with local regulations.

Pictograms:

Other hazards: None

Section 3. Composition / information on ingredients

3.2 Mixtures

Contains:
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<table>
<thead>
<tr>
<th>Name</th>
<th>CAS</th>
<th>EC</th>
<th>%</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>d-Limonene</td>
<td>5989-27-5</td>
<td>227-813-5</td>
<td>10-&lt;20%</td>
<td>Flam. Liq. 3-Skin Irrt. 2-Skin Sens. 1B-Asp. Tox 1;H226-H304-H315-H317</td>
</tr>
<tr>
<td>Acetic acid</td>
<td>64-19-7</td>
<td>200-580-7</td>
<td>1-&lt;10%</td>
<td>Flam. Liq. 3-Skin Corr 1A-Eye Dam. 1;H226-H314</td>
</tr>
<tr>
<td>Butyric acid</td>
<td>107-92-6</td>
<td>203-532-3</td>
<td>1-&lt;5%</td>
<td>Flam. Liq. 4-Acute Tox. 4-Skin Corr. 1B-Eye Dam. 1;H227-H302-H314</td>
</tr>
<tr>
<td>Hexyl alcohol</td>
<td>111-27-3</td>
<td>203-852-3</td>
<td>1-&lt;5%</td>
<td>Flam. Liq. 3-Skin Irrt. 4-Acute Tox. 4-Eye Irrit. 2A;H226-H302-H312-H319</td>
</tr>
<tr>
<td>alpha-Pinene</td>
<td>80-56-8</td>
<td>201-291-9</td>
<td>1-&lt;5%</td>
<td>Flam. Liq. 3-Skin Irrt. 2-Skin Sens. 1B-Asp. Tox 1;H226-H304-H315-H317</td>
</tr>
<tr>
<td>4-Hydroxy-2,5-dimethyl-3(2H)-furanone</td>
<td>3658-77-3</td>
<td>222-908-8</td>
<td>1-&lt;5%</td>
<td>Eye Irrit. 2A-Skin Sens. 1A;H317-H319</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:
Not Applicable

Section 4. First-aid measures

4.1 Description of first aid measures

If swallowed: Rinse mouth. Do not induce vomiting.
IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
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 severe skin burns and eye damage.
May cause an allergic skin reaction.
May cause respiratory irritation.

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.
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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.

Section 7. Handling and storage

7.1 Precautions for safe handling:
Keep away from heat, sparks, open flames and hot surfaces. - No smoking.

7.2 Conditions for safe storage, including any incompatibilities:
Store in a well-ventilated place. Keep container tightly closed. Keep cool. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge.

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: Not Applicable

8.2 Exposure Controls
Eye / Skin Protection
Wear protective gloves/eye protection/face protection

Respiratory Protection
Under normal conditions of use and where adequate ventilation is available to prevent build up of excessive vapour, this material should not require special engineering controls. However, in conditions of high or prolonged use, or high temperature or other conditions which increase exposure, the following engineering controls can be used to minimise
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exposure to personnel: a) Increase ventilation of the area with local exhaust ventilation. b) Personnel can use an approved, appropriately fitted respirator with organic vapour cartridge or canisters and particulate filters. c) Use closed systems for transferring and processing this material.
Also refer to Sections 2 and 7.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties
Appearance: Clear yellow
Odour: Not determined
pH: Not determined
Initial boiling point / range: Not determined
Flash point: 19.4 °C
Vapour pressure: Not determined
Relative density: 0.9000
Solubility(ies): Not determined

9.2 Other information: None available

Section 10. Stability and reactivity

10.1 Reactivity:
Presentation 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.
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Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
May cause respiratory irritation.

Assumed Toxicity Value (LD50 or ATE) for Acute Oral Toxicity: >5000
Assumed Toxicity Value (LD50 or ATE) for Acute Dermal Toxicity: >5000
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>Butyric acid</td>
<td>107-92-6</td>
<td>203-532-3</td>
<td>1630</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Hexyl alcohol</td>
<td>111-27-3</td>
<td>203-852-3</td>
<td>500</td>
<td>1750</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Refer to Sections 2 and 3 for additional information.

Section 12. Ecological information

12.1 Toxicity: Not available
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: UN2924
14.2 UN Proper Shipping Name: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Ethyl isobutyrate, Acetic acid)
14.3 Transport hazard class(es): 3
   Sub Risk: 8
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14.4. Packing Group: II
14.5 Environmental hazards: This is an environmentally hazardous substance.
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 applicable

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 1A=83.33% SCI 1B=62.50% SCI 1C=62.50% SCI 2=10.75% EDI 1=37.50% EDI 2=12.03% SS 1=8.70% AH 1=76.92%

Total Fractional Values:
SCI 1A=1.20 SCI 1B=1.60 SCI 1C=1.60 SCI 2=9.30 EDI 1=2.67 EDI 2=8.32 SS 1=11.50 AH 1=1.30

Key to revisions:
Not applicable

Key to abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 4</td>
<td>Acute Toxicity - Oral Category 4</td>
</tr>
<tr>
<td>Acute Tox. 4</td>
<td>Acute Toxicity - Dermal Category 4</td>
</tr>
<tr>
<td>Asp. Tox 1</td>
<td>Aspiration Hazard Category 1</td>
</tr>
<tr>
<td>Eye Dam. 1</td>
<td>Eye Damage / Irritation Category 1</td>
</tr>
<tr>
<td>Eye Irrit. 2A</td>
<td>Eye Damage / Irritation Category 2A</td>
</tr>
<tr>
<td>Flam. Liq. 3</td>
<td>Flammable Liquid, Hazard Category 3</td>
</tr>
<tr>
<td>Flam. Liq. 4</td>
<td>Flammable Liquid, Hazard Category 4</td>
</tr>
<tr>
<td>H226</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>H227</td>
<td>Combustible liquid.</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H304</td>
<td>May be fatal if swallowed and enters airways.</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>
<tr>
<td>H319</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>P210</td>
<td>Keep away from heat, sparks, open flames and hot surfaces. - No smoking.</td>
</tr>
<tr>
<td>P233</td>
<td>Keep container tightly closed.</td>
</tr>
</tbody>
</table>
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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.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/eye protection/face protection.
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.
P312 Call a POISON CENTRE or doctor/physician if you feel unwell.
P330 Rinse mouth.
P331 Do not induce vomiting.
P333/313 If skin irritation or rash occurs: Get medical advice/attention.
P337/313 If eye irritation persists: Get medical advice/attention.
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.

Skin Corr. 1A Skin Corrosion / Irritation Category 1A
Skin Corr. 1B Skin Corrosion / Irritation Category 1B
Skin Irrit. 2 Skin Corrosion / Irritation Category 2
Skin Sens. 1A Sensitization - Skin Category 1A
Skin Sens. 1B Sensitization - Skin Category 1B

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.