SAFETY DATA SHEET
In accordance with 29 CFR 1910.1200

Product: Blue Raspberry Flavor 15989
Version: 1

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

1.1 Product identifier
Product identifier: Blue Raspberry Flavor 15989
Other identifiers: None

1.2 Relevant identified uses of the substance of 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: Flammable Liquid, Hazard Category 3
Acute Toxicity - Oral Category 4
Skin Corrosion / Irritation Category 2
Eye Damage / Irritation Category 2
Specific Target Organ Toxicity (Single Exposure) Category 3
H226, Flammable liquid and vapour.
H302, Harmful if swallowed.
H315, Causes skin irritation.
H319, Causes serious eye irritation.
H335, May cause respiratory irritation.

2.2 Label elements
Signal word: Warning
Hazard statements: H226, Flammable liquid and vapour.
H302, Harmful if swallowed.
H315, Causes skin irritation.
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H319, Causes serious eye irritation.
H335, May cause respiratory irritation.

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.
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.
P280, Wear protective gloves/eye protection/face protection.
P301/312, IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell.
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.
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.
P337/313, If eye irritation persists: Get medical advice/attention.
P362, Take off contaminated clothing and wash 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
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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>Benzyl alcohol</td>
<td>100-51-6</td>
<td>202-859-9</td>
<td>20-&lt;50%</td>
<td>ATO 4-ATI 4-EDI 2A:H302-H319-H332</td>
</tr>
<tr>
<td>4-(p-Hydroxyphenyl)-2-butanone</td>
<td>5471-51-2</td>
<td>226-806-4</td>
<td>1-&lt;5%</td>
<td>ATO 4:H302</td>
</tr>
<tr>
<td>Benzaldehyde</td>
<td>100-52-7</td>
<td>202-860-4</td>
<td>1-&lt;5%</td>
<td>FL 4-ATO 4-ATI 4-EDI 2A-STO-SE 3 (RI);H227-H302-H319-H332-H335</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141-78-6</td>
<td>205-500-4</td>
<td>1-&lt;5%</td>
<td>FL 2-EDI 2A-STO-SE 3(NE);H225-H319-H336</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>Ethyl acetate</td>
<td>141-78-6</td>
<td>205-500-4</td>
<td>1-5%</td>
</tr>
</tbody>
</table>

Section 4. First-aid measures

4.1 Description of first aid measures

IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell.

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.

Call a POISON CENTRE or doctor/physician if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
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.
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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.

Section 7. Handling and storage

7.1 Precautions for safe handling:
Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Do not eat, drink or smoke when using this product.

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:

<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>
</table>

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<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS Number</th>
<th>Long-term exposure limit (8-hour TWA reference period)</th>
<th>Short-term exposure limit (15-minute reference period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl acetate 141-78-6 205-500-4</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.

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: 38.44 °C
Vapour pressure: Not determined
Relative density: 1.1500
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.
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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.

Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

Assumed Toxicity Value (LD50 or ATE) for Acute Oral Toxicity: 3896
Assumed Toxicity Value (LD50 or ATE) for Acute Dermal Toxicity: >5000
Assumed Toxicity Value (LC50 or ATE) for Acute Inhalation Toxicity: 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>4-(p-Hydroxyphenyl)-2-butanone</td>
<td>5471-51-2</td>
<td>226-806-4</td>
<td>1400</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Benzaldehyde</td>
<td>100-52-7</td>
<td>202-860-4</td>
<td>1430</td>
<td>Not available</td>
<td>1.5</td>
<td>Dust/mist</td>
</tr>
<tr>
<td>Benzyl alcohol</td>
<td>100-51-6</td>
<td>202-859-9</td>
<td>1620</td>
<td>2500</td>
<td>11</td>
<td>Vapour</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
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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: UN1197

14.2 UN Proper Shipping Name: EXTRACTS, FLAVOURING, LIQUID

14.3 Transport hazard class(es): 3
   Sub Risk: -

14.4. Packing Group: III

14.5 Environmental hazards: Not environmentally hazardous for transport

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: EDI 2=27.03%

Total Fractional Values: EDI 2=3.70

Key to revisions: Not applicable

Key to abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
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</table>

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<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATI 4</td>
<td>Acute Toxicity - Inhalation Category 4</td>
</tr>
<tr>
<td>ATO 4</td>
<td>Acute Toxicity - Oral Category 4</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 4</td>
<td>Flammable Liquid, Hazard Category 4</td>
</tr>
<tr>
<td>H225</td>
<td>Highly 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>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
<tr>
<td>H336</td>
<td>May cause drowsiness or dizziness</td>
</tr>
<tr>
<td>P210</td>
<td>Keep away from heat, sparks, open flames and hot surfaces. - No smoking.</td>
</tr>
<tr>
<td>P240</td>
<td>Ground/bond container and receiving equipment.</td>
</tr>
<tr>
<td>P241</td>
<td>Use explosion-proof electrical, ventilating and lighting equipment.</td>
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<td>Use only non-sparking tools.</td>
</tr>
<tr>
<td>P243</td>
<td>Take precautionary measures against static discharge.</td>
</tr>
<tr>
<td>P261</td>
<td>Avoid breathing vapour or dust</td>
</tr>
<tr>
<td>P264</td>
<td>Wash hands and other contacted skin thoroughly after handling.</td>
</tr>
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<td>P270</td>
<td>Do not eat, drink or smoke when using this product.</td>
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<td>P271</td>
<td>Use only outdoors or in a well-ventilated area.</td>
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<td>P280</td>
<td>Wear protective gloves/eye protection/face protection.</td>
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<td>P301/312</td>
<td>IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell.</td>
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<td>P304/340</td>
<td>IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</td>
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<td>P305/351/338</td>
<td>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</td>
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<td>P312</td>
<td>Call a POISON CENTRE or doctor/physician if you feel unwell.</td>
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<td>P330</td>
<td>Rinse mouth.</td>
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<tr>
<td>P337/313</td>
<td>If eye irritation persists: Get medical advice/attention.</td>
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<tr>
<td>P370/378</td>
<td>In case of fire: Use carbon dioxide, dry chemical, foam for extinction.</td>
</tr>
<tr>
<td>P405</td>
<td>Store locked up.</td>
</tr>
<tr>
<td>P501</td>
<td>Dispose of contents/container to approved disposal site, in accordance with local regulations.</td>
</tr>
<tr>
<td>STO-SE 3(NE)</td>
<td>Specific Target Organ Toxicity (Single Exposure) Category 3</td>
</tr>
<tr>
<td>STO-SE 3(RI)</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.