SECTION 1: Identification

1.1. Identification
Trade name: Potassium based Isomerized Kettle Extract (PIKE)
Chemical name: Hop, Humulus lupulus, ext
CAS-No.: 8060-28-4

1.2. Recommended use and restrictions on use
Use of the substance/mixture: Manufacturing of food

1.3. Supplier
Supplier/Importer
S. S. Steiner, Inc.
655 Madison Avenue
New York, NY 10065 - USA
T +1 212 838 8900
Email competent person
sds@kft.de

Manufacturer/Supplier/Importer
Simon H. Steiner, Hopfen, GmbH
Auhofstr. 18
Mainburg, 84048 - Germany
T +49-(0)8751-8605-0 - F +49-(0)8751-8605-80
Supplier/Importer
Steiner Hops Ltd.
185-189 High St
Epping, Essex CM16 4BL - United Kingdom

1.4. Emergency telephone number
Emergency number:
S. S. Steiner, Inc.
Phone: +1 212 838 8900 (Monday – Friday 08.00 – 17.00, Eastern Time Zone)

Simon H. Steiner, Hopfen, GmbH
Tel.: +49-8751-8605-0 (Monday – Friday 08:00 – 17:00, Central European Time)

Steiner Hops Ltd.
Phone: +44 1992 572 331 (Monday – Friday 08.00 – 17.00, Greenwich Mean Time)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS-US classification
Acute toxicity (oral): H302 Harmful if swallowed
Category 4
Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements
GHS-US labeling
Hazard pictograms (GHS-US):

Signal word (GHS-US): Warning
Hazard statements (GHS-US): H302 - Harmful if swallowed
Precautionary statements (GHS-US):
P270 - Do not eat, drink or smoke when using this product.
P301+P312 - If swallowed: Call a POISON CENTER, a doctor if you feel unwell
P330 - Rinse mouth.

2.3. Other hazards which do not result in classification
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable
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SECTION 3: Composition/Information on ingredients

3.1. Substances
Substance type : Multi-constituent
Chemical name : Hop, Humulus lupulus, ext
CAS-No. : 8060-28-4

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,5-dihydroxy-2,6,6-tris(3-methylbuten-2-y1)-4-(3-methyl-1-oxobutyl)cyclohexa-2,4-dien-1-one (Component)</td>
<td>(CAS-No.) 468-28-0</td>
<td>12-30</td>
<td>Acute Tox. 3 (Oral), H301</td>
</tr>
<tr>
<td>Hop oil (Component)</td>
<td>(CAS-No.) 8007-04-3</td>
<td>2-10</td>
<td>Flam. Lq. 3, H226, Asp. Tox. 1, H304</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures
Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures
First-aid measures general : Call a poison center/doctor/physician if you feel unwell.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Rinse mouth. Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)
No additional information available

4.3. Immediate medical attention and special treatment, if necessary
Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media
Unsuitable extinguishing media : Strong water jet.

5.2. Specific hazards arising from the chemical
Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

5.3. Special protective equipment and precautions for fire-fighters
Firefighting instructions : Cool closed containers exposed to fire with water spray.
Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
Other information : Do not allow run-off from fire fighting to enter drains or water courses. Disposal must be done according to official regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Emergency procedures : Ventilate spillage area.

6.1.2. For emergency responders
Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Avoid sub-soil penetration. Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up : Take up liquid spill into absorbent material. Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal.

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Other information : Disposal must be done according to official regulations.

6.4. Reference to other sections  
Information for safe handling. See section 7. Concerning personal protective equipment to use, see section 8. For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling  
Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities  
Storage conditions : Store in a well-ventilated place. Keep cool.
Maximum storage period : = 2 year(s)
Storage temperature : < 50 °F
Information about storage in one common storage facility : Keep away from food, drink and animal feeding stuffs.
Special rules on packaging : Store in a closed container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters  
No additional information available.

8.2. Appropriate engineering controls  
Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:  
Chemically resistant protective gloves. EN 374. Choosing the proper glove is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer. Please follow the instructions related to the permeability and the penetration time provided by the manufacturer. Gloves must be replaced after each use and whenever signs of wear or perforation appear.

Eye protection:  
Use splash goggles when eye contact due to splashing is possible. EN 166

Skin and body protection:  
Wear suitable protective clothing

Respiratory protection:  
Accidental release measures. Filter type: P1. EN 143.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties  
Physical state : Liquid
Appearance : Viscous.
Color : Green Brownish
Odor : characteristic
Odor threshold : No data available
pH : 6.2 - 7.2
Melting point : Not applicable
Freezing point : No data available
Boiling point : No data available
Flash point : ≈ 206 °F
Relative evaporation rate (butyl acetate=1) : No data available
Flammability (solid, gas) : Not applicable
### SECTION 10: Stability and reactivity

**10.1. Reactivity**
The product is non-reactive under normal conditions of use, storage and transport.

**10.2. Chemical stability**
Stable under normal conditions. To avoid thermal decomposition, do not overheat.

**10.3. Possibility of hazardous reactions**
No dangerous reactions known under normal conditions of use.

**10.4. Conditions to avoid**
No additional information available

**10.5. Incompatible materials**
No additional information available

**10.6. Hazardous decomposition products**
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

### SECTION 11: Toxicological information

**11.1. Information on toxicological effects**

<table>
<thead>
<tr>
<th>Acute toxicity</th>
<th>Oral: Harmful if swallowed.</th>
</tr>
</thead>
</table>

**Potassium based Isomerized Kettle Extract (PIKE)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE US (oral)</td>
<td>333 mg/kg body weight</td>
</tr>
<tr>
<td>3,5-dihydroxy-2,6,6-tris(3-methylbuten-2-yl)-4-(3-methyl-1-oxobutyl)cyclohexa-2,4-dien-1-one (468-28-0)</td>
<td>100 mg/kg body weight</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>* (Based on available data, the classification criteria are not met)</td>
<td>pH: 6.2 - 7.2</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>* (Based on available data, the classification criteria are not met)</td>
<td>pH: 6.2 - 7.2</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>* (Based on available data, the classification criteria are not met)</td>
<td></td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>* (Based on available data, the classification criteria are not met)</td>
<td></td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>* (Based on available data, the classification criteria are not met)</td>
<td></td>
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</tbody>
</table>
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Specific target organ toxicity – single exposure: Not classified
(Based on available data, the classification criteria are not met)

Specific target organ toxicity – repeated exposure: Not classified
(Based on available data, the classification criteria are not met)

Aspiration hazard: Not classified
(Based on available data, the classification criteria are not met)

SECTION 12: Ecological information

12.1. Toxicity
No additional information available

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
Other adverse effects: No additional information available.

SECTION 13: Disposal considerations

13.1. Disposal methods
Waste treatment methods: Disposal must be done according to official regulations, European waste catalogue. Do not dispose of with domestic waste. Do not discharge into drains or the environment.

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT
Not applicable

Transportation of Dangerous Goods
Not applicable

Transport by sea
Not applicable

Air transport
Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations
All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

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### 15.2. International regulations

No additional information available.

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm.

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### SECTION 16: Other information

<table>
<thead>
<tr>
<th>Revision date</th>
<th>: 02/06/2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data sources</td>
<td>: Information provided by the manufacturer.</td>
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</table>
| Department issuing data specification sheet | : KFT Chemieservice GmbH  
Im Leuschnerpark. 3  64347 Griesheim  
Postfach 1451 64345 Griesheim  
Germany  
Phone: +49 6155-8981-400  
Fax: +49 6155 8981-500  
Safety Data Sheet Service: +49 6155 8981-522 |
| Contact person      | : Stefanie Zgorzelski |

**Full text of H-phrases:**

| H226     | Flammable liquid and vapour |
| H301     | Toxic if swallowed |
| H302     | Harmful if swallowed |
| H304     | May be fatal if swallowed and enters airways |

**Abbreviations and acronyms:**

| ADN      | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR      | European Agreement concerning the International Carriage of Dangerous Goods by Road |
| ATE      | Acute Toxicity Estimate |
| BCF      | Bioconcentration factor |
| CLP      | Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008 |
| DMEL     | Derived Minimal Effect level |
| DNEL     | Derived-No Effect Level |
| DPD      | Dangerous Preparations Directive 1999/45/EC |
| DSD      | Dangerous Substances Directive 67/548/EEC |
| EC50     | Median effective concentration |
| IARC     | International Agency for Research on Cancer |
| IATA     | International Air Transport Association |
| IMDG     | International Maritime Dangerous Goods |
| LC50     | Median lethal concentration |
| LD50     | Median lethal dose |
| LOAEL    | Lowest Observed Adverse Effect Level |
| NOAEC    | No-Observed Adverse Effect Concentration |
| NOAEL    | No-Observed Adverse Effect Level |
| NOEC     | No-Observed Effect Concentration |
| OECD     | Organisation for Economic Co-operation and Development |
| PBT      | Persistent Bioaccumulative Toxic |
| PNEC     | Predicted No-Effect Concentration |
| RID      | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS      | Safety Data Sheet |
| STP      | Sewage treatment plant |
| TLM      | Median Tolerance Limit |
| vPvB     | Very Persistent and Very Bioaccumulative |

**Indication of changes:**

<table>
<thead>
<tr>
<th>Section</th>
<th>Changed item</th>
<th>Change</th>
<th>Comments</th>
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<tbody>
<tr>
<td>2.1</td>
<td>GHS-US classification</td>
<td>Modified</td>
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</tr>
<tr>
<td>2.2</td>
<td>Precautionary statements</td>
<td>Modified</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Composition</td>
<td>Modified</td>
<td></td>
</tr>
</tbody>
</table>

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.