## 1 Identification

- **Product identifier**
  - **Trade name:** Ethyl Furanone 10% PG synthetic
  - **Product number:** 2076
  - **CAS Number:** 27538-09-6/27538-10-9/57-55-6
  - **EINECS Number:** 248-513-0/200-338-0

- **Application of the substance / the mixture** Food flavorings

- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:** Advanced Biotech
    - 10 Taft Road
    - Totowa, NJ 07512 USA
  - **Information department:**
    - Product Safety Department
    - productsafety@adv-bio.com
  - **Emergency telephone number:**
    - 1(800)535-5053 (Info Trac)
    - 1(352)323-3500 (International)
    - During normal business hours: 1(973)339-6242

## 2 Hazard(s) identification

- **Classification of the substance or mixture**
  - The product is not classified, according to the Globally Harmonized System (GHS).

### Label elements

- **GHS label elements**
  - Pictograms on label shall be in the shape of a square set at a point and shall include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible.

- **Hazard pictograms** Not Applicable
- **Signal word** Not Applicable
- **Hazard statements** Not Applicable

- **Classification system:**
  - **NFPA ratings (scale 0 - 4)**
    - Health = 0
    - Fire = 1
    - Reactivity = 0
  - **HMIS-ratings (scale 0 - 4)**
    - Health = 0
    - Fire = 1
    - Reactivity = 0

(Continued on page 2)
Trade name: Ethyl Furanone 10% PG synthetic

3 Composition/information on ingredients

· Description: Mixture of the substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>CAS: 57-55-6</th>
<th>Propylene glycol</th>
<th>90.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 27538-09-6</td>
<td>2-Ethyl-4-Hydroxy-5-Methyl-3(2H)-furanone</td>
<td>Flam. Liq. 4, H227</td>
</tr>
</tbody>
</table>

4 First-aid measures

· Description of first aid measures
· General information: No special measures required.
· After inhalation: Supply fresh air; consult doctor in case of complaints.
· After skin contact: Generally the product does not irritate the skin.
· After eye contact: Rinse opened eye for several minutes under running water.
· After swallowing: If symptoms persist consult doctor.
· Information for doctor:
· Most important symptoms and effects, both acute and delayed
No further relevant information available.
· Indication of any immediate medical attention and special treatment needed
No further relevant information available.

5 Fire-fighting measures

· Extinguishing media
· Suitable extinguishing agents:
  CO2, powder or alcoholresistant foam.
  CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  Use fire fighting measures that suit the environment.
· Special hazards arising from the substance or mixture
No further relevant information available.
· Advice for firefighters
· Protective equipment:
  No special measures required.
· Additional information
  Cool endangered receptacles with water spray.
  Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures
  Not required.
· Environmental precautions:
  Dilute with plenty of water.
· Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
· Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
Trade name: Ethyl Furanone 10% PG synthetic

See Section 13 for disposal information.

Protective Action Criteria for Chemicals

- PAC-1:
  - CAS: 57-55-6 Propylene glycol
  - 30 mg/m³

- PAC-2:
  - CAS: 57-55-6 Propylene glycol
  - 1,300 mg/m³

- PAC-3:
  - CAS: 57-55-6 Propylene glycol
  - 7,900 mg/m³

7 Handling and storage

- Handling:
  - Precautions for safe handling: No special measures required.
  - Information about protection against explosions and fires: No special measures required.

- Conditions for safe storage, including any incompatibilities

- Storage:
  - Requirements to be met by storerooms and receptacles:
    - No special requirements.
    - Please refer to product specification for product storage requirements.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions: None.

- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.

- Control parameters
  - Components with limit values that require monitoring at the workplace:
    - The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
    - At this time, the remaining constituent has no known exposure limits.

- CAS: 57-55-6 Propylene glycol
  - WEEL Long-term value: 10 mg/m³

- Additional information: The lists that were valid during the creation were used as a basis.

- Exposure controls
  - Personal protective equipment:
  - General protective and hygienic measures:
    - The usual precautionary measures for handling chemicals should be followed.
  - Breathing equipment: Not required.

- Protection of hands:
  - The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
  - Selection of the glove material should be based on consideration of the penetration times, rates of diffusion and the degradation

- Material of gloves
  - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several
Trade name: Ethyl Furanone 10% PG synthetic

substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**
The exact break through time has to be determined by the manufacturer of the protective gloves and has to be observed.

- **Eye protection**: Goggles recommended during refilling.

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information</td>
</tr>
<tr>
<td>Appearance:</td>
</tr>
<tr>
<td>Form: Liquid</td>
</tr>
<tr>
<td>Color: According to product specification</td>
</tr>
<tr>
<td>Odor: According to product specification</td>
</tr>
<tr>
<td>Odor threshold: Not determined.</td>
</tr>
<tr>
<td>pH-value: Not determined</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change in condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/Melting range: Undetermined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range: 187 °C (368.6 °F)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flash point:</th>
</tr>
</thead>
<tbody>
<tr>
<td>107 °C (224.6 °F)</td>
</tr>
</tbody>
</table>

| Flammability (solid, gaseous): Not applicable.        |

<table>
<thead>
<tr>
<th>Ignition temperature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>371 °C (699.8 °F)</td>
</tr>
</tbody>
</table>

| Decomposition temperature: Not determined.            |

| Auto igniting: Product is not selfigniting.           |

| Danger of explosion: Product does not present an explosion hazard. |

<table>
<thead>
<tr>
<th>Explosion limits:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower: 2.6 Vol %</td>
</tr>
<tr>
<td>Upper: 12.6 Vol %</td>
</tr>
</tbody>
</table>

| Vapor pressure at 20 °C (68 °F): 0.1 hPa (0.1 mm Hg)  |

| Density at 20 °C (68 °F): 1.055 g/cm³ (8.80398 lbs/gal) |

| Relative density: Not determined.                     |

| Vapor density: Not determined.                        |

| Evaporation rate: Not determined.                     |

| Solubility in / Miscibility with Water: Fully miscible. |

| Partition coefficient (n-octanol/water): Not determined. |

<table>
<thead>
<tr>
<th>Viscosity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic: Not determined</td>
</tr>
<tr>
<td>Kinematic: Not determined</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solvent content:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic solvents: 90.0 %</td>
</tr>
</tbody>
</table>

(Continued on page 5)
### 10 Stability and reactivity

- **Reactivity**: No further relevant information available.
- **Chemical stability**
  - **Thermal decomposition / conditions to be avoided**: No decomposition if used according to specifications.
- **Possibility of hazardous reactions**: No dangerous reactions known.
- **Conditions to avoid**: No further relevant information available.
- **Incompatible materials**: No further relevant information available.
- **Hazardous decomposition products**: No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
  - **Acute toxicity**:
    - **Primary irritant effect**: No irritant effect.
    - **on the skin**: No irritating effect.
    - **on the eye**: No irritation.
  - **Sensitization**: No sensitizing effects known.
  - **Additional toxicological information**:
    - The product is not subject to classification according to internally approved calculation methods for preparations:
    - When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
- **Carcinogenic categories**
  - **IARC (International Agency for Research on Cancer)**: None of the ingredients is listed.
  - **NTP (National Toxicology Program)**: None of the ingredients is listed.
  - **OSHA-Ca (Occupational Safety & Health Administration)**: None of the ingredients is listed.

### 12 Ecological information

- **Toxicity**
  - **Aquatic toxicity**: No further relevant information available.
  - **Persistence and degradability**: No further relevant information available.
  - **Behavior in environmental systems**:
  - **Bioaccumulative potential**: No further relevant information available.
  - **Mobility in soil**: No further relevant information available.
  - **Additional ecological information**:
    - **General notes**: Not hazardous for water.
13 Disposal considerations

- Waste treatment methods
  - Recommendation: Smaller quantities can be disposed of with household waste.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.
  - Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

- UN-Number
  - DOT, ADR, ADN, IMDG, IATA: Not Regulated

- UN proper shipping name
  - DOT, ADR, ADN, IMDG, IATA: Not Regulated

- Transport hazard class(es)
  - DOT, ADR, ADN, IMDG, IATA: Not Regulated

- Packing group
  - DOT, ADR, IMDG, IATA: Not Regulated

- Environmental hazards:
  - Marine pollutant: No

- Special precautions for user: Not applicable.

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

- Transport/Additional information: Not dangerous according to the above specifications.

- UN "Model Regulation": Not Regulated

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Sara

- Section 355 (extremely hazardous substances):
  - None of the ingredients is listed.

- Section 313 (Specific toxic chemical listings):
  - None of the ingredients is listed.

- TSCA (Toxic Substances Control Act):
  - All ingredients are listed.
Trade name: Ethyl Furanone 10% PG synthetic

· Proposition 65
  · Chemicals known to cause cancer:
    None of the ingredients is listed.
  · Chemicals known to cause reproductive toxicity for females:
    None of the ingredients is listed.
  · Chemicals known to cause reproductive toxicity for males:
    None of the ingredients is listed.
  · Chemicals known to cause developmental toxicity:
    None of the ingredients is listed.

· Carcinogenic categories
  · EPA (Environmental Protection Agency)
    None of the ingredients is listed.
  · TLV (Threshold Limit Value established by ACGIH)
    None of the ingredients is listed.
  · NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients is listed.

· GHS label elements
  Pictograms on label shall be in the shape of a square set at a point and shall include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible.
  · Hazard pictograms Not Applicable
  · Signal word Not Applicable
  · Hazard statements Not Applicable
  · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information
This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases
  H227 Combustible liquid.

· Department issuing SDS: Product Safety Department
· Contact:
  Product Safety Department
  productsafety@adv-bio.com
· Date of preparation / last revision 02/11/2019 / -
· Abbreviations and acronyms:
  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation
  IATA: International Air Transport Association
  ACGIH: American Conference of Governmental Industrial Hygienists
  EINECS: European Inventory of Existing Commercial Chemical Substances
  ELINCIS: European List of Notified Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  NFPA: National Fire Protection Association (USA)
  HMIS: Hazardous Materials Identification System (USA)
  VOC: Volatile Organic Compounds (USA, EU)
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative

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Trade name: Ethyl Furanone 10% PG synthetic

NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flam. Liq. 4: Flammable liquids – Category 4