1 Identification

· Product identifier

· Trade name: Ethyl Furanone 20% PG synthetic

· Product number: 2241

· CAS Number: 27538-09-6 / 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

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· 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 20% PG synthetic

· Other hazards
· Results of PBT and vPvB assessment
  · PBT: Not applicable.
  · vPvB: Not applicable.

3 Composition/information on ingredients

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

<table>
<thead>
<tr>
<th>CAS</th>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-55-6</td>
<td>Propylene glycol</td>
<td>80.0%</td>
</tr>
<tr>
<td>27538-09-6</td>
<td>2-Ethyl-4-Hydroxy-5-Methyl-3(2H)-furanone</td>
<td>20.0%</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 alcohol resistant 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.
  Do not allow to enter sewers/ surface or ground water.
· Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Trade name: Ethyl Furanone 20% PG synthetic

- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

- Protective Action Criteria for Chemicals

<table>
<thead>
<tr>
<th>PAC</th>
<th>CAS: 57-55-6 Propylene glycol</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAC-1</td>
<td>30 mg/m³</td>
</tr>
<tr>
<td>PAC-2</td>
<td>1,300 mg/m³</td>
</tr>
<tr>
<td>PAC-3</td>
<td>7,900 mg/m³</td>
</tr>
</tbody>
</table>

7 Handling and storage

- 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.

<table>
<thead>
<tr>
<th>CAS: 57-55-6 Propylene glycol</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEEL</td>
</tr>
</tbody>
</table>

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

- Exposure controls

- Personal protective equipment:
  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 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 breakthrough 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

**General Information**

- **Appearance:** Liquid
- **Color:** According to product specification
- **Odor:** According to product specification
- **Odor threshold:** Not determined.
- **pH-value:** Not determined.

- **Change in condition**
  - **Melting point/Melting range:** Undetermined.
  - **Boiling point/Boiling range:** 187 °C (368.6 °F)
- **Flash point:** 107 °C (224.6 °F)
- **Flammability (solid, gaseous):** Not applicable.
- **Ignition temperature:** 371 °C (699.8 °F)
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**
  - **Lower:** 2.6 Vol %
  - **Upper:** 12.6 Vol %
- **Vapor pressure at 20 °C (68 °F):** 0.1 hPa (0.1 mm Hg)
- **Density at 20 °C (68 °F):** 1.06 g/cm³ (8.8457 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.
Trade name: Ethyl Furanone 20% PG synthetic

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:
· on the skin: No irritant effect.
· on the eye: No irritating effect.
· 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.
### 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.
  - 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
ELINCS: 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
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