1 Identification

- **Product identifier**
- **Trade name**: Methyl Ketones "T" Mix natural
- **Product number**: 1499
- **Application of the substance / the mixture**: Food flavorings

- **Details of the supplier of the safety data sheet**
  DISCLAIMER: The information in this Safety Data Sheet (SDS) is believed to be correct as of the date issued. Advanced Biotech makes NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the Advanced Biotech product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of an Advanced Biotech product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the Advanced Biotech product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

- **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**

  ![GHS07](image)

  Skin Irrit. 2  H315  Causes skin irritation.
  Eye Irrit. 2A  H319  Causes serious eye irritation.

  Flam. Liq. 4  H227  Combustible liquid.

- **Label elements**: Harmful in contact with skin or if inhaled.
- **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.
  The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**

  ![GHS07](image)

- **Signal word**: Warning

(Continued on page 2)
Hazard statements
H227 Combustible liquid.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:
NFPA ratings (scale 0 - 4)
- Health = 2
- Fire = 2
- Reactivity = 0

HMIS-ratings (scale 0 - 4)
- HEALTH = 2
- FIRE = 2
- REACTIVITY = 0

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.

Dangerous components:
- 2-Nonanone
  - Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Flam. Liq. 4, H227
- 2-Heptanone
  - Flam. Liq. 3, H226; Acute Tox. 4, H302; Acute Tox. 4, H332

4 First-aid measures
Description of first aid measures
General information: Immediately remove any clothing soiled by the product.
After inhalation: Supply fresh air; consult doctor in case of complaints.
After skin contact: Immediately rinse with water.
After eye contact:
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
After swallowing: If symptoms persist consult doctor.
Information for doctor:
Most important symptoms and effects, both acute and delayed
No further relevant information available.
5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- 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 firefighting water separately. It must not enter the sewage system.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Wear protective equipment. Keep unprotected persons away.
- Environmental precautions: 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).
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
- 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-1:</th>
<th>ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Undecanone</td>
<td>0.91</td>
</tr>
<tr>
<td>2-Nonanone</td>
<td>0.51</td>
</tr>
<tr>
<td>2-Heptanone</td>
<td>150</td>
</tr>
<tr>
<td>PAC-2:</td>
<td></td>
</tr>
<tr>
<td>2-Undecanone</td>
<td>10</td>
</tr>
<tr>
<td>2-Nonanone</td>
<td>5.6</td>
</tr>
<tr>
<td>2-Heptanone</td>
<td>670</td>
</tr>
<tr>
<td>PAC-3:</td>
<td></td>
</tr>
<tr>
<td>2-Undecanone</td>
<td>60</td>
</tr>
<tr>
<td>2-Nonanone</td>
<td>34</td>
</tr>
<tr>
<td>2-Heptanone</td>
<td>4000*</td>
</tr>
</tbody>
</table>

7 Handling and storage

- Handling:
  - Precautions for safe handling: No special precautions are necessary if used correctly.
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>2-Heptanone</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
</tr>
<tr>
<td>REL</td>
</tr>
<tr>
<td>TLV</td>
</tr>
</tbody>
</table>

- 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:
      Keep away from foodstuffs, beverages and feed.
      Immediately remove all soiled and contaminated clothing.
      Wash hands before breaks and at the end of work.
      Avoid contact with the eyes.
      Avoid contact with the eyes and skin.
    - Breathing equipment: Not required.
  - Protection of hands:
    - Protective gloves:
      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.

(Continued on page 5)
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:
Tightly sealed goggles

### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**
  - Form: 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: Undetermined.
- **Flash point:** 67 °C (152.6 °F)
- **Flammability (solid, gaseous):** Not applicable.
- **Ignition temperature:** 533 °C (991.4 °F)
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not self-igniting.
- **Danger of explosion:** Not determined.
- **Explosion limits:**
  - Lower: 1 Vol %
  - Upper: 5.5 Vol %
- **Vapor pressure at 20 °C (68 °F):** 3.5 hPa (2.6 mm Hg)
- **Density at 20 °C (68 °F):** 0.82 g/cm³ (6.8429 lbs/gal)
- **Relative density** Not determined.
- **Vapor density** Not determined.
- **Evaporation rate** Not determined.
- **Solubility in / Miscibility with**
  - Water: Not miscible or difficult to mix.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - Dynamic: Not determined.
  - Kinematic: Not determined.
Trade name: Methyl Ketones "T" Mix natural

- Solvent content:
  - Organic solvents: 12-20%
  - VOC content: 12-20%
  - 164.0 g/l / 1.37 lb/gal
- Other information: No further relevant information available.

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:
    - LD/LC50 values that are relevant for classification:
      - Oral LD50 3,015-4,297 mg/kg (rat)
      - Dermal LD50 >5,000 mg/kg (rabbit)
      - Inhalative LC50/4 h 55-91.7 mg/l
    - 2-Nonanone
      - Oral LD50 3,200 mg/kg (rat)
      - Dermal LD50 >5,000 mg/kg (rabbit)
    - 2-Heptanone
      - Oral LD50 1,670 mg/kg (rat)
      - Dermal LD50 12,600 mg/kg (rabbit)
      - Inhalative LC50/4 h 11 mg/l (ATE)
    - Primary irritant effect:
      - on the skin: No irritant effect.
      - on the eye: Irritating effect.
      - Sensitization: No sensitizing effects known.
    - Additional toxicological information:
      The product shows the following dangers according to internally approved calculation methods for preparations:
      - Irritant
  - Carcinogenic categories:
    - IARC (International Agency for Research on Cancer)
      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:
      Water hazard class 2 (Self-assessment): hazardous for water
      Do not allow product to reach ground water, water course or sewage system.
      Danger to drinking water if even small quantities leak into the ground.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
    - Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
  - Recommendation:
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  - DOT, ADR, IMDG, IATA: UN1110

- UN proper shipping name
  - DOT: n-Amyl methyl ketone mixture
  - ADR: 1110 n-AMYL METHYL KETONE mixture, ENVIRONMENTALLY HAZARDOUS
  - IMDG, IATA: n-AMYL METHYL KETONE mixture

(Continued on page 8)
### Transport hazard class(es)
- DOT, IMDG, IATA

#### Class
- 3 Flammable liquids

#### Label
- 3

### ADR

#### Class
- 3 (F1) Flammable liquids

#### Label
- 3

### Packing group
- DOT, ADR, IMDG, IATA
- III

### Environmental hazards:
- Marine pollutant: No

### Special precautions for user
- Warning: Flammable liquids
- Danger code (Kemler): 30
- EMS Number: F-E,S-D
- Stowage Category: A

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

### Transport/Additional information:
- DOT
- Quantity limitations
  - On passenger aircraft/rail: 60 L
  - On cargo aircraft only: 220 L

- ADR
  - Excepted quantities (EQ)
    - Code: E1
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 1000 ml

- IMDG
  - Limited quantities (LQ)
    - 5L
  - Excepted quantities (EQ)
    - Code: E1
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 1000 ml

### UN "Model Regulation"
- UN 1110 N-AMYL METHYL KETONE MIXTURE, 3, III, ENVIRONMENTALLY HAZARDOUS

(Continued on page 9)
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.
  - TSCA new (21st Century Act): (Substances not listed)
    2-Nonanone
- 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.
  The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms
  !
  GHS07
- Signal word Warning
- Hazard statements
  H227 Combustible liquid.
  H315 Causes skin irritation.
  H319 Causes serious eye irritation.
Trade name: Methyl Ketones "T" Mix natural

- Precautionary statements
  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- 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
  
H226 Flammable liquid and vapor.
H227 Combustible liquid.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.

- Department issuing SDS: Product Safety Department
- Contact:
  
Product Safety Department
product safety@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)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
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.: 3: Flammable liquids – Category 3
Flam. Liq.: 4: Flammable liquids – Category 4
Acute Tox.: 4: Acute toxicity – Category 4
Skin Irrit.: 2: Skin corrosion/irritation – Category 2
Eye Irrit.: 2A: Serious eye damage/eye irritation – Category 2A