1 Identification

· Product identifier
· Trade name: Methyl Undecenoate natural
· Product number: 1459
· CAS Number:
  111-81-9
· EC number:
  203-910-8
· Application of the substance / the mixture: Food flavorings

2 Hazard(s) identification

· Classification of the substance or mixture
  GHS06 Skull and crossbones
  Acute Tox. 3 H301 Toxic if swallowed.
· GHS07
  Acute Tox. 4 H332 Harmful if inhaled.
Hazard pictograms

GHS06

Signal word: Danger

Hazard-determining components of labeling:
methyl undec-10-enoate

Hazard statements
H301 Toxic if swallowed.
H332 Harmful if inhaled.

Precautionary statements
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P301 + P310 If swallowed: Immediately call a poison center/doctor.
P321 Specific treatment (see on this label).
P330 Rinse mouth.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:
NFPA ratings (scale 0 - 4)

Health = 3
Fire = 1
Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = 2
Fire = 1
Reactivity = 0

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

3 Composition/information on ingredients

Chemical characterization: Substances
CAS No. Description
111-81-9 methyl undec-10-enoate
Identification number(s)
EC number: 203-910-8
4 First-aid measures

· Description of first aid measures
  · General information:
    Immediately remove any clothing soiled by the product.
    Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
    In case of irregular breathing or respiratory arrest provide artificial respiration.
  · After inhalation:
    Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
    In case of unconsciousness place patient stably in side position for transportation.
  · After skin contact:
    Immediately wash with water and soap and rinse thoroughly.
  · After eye contact:
    Rinse opened eye for several minutes under running water. Then consult a doctor.
  · After swallowing:
    Do not induce vomiting; immediately call for medical help.
  · 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: Mouth respiratory protective device.
  · 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:
  Do not allow to enter sewers/ surface or ground water.
· Methods and material for containment and cleaning up:
  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
  · PAC-1:
    Substance is not listed.
Trade name: Methyl Undecenoate natural

7 Handling and storage

· Handling:
  · Precautions for safe handling
    Thorough dedusting.
    Ensure good ventilation/exhaustion at the workplace.
  · 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: Keep receptacle tightly sealed.

· 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: Not required.
· 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.

· Breathing equipment:
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· 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.
### 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 applicable.

- **Change in condition**
  - **Melting point/Melting range:** Undetermined.
  - **Boiling point/Boiling range:** 248 °C (478.4 °F)

- **Flammable (solid, gaseous):** Product is not flammable.

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Not determined.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**
  - **Lower:** Not determined.
  - **Upper:** Not determined.

- **Vapor pressure:** Not applicable.

- **Density at 20 °C (68 °F):** 0.885 g/cm³ (7.38533 lbs/gal)

- **Relative density:** Not determined.

- **Vapor density:** Not applicable.

- **Evaporation rate:** Not applicable.

- **Solubility in / Miscibility with Water:** Insoluble.

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

- **Viscosity:**
  - **Dynamic:** Not applicable.
  - **Kinematic:** Not applicable.
  - **VOC content:** 0.00 %

- **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**:
    - **ATE (Acute Toxicity Estimate)**
      - Oral LD50 100 mg/kg
      - Inhalative LC50/4 h 1.5 mg/l
    - **CAS: 111-81-9 methyl undec-10-enoate**
      - Oral LD50 100 mg/kg (ATE)
      - Inhalative LC50/4 h 1.5 mg/l (ATE)
- **Primary irritant effect**:
  - **on the skin**: No irritant effect.
  - **on the eye**: No irritating effect.
  - **Sensitization**: No sensitizing effects known.
- **Additional toxicological information**:
  - **Carcinogenic categories**
    - **IARC (International Agency for Research on Cancer)**
      - Substance is not listed.
    - **NTP (National Toxicology Program)**
      - Substance is not listed.
    - **OSHA-Ca (Occupational Safety & Health Administration)**
      - Substance is not 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 3 (Assessment by list): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities. Danger to drinking water if even extremely 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 UN3082
- DOT, ADR, IMDG, IATA
- UN proper shipping name
  - DOT Hazardous waste, liquid, n.o.s. (methyl undec-10-enoate)
  - ADR 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (methyl undec-10-enoate)
  - IMDG ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (methyl undec-10-enoate), MARINE POLLUTANT
  - IATA ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (methyl undec-10-enoate)
- Transport hazard class(es)
  - DOT
    - Class 9 Miscellaneous dangerous substances and articles
    - Label 9
### Trade name: Methyl Undecenoate natural

<table>
<thead>
<tr>
<th>· ADR</th>
<th>![ADR Symbol]</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Class</td>
<td>9 Miscellaneous dangerous substances and articles</td>
</tr>
<tr>
<td>· IMDG, IATA</td>
<td>![IMDG, IATA Symbol]</td>
</tr>
<tr>
<td>· Class</td>
<td>9 Miscellaneous dangerous substances and articles</td>
</tr>
<tr>
<td>· Label</td>
<td>9</td>
</tr>
<tr>
<td>· Packing group</td>
<td>III</td>
</tr>
<tr>
<td>· DOT, ADR, IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td>· Environmental hazards:</td>
<td></td>
</tr>
<tr>
<td>· Marine pollutant:</td>
<td>Yes</td>
</tr>
<tr>
<td>· Special marking (ADR):</td>
<td>Symbol (fish and tree)</td>
</tr>
<tr>
<td>· Special marking (IATA):</td>
<td>Symbol (fish and tree)</td>
</tr>
<tr>
<td>· Special precautions for user</td>
<td>Warning: Miscellaneous dangerous substances and articles</td>
</tr>
<tr>
<td>· Stowage Category</td>
<td>A</td>
</tr>
<tr>
<td>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Transport/Additional information:</td>
<td></td>
</tr>
<tr>
<td>· DOT</td>
<td></td>
</tr>
<tr>
<td>· Quantity limitations</td>
<td>On passenger aircraft/rail: No limit</td>
</tr>
<tr>
<td></td>
<td>On cargo aircraft only: No limit</td>
</tr>
<tr>
<td>· ADR</td>
<td></td>
</tr>
<tr>
<td>· Excepted quantities (EQ)</td>
<td>Code: E1</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per inner packaging: 30 g</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per outer packaging: 1000 g</td>
</tr>
<tr>
<td>· IMDG</td>
<td></td>
</tr>
<tr>
<td>· Limited quantities (LQ)</td>
<td>5L</td>
</tr>
<tr>
<td>· Excepted quantities (EQ)</td>
<td>Code: E1</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per inner packaging: 30 g</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per outer packaging: 1000 g</td>
</tr>
<tr>
<td>· UN &quot;Model Regulation&quot;:</td>
<td>UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (METHYL UNDEC-10-ENOATE), 9, III</td>
</tr>
</tbody>
</table>

(Continued on page 9)
Trade name: Methyl Undecenoate natural

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Section 355 (extremely hazardous substances):
    Substance is not listed.
  - Section 313 (Specific toxic chemical listings):
    Substance is not listed.
  - TSCA (Toxic Substances Control Act):
    Substance is listed.
  - TSCA new (21st Century Act): (Substances not listed)
    CAS: 111-81-9 methyl undec-10-enoate
  - Proposition 65
    - Chemicals known to cause cancer:
      Substance is not listed.
    - Chemicals known to cause reproductive toxicity for females:
      Substance is not listed.
    - Chemicals known to cause reproductive toxicity for males:
      Substance is not listed.
    - Chemicals known to cause developmental toxicity:
      Substance is not listed.
  - Carcinogenic categories
    - EPA (Environmental Protection Agency)
      Substance is not listed.
    - TLV (Threshold Limit Value established by ACGIH)
      Substance is not listed.
    - NIOSH-Ca (National Institute for Occupational Safety and Health)
      Substance is not 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 substance is classified and labeled according to the Globally Harmonized System (GHS).
  - Hazard pictograms
    - GHS06
  - Signal word Danger
  - Hazard-determining components of labeling:
    methyl undec-10-enoate
  - Hazard statements
    H301 Toxic if swallowed.
    H332 Harmful if inhaled.
## Precautionary statements

- **P261** Avoid breathing dust/fume/gas/mist/vapors/spray
- **P301+P310** If swallowed: Immediately call a poison center/doctor.
- **P321** Specific treatment (see on this label).
- **P330** Rinse mouth.
- **P405** Store locked up.
- **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.

- **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
  - 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
  - Acute Tox. 3: Acute toxicity – Category 3
  - Acute Tox. 4: Acute toxicity – Category 4