1 Identification

- Product identifier
  - Trade name: Undecylenic acid natural
  - Product number: 1113
  - CAS Number:
    - 112-38-9
  - EC number:
    - 203-965-8
- Application of the substance / the mixture: Flavoring Ingredients
- 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:
    Infotrac: 1-800-535-5053 (Domestic) & 1-352-323-3500 (International)
    Email: responders@infotrac.net & During normal business hours: 1-973-339-6242

2 Hazard(s) identification

- Classification of the substance or mixture
  - GHS07
  Skin Irritation 2  H315 Causes skin irritation.
  Eye Irritation 2A  H319 Causes serious eye irritation.
- 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
  - GHS07

(Continued on page 2)
Trade name: Undecylenic acid natural

H319 Causes serious eye irritation.

Precautionary statements
P264 Wash thoroughly after handling.
P280 Wear 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.
P362+P364 Take off contaminated clothing and wash it before reuse.
P337+P313 If eye irritation persists: Get medical advice/attention.

Classification system:

NFPA ratings (scale 0 - 4)

- Health = 2
- 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
  - CAS: 112-38-9 10-Undecenoic acid
- Identification number(s)
  - EC number: 203-965-8

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.
    - 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: 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).

· 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.
  · PAC-2: Substance is not listed.
  · PAC-3: Substance is not listed.

7 Handling and storage

· Handling:
  · Precautions for safe handling: No special precautions are necessary if used correctly.
  · 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 the product specification and/or Certificate of Analysis 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 section 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. Avoid contact with the eyes. Avoid contact with the eyes and skin.
    - 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.
    - 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:
    Tightly sealed goggles

9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
    Molecular Weight: 184.28 g/mol
  - Appearance:
    - Form: Liquid
    - Color: According to product specification
  - Odor:
    - Odor threshold: Not determined.
  - pH-value: Not determined.
## 58.0.1 Change in condition

- **Melting point/Melting range:** 21-24 °C (69.8-75.2 °F)
- **Boiling point/Boiling range:** 137 °C (278.6 °F)

## 58.0.2 Flash point:
Not applicable.

## 58.0.3 Flammability (solid, gaseous):
Not applicable.

## 58.0.4 Auto igniting:
275 °C (527 °F)

## 58.0.5 Decomposition temperature:
Not determined.

## 58.0.6 Ignition temperature:
Not determined.

## 58.0.7 Danger of explosion:
Product does not present an explosion hazard.

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

## 58.0.9 Vapor pressure:
Not determined.

## 58.0.10 Density at 20 °C (68 °F): 0.91 g/cm³ (7.59395 lbs/gal)

## 58.0.11 Relative density
Not determined.

## 58.0.12 Vapor density
Not determined.

## 58.0.13 Evaporation rate
Not determined.

## 58.0.14 Solubility in / Miscibility with Water:
Not miscible or difficult to mix.

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

## 58.0.16 Viscosity:
- **Dynamic:** Not determined.
- **Kinematic:** Not determined.

## 58.0.17 VOC content:
0.00 %

## 58.0.18 Solids content:
100.0 %

## 58.0.19 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:
    - **CAS:** 112-38-9 10-Undecenoic acid
    - **Oral LD50:** 2,500 mg/kg (rat)
  - Primary irritant effect:
    - on the skin: No irritant effect.
    - on the eye: 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 1 (Assessment by list): slightly hazardous for water
      - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
    - 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.
Trade name: Undecylenic acid natural

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

14 Transport information

<table>
<thead>
<tr>
<th>· UN-Number</th>
<th>UN3082</th>
</tr>
</thead>
<tbody>
<tr>
<td>· DOT, IMDG, IATA</td>
<td></td>
</tr>
</tbody>
</table>

- DOT proper shipping name
  - DOT: Environmentally hazardous substance, liquid, n.o.s. (10-Undecenoic acid)
  - IMDG, IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (10-Undecenoic acid)

- Transport hazard class(es)
  - DOT, IMDG
    - Class: 9 Miscellaneous dangerous substances and articles
    - Label: 9
  - IATA
    - Class: 9 Miscellaneous dangerous substances and articles
    - Label: 9

- Packing group
  - DOT, IMDG, IATA: III

- Environmental hazards:
  - Marine pollutant: Yes
  - Special marking (ADR): Symbol (fish and tree)
  - Special marking (IATA): Symbol (fish and tree)

- Special precautions for user
  - Warning: Miscellaneous dangerous substances and articles

- Hazard identification number (Kemler code): 90
- EMS Number: F-A,S-F
- Stowage Category: A

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

<table>
<thead>
<tr>
<th>Transport/Additional information:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT</td>
</tr>
<tr>
<td>Quantity limitations</td>
</tr>
<tr>
<td>On passenger aircraft/rail: 450 L</td>
</tr>
<tr>
<td>On cargo aircraft only: 450 L</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMDG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited quantities (LQ)</td>
</tr>
<tr>
<td>5L</td>
</tr>
<tr>
<td>Excepted quantities (EQ)</td>
</tr>
<tr>
<td>Code: E1</td>
</tr>
<tr>
<td>Maximum net quantity per inner packaging: 30 ml</td>
</tr>
<tr>
<td>Maximum net quantity per outer packaging: 1000 ml</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UN &quot;Model Regulation&quot;:</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 3082 ENVIRONMENTALLY HAZARDOUS</td>
</tr>
<tr>
<td>SUBSTANCE, LIQUID, N.O.S. (10-UNDECENOIC ACID), 9, III</td>
</tr>
</tbody>
</table>

15 Regulatory information

<table>
<thead>
<tr>
<th>Safety, health and environmental regulations/legislation specific for the substance or mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sara</td>
</tr>
<tr>
<td>Section 355 (extremely hazardous substances):</td>
</tr>
<tr>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Section 313 (Specific toxic chemical listings):</td>
</tr>
<tr>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>TSCA (Toxic Substances Control Act):</td>
</tr>
<tr>
<td>ACTIVE</td>
</tr>
<tr>
<td>Hazardous Air Pollutants</td>
</tr>
<tr>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Proposition 65</td>
</tr>
<tr>
<td>Chemicals known to cause cancer:</td>
</tr>
<tr>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Chemicals known to cause reproductive toxicity for females:</td>
</tr>
<tr>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Chemicals known to cause reproductive toxicity for males:</td>
</tr>
<tr>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Chemicals known to cause developmental toxicity:</td>
</tr>
<tr>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Carcinogenic categories</td>
</tr>
<tr>
<td>EPA (Environmental Protection Agency)</td>
</tr>
<tr>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>TLV (Threshold Limit Value)</td>
</tr>
<tr>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>NIOSH-Ca (National Institute for Occupational Safety and Health)</td>
</tr>
<tr>
<td>Substance is not listed.</td>
</tr>
</tbody>
</table>

(Continued on page 9)
Trade name: Undecylenic acid natural

· 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

  ![GHS07]

· Signal word Warning

· Hazard statements
  H315 Causes skin irritation.
  H319 Causes serious eye irritation.

· Precautionary statements
  P264 Wash thoroughly after handling.
  P280 Wear 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.
  P362+P364 Take off contaminated clothing and wash it before reuse.
  P337+P313 If eye irritation persists: Get medical advice/attention.

· 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 01/16/2024

· Abbreviations and acronyms:
  ADR: Accord relatif au transport international 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
  EINECS: European Inventory of Existing Commercial Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  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
  Skin Irritation 2: Skin corrosion/irritation – Category 2
  Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A