1 Identification

- Product identifier
- Trade name: Decanal natural
- Product number: 1171
- CAS Number: 112-31-2
- EC number: 203-957-4
- Application of the substance / the mixture: Food flavorings

2 Hazard(s) identification

- Classification of the substance or mixture
  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 substance is classified and labeled according to the Globally Harmonized System (GHS).

- Hazard pictograms
  Not Applicable

- Signal word
  Warning

- Hazard statements
  H227 Combustible liquid.

- Precautionary statements
  P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  P280 Wear protective gloves / eye protection / face protection.
  P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.
  P403+P235 Store in a well-ventilated place. Keep cool.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
Trade name: Decanal natural

- Classification system:
  - NFPA ratings (scale 0 - 4)
    - Health = 0
    - Fire = 2
    - Reactivity = 0
  - HMIS-ratings (scale 0 - 4)
    - Health = 1
    - Fire = 2
    - 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
  - 112-31-2 decanal
- Identification number(s)
- EC number: 203-957-4

4 First-aid measures
- Description of first aid measures
  - 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, 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.
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</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAC-1</td>
<td>1.8 ppm</td>
</tr>
<tr>
<td>PAC-2</td>
<td>19 ppm</td>
</tr>
<tr>
<td>PAC-3</td>
<td>120 ppm</td>
</tr>
</tbody>
</table>

7 Handling and storage

- Handling:
  No special precautions are necessary if used correctly.
- Information about protection against explosions and fires:
  Keep ignition sources away - Do not smoke.
- 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: Wash hands before breaks and at the end of work.

(Continued on page 4)
· 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.

· 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

· 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: 7 °C (44.6 °F)
  · Boiling point/Boiling range: 229 °C (444.2 °F)
· Flash point: 85 °C (185 °F)
· Flammability (solid, gaseous): Not applicable.
· Ignition temperature: 200 °C (392 °F)
· Decomposition temperature: Not determined.
· Auto igniting: Not determined.
· Danger of explosion: Not determined.
· Explosion limits:
  · Lower: Not determined.
  · Upper: Not determined.
· Vapor pressure: Not determined.
· Density at 20 °C (68 °F): 0.83 g/cm³ (6.92635 lbs/gal)
· Relative density Not determined.
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 3,730 mg/kg (rat)
      CAS: 112-31-2 decanal
      Oral LD50 3,730 mg/kg (rat)
      Dermal LD50 5,040 mg/kg (rabbit)
      - 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.
Safety Data Sheet
acc. to OSHA HCS

Trade name: Decanal natural

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 (Assessment by list): 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: UN3082
- DOT, ADR, IMDG, IATA: Environmentally hazardous substance, liquid, n.o.s. (decanal)
- DOT: 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (decanal)
- ADR: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (decanal), MARINE POLLUTANT
- IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (decanal)
- IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (decanal)
<table>
<thead>
<tr>
<th><strong>Transport hazard class(es)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT</td>
<td></td>
</tr>
<tr>
<td><strong>Class</strong></td>
<td>9</td>
</tr>
<tr>
<td><strong>Label</strong></td>
<td>9</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ADR</strong></th>
<th></th>
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<tbody>
<tr>
<td><strong>Class</strong></td>
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<tr>
<td><strong>Label</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IMDG, IATA</strong></th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>9</td>
</tr>
<tr>
<td><strong>Label</strong></td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Packing group</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT, ADR, IMDG, IATA</td>
<td>III</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Environmental hazards:</strong></th>
<th></th>
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</thead>
<tbody>
<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>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Special precautions for user</strong></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Warning: Miscellaneous dangerous substances and articles</td>
<td></td>
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</tbody>
</table>

| **Danger code (Kemler):**       | 90 |
| Stowage Category                | A  |

<table>
<thead>
<tr>
<th><strong>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</strong></th>
<th></th>
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<tbody>
<tr>
<td>Not applicable.</td>
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<table>
<thead>
<tr>
<th><strong>Transport/Additional information:</strong></th>
<th></th>
</tr>
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<tbody>
<tr>
<td>DOT</td>
<td></td>
</tr>
<tr>
<td><strong>Quantity limitations</strong></td>
<td></td>
</tr>
<tr>
<td>On passenger aircraft/rail: No limit</td>
<td></td>
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<tr>
<td>On cargo aircraft only: No limit</td>
<td></td>
</tr>
<tr>
<td><strong>ADR</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Excepted quantities (EQ)</strong></td>
<td></td>
</tr>
<tr>
<td>Code: E1</td>
<td></td>
</tr>
<tr>
<td>Maximum net quantity per inner packaging: 30 ml</td>
<td></td>
</tr>
<tr>
<td>Maximum net quantity per outer packaging: 1000 ml</td>
<td></td>
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</tbody>
</table>
15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Sara
    - 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.
  - 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 Not Applicable
    - Signal word Warning
    - Hazard statements
      H227 Combustible liquid.
Trade name: Decanal natural

- **Precautionary statements**
  - P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  - P280 Wear protective gloves / eye protection / face protection.
  - P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.
  - 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.

- **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
  - Flam. Liq. 4: Flammable liquids – Category 4