1 Identification

· Product identifier

· Trade name: Isoamyl Propionate natural

· Product number: 1084
· CAS Number:
  105-68-0
· EC number:
  203-322-1
· Index number:
  607-131-00-8

· 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
  productssafety@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

GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.

· 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).

(Continued on page 2)
Trade name: Isoamyl Propionate natural

· Hazard pictograms

GHS02

· Signal word Warning
· Hazard statements
H226 Flammable liquid and vapor.
· Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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 = 0
Fire = 2
Reactivity = 0

· HMIS-ratings (scale 0 - 4)

Health = 0
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
105-68-0 isopentyl propionate
· Identification number(s)
· EC number: 203-322-1
· Index number: 607-131-00-8

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.
48.1.23

· 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.
  · For safety reasons unsuitable extinguishing agents: Water with full jet
· 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
  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

  · 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:
    Keep ignition sources away - Do not smoke.
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:**
      - Immediately remove all soiled and contaminated clothing.
      - Wash hands before breaks and at the end of work.
    - **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 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

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information</td>
</tr>
<tr>
<td>· Appearance:</td>
</tr>
<tr>
<td>- Form: Liquid</td>
</tr>
<tr>
<td>- Color: According to product specification</td>
</tr>
<tr>
<td>· Odor:</td>
</tr>
<tr>
<td>- Odor: According to product specification</td>
</tr>
<tr>
<td>· Odor threshold:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>· pH-value:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>· Change in condition</td>
</tr>
<tr>
<td>- Melting point/Melting range:</td>
</tr>
<tr>
<td>- Undetermined.</td>
</tr>
<tr>
<td>- Boiling point/Boiling range:</td>
</tr>
<tr>
<td>- 160 °C (320 °F)</td>
</tr>
<tr>
<td>· Flash point:</td>
</tr>
<tr>
<td>- 48 °C (118.4 °F)</td>
</tr>
<tr>
<td>· Flammability (solid, gaseous):</td>
</tr>
<tr>
<td>- Not applicable.</td>
</tr>
<tr>
<td>· Decomposition temperature:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>· Auto igniting:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>· Danger of explosion:</td>
</tr>
<tr>
<td>- Product is not explosive. However, formation of explosive air/vapor mixtures are possible.</td>
</tr>
<tr>
<td>· Explosion limits:</td>
</tr>
<tr>
<td>- Lower:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>- Upper:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>· Vapor pressure:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>· Density at 20 °C (68 °F):</td>
</tr>
<tr>
<td>- 0.871 g/cm³ (7.2685 lbs/gal)</td>
</tr>
<tr>
<td>· Relative density:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>· Vapor density:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>· Evaporation rate:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>· Solubility in / Miscibility with Water:</td>
</tr>
<tr>
<td>- Not miscible or difficult to mix.</td>
</tr>
<tr>
<td>· Partition coefficient (n-octanol/water):</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>· Viscosity:</td>
</tr>
<tr>
<td>- Dynamic:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>- Kinematic:</td>
</tr>
<tr>
<td>- Not determined.</td>
</tr>
<tr>
<td>· VOC content:</td>
</tr>
<tr>
<td>- 0.00 %</td>
</tr>
<tr>
<td>- 0.0 g/l / 0.00 lb/gal</td>
</tr>
<tr>
<td>· Other information</td>
</tr>
<tr>
<td>- No further relevant information available.</td>
</tr>
</tbody>
</table>

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. |
Trade name: Isoamyl Propionate natural

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:
    · 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.
### 14 Transport information

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN-Number</td>
<td>UN1993</td>
</tr>
<tr>
<td>DOT, ADR, IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td><strong>UN proper shipping name</strong></td>
<td></td>
</tr>
<tr>
<td>DOT</td>
<td>Flammable liquids, n.o.s.</td>
</tr>
<tr>
<td>ADR</td>
<td>1993 FLAMMABLE LIQUID, N.O.S.</td>
</tr>
<tr>
<td>IMDG, IATA</td>
<td>FLAMMABLE LIQUID, N.O.S.</td>
</tr>
<tr>
<td><strong>Transport hazard class(es)</strong></td>
<td></td>
</tr>
<tr>
<td>DOT, IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td>Label</td>
<td>3</td>
</tr>
<tr>
<td>ADR</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>3 (F1) Flammable liquids</td>
</tr>
<tr>
<td><strong>Packing group</strong></td>
<td></td>
</tr>
<tr>
<td>DOT, ADR, IMDG, IATA</td>
<td>III</td>
</tr>
<tr>
<td><strong>Environmental hazards:</strong></td>
<td></td>
</tr>
<tr>
<td>Marine pollutant:</td>
<td>No</td>
</tr>
<tr>
<td><strong>Special precautions for user</strong></td>
<td></td>
</tr>
<tr>
<td>Warning: Flammable liquids</td>
<td></td>
</tr>
<tr>
<td><strong>Stowage Category</strong></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td><strong>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</strong></td>
<td></td>
</tr>
<tr>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td><strong>Transport/Additional information:</strong></td>
<td></td>
</tr>
<tr>
<td>DOT</td>
<td></td>
</tr>
<tr>
<td>Quantity limitations</td>
<td>On passenger aircraft/rail: 60 L</td>
</tr>
<tr>
<td></td>
<td>On cargo aircraft only: 220 L</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 ml</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per outer packaging: 1000 ml</td>
</tr>
</tbody>
</table>
Trade name: Isoamyl Propionate natural

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.
  - TSCA new (21st Century Act): (Substances not listed)
    CAS: 105-68-0 isopentyl propionate
  - 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).

(Continued on page 9)
Trade name: Isoamyl Propionate natural

· Hazard pictograms

GHS02

· Signal word Warning

· Hazard statements
H226 Flammable liquid and vapor.

· Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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)
  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