1 Identification

- Trade name: Iso amyl alcohol natural
- Product number: 1202
- CAS Number: 123-51-3
- EC number: 204-633-5
- 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

  - **GHS02 Flame**
    
    Flam. Liq. 3  H226  Flammable liquid and vapor.

  - **GHS07**
    
    Acute Tox. 4  H332  Harmful if inhaled.
    Skin Irrit. 2  H315  Causes skin irritation.
    Eye Irrit. 2A  H319  Causes serious eye irritation.
    STOT SE 3  H335  May cause respiratory irritation.

(Continued on page 2)
Safety Data Sheet
acc. to OSHA HCS

Trade name: Iso amyl alcohol natural

· **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**
  ![GHS02](image1) ![GHS07](image2)
· **Signal word** Warning
· **Hazard-determining components of labeling:**
  Isoamyl alcohol
· **Hazard statements**
  H226 Flammable liquid and vapor.
  H332 Harmful if inhaled.
  H315 Causes skin irritation.
  H319 Causes serious eye irritation.
  H335 May cause respiratory irritation.
· **Precautionary statements**
  P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  P241 Use explosion-proof electrical/ventilating/lighting/equipment.
  P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P405 Store locked up.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**
  ![NFPA ratings](image3)
  Health = 2
  Fire = 2
  Reactivity = 0
· **HMIS-ratings (scale 0 - 4)**
  ![HMIS-ratings](image4)
  Health = 2
  Fire = 2
  Reactivity = 0
· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
Trade name: Iso amyl alcohol natural

- vPvB: Not applicable.

### 3 Composition/information on ingredients
- Chemical characterization: Substances
- CAS No. Description
  123-51-3 Isoamyl alcohol
- Identification number(s)
- EC number: 204-633-5

### 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.
- 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 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, 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: 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
  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: 125 ppm
  - PAC-2: 1700* ppm
  - PAC-3: 10000** ppm

7 Handling and storage

- Handling:
  - Precautions for safe handling
    Ensure good ventilation/exhaustion at the workplace.
    Prevent formation of aerosols.
  - Information about protection against explosions and fires:
    Keep ignition sources away - Do not smoke.
    Protect against electrostatic charges.
- Conditions for safe storage, including any incompatibilities
- Storage:
  - Requirements to be met by storerooms and receptacles: No special 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:

<table>
<thead>
<tr>
<th>CAS: 123-51-3 Isoamyl alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
</tr>
<tr>
<td>REL</td>
</tr>
<tr>
<td>Long-term value: 360 mg/m³, 100 ppm</td>
</tr>
<tr>
<td>primary and secondary</td>
</tr>
<tr>
<td>primary and secondary</td>
</tr>
<tr>
<td>TLV</td>
</tr>
<tr>
<td>Long-term value: 361 mg/m³, 100 ppm</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:
- 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:

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.
### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>According to product specification</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>According to product specification</td>
</tr>
<tr>
<td><strong>Odor threshold</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>pH-value</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Melting point/Melting range</strong></td>
<td>-117.2 °C (-179 °F)</td>
</tr>
<tr>
<td><strong>Boiling point/Boiling range</strong></td>
<td>131-132 °C (267.8-269.6 °F)</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>43 °C (109.4 °F)</td>
</tr>
<tr>
<td><strong>Flammability (solid, gaseous)</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Ignition temperature</strong></td>
<td>340 °C (644 °F)</td>
</tr>
<tr>
<td><strong>Decomposition temperature</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Auto igniting</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Explosion of explosion</strong></td>
<td>Product is not explosive. However, formation of explosive air/vapor mixtures are possible.</td>
</tr>
<tr>
<td><strong>Explosion limits</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Lower</strong></td>
<td>1.2 Vol %</td>
</tr>
<tr>
<td><strong>Upper</strong></td>
<td>~8 Vol %</td>
</tr>
<tr>
<td><strong>Vapor pressure at 20 °C (68 °F)</strong></td>
<td>2.7 hPa (2 mm Hg)</td>
</tr>
<tr>
<td><strong>Density at 20 °C (68 °F)</strong></td>
<td>0.81 g/cm³ (6.75945 lbs/gal)</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Solubility in / Miscibility with Water</strong></td>
<td>25 g/l</td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water)</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Dynamic</strong></td>
<td>Not determined</td>
</tr>
</tbody>
</table>
Trade name: Iso amyl alcohol natural

Kinematic: Not determined.
Organic solvents: 100.0 %
VOC content: 100.00 %
810.0 g/l / 6.76 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:

ATE (Acute Toxicity Estimate)

<table>
<thead>
<tr>
<th>Route</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>LD50</td>
<td>3,212 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50/4 h</td>
<td>11 mg/l</td>
</tr>
</tbody>
</table>

CAS: 123-51-3 Isoamyl alcohol

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<tr>
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<th>Type</th>
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<td>LC50/4 h</td>
<td>11 mg/l (ATE)</td>
</tr>
</tbody>
</table>

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.
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允许 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** UN1105

- **UN proper shipping name**
- **DOT** Pentanols
- **ADR** 1105 Pentanols
- **IMDG, IATA** PENTANOLS
**Trade name:** Iso amyl alcohol natural

<table>
<thead>
<tr>
<th><strong>Transport hazard class(es)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOT</strong></td>
<td></td>
</tr>
<tr>
<td>· Class</td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td>· Label</td>
<td>3</td>
</tr>
<tr>
<td><strong>ADR</strong></td>
<td></td>
</tr>
<tr>
<td>· Class</td>
<td>3 (F1) Flammable liquids</td>
</tr>
<tr>
<td>· Label</td>
<td>3</td>
</tr>
<tr>
<td><strong>IMDG, IATA</strong></td>
<td></td>
</tr>
<tr>
<td>· Class</td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td>· Label</td>
<td>3</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th><strong>Environmental hazards:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine pollutant:</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Special precautions for user</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Warning: Flammable liquids</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DOT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity limitations</td>
</tr>
<tr>
<td>On passenger aircraft/rail: 60 L</td>
</tr>
<tr>
<td>On cargo aircraft only: 220 L</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Transport/Additional information:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT</td>
</tr>
</tbody>
</table>

(Continued on page 10)
### 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 1105 PENTANOLS, 3, III

## 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

GHS02  GHS07

Signal word Warning

Hazard-determining components of labeling:

Isoamyl alcohol

Hazard statements

H226 Flammable liquid and vapor.
H332 Harmful if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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 08/24/2018 / -

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

(Continued on page 12)
<table>
<thead>
<tr>
<th>Safety Data Sheet</th>
<th>acc. to OSHA HCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade name: Iso amyl alcohol natural</td>
<td></td>
</tr>
</tbody>
</table>

(Continuation of page 11)

- 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. 3: Flammable liquids – Category 3
- 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
- STOT SE 3: Specific target organ toxicity (single exposure) – Category 3