1 Identification

· Product identifier

· Trade name: Borneol chiral natural

· Product number: 1584

· CAS Number:
  507-70-0

· EC number:
  208-080-0

· 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. Sol. 2 H228 Flammable solid.

  · 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

  · Signal word: Warning

  (Continued on page 2)
Trade name: Borneol chiral natural

- Hazard statements
  H228 Flammable solid.

- Precautionary statements
  P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  P240 Ground/bond container and receiving equipment.
  P241 Use explosion-proof electrical/ventilating/lighting/equipment.
  P280 Wear protective gloves/protective clothing/eye protection/face protection.
  P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.

- 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
    - 507-70-0 Borneol
  - Identification number(s)
    - EC number: 208-080-0

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.
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: 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.
    Protect against electrostatic charges.
- 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.
· 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: Not required.

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9 Physical and chemical properties

· Information on basic physical and chemical properties
· General Information
· Appearance:
  · Form: Solid
  · 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: 190-210 °C (374-410 °F)
  · Boiling point/Boiling range: Undetermined.
· Flash point: <60 °C (<140 °F)
· Flammability (solid, gaseous): Product is not flammable.
· Decomposition temperature: Not determined.
· Auto igniting: Not determined.
· Danger of explosion: Not determined.
· Explosion limits:
  · Lower: Not determined.
  · Upper: Not determined.
· Vapor pressure: Not applicable.

(Continued on page 5)
10 Stability and reactivity

- Reactivity: No further relevant information available.
- Chemical stability
  - Thermal decompositon / 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:
    - 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 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**
  - DOT, ADR, IMDG, IATA: UN1312
- **UN proper shipping name**
  - DOT: Borneol
  - ADR: 1312 BORNEOL
  - IMDG, IATA: BORNEOL
- **Transport hazard class(es)**
  - **DOT, IMDG, IATA**
    - **Class**: 4.1 Flammable solids, self-reactive substances and solid desensitised explosives
### 4.1 Label

- **Class**: 4.1 (F1) Flammable solids, self-reactive substances and solid desensitised explosives
- **Label**: 4.1

### 4.1 ADR

- **Packing group**: III

### 4.1 Environment hazards:

- **Marine pollutant**: No

### 4.1 Special precautions for user

- **Warning**: Flammable solids, self-reactive substances and solid desensitised explosives
- **Danger code (Kemler)**: 40
- **EMS Number**: F-A,S-I
- **Stowage Category**: A

### Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

- **Transport/Additional information:**
  - **DOT**
    - **Quantity limitations**:
      - On passenger aircraft/rail: 25 kg
      - On cargo aircraft only: 100 kg
  - **ADR**
    - **Excepted quantities (EQ)**: Code: E1
      - Maximum net quantity per inner packaging: 30 g
      - Maximum net quantity per outer packaging: 1000 g
  - **IMDG**
    - **Limited quantities (LQ)**: 5 kg
    - **Excepted quantities (EQ)**: Code: E1
      - Maximum net quantity per inner packaging: 30 g
      - Maximum net quantity per outer packaging: 1000 g

### UN "Model Regulation”:

- **UN 1312 BORNEOL, 4.1, III**

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### 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.
**Trade name: Borneol chiral natural**

| · 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](image)

**Signal word** Warning

**Hazard statements**

H228 Flammable solid.

**Precautionary statements**

| P210 | Keep away from heat/sparks/open flames/hot surfaces. - No smoking. |
| P240 | Ground/bond container and receiving equipment. |
| P241 | Use explosion-proof electrical/ventilating/lighting/equipment. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P370+P378 | In case of fire: Use for extinction: CO2, powder or water spray. |

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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**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

(Continued on page 9)
Trade name: Borneol chiral natural

- **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. Sol. 2: Flammable solids – Category 2