1 Identification

· Product identifier

· Trade name: Methyl Thiobutyrate synthetic

· Product number: 2001

· CAS Number: 2432-51-1

· EC number: 219-407-1

· Application of the substance / the mixture Food flavorings

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier:
  Advanced Biotech
  10 Taft Road
  Totowa, NJ 07512 USA

· Information department:
  Product safety department
  sarfa@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

· 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

· 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 / eye protection / face protection.
  P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
  P403+P235 Store in a well-ventilated place. Keep cool.

(Continued on page 2)
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, sand, extinguishing powder. Do not use water.
- 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.

(Continued on page 3)
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).
  Do not flush with water or aqueous cleansing agents.

- **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.

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 from heat.
    - 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.
  - Protect from heat and direct sunlight.

- **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**:
  - 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.
### Trade name: Methyl Thiobutyrate synthetic

- **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

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
</tr>
<tr>
<td><strong>Appearance:</strong></td>
</tr>
<tr>
<td>Form: Liquid</td>
</tr>
<tr>
<td>Color: Colorless to pale yellow</td>
</tr>
<tr>
<td>Odor: Cabbage</td>
</tr>
<tr>
<td>Odour threshold: Not determined.</td>
</tr>
<tr>
<td>pH-value: Not determined.</td>
</tr>
<tr>
<td>Change in condition</td>
</tr>
<tr>
<td>Melting point/Melting range: Undetermined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range: 140-143 °C (284-289 °F)</td>
</tr>
<tr>
<td>Flash point: 34 °C (93 °F)</td>
</tr>
<tr>
<td>Flammability (solid, gaseous): Not applicable.</td>
</tr>
<tr>
<td>Ignition temperature:</td>
</tr>
<tr>
<td>Decomposition temperature: Not determined.</td>
</tr>
<tr>
<td>Auto igniting: Not determined.</td>
</tr>
<tr>
<td>Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.</td>
</tr>
<tr>
<td>Explosion limits:</td>
</tr>
<tr>
<td>Lower: Not determined.</td>
</tr>
<tr>
<td>Upper: Not determined.</td>
</tr>
<tr>
<td>Vapor pressure: Not determined.</td>
</tr>
<tr>
<td>Density at 20 °C (68 °F): 0.97 g/cm³ (8.095 lbs/gal)</td>
</tr>
<tr>
<td>Relative density: Not determined.</td>
</tr>
<tr>
<td>Vapour density: Not determined.</td>
</tr>
<tr>
<td>Evaporation rate: Not determined.</td>
</tr>
<tr>
<td>Solubility in / Miscibility with Water: Not miscible or difficult to mix.</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water): Not determined.</td>
</tr>
</tbody>
</table>

(Continued on page 5)
Trade name: Methyl Thiobutyrate synthetic

- Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.
  - Organic solvents: 0.0 %
  - Other information: No further relevant information available.

10 Stability and reactivity

- Reactivity
- 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:
- 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 (Self-assessment): slightly hazardous for water
  Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Trade name: Methyl Thiobutyrate synthetic

(Continuation of page 5)

· 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 UN1993
· UN proper shipping name
  · DOT Flammable liquids, n.o.s. (Methyl Thiobutyrate)
  · ADR 1993 Flammable liquids, n.o.s. (Methyl Thiobutyrate)
  · IMDG, IATA FLAMMABLE LIQUID, N.O.S. (Methyl Thiobutyrate)
· Transport hazard class(es)
  · DOT
    · Class 3 Flammable liquids
    · Label 3
  · ADR
    · Class 3 (1993) Flammable liquids
    · Label 3
  · IMDG, IATA
    · Class 3 Flammable liquids
    · Label 3
### 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.
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- **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**
  The substance is classified and labeled according to the Globally Harmonized System (GHS).

  - **Hazard pictograms**
    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.

  - **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 / eye protection / face protection.
    - P303+P361+P353 IF ON SKIN (or hair): Remove/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:** Sidney Arfa
- **Date of preparation / last revision 06/25/2015 / -**
- **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)
Trade name: Methyl Thiobutyrate synthetic

NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
Flam. Liq. 3: Flammable liquids, Hazard Category 3