1 Identification

- Product identifier
- Trade name: Bis (2-Methyl-3-Furyl) Disulfide synthetic
- Product number: 4069
- CAS Number: 28588-75-2
- EC number: 249-095-2
- 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

  GHS05 Corrosion

  Eye Dam. 1 H318 Causes serious eye damage.

  !

  GHS07

  Skin Irrit. 2 H315 Causes skin irritation.

- 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)
Hazard pictograms

GHS05

Signal word: Danger

Hazard-determining components of labeling:
Bis (2-Methyl-3-Furyl) Disulfide

Hazard statements
H315 Causes skin irritation.
H318 Causes serious eye damage.

Precautionary statements
P280 Wear protective gloves / eye protection / face protection.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a poison center/doctor.
P321 Specific treatment (see on this label).
P362+P338 If skin irritation occurs: Get medical advice/attention.
P313 If skin irritation occurs: Get medical advice/attention.

Additional information:
100 % of the mixture consists of component(s) of unknown toxicity.

Classification system:
NFPA ratings (scale 0 - 4)
Health = 3
Fire = 1
Reactivity = 0

HMIS-ratings (scale 0 - 4)
Health = *3
Fire = 1
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
28588-75-2 Bis (2-Methyl-3-Furyl) Disulfide
Identification number(s)
EC number: 249-095-2
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.
  · After eye contact: Rinse opened eye for several minutes under running water. Then 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.
  · 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: No special measures required.
  · Methods and material for containment and cleaning up:
    Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
    Use neutralizing agent.
    Dispose contaminated material as waste according to item 13.
  · 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.
Trade name: Bis (2-Methyl-3-Furyl) Disulfide synthetic

7 Handling and storage

- **Handling:**
  - **Precautions for safe handling:** No special precautions are necessary if used correctly.
  - **Information about protection against explosions and fires:** No special measures required.

- **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:**
      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:** 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.
### Trade name: Bis (2-Methyl-3-Furyl) Disulfide synthetic

- Eye protection:
  - Tightly sealed goggles

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information</td>
<td></td>
</tr>
<tr>
<td>Appearance:</td>
<td></td>
</tr>
<tr>
<td>Form:</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color:</td>
<td>According to product specification</td>
</tr>
<tr>
<td>Odor:</td>
<td>According to product specification</td>
</tr>
<tr>
<td>Odor threshold:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>pH-value:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Change in condition</td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range:</td>
<td>Undetermined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range:</td>
<td>280 °C (536 °F)</td>
</tr>
<tr>
<td>Flash point:</td>
<td>99 °C (210.2 °F)</td>
</tr>
<tr>
<td>Flammability (solid, gaseous):</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Decomposition temperature:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Auto igniting:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Danger of explosion:</td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td>Explosion limits:</td>
<td></td>
</tr>
<tr>
<td>Lower:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapor pressure:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Density at 20 °C (68 °F):</td>
<td>1.215 g/cm³ (10.13918 lbs/gal)</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Solubility in / Miscibility with Water:</td>
<td>Not miscible or difficult to mix.</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water):</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Viscosity:</td>
<td></td>
</tr>
<tr>
<td>Dynamic:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Kinematic:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>VOC content:</td>
<td>0.00 %</td>
</tr>
<tr>
<td></td>
<td>0.0 g/l / 0.00 lb/gal</td>
</tr>
<tr>
<td>Other information</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

(Continued on page 6)
10 Stability and reactivity

- **Reactivity**: No further relevant information available.
- **Chemical stability**: No further relevant information available.
- **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**: Strong irritant with the danger of severe eye injury.
  - **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**: Not hazardous for water. Must not reach bodies of water or drainage ditch undiluted or unneutralized.
  - **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, ADN, IMDG, IATA: Not Regulated

- **UN proper shipping name**
  - DOT, ADR, ADN, IMDG, IATA: Not Regulated

- **Transport hazard class(es)**
  - DOT, ADR, ADN, IMDG, IATA: Not Regulated

- **Packing group**
  - DOT, ADR, IMDG, IATA: Not Regulated

- **Environmental hazards:**
  - Marine pollutant: No

- **Special precautions for user**
  - Not applicable.

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - Not applicable.

- **Transport/Additional information:**
  - Not dangerous according to the above specifications.

- **UN "Model Regulation"**
  - Not Regulated

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: 28588-75-2 Bis (2-Methyl-3-Furyl) Disulfide

      (Continued on page 8)
Trade name: Bis (2-Methyl-3-Furyl) Disulfide synthetic

<table>
<thead>
<tr>
<th>· Proposition 65</th>
</tr>
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<tbody>
<tr>
<td>· Chemicals known to cause cancer:</td>
</tr>
<tr>
<td>Substances is not listed.</td>
</tr>
<tr>
<td>· Chemicals known to cause reproductive toxicity for females:</td>
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<tr>
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<tr>
<td>· Chemicals known to cause reproductive toxicity for males:</td>
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<td>· Chemicals known to cause developmental toxicity:</td>
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<th>· Carcinogenic categories</th>
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<td>· EPA (Environmental Protection Agency)</td>
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<tr>
<td>· TLV (Threshold Limit Value established by ACGIH)</td>
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<tr>
<td>· NIOSH-Ca (National Institute for Occupational Safety and Health)</td>
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| GHS05 |

| · Signal word Danger |

| · Hazard-determining components of labeling: |
| Bis (2-Methyl-3-Furyl) Disulfide |
| · Hazard statements |
| H315 Causes skin irritation. |
| H318 Causes serious eye damage. |
| · Precautionary statements |
| P280 Wear protective gloves / eye protection / face protection. |
| P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P310 Immediately call a poison center/doctor. |
| P321 Specific treatment (see on this label). |
| P362+P364 Take off contaminated clothing and wash it before reuse. |
| P332+P313 If skin irritation occurs: Get medical advice/attention. |
| · Chemical safety assessment: A Chemical Safety Assessment has not been carried out. |

(Continued on page 9)
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
  
  product safety@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
  
  Skin Irrit. 2: Skin corrosion/irritation – Category 2
  
  Eye Dam. 1: Serious eye damage/eye irritation – Category 1