1 Identification

- **Product identifier**
  - **Trade name:** 2-Methylbutyaldehyde natural
  - **Product number:** 1076
  - **CAS Number:** 96-17-3
  - **EC number:** 202-485-6
- **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
    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. 2 H225 Highly flammable liquid and vapor.
  - **GHS07**
    Skin Irrit. 2 H315 Causes skin irritation.
    Eye Irrit. 2A H319 Causes serious eye irritation.
    STOT SE 3 H335 May cause respiratory irritation.
- **Label elements** Harmful in contact with skin or if inhaled.

(Continued on page 2)
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 Danger

Hazard-determining components of labeling:
2-methylbutyraldehyde

Hazard statements
H225 Highly flammable liquid and vapor.
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)

Health = 2
Fire = 3
Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = 2
Fire = 3
Reactivity = 0

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
Trade name: 2-Methylbutyraldehyde natural

3 Composition/information on ingredients

- Chemical characterization: Substances
- CAS No. Description
  96-17-3 2-methylbutyraldehyde
- Identification number(s)
- EC number: 202-485-6

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. 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: 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: Prevent seepage into sewage system, workpits and cellars.
- 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.
Trade name: 2-Methylbutyaldehyde natural

### Protective Action Criteria for Chemicals

- **PAC-1:** Substance is not listed.
- **PAC-2:** Substance is not listed.
- **PAC-3:** Substance is not listed.

### 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:** Store in a cool location.
    - **Information about storage in one common storage facility:** Not required.
  - **Further information about storage conditions:**
    - Keep receptacle tightly sealed.
    - Store in cool, dry conditions in well sealed receptacles.
  - **Specific end use(s)**: No further relevant information available.

### 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:
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 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>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: According to product specification</td>
</tr>
<tr>
<td>Odor 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: 92-94 °C (197.6-201.2 °F)</td>
</tr>
<tr>
<td>Flash point: 4 °C (39.2 °F)</td>
</tr>
<tr>
<td>Flammability (solid, gaseous): Not applicable.</td>
</tr>
<tr>
<td>Decomposition temperature: Not determined.</td>
</tr>
</tbody>
</table>
10 Stability and reactivity

- **Reactivity**: No further relevant information available.
- **Chemical stability**: No decomposition if used according to specifications.
- **Thermal decomposition / conditions to be avoided**: No hazardous 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**: Irritating effect.
    - **Sensitization**: No sensitizing effects known.
### 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: Generally not hazardous for water.

- 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
  - UN1989

- UN proper shipping name
- DOT
  - Aldehydes, n.o.s. (2-methylbutyraldehyde)
- ADR
  - 1989 Aldehydes, n.o.s. (2-methylbutyraldehyde)
- IMDG, IATA
  - ALDEHYDES, N.O.S. (2-methylbutyraldehyde)
# Safety Data Sheet

**acc. to OSHA HCS**

**Trade name:** 2-Methylbutyraldehyde natural

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## Transport hazard class(es)

- **DOT**
  - Class: 3 Flammable liquids
  - Label: 3

- **ADR**
  - Class: 3 (F1) Flammable liquids
  - Label: 3

- **IMDG, IATA**
  - Class: 3 Flammable liquids
  - Label: 3

## Packing group

- DOT, ADR, IMDG, IATA: II

## Environmental hazards:

- Marine pollutant: No

## Special precautions for user

- **Warning:** Flammable liquids
- **Danger code (Kemler):** 33
- **EMS Number:** F-E,S-D
- **Stowage Category:** B

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

- Not applicable.

## Transport/Additional information:

- **DOT**
- **Quantity limitations**
  - On passenger aircraft/rail: 5 L
  - On cargo aircraft only: 60 L
### 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.
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Hazard pictograms

GHS02  GHS07

Signal word Danger

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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
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. 2: Flammable liquids – Category 2
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