

**SECTION 1: Identification****1.1. Identification**

|                |  |
|----------------|--|
| Product form   | : Substance  |
| Substance name | : Butanal, 2-methyl-   |
| CAS-No.        | : 96-17-3  |
| Product code   | : (US) W1376   |
| Formula        | : C5H10O   |
| Synonyms       | : Butyraldehyde, 2-methyl- / 2-Methylbutanal / 2-Methylbutyraldehyde / Butanal,2-methyl- |

**1.2. Recommended use and restrictions on use**

No additional information available

**1.3. Supplier**

Synerzine  
5340 Hwy 42 S  
Ellenwood, Georgia 30294 - USA  
T 404-524-6744 - F 404-577-1651  
[info@synerzine.com](mailto:info@synerzine.com) - [www.synerzine.com](http://www.synerzine.com)

**1.4. Emergency telephone number**

Emergency number : Infotrac 1-800-535-5053 (Contract# 102471) Dial +1-352-323-3500 when outside the US

**SECTION 2: Hazard(s) identification****2.1. Classification of the substance or mixture****GHS-US classification**

|  |      |   |
|--|------|---|
| Flammable liquids Category 2                                     | H225 | Highly flammable liquid and vapour              |
| Serious eye damage/eye irritation Category 2A                    | H319 | Causes serious eye irritation                   |
| Skin sensitization, Category 1                                   | H317 | May cause an allergic skin reaction             |
| Specific target organ toxicity (single exposure) Category 3      | H335 | May cause respiratory irritation                |
| Hazardous to the aquatic environment - Acute Hazard Category 2   | H401 | Toxic to aquatic life                           |
| Hazardous to the aquatic environment - Chronic Hazard Category 2 | H411 | Toxic to aquatic life with long lasting effects |

Full text of H statements : see section 16

**2.2. GHS Label elements, including precautionary statements****GHS-US labeling**

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H225 - Highly flammable liquid and vapour  
H317 - May cause an allergic skin reaction  
H319 - Causes serious eye irritation  
H335 - May cause respiratory irritation  
H401 - Toxic to aquatic life  
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. heat, hot surfaces, open flames, sparks  
P233 - Keep container tightly closed.  
P240 - Ground/Bond container and receiving equipment

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P241 - Use explosion-proof electrical, lighting, ventilating equipment  
P242 - Use only non-sparking tools.  
P243 - Take precautionary measures against static discharge.  
P261 - Avoid breathing fume, gas, mist, spray, vapors.  
P264 - Wash hands, forearms and face thoroughly after handling.  
P271 - Use only outdoors or in a well-ventilated area.  
P272 - Contaminated work clothing must not be allowed out of the workplace  
P273 - Avoid release to the environment.  
P280 - Wear eye protection, face protection, protective clothing, protective gloves.  
P302+P352 - If on skin: Wash with plenty of water  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P312 - Call a doctor, a POISON CENTER if you feel unwell  
P321 - Specific treatment (see supplemental first aid instructions on this label)  
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P362+P364 - Take off contaminated clothing and wash it before reuse.  
P370+P378 - In case of fire: Use alcohol resistant foam, dry sand to extinguish.  
P391 - Collect spillage.  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
P403+P235 - Store in a well-ventilated place. Keep cool.  
P405 - Store locked up.  
P501 - Dispose of contents/container to an approved waste disposal plant

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

| Name                                     | Product identifier | %        | GHS-US classification  |
|--|--------------------|----------|--|
| Butanal, 2-methyl-<br>(Main constituent) | (CAS-No.) 96-17-3  | 97 - 100 | Flam. Liq. 2, H225<br>Eye Irrit. 2A, H319<br>Skin Sens. 1, H317<br>STOT SE 3, H335<br>Aquatic Acute 2, H401<br>Aquatic Chronic 2, H411 |

Full text of hazard classes and H-statements : see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : Call a poison center/doctor/physician if you feel unwell.  
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell.  
First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.  
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.  
First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : May cause respiratory irritation.  
Symptoms/effects after skin contact : May cause an allergic skin reaction.  
Symptoms/effects after eye contact : Eye irritation.

### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

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### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

#### 5.2. Specific hazards arising from the chemical

Fire hazard : Highly flammable liquid and vapour.

Reactivity : Highly flammable liquid and vapour.

#### 5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid breathing fume, gas, mist, spray, vapors. Avoid contact with skin and eyes.

##### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

#### 6.2. Environmental precautions

Avoid release to the environment.

#### 6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.

Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

#### 6.4. Reference to other sections

For further information refer to section 13.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid breathing fume, gas, mist, spray, vapors. Avoid contact with skin and eyes.

Hygiene measures : Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

#### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Ground/bond container and receiving equipment.

Storage conditions : Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

No additional information available

#### 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Environmental exposure controls : Avoid release to the environment.

#### 8.3. Individual protection measures/Personal protective equipment

##### Hand protection:

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Protective gloves

### Eye protection:

Safety glasses

### Skin and body protection:

Wear suitable protective clothing

### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

|   |  |
|---|--|
| Physical state                              | : Liquid   |
| Appearance                                  | : A colorless liquid.                                  |
| Color                                       | : colorless  |
| Odor  | : strong, choking odor cocoa/coffee aroma, on dilution |
| Odor threshold                              | : No data available                                    |
| pH  | : No data available                                    |
| Melting point                               | : Not applicable                                       |
| Freezing point                              | : No data available                                    |
| Boiling point                               | : 90 - 92 °C   |
| Flash point                                 | : 40 °F (open cup)                                     |
| Relative evaporation rate (butyl acetate=1) | : No data available                                    |
| Flammability (solid, gas)                   | : Not applicable.                                      |
| Vapor pressure                              | : No data available                                    |
| Relative vapor density at 20 °C             | : No data available                                    |
| Relative density                            | : No data available                                    |
| Specific gravity / density                  | : 0.802 - 0.818 g/cm <sup>3</sup>                      |
| Solubility                                  | : No data available                                    |
| Log Pow                                     | : No data available                                    |
| Auto-ignition temperature                   | : No data available                                    |
| Decomposition temperature                   | : No data available                                    |
| Viscosity, kinematic                        | : No data available                                    |
| Viscosity, dynamic                          | : No data available                                    |
| Explosion limits                            | : No data available                                    |
| Explosive properties                        | : No data available                                    |
| Oxidizing properties                        | : No data available                                    |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Highly flammable liquid and vapour.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

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### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

| Butanal, 2-methyl- (96-17-3) |                        |
|------------------------------|------------------------|
| LD50 oral rat                | 6400 mg/kg             |
| LC50 inhalation rat (ppm)    | 14000 ppm/4h           |
| ATE US (oral)                | 6400 mg/kg body weight |
| ATE US (gases)               | 14000 ppmV/4h          |

Skin corrosion/irritation : Not classified  
Serious eye damage/irritation : Causes serious eye irritation.  
Respiratory or skin sensitization : May cause an allergic skin reaction.  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified  
Reproductive toxicity : Not classified  
Specific target organ toxicity – single exposure : May cause respiratory irritation.  
Specific target organ toxicity – repeated exposure : Not classified  
Aspiration hazard : Not classified  
Symptoms/effects after inhalation : May cause respiratory irritation.  
Symptoms/effects after skin contact : May cause an allergic skin reaction.  
Symptoms/effects after eye contact : Eye irritation.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects. Toxic to aquatic life.

| Butanal, 2-methyl- (96-17-3) |   |
|------------------------------|---|
| LC50 fish 1                  | 9.4 - 10.6 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through]) |

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.  
Additional information : Flammable vapors may accumulate in the container.

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### SECTION 14: Transport information

#### Department of Transportation (DOT)

In accordance with DOT

|                                |   |
|--------------------------------|---|
| Transport document description | : UN3371 2-Methylbutanal, 3, II                                 |
| UN-No.(DOT)                    | : UN3371  |
| Proper Shipping Name (DOT)     | : 2-Methylbutanal   |
| Class (DOT)                    | : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120 |
| Packing group (DOT)            | : II - Medium Danger  |
| Hazard labels (DOT)            | : 3 - Flammable liquid  |



|                               |       |
|-------------------------------|-------|
| Dangerous for the environment | : Yes |
| Marine pollutant              | : Yes |



|  |  |
|--|--|
| DOT Packaging Non Bulk (49 CFR 173.xxx)                          | : 202  |
| DOT Packaging Bulk (49 CFR 173.xxx)                              | : 242  |
| DOT Special Provisions (49 CFR 172.102)                          | : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.<br>T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)<br>TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. |
| DOT Packaging Exceptions (49 CFR 173.xxx)                        | : 150  |
| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | : 5 L  |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)     | : 60 L   |
| DOT Vessel Stowage Location                                      | : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.  |
| Emergency Response Guide (ERG) Number                            | : 129  |
| Other information  | : No supplementary information available.  |

#### Transportation of Dangerous Goods

##### Transport by sea

|                                       |  |
|---------------------------------------|--|
| Transport document description (IMDG) | : UN 3371 2-METHYLBUTANAL, 3, II (-3.5°C c.c.) |
| UN-No. (IMDG)                         | : 3371   |
| Proper Shipping Name (IMDG)           | : 2-METHYLBUTANAL                              |
| Class (IMDG)                          | : 3 - Flammable liquids                        |
| Packing group (IMDG)                  | : II - substances presenting medium danger     |
| Limited quantities (IMDG)             | : 1 L  |

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Marine pollutant : Yes



### Air transport

Transport document description (IATA) : UN 3371 2-Methylbutanal, 3, II  
UN-No. (IATA) : 3371  
Proper Shipping Name (IATA) : 2-Methylbutanal  
Class (IATA) : 3 - Flammable Liquids  
Packing group (IATA) : II - Medium Danger

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Butanal, 2-methyl- (96-17-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

### 15.2. International regulations

#### CANADA

#### Butanal, 2-methyl- (96-17-3)

Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

#### Butanal, 2-methyl- (96-17-3)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### National regulations

#### Butanal, 2-methyl- (96-17-3)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### 15.3. US State regulations

#### Butanal, 2-methyl- (96-17-3)

|                            |   |
|----------------------------|---|
| State or local regulations | U.S. - Massachusetts - Right To Know List<br>U.S. - New Jersey - Right to Know Hazardous Substance List<br>U.S. - Pennsylvania - RTK (Right to Know) List |
|----------------------------|---|

## SECTION 16: Other information

Full text of H-phrases:

|      |   |
|------|---|
| H225 | Highly flammable liquid and vapour              |
| H317 | May cause an allergic skin reaction             |
| H319 | Causes serious eye irritation                   |
| H335 | May cause respiratory irritation                |
| H401 | Toxic to aquatic life                           |
| H411 | Toxic to aquatic life with long lasting effects |

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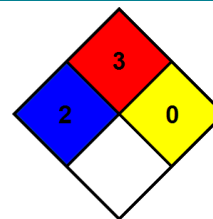
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NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 3 - Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



### Hazard Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well as liquids with flash points between 73 F and 100 F. (Classes IB & IC)

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection : C

C - Safety glasses, Gloves, Synthetic apron

### Synerzine US

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*