# 2-Methyltetrahydrofuran

## Safety Data Sheet

**according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations**

**Date of issue:** 01/26/2019  
**Revision date:** 01/26/2019  
**Supersedes:** 04/02/2015

## SECTION 1: Identification

### 1.1. Identification

<table>
<thead>
<tr>
<th><strong>Product form</strong></th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trade name</strong></td>
<td>2-Methyltetrahydrofuran</td>
</tr>
<tr>
<td><strong>CAS-No.</strong></td>
<td>96-47-9</td>
</tr>
<tr>
<td><strong>Formula</strong></td>
<td>C₅H₁₀O</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Methyltetrahydrofuran / Furan, 2-methyl-tetrahydro- / Furan, tetrahydro-2-methyl- / 2-Methyloxolane / Tetrahydro-2-methylfuran / Tetrahydrofuran, 2-methyl- / .alpha.-Methyltetrahydrofuran</td>
</tr>
</tbody>
</table>

### 1.2. Recommended use and restrictions on use

- **Use of the substance/mixture:** Solvent, Chemical intermediate

### 1.3. Supplier

- **Monument Chemical**
  - 10200 Bay Area Blvd.
  - Pasadena, TX 77507 - USA
  - T (281)474-5550
  - sds@monumentchemical.com - www.monumentchemical.com

### 1.4. Emergency telephone number

- **Emergency number:** 24 HR CHEMTREC: 1-800-424-9300 (International +1 703-741-5970)

## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture

#### GHS US classification

<table>
<thead>
<tr>
<th>Property</th>
<th>Category</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable liquids</td>
<td>2</td>
<td>Highly flammable liquid and vapour</td>
</tr>
<tr>
<td>Acute toxicity (oral)</td>
<td>4</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>2</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>1</td>
<td>Causes serious eye damage</td>
</tr>
</tbody>
</table>

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
  - H302 - Harmful if swallowed
  - H315 - Causes skin irritation
  - H318 - Causes serious eye damage
- **Precautionary statements (GHS US):**
  - P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  - P233 - Keep container tightly closed.
  - P240 - Ground/Bond container and receiving equipment
  - P241 - Use explosion-proof electrical/ventilating/lighting equipment
  - P242 - Use only non-sparking tools.
  - P243 - Take precautionary measures against static discharge.
  - P264 - Wash hands, forearms and face thoroughly after handling.
  - P270 - Do not eat, drink or smoke when using this product.
  - P280 - Wear protective gloves/protective clothing/eye protection/face protection.
  - P301+P312 - If swallowed: Call a doctor, a POISON CENTER if you feel unwell
  - P302+P352 - If on skin: Wash with plenty of soap and water
2-Methyltetrahydrofuran
Safety Data Sheet

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification: May form explosive peroxides.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier (CAS-No.)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methyltetrahydrofuran</td>
<td>96-47-9</td>
<td>100</td>
</tr>
</tbody>
</table>

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation: Allow victim to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Consult a doctor/medical service. Get medical advice/attention. Specific treatment (see supplemental first aid instruction on this label).

First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.

First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER or doctor/physician if you feel unwell.

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

Potential Adverse human health effects and symptoms: Based on available data, the classification criteria are not met. Harmful if swallowed.

Symptoms/effects after skin contact: Causes skin irritation.

Symptoms/effects after eye contact: Causes serious eye damage.

Symptoms/effects after ingestion: Swallowing a small quantity of this material will result in serious health hazard.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard: Highly flammable liquid and vapour.

Explosion hazard: May form flammable/explosive vapor-air mixture.
2-Methyltetrahydrofuran
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking.

6.1.1. For non-emergency personnel

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection.

Emergency procedures: Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed: Handle empty containers with care because residual vapors are flammable.

Precautions for safe handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No open flames. No smoking. Use only non-sparking tools.

Hygiene measures: Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment.

Storage conditions: Keep only in the original container in a cool, well ventilated place away from: Heat sources, Ignition sources, Incompatible materials. Keep in fireproof place. Keep container tightly closed.

Incompatible products: Strong bases. Strong acids.

Incompatible materials: Sources of ignition. Direct sunlight. Heat sources.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

No additional information available

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Hand protection:
Wear protective gloves.

Eye protection:
2-Methyltetrahydrofuran
Safety Data Sheet

Chemical goggles or safety glasses

**Skin and body protection:**
Wear suitable protective clothing

**Respiratory protection:**
Wear appropriate mask

**Other information:**
Do not eat, drink or smoke during use.

### SECTION 9: Physical and chemical properties

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear, colorless liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Ether-like odour</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>-136 °C ; (-213°F)</td>
</tr>
<tr>
<td>Boiling point</td>
<td>80 °C ; (176°F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>-11 °C ; (12°F)</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>13.5 kPa at 20°C (68°F)</td>
</tr>
<tr>
<td>Vapor pressure at 50 °C</td>
<td>345 hPa</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>3</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.85 at 20°C (68°F)</td>
</tr>
<tr>
<td>Specific gravity / density</td>
<td>850 kg/m³</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>86.14 g/mol</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>4.706 mm²/s</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>0.004 Pa·s (25 °C)</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>1.5 - 8.9 vol %</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No additional information available

#### 10.2. Chemical stability

Highly flammable liquid and vapour. May form flammable/explosive vapor-air mixture.

#### 10.3. Possibility of hazardous reactions

Not established.

#### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame.
10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products


SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Oral: Harmful if swallowed.
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

<table>
<thead>
<tr>
<th>2-Methyltetrahydrofuran (96-47-9)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>300 - 2000 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>4500 mg/kg (Rabbit, Dermal)</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>21.5 mg/l (4 h, Rat, Inhalation)</td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
<td>6000 ppm/4h</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>300 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>4500 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (gases)</td>
<td>6000 ppmV/4h</td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>21.5 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (dust, mist)</td>
<td>21.5 mg/l/4h</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
Specific target organ toxicity – single exposure : Not classified
Specific target organ toxicity – repeated exposure : Not classified
Aspiration hazard : Not classified
Viscosity, kinematic : 4.706 mm²/s

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met. Harmful if swallowed.

Symptoms/effects after skin contact : Causes skin irritation.
Symptoms/effects after eye contact : Causes serious eye damage.
Symptoms/effects after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

12.2. Persistence and degradability

2-Methyltetrahydrofuran (96-47-9)

Persistence and degradability : Not established.

12.3. Bioaccumulative potential

2-Methyltetrahydrofuran (96-47-9)

Bioaccumulative potential : Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects
Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Additional information : Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN2536 Methyltetrahydrofuran, 3, II
UN-No.(DOT) : UN2536
Proper Shipping Name (DOT) : Methyltetrahydrofuran
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

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. T4 - 2.65 178.274(d)(2) Normal............... 178.275(d)(3)
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 : 127
Other information : No supplementary information available.

Transport by sea

Transport document description (IMDG) : UN 2536 METHYL TETRAHYDROFURAN, 3, II (-11°C o.c.)
UN-No. (IMDG) : 2536
Proper Shipping Name (IMDG) : METHYL TETRAHYDROFURAN
Class (IMDG) : 3 - Flammable liquids
Packing group (IMDG) : II - substances presenting medium danger

Air transport

Transport document description (IATA) : UN 2536 Methyltetrahydrofuran, 3, II
2-Methyltetrahydrofuran
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

UN-No. (IATA) : 2536
Proper Shipping Name (IATA) : Methyltetrahydrofuran
Class (IATA) : 3 - Flammable Liquids
Packing group (IATA) : II - Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

2-Methyltetrahydrofuran (96-47-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

CANADA
2-Methyltetrahydrofuran (96-47-9)
Listed on the Canadian NDSL (Non-Domestic Substances List)

EU-Regulations
2-Methyltetrahydrofuran (96-47-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations
2-Methyltetrahydrofuran (96-47-9)
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 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 INSO (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

2-Methyltetrahydrofuran (96-47-9)
State or local regulations
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 01/26/2019
Other information : None.

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H-element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H225</td>
<td>Highly flammable liquid and vapour</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
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<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
</tbody>
</table>
2-Methyltetrahydrofuran
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

NFPA health hazard : 1 - Materials that, under emergency conditions, can cause significant irritation.

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

NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.

Hazard Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

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 : B
B - Safety glasses, Gloves

SDS US (GHS HazCom 2012)

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