SECTION 1: Identification

1.1. Identification

Product form
Trade name
Chemical name
CAS-No.
Product code
Formula
Synonyms

: Substance
: Methyl tert-Butyl Ether
: Methyl tert-Butyl Ether
: 1634-04-4
: HP-040900-FP
: C5H12O
: tert-Butyl methyl ether / Ether, methyl tert-butyl / Ether, tert-butyl methyl / 2-Methoxy-2-methy propane / Propane, 2-methoxy-2-methyl- / Methyl tertiary-butyl ether / MTBE / tertiary-Butyl methyl ether / 2-Methyl-2-methoxypropane / Methyl t-butyl ether / Methyl-tert-butyl ether

1.2. Recommended use and restrictions on use

Use of the substance/mixture

: Octane booster for gasolines; manufacture of isobutene; extraction solvent, etc.

1.3. Supplier

Monument Chemical
16717 Jacintoport Blvd.
Houston, TX 77015 - USA
T (281) 452-5951 - F (281) 457-1127
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); 24 HR Emergency Assistance: 1-832-376-2026

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

<table>
<thead>
<tr>
<th>Flammable liquids</th>
<th>H225</th>
<th>Highly flammable liquid and vapor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
</tbody>
</table>

Category 2

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 vapor
H315 - Causes skin irritation

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, lighting, ventilating equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P264 - Wash hands thoroughly after handling.
P280 - Wear eye 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.
P321 - Specific treatment (see a doctor on this label).
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
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

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl tert-Butyl Ether</td>
<td>(Main constituent)</td>
<td></td>
</tr>
<tr>
<td>(CAS-No.) 1634-04-4</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

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

3.2. Mixtures
Not applicable

SECTION 4: First-aid measures

4.1. 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).

4.1. First-aid measures after inhalation
Allow affected person to breathe fresh air. Allow the victim to rest.

4.1. 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: Wash with plenty of soap and water. Get medical advice/attention. Get medical advice/attention. Specific treatment (see Consult a doctor/medical service on this label).

4.1. First-aid measures after eye contact
Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.

4.1. First-aid measures after ingestion
Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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.

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
Suitable 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 vapor.

Explosion hazard
May form flammable/explosive vapor-air mixture.

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: Wash hands 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, lighting, Ventilation equipment.
Storage conditions: Keep only in the original container in a cool, well ventilated place away from: 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

<table>
<thead>
<tr>
<th>Methyl tert-Butyl Ether (1634-04-4)</th>
<th>USA - ACGIH - Occupational Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local name</td>
<td>Methyl tert-butyl ether</td>
</tr>
<tr>
<td>ACGIH TWA (ppm)</td>
<td>50 ppm</td>
</tr>
<tr>
<td>Remark (ACGIH)</td>
<td>URT irr; kidney dam</td>
</tr>
</tbody>
</table>

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:
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

Physical state: Liquid
Appearance: Clear, colorless liquid.
Color: Colorless clear
Odor: Characteristic ether-like
Odor threshold: No data available
pH: No data available
Melting point: -108.6 °C ; -163.5 °F
Freezing point: No data available
Boiling point: 55.2 °C ; 131.0 °F
Flash point: -33 °C ; -27.4 °F (closed cup)
Relative evaporation rate (butyl acetate=1): No data available
Flammability (solid, gas): No data available
Vapor pressure: 268 hPa (at 20 °C)
Relative vapor density at 20 °C: 3
Relative density: 0.74
Specific gravity / density: 0.74 g/cm³ (at 20 °C)
Molecular mass: 88.2 g/mol
Solubility: Water: 50 g/l (at 25 °C)
Partition coefficient n-octanol/water (Log Pow): 1.06 (at 23 °C)
Auto-ignition temperature: 375 °C ; 705.2 °F
Decomposition temperature: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosion limits: 1.5 – 8.5 vol %
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
No additional information available

10.2. Chemical stability
Highly flammable liquid and vapor. 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): Not classified
Methyl tert-Butyl Ether
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Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

<table>
<thead>
<tr>
<th>Methyl tert-Butyl Ether (1634-04-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat                                                         2963 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)                                             85 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (oral)                                                         2963 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (vapors)                                                       85 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (dust, mist)                                                   85 mg/l/4h</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified
Viscosity, kinematic : No data available

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.
Symptoms/effects after skin contact : Causes skin irritation.

SECTION 12: Ecological information

12.1. Toxicity

<table>
<thead>
<tr>
<th>Methyl tert-Butyl Ether (1634-04-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1                                                           672 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])</td>
</tr>
<tr>
<td>EC50 Daphnia 1                                                        542 mg/l (Exposure time: 48 h - Species: Daphnia magna)</td>
</tr>
<tr>
<td>LC50 fish 2                                                           929 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Methyl tert-Butyl Ether (1634-04-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability                                         Not established.</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Methyl tert-Butyl Ether (1634-04-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCF fish 1                                                             (no bioaccumulation expected)</td>
</tr>
<tr>
<td>Partition coefficient n-octanol/water (Log Pow)                        1.06 (at 23 °C)</td>
</tr>
<tr>
<td>Bioaccumulative potential                                              Not established.</td>
</tr>
</tbody>
</table>

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.
Methyl tert-Butyl Ether
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT

Transport document description : UN2398 Methyl tert-butyl ether, 3, II
UN-No. (DOT) : UN2398
Proper Shipping Name (DOT) : Methyl tert-butyl ether
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. T7 - 4 178.274(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 : E - 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, but is prohibited from carriage on passenger vessels in which the limiting number of passengers is exceeded.

Emergency Response Guide (ERG) Number : 127
Other information : No supplementary information available.

Transport by sea

Transport document description (IMDG) : UN 2398 METHYL tert-BUTYL ETHER, 3, II (< -18°C c.c.)
UN-No. (IMDG) : 2398
Proper Shipping Name (IMDG) : METHYL tert-BUTYL ETHER
Class (IMDG) : 3 - Flammable liquids
Packing group (IMDG) : II - substances presenting medium danger
Limited quantities (IMDG) : 1 L

Air transport

Transport document description (IATA) : UN 2398 Methyl tert-butyl ether, 3, II
UN-No. (IATA) : 2398
Proper Shipping Name (IATA) : Methyl tert-butyl ether
Class (IATA) : 3 - Flammable Liquids
Packing group (IATA) : II - Medium Danger
**Methyl tert-Butyl Ether**

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### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

**Methyl tert-Butyl Ether (1634-04-4)**

- Listed on the United States TSCA (Toxic Substances Control Act) inventory
- Subject to reporting requirements of United States SARA Section 313
- Listed on EPA Hazardous Air Pollutant (HAPS)

<table>
<thead>
<tr>
<th>CERCLA RQ</th>
<th>1000 lb</th>
</tr>
</thead>
</table>

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

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

| Methyl tert-Butyl Ether | CAS-No. 1634-04-4 | 100% |

#### 15.2. International regulations

**CANADA**

- Methyl tert-Butyl Ether (1634-04-4)
  - Listed on the Canadian DSL (Domestic Substances List)

**EU-Regulations**

- Methyl tert-Butyl Ether (1634-04-4)
  - Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

**National regulations**

- Methyl tert-Butyl Ether (1634-04-4)
  - 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 KECI/KECI (Korean Existing Chemicals Inventory)
  - Listed on NZIoC (New Zealand Inventory of Chemicals)
  - Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
  - Listed on INSEQ (Mexican National Inventory of Chemical Substances)
  - Listed on TCSI (Taiwan Chemical Substance Inventory)

#### 15.3. US State regulations

- **Methyl tert-Butyl Ether (1634-04-4)**
  - 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) - Environmental Hazard 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: 07/05/2020
- Other information: None.

**Full text of H-phrases:**

- H225: Highly flammable liquid and vapor
- H315: Causes skin irritation

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SDS US (GHS HazCom 2012)
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