

MATERIAL SAFETY DATA SHEET

Product Name: Methyl tert-butyl ether

CAS No.: 1634-04-4

Version: 01

1. Identification

Product Code : 90031, 90189, 90463, 90895,98127
Company Name : Advent Chembio Private Limited
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2. Composition/Information on Ingredients

| Ingredient | CAS No | Percent |
|-------------------------|-----------|----------|
| METHYL TERT BUTYL ETHER | 1634-04-4 | 99- 100% |

3. Hazards Identification**Hazard classification****Physical hazards**

Flammable liquids : Category 2

Health hazards

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 2

Carcinogenicity : Category 2

Specific target organ toxicity - single exposure : Category 3

Aspiration hazard : Category 1

Labels elements**Hazard symbol****Signal word** : Danger**Hazard statement** : Highly flammable liquid and vapor.
May be fatal if swallowed and enters airways.
Causes skin irritation.
Causes eye irritation.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Suspected of causing cancer.**Precautionary statement**

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- Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust/fume/gas/mist/vapors/spray. Wear protective gloves/eye protection/face protection. Use only outdoors or in a well-ventilated area. Wash hands thoroughly after handling.
- Response** : In case of fire: Use water spray, foam, dry powder or carbon dioxide for extinction. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. IF IN EYES: 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. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF exposed or concerned: Get medical advice/attention.
- Storage** : Store at room temperature below 30°C in original packing, keep container tightly closed away from source of ignition, handle at inert atmosphere.
- Disposal** : Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
- Other hazards which do not result in GHS classification** : None.

4. First Aid Measures

- General information** : Get medical advice/attention if you feel unwell. If medical advice is needed, have product container or label at hand. Show this safety data sheet to the doctor in attendance.
- Ingestion** : Call a physician or poison control center immediately. Do NOT induce vomiting.
- Inhalation** : Move to fresh air. Get medical attention if symptoms persist .
- Skin contact** : Wash with soap and water. If skin irritation occurs: Get medical advice/attention. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.
- Eye contact** : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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Most important symptoms/effects, acute and delayed : If eye irritation persists: Get medical advice/attention.
: Irritating to eyes, respiratory system and skin. Narcotic effect.

Indication of immediate medical attention and special treatment needed : Treat symptomatically. Symptoms may be delayed.

5. Fire fighting measures

General fire hazards : Flammable liquid and vapor.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media : Avoid water in straight hose stream; will scatter and spread fire.

Specific hazards arising from the chemical : Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Heat may cause the containers to explode.

Special protective equipment and precautions for firefighters

Special fire fighting procedures : Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk.

Special protective equipment for fire-fighters : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures : ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.

Methods and material for containment and cleaning up : Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharges. Stop leak if possible without any risk. Use only non-sparking tools. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures : Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.

Environmental precautions : Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

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7. Handling and Storage

- Precautions for safe handling** : DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take precautionary measures against static discharges. Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash hands thoroughly after handling.
- Conditions for safe storage, including any incompatibilities** : Store at room temperature below 30°C in original packing, keep container tightly closed away from source of ignition, handle at inert atmosphere.
Keep away from food, drink and animal feeding stuffs. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. Exposure Controls Personal Protection

Control parameters

Occupational exposure limits

| Chemical identity | Type | Exposure Limit values | Source |
|-------------------------|------|-----------------------|---|
| METHYL TERT-BUTYL ETHER | TWA | 50 ppm | US. ACGIH Threshold Limit Values (2011) |

Appropriate engineering controls : No data available.

Individual protection measures, such as personal protective equipment

- General information** : Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.
- Eye/face protection** : Wear safety glasses with side shields (or goggles).
- Hand protection** : Chemical resistant gloves.
- Other** : Wear suitable protective clothing.
- Respiratory protection** : In case of inadequate ventilation use suitable respirator.
- Hygiene measures** : Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove

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contaminants. Provide eyewash station and safety shower.

9. Physical and Chemical Properties

| | | |
|--|---|-----------------------------------|
| Appearance | : | Colorless liquid. |
| Odor | : | Terpene odor . |
| pH | : | No data available. |
| Melting point/freezing point | : | -108.6 °C . |
| Initial boiling point and boiling range | : | 55 °C . |
| Flash Point | : | -27 °C |
| Vapor pressure | : | 33.3 kPa (25 °C) . |
| Vapor density | : | No data available. |
| Relative density | : | 0.74 (20 °C) . |
| Solubility in water | : | 51 g/l (25 °C) . |
| Solubility (other) | : | No data available. |
| Formula | : | C ₅ H ₁₂ O. |
| Molecular Weight | : | 88.15 g/mol . |

10. Stability and Reactivity

| | | |
|---|---|--|
| Reactivity | : | No dangerous reaction known under conditions of normal use . |
| Chemical stability | : | Material is stable under normal conditions. |
| Possibility of hazardous reactions | : | Hazardous polymerization does not occur. |
| Conditions to avoid | : | Heat, sparks, flames. Contact with incompatible materials. |
| Incompatible materials | : | Strong oxidizing agents. Acids. |
| Hazardous decomposition products | : | Thermal decomposition may release oxides of carbon. |

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11. Toxicological Information**Information on likely routes of exposure**

- Ingestion** : May be harmful if swallowed.
- Inhalation** : Irritating to respiratory system. May cause central nervous system effects .
- Skin contact** : Causes skin irritation.
- Eye contact** : Causes eye irritation.

Information on toxicological effects**Acute toxicity (list all possible routes of exposure)**

- Oral Product** : LD 50 (Rat): 2,961.6 mg/kg .
- Dermal Product** : No data available.
- Inhalation Product** : LC 50 (Rat, 4 h): 85 mg/l .
- Repeated dose toxicity Product** : No data available.
- Skin corrosion/irritation Product** : Causes skin irritation.
- Serious eye damage/eye irritation Product** : Causes eye irritation.
- Respiratory or skin sensitization Product** : Not a skin sensitizer.
- Carcinogenicity Product** : Suspected of causing cancer.
- IARC Monographs on the Evaluation of Carcinogenic Risks to Humans DIOXANE** : No carcinogenic components identified.
- US. National Toxicology Program (NTP) Report on Carcinogens DIOXANE** : No carcinogenic components identified.
- US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050** : No carcinogenic components identified.
- Germ cell mutagenicity**
- In vitro Product** : No mutagenic components identified .
- In vivo Product** : No mutagenic components identified .
- Reproductive toxicity Product** : No data available.
- Specific target organ toxicity - single exposure Product** : Narcotic effect., Respiratory tract irritation.
- Specific target organ toxicity - repeated exposure Product** : No data available .
- Aspiration hazard Product** : May be fatal if swallowed and enters airways .
- Other effects** : None known.

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12. Ecological Information

Ecotoxicity

Acute hazards to the aquatic environment :

Fish Product : No data available .
Specified substance(s): LC 50 (Fathead minnow (Pimephales promelas), 96 h): 672 mg/l
 METHYL TERT-BUTYL ETHER Mortality
 LC 50 (Bleak (Alburnus alburnus), 96 h): > 1,000 mg/l Mortality.

Aquatic invertebrates Product : No data available.
Specified substance(s): : LC 50 (Harpacticoid copepod (Nitocra spinipes), 96 h): > 1,000
 METHYL TERT-BUTYL ETHER mg/l Mortality .

Chronic hazards to the aquatic environment :

Fish Product : No data available.

Aquatic invertebrates Product : No data available.

Toxicity to Aquatic Plants Product: : No data available.

Persistence and degradability

Biodegradation Product : There are no data on the degradability of this product.

BOD/COD ratio Product : No data available.

Bioaccumulative potential
Bioconcentration factor (BCF) : No data available on bioaccumulation.
Product

Partition coefficient n-octanol / : Log Kow: 0.94
water (log Kow) Product

Mobility in soil : No data available. .

Other adverse effects : The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

13. Disposal consideration

Disposal instructions : Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal .

Contaminated packaging : Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

| | UN No. | UN proper shipping name | Hazard Class(es) | Packaging group | Marine Pollutant |
|------------|---------|-------------------------|------------------|-----------------|------------------|
| DOT | UN 2398 | Methyl tert-butyl ether | 3 | II | No |

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|------|---------|-------------------------|---|----|----|
| IMDG | UN 2398 | Methyl tert-butyl ether | 3 | II | No |
| IATA | UN 2398 | Methyl tert-butyl ether | 3 | II | No |

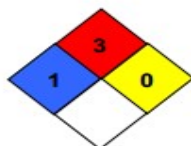
15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety, health and environmental regulations/legislation specific for the substance or mixture
No Data Available.

16. Other Information

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

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