

SAFETY DATA SHEET

1. Identification

Product identifier: Methyl tert-Butyl Ether

Other means of identification

Product No.: 9043, 9042, 9034, 5398

Recommended use and restriction on use

Recommended use: Not available.

Restrictions on use: Not known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company Name: Avantor Performance Materials, Inc.
Address: 3477 Corporate Parkway, Suite 200
Center Valley, PA 18034

Telephone: Customer Service: 855-282-6867

Fax:
Contact Person: Environmental Health & Safety
e-mail: info@avantormaterials.com

Emergency telephone number:

24 Hour Emergency: 908-859-2151

Chemtrec: 800-424-9300

2. Hazard(s) identification

Hazard classification

Physical hazards

Flammable liquids Category 2

Health hazards

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2B
Carcinogenicity	Category 2
Specific target organ toxicity - single exposure	Category 3
Aspiration hazard	Category 1

Label 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

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

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.

3. Composition/information on ingredients

Substances

Chemical identity	Common name and synonyms	CAS number	Content in percent (%) [*]
METHYL TERT-BUTYL ETHER		1634-04-4	99 - 100%

^{*} All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. 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. If eye irritation persists: Get medical advice/attention.

Most important symptoms/effects, acute and delayed

Symptoms:	Irritating to eyes, respiratory system and skin. Narcotic effect.
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Indication of immediate medical attention and special treatment needed

Treatment:	Symptoms may be delayed. Treat symptomatically.
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5. Fire-fighting measures

General fire hazards:	Flammable liquid and vapor.
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Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Water spray, foam, dry powder or carbon dioxide.
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Unsuitable extinguishing media:	Avoid water in straight hose stream; will scatter and spread fire.
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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.
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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.
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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.
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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. See Section 8 of the MSDS for Personal Protective Equipment.
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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.
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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.

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:	Keep away from food, drink and animal feeding stuffs. Keep container tightly closed in a cool, well-ventilated place. 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.
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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).
Skin protection	
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 contaminants. Provide eyewash station and safety shower.

9. Physical and chemical properties

Appearance

Physical state:	Liquid
Form:	No data available.
Color:	Colorless
Odor:	Terpene odor
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	-108.6 °C
Initial boiling point and boiling range:	55 °C
Flash Point:	-27 °C
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	33.3 kPa (25 °C)
Vapor density:	No data available.
Relative density:	0.74 (20 °C)
Solubility(ies)	
Solubility in water:	51 g/l (25 °C)
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	0.94
Auto-ignition temperature:	435 °C
Decomposition temperature:	No data available.
Viscosity:	No data available.
Other information	
Molecular weight:	88.15 g/mol (C ₅ H ₁₂ O)

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.

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:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

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.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):

METHYL TERT-BUTYL
ETHER LC 50 (Fathead minnow (*Pimephales promelas*), 96 h): 672 mg/l Mortality
LC 50 (Bleak (*Alburnus alburnus*), 96 h): > 1,000 mg/l Mortality

Aquatic invertebrates

Product: No data available.

Specified substance(s):

METHYL TERT-BUTYL
ETHER LC 50 (Harpacticoid copepod (*Nitocra spinipes*), 96 h): > 1,000 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)

Product: No data available on bioaccumulation.

Partition coefficient n-octanol / water (log Kow)

Product: Log Kow: 0.94

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 considerations

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

DOT

UN number:	UN 2398
UN proper shipping name:	Methyl tert-butyl ether
Transport hazard class(es)	
Class(es):	3
Label(s):	3
Packing group:	II
Marine Pollutant:	No

IMDG

UN number:	UN 2398
UN proper shipping name:	METHYL tert-BUTYL ETHER
Transport hazard class(es)	
Class(es):	3
Label(s):	3
EmS No.:	F-E, S-D
Packing group:	II
Marine Pollutant:	No

IATA

UN number:	UN 2398
Proper Shipping Name:	Methyl tert-butyl ether
Transport hazard class(es):	
Class(es):	3
Label(s):	3
Marine Pollutant:	No
Packing group:	II

15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

METHYL TERT-BUTYL	Reportable quantity: 1000 lbs.
ETHER	

Superfund amendments and reauthorization act of 1986 (SARA)

Hazard categories

Not listed.

SARA 302 Extremely hazardous substance

None present or none present in regulated quantities.

SARA 304 Emergency release notification

Chemical identity	RQ
METHYL TERT-BUTYL	1000 lbs.
ETHER	

SARA 311/312 Hazardous chemical

Chemical identity	Threshold Planning Quantity
METHYL TERT-BUTYL ETHER	500 lbs

SARA 313 (TRI reporting)

Chemical identity	Reporting threshold for other users	Reporting threshold for manufacturing and processing
METHYL TERT-BUTYL ETHER	10000 lbs	25000 lbs.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

US state regulations
US. California Proposition 65

No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act

METHYL TERT-BUTYL ETHER	Listed
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US. Massachusetts RTK - Substance List

METHYL TERT-BUTYL ETHER	Listed
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US. Pennsylvania RTK - Hazardous Substances

METHYL TERT-BUTYL ETHER	Listed
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US. Rhode Island RTK

No ingredient regulated by RI Right-to-Know Law present.

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EU EINECS List:	On or in compliance with the inventory
EU ELINCS List:	Not in compliance with the inventory.
Japan (ENCS) List:	Not in compliance with the inventory.
EU No Longer Polymers List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

16. Other information, including date of preparation or last revision

Issue date: 04-08-2014

Revision date: No data available.

Version #: 1.0

SDS_US - SDS000001504

Further information:

No data available.

Disclaimer:

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