

# SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended 2015/830.

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

**Product name:** Methyl tert-Butyl Ether

**Product No.** 9042

#### Additional identification

**Chemical name:** METHYL TERT-BUTYL ETHER

**Chemical formula:** C<sub>5</sub>H<sub>12</sub>O

**INDEX No.** 603-181-00-X

**CAS-No.** 1634-04-4

**EC No.** 216-653-1

**REACH Registration No.**

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Identified uses:** For Laboratory, Research or Manufacturing Use.

**Uses advised against:** Not determined.

### 1.3 Details of the supplier of the safety data sheet

Avantor Performance Materials Poland S.A.  
Sowinskiego 11str., 44-101 Gliwice,  
Poland

**Telephone:** 48 32 239-20-00

**Fax:** 48 32 239-23-70

**Contact person:** Environmental Health & Safety

**E-mail:** export@avantormaterials.com

E-mail address of person responsible for this SDS: SDS@avantormaterials.com

### 1.4 Emergency telephone number: CHEMTREC: (44)-870-8200418

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

**Classification according to Regulation (EC) No 1272/2008 as amended.**

#### Physical Hazards

Flammable liquids Category 2 H225: Highly flammable liquid and vapour.

#### Health Hazards

Skin irritation Category 2 H315: Causes skin irritation.

### 2.2 Label Elements



**Signal Word:** Danger

**Hazard Statement(s):** H225: Highly flammable liquid and vapour.  
H315: Causes skin irritation.

**Precautionary Statements**

**Prevention:** P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P243: Take action to prevent static discharges.

**Response:** P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.  
P331: Do NOT induce vomiting.  
P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P332+P313: If skin irritation occurs: Get medical advice/attention.

**Storage:** P405: Store locked up.

**Disposal:** P501: 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.

**2.3 Other hazards** No data available.

**SECTION 3: Composition/information on ingredients**

**3.1 Substances**

| Chemical name           | Concentration | CAS-No.   | EC No.    | REACH Registration No. | M-Factor:          | Notes |
|-------------------------|---------------|-----------|-----------|------------------------|--------------------|-------|
| METHYL TERT-BUTYL ETHER | 50 - <100%    | 1634-04-4 | 216-653-1 | No data available.     | No data available. | #     |

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

# This substance has workplace exposure limit(s).

**SECTION 4: First Aid Measures**

**General:** Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

**4.1 Description of first aid measures**

**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 re-use.

**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.

**Ingestion:** Call a doctor or poison control centre immediately. Do NOT induce vomiting.

**4.2 Most important symptoms and effects, both acute and delayed:** Irritating to eyes, respiratory system and skin. Narcotic effect.

**4.3 Indication of any immediate medical attention and special treatment needed**

**Hazards:** No data available.

**Treatment:** Symptoms may be delayed. Treat symptomatically.

**SECTION 5: Firefighting Measures**

**General Fire Hazards:** Flammable liquid and vapour.

**5.1 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.

**5.2 Special hazards arising from the substance or mixture:** Vapours may cause a flash fire or ignite explosively. Vapours may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapours or gases to explosive concentrations. Heat may cause the containers to explode.

**5.3 Advice 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 firefighters:** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

**SECTION 6: Accidental Release Measures**

**6.1 Personal precautions, protective equipment and emergency procedures:** ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorised 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 SDS for Personal Protective Equipment.

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

**6.3 Methods and material for containment and cleaning up:** In case of leakage, eliminate all ignition sources. Take precautionary measures against static discharges. Stop leak if possible without any risk. Use 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. Dyke far ahead of larger spill for later recovery and disposal.

**6.4 Reference to other sections:** No data available.

## SECTION 7: Handling and Storage:

**7.1 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 and bond container and receiving equipment. Use explosion-proof [electrical/ventilating/lighting] equipment. Use 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.

**7.2 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.

**7.3 Specific end use(s):** No data available.

## SECTION 8: Exposure Controls/Personal Protection

### 8.1 Control Parameters

#### Occupational Exposure Limits

| Chemical name           | Type | Exposure Limit Values | Source   |
|-------------------------|------|-----------------------|--|
| METHYL TERT-BUTYL ETHER | TWA  | 50 ppm 183,5 mg/m3    | UK. EH40 Workplace Exposure Limits (WELs) (12 2011)  |
|                         | STEL | 100 ppm 367 mg/m3     | UK. EH40 Workplace Exposure Limits (WELs) (12 2011)  |
|                         | TWA  | 50 ppm 183,5 mg/m3    | EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU (12 2009) |
|                         | STEL | 100 ppm 367 mg/m3     | EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU (12 2009) |

### 8.2 Exposure controls

**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).

#### Skin protection

**Hand Protection:** Material: Chemical resistant gloves

**Other:** Wear suitable protective clothing.

|                                |  |
|--------------------------------|--|
| <b>Respiratory Protection:</b> | In case of inadequate ventilation use suitable respirator.   |
| <b>Hygiene measures:</b>       | 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. |
| <b>Environmental Controls:</b> | No data available.   |

## SECTION 9: Physical And Chemical Properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

|   |                           |
|---|---------------------------|
| <b>Physical state:</b>                          | Liquid                    |
| <b>Form:</b>                                    | Liquid                    |
| <b>Colour:</b>                                  | Colorless                 |
| <b>Odour:</b>                                   | No data available.        |
| <b>Odour Threshold:</b>                         | No data available.        |
| <b>pH:</b>                                      | No data available.        |
| <b>Freezing point:</b>                          | -108,6 °C                 |
| <b>Boiling Point:</b>                           | 55 °C                     |
| <b>Flash Point:</b>                             | -33 - -25 °C (Closed cup) |
| <b>Evaporation Rate:</b>                        | No data available.        |
| <b>Flammability (solid, gas):</b>               | No data available.        |
| <b>Flammability limit - upper (%)</b>           | 15,1 %(V)                 |
| <b>Flammability limit - lower (%)</b>           | 1,6 %(V)                  |
| <b>Vapour pressure:</b>                         | 33,3 kPa (25 °C)          |
| <b>Vapour density (air=1):</b>                  | No data available.        |
| <b>Density:</b>                                 | 0,74 g/ml (20 °C)         |
| <b>Relative density:</b>                        | 0,74 (20 °C)              |
| <b>Solubility(ies)</b>                          |                           |
| <b>Solubility in Water:</b>                     | 51 g/l (25 °C)            |
| <b>Solubility (other):</b>                      | No data available.        |
| <b>Partition coefficient (n-octanol/water):</b> | 0,94                      |
| <b>Autoignition Temperature:</b>                | 374 °C                    |
| <b>Decomposition Temperature:</b>               | No data available.        |
| <b>Viscosity:</b>                               | No data available.        |
| <b>Explosive properties:</b>                    | No data available.        |
| <b>Oxidising Properties:</b>                    | No data available.        |

### 9.2 Other information

|                          |   |
|--------------------------|---|
| <b>Molecular weight:</b> | 88,15 g/mol (C <sub>5</sub> H <sub>12</sub> O)    |
| <b>VOC content:</b>      | EC Directive 2004/42: 740 g/l ~100 % (calculated) |

## SECTION 10: Stability and Reactivity

|   |   |
|---|---|
| <b>10.1 Reactivity:</b>                         | No dangerous reaction known under conditions of normal use. |
| <b>10.2 Chemical Stability:</b>                 | Material is stable under normal conditions.                 |
| <b>10.3 Possibility of Hazardous Reactions:</b> | Hazardous polymerization does not occur.                    |

**10.4 Conditions to Avoid:** Heat, sparks, flames. Contact with incompatible materials.

**10.5 Incompatible Materials:** Strong oxidising agents. Acids.

**10.6 Hazardous Decomposition Products:** Thermal decomposition may release oxides of carbon.

## SECTION 11: Toxicological Information

### Information on likely routes of exposure

**Inhalation:** None known or expected under normal use.

**Skin Contact:** Causes skin irritation.

**Eye contact:** Causes eye irritation.

**Ingestion:** None known or expected under normal use.

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Oral

**Product:** LD 50 (Rat): 4.000 mg/kg

##### Dermal

**Product:** LD 50 (Rat) 2.000 mg/kg

##### Inhalation

**Product:** LC 50 (Rat, 4 h): 85 mg/l  
LC 50 (Rat, 4 h): 23576 ppm  
LC 50 (Mouse, 15 min): 141 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 Sensitisation:

**Product:** Not a skin sensitiser.

#### Germ Cell Mutagenicity

##### In vitro

**Product:** No mutagenic components identified

##### In vivo

**Product:** No mutagenic components identified

##### Carcinogenicity

**Product:** Suspected of causing cancer.

##### 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 Adverse Effects:** None known.

**SECTION 12: Ecological Information**

**12.1 Toxicity**

**Acute toxicity**

**Fish**

**Product:** No data available.

**Specified substance(s)**

METHYL TERT-BUTYL  
ETHER  
LD 50 (Zebra fish, 96 h): > 100 mg/l  
LC 50 (Sheepshead minnow (Cyprinodon variegatus), 96 h): > 2.500 mg/l (Static)  
LC 50 (Fathead minnow (Pimephales promelas), 96 h): 672 mg/l (Flow through) Mortality  
LC 50 (Bleak (Alburnus alburnus), 96 h): > 1.000 mg/l (Static) Mortality

**Aquatic Invertebrates**

**Product:** No data available.

**Specified substance(s)**

METHYL TERT-BUTYL  
ETHER  
EC 50 (Water flea (Daphnia magna), 48 h): > 100 mg/l  
LC 50 (Harpacticoid copepod (Nitocra spinipes), 96 h): > 1.000 mg/l (Static) Mortality

**Chronic toxicity**

**Fish**

**Product:** No data available.

**Specified substance(s)**

METHYL TERT-BUTYL  
ETHER  
No data available.

**Aquatic Invertebrates**

**Product:** No data available.

**Specified substance(s)**

METHYL TERT-BUTYL  
ETHER  
No data available.

**Toxicity to aquatic plants**

**Product:** No data available.

**Specified substance(s)**

METHYL TERT-BUTYL  
ETHER  
No data available.

**12.2 Persistence and Degradability**

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

**Specified substance(s)**  
METHYL TERT-BUTYL  
ETHER No data available.

**BOD/COD Ratio**  
**Product** No data available.

**Specified substance(s)**  
METHYL TERT-BUTYL  
ETHER No data available.

**12.3 Bioaccumulative Potential**  
**Product:** No data available on bioaccumulation.

**Specified substance(s)**  
METHYL TERT-BUTYL  
ETHER No data available.

**12.4 Mobility in Soil:** No data available.  
**Known or predicted distribution to environmental compartments**  
METHYL TERT-BUTYL  
ETHER No data available.

**12.5 Results of PBT and vPvB assessment:** Not available.  
METHYL TERT-BUTYL  
ETHER No data available.

**12.6 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.

**12.7 Additional Information:** No data available.

## SECTION 13: Disposal Considerations

### 13.1 Waste treatment methods

**General information:** No data available.

**Disposal methods:** 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.

## SECTION 14: Transport Information



### ADR

|                                    |                         |
|------------------------------------|-------------------------|
| 14.1 UN Number:                    | UN 2398                 |
| 14.2 UN Proper Shipping Name:      | METHYL tert-BUTYL ETHER |
| 14.3 Transport Hazard Class(es)    |                         |
| Class:                             | 3                       |
| Label(s):                          | 3                       |
| Hazard No. (ADR):                  | 33                      |
| Tunnel restriction code:           | (D/E)                   |
| 14.4 Packing Group:                | II                      |
| 14.5 Environmental Hazards:        | No                      |
| 14.6 Special precautions for user: | Not determined.         |

### RID

|                                    |                         |
|------------------------------------|-------------------------|
| 14.1 UN Number:                    | UN 2398                 |
| 14.2 UN Proper Shipping Name       | METHYL tert-BUTYL ETHER |
| 14.3 Transport Hazard Class(es)    |                         |
| Class:                             | 3                       |
| Label(s):                          | 3                       |
| 14.4 Packing Group:                | II                      |
| 14.5 Environmental Hazards:        | No                      |
| 14.6 Special precautions for user: | Not determined.         |

### IMDG

|                                    |                         |
|------------------------------------|-------------------------|
| 14.1 UN Number:                    | UN 2398                 |
| 14.2 UN Proper Shipping Name:      | METHYL tert-BUTYL ETHER |
| 14.3 Transport Hazard Class(es)    |                         |
| Class:                             | 3                       |
| Label(s):                          | 3                       |
| EmS No.:                           | F-E, S-D                |
| 14.4 Packing Group:                | II                      |
| 14.5 Environmental Hazards:        | No                      |
| 14.6 Special precautions for user: | Not determined.         |

### IATA

|                                    |                         |
|------------------------------------|-------------------------|
| 14.1 UN Number:                    | UN 2398                 |
| 14.2 Proper Shipping Name:         | Methyl tert-butyl ether |
| 14.3 Transport Hazard Class(es):   |                         |
| Class:                             | 3                       |
| Label(s):                          | 3                       |
| 14.4 Packing Group:                | II                      |
| 14.5 Environmental Hazards:        | No                      |
| 14.6 Special precautions for user: | Not determined.         |

**14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code:** Not applicable

|   |
|---|
| <b>SECTION 15: Regulatory information</b> |
|---|

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

##### EU Regulations

**Regulation (EC) No. 2037/2000 Substances that deplete the ozone layer:** none

Regulation (EC) No. 850/2004 on persistent organic pollutants: none

Regulation (EC) No. 689/2008 Import and export of dangerous chemicals: none

Regulation (EC) No. 1907/2006 REACH Annex XIV Substance subject to authorisation, as amended: none

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:

| Chemical name           | CAS-No.   | Concentration |
|-------------------------|-----------|---------------|
| METHYL TERT-BUTYL ETHER | 1634-04-4 | 100%          |

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work.: none

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding.: none

Directive 96/82/EC (Seveso III): on the control of major accident hazards involving dangerous substances:

| Chemical name           | CAS-No.   | Concentration |
|-------------------------|-----------|---------------|
| METHYL TERT-BUTYL ETHER | 1634-04-4 | 100%          |

EU. Regulation No. 166/2006 PRTR (Pollutant Release and Transfer Registry), Annex II: Pollutants: none

Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:

| Chemical name           | CAS-No.   | Concentration |
|-------------------------|-----------|---------------|
| METHYL TERT-BUTYL ETHER | 1634-04-4 | 100%          |

#### 15.2 Chemical safety assessment:

No Chemical Safety Assessment has been carried out.

### SECTION 16: Other Information

Revision Information: Not relevant.

#### References

PBT PBT: persistent, bioaccumulative and toxic substance.  
 vPvB vPvB: very persistent and very bioaccumulative substance.

Key literature references and sources for data: No data available.

#### Wording of the H-statements in sections 2 and 3

H225 Highly flammable liquid and vapour.  
 H304 May be fatal if swallowed and enters airways.  
 H315 Causes skin irritation.

Training information: No data available.

Issue Date: 21.08.2018  
 SDS No.:

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