

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

#### 1.1. Product identifier

Product form	: Substance
Trade name	: MTBE
Chemical name	: tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane
EC index no	: 603-181-00-X
EC no	: 216-653-1
CAS No	: 1634-04-4
REACH registration No	: 01-2119452786-27-0032
Formula	: C <sub>5</sub> H <sub>12</sub> O
Synonyms	: BPLA-F MTBE / ether, tert-butyl methyl / high purity-methyl tertiary butyl ether / methyl t-butyl ether / Methyl tert-butyl ether / methyl-1,1-dimethylethyl ether / methyl-tertiary-butyl ether / MTB / MTBE / propane, 2-methoxy-2-methyl- / t-butyl methyl ether / tert-butyl methyl ether / tertiary-butylmethyl ether / tertiary-butylmethyl ether chromasolv
Product group	: Trade product

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

##### 1.2.1. Relevant identified uses

Industrial/Professional use spec	: Industrial For professional use only
Use of the substance/mixture	: Solvent Fuel: additive

##### 1.2.2. Uses advised against

No additional information available

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

##### 1.3.1. Manufacturer/Supplier

“HIP-Petrohemija” Pancevo  
Spoljnostarcevačka 82  
26000 Pancevo  
Republic of Serbia  
T+381 13 30 70 00  
[www.hip-petrohemija.com](http://www.hip-petrohemija.com)

##### 1.3.2. Only Representative

REACH Law Ltd.  
Polaris Business Park  
Vänrikinkuja 3 / 02600 Espoo  
Finland  
[www.reachlaw.fi](http://www.reachlaw.fi)

#### 1.4. Emergency telephone number

Poisoning Control Centre	: +381 11 360 84 40 (24hr/day 7days/week)
HIP-Petrohemija	: +381 11 30 74 40 (Mon-Fri 8am - 4pm)
	: See Section 16. for the list of telephone numbers of poison centers in the European Economic Area

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2	H225
Skin Irrit. 2	H315

Full text of H-statements: see section 16

#### 2.2. Label elements

##### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS02

GHS07

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Signal word (CLP)	: Danger
Hazard statements (CLP)	: H225 - Highly flammable liquid and vapour H315 - Causes skin irritation
Precautionary statements (CLP)	: 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 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 information on this label) P332+P313 - If skin irritation occurs: Get medical advice/attention P362+P364 - Take off contaminated clothing and wash it before reuse P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide (CO <sub>2</sub> ), dry extinguishing powder, Water spray to extinguish P403+P235 - Store in a well-ventilated place. Keep cool P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Chemical name	: tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane
CAS No	: 1634-04-4
EC no	: 216-653-1
EC index no	: 603-181-00-X

Name	Product identifier	%
tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane	(CAS No) 1634-04-4 (EC no) 216-653-1 (EC index no) 603-181-00-X (REACH-no) 01-2119452786-27-0066	95,5
Methanol	(CAS No) 67-56-1 (EC no) 200-659-6 (EC index no) 603-001-00-X	4,5

Full text of H-statements: see section 16

### 3.2. Mixture

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Never give alcohol to drink.
First-aid measures after inhalation	: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Wash immediately with lots of water. Soap may be used. Do not apply (chemical) neutralizing agents. Remove clothing before washing. Take victim to a doctor if irritation persists.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.
First-aid measures after ingestion	: Rinse mouth with water. Do not induce vomiting. Call Poison Information Centre. Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	: EXPOSURE TO HIGH CONCENTRATIONS: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Coughing. Central nervous system depression. Headache. Nausea. Vomiting. Dizziness. Coordination disorders. Narcosis. Feeling of weakness. Disturbances of consciousness. Respiratory difficulties.
Symptoms/injuries after skin contact	: Tingling/irritation of the skin.

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Symptoms/injuries after eye contact	: Slight irritation. Redness of the eye tissue. EXPOSURE TO HIGH CONCENTRATIONS: Lacrimation.
Symptoms/injuries after ingestion	: Risk of aspiration pneumonia. AFTER ABSORPTION OF HIGH QUANTITIES: Diarrhoea. Central nervous system depression. Symptoms similar to those listed under inhalation.
Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. Dry skin. Itching. Skin rash/inflammation.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	: AFFF foam. Polymer foam. Alcohol-resistant foam. BC powder. Carbon dioxide. MAJOR FIRE: Water spray.
Unsuitable extinguishing media	: Solid water jet ineffective as extinguishing medium.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: DIRECT FIRE HAZARD. Highly flammable. Gas/vapour flammable with air within explosion limits. INDIRECT FIRE HAZARD. May be ignited by sparks. Gas/vapour spreads at floor level: ignition hazard.
Explosion hazard	: DIRECT EXPLOSION HAZARD. Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD. Heat may cause pressure rise in tanks/drums: explosion risk. May be ignited by sparks.

### 5.3. Advice for firefighters

Firefighting instructions	: Cool tanks/drums with water spray/remove them into safety. Physical explosion risk: extinguish/cool from behind cover. Do not move the load if exposed to heat. After cooling: persistent risk of physical explosion.
Protection during firefighting	: Heat/fire exposure: compressed air/oxygen apparatus.

## 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.
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#### 6.1.1. For non-emergency personnel

Protective equipment	: Gloves. Protective goggles. Head/neck protection. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus.
Emergency procedures	: Keep upwind. Mark the danger area. Consider evacuation. Seal off low-lying areas. Close doors and windows of adjacent premises. Stop engines and no smoking. No naked flames or sparks. Spark- and explosionproof appliances and lighting equipment. Keep containers closed. Wash contaminated clothes.

#### 6.1.2. For emergency responders

Protective equipment	: Equip cleanup crew with proper protection.
Emergency procedures	: Ventilate area.

### 6.2. Environmental precautions

Prevent spreading in sewers.

### 6.3. Methods and material for containment and cleaning up

For containment	: Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute/disperse combustible gas/vapour with water curtain. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills.
Methods for cleaning up	: Take up liquid spill into a non combustible material e.g.: dry sand/earth/vermiculite or powdered limestone. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

### 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 vapours are flammable.
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Precautions for safe handling	: Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Handle and open the container with care. Handle uncleaned empty containers as full ones. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Observe normal hygiene standards. Keep container tightly closed. Before use: check for peroxides and eliminate them. Measure the concentration in the air regularly. Work under local exhaust/ventilation.
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.
Heat and ignition sources	: KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Prohibitions on mixed storage	: KEEP SUBSTANCE AWAY FROM: combustible materials. oxidizing agents. (strong) acids. (strong) bases. halogens. peroxides.
Storage area	: Store in a cool area. Store in a dark area. Keep out of direct sunlight. Ventilation at floor level. Fireproof storeroom. Provide for a tub to collect spills. Provide the tank with earthing. Store only in a limited quantity. May be stored under nitrogen. Meet the legal requirements.
Special rules on packaging	: SPECIAL REQUIREMENTS: hermetical. clean. opaque. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	: SUITABLE MATERIAL: steel. stainless steel. carbon steel. copper. bronze. polyethylene. polypropylene. aluminium. glass.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane (1634-04-4)		
EU	IOELV TWA (mg/m <sup>3</sup> )	183.5 mg/m <sup>3</sup> (Tertiary-butyl-methyl ether; EU; Time-weighted average exposure limit 8 h; Indicative occupational exposure limit value)
EU	IOELV TWA (ppm)	50 ppm (Tertiary-butyl-methyl ether; EU; Time-weighted average exposure limit 8 h; Indicative occupational exposure limit value)
EU	IOELV STEL (mg/m <sup>3</sup> )	367 mg/m <sup>3</sup> (Tertiary-butyl-methyl ether; EU; Short time value; Indicative occupational exposure limit value)
EU	IOELV STEL (ppm)	100 ppm (Tertiary-butyl-methyl ether; EU; Short time value; Indicative occupational exposure limit value)
Belgium	Limit value (mg/m <sup>3</sup> )	146 mg/m <sup>3</sup> (Oxyde de méthyle et de tert-butyle; Belgium; Time-weighted average exposure limit 8 h)
Belgium	Limit value (ppm)	40 ppm (Oxyde de méthyle et de tert-butyle; Belgium; Time-weighted average exposure limit 8 h)
Belgium	Short time value (mg/m <sup>3</sup> )	367 mg/m <sup>3</sup> (Oxyde de méthyle et de tert-butyle; Belgium; Short time value)
Belgium	Short time value (ppm)	100 ppm (Oxyde de méthyle et de tert-butyle; Belgium; Short time value)
France	VME (mg/m <sup>3</sup> )	183.5 mg/m <sup>3</sup> (Oxyde de tert-butyle et de méthyle; France; Time-weighted average exposure limit 8 h; VRC: Valeur réglementaire contraignante)
France	VME (ppm)	50 ppm (Oxyde de tert-butyle et de méthyle; France; Time-weighted average exposure limit 8 h; VRC: Valeur réglementaire contraignante)
France	VLE (mg/m <sup>3</sup> )	367 mg/m <sup>3</sup> (Oxyde de tert-butyle et de méthyle; France; Short time value; VRC: Valeur réglementaire contraignante)
France	VLE (ppm)	100 ppm (Oxyde de tert-butyle et de méthyle; France; Short time value; VRC: Valeur réglementaire contraignante)
Germany	Local name	(tert-Butyl)methylether
Germany	TRGS 900 Occupational exposure limit value (mg/m <sup>3</sup> )	180 mg/m <sup>3</sup>
Germany	TRGS 900 Occupational exposure limit value (ppm)	50 ppm

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tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane (1634-04-4)		
Germany	Remark (TRGS 900)	DFG,EU,Y
Netherlands	Local name	tert-Butylmethylether
Netherlands	Grenswaarde TGG 8H (mg/m <sup>3</sup> )	180 mg/m <sup>3</sup>
Netherlands	Grenswaarde TGG 8H (ppm)	49 ppm (tert-Butylmethylether; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)
Netherlands	Grenswaarde TGG 15MIN (mg/m <sup>3</sup> )	360 mg/m <sup>3</sup>
Netherlands	Grenswaarde TGG 15MIN (ppm)	98 ppm (tert-Butylmethylether; Netherlands; Short time value; Public occupational exposure limit value)
Spain	Local name	Metil terc-butíleter (2012) ( Éter metil-terc-butílico)
Spain	VLA-ED (mg/m <sup>3</sup> )	183.5 mg/m <sup>3</sup> VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su trasposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país.)
Spain	VLA-ED (ppm)	50 ppm VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su trasposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país.)
Spain	VLA-EC (mg/m <sup>3</sup> )	367 mg/m <sup>3</sup> VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su trasposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país.)
Spain	VLA-EC (ppm)	100 ppm VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su trasposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país.)
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	183.5 mg/m <sup>3</sup> Methyl-tert-butyl-ether or Tertiary-butyl-methyl-ether; United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005)
United Kingdom	WEL TWA (ppm)	50 ppm Methyl-tert-butyl-ether or Tertiary-butyl-methyl-ether; United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005)
United Kingdom	WEL STEL (mg/m <sup>3</sup> )	367 mg/m <sup>3</sup> Methyl-tert-butyl-ether or Tertiary-butyl-methyl-ether; United Kingdom; Short time value; Workplace exposure limit (EH40/2005)
United Kingdom	WEL STEL (ppm)	100 ppm Methyl-tert-butyl-ether or Tertiary-butyl-methyl-ether; United Kingdom; Short time value; Workplace exposure limit (EH40/2005)

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<b>tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane (1634-04-4)</b>	
<b>DNEL/DMEL (Workers)</b>	
Acute - local effects, inhalation	357 mg/m <sup>3</sup>
Long-term - systemic effects, dermal	5100 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	178.5 mg/m <sup>3</sup>
<b>DNEL/DMEL (General population)</b>	
Acute - local effects, inhalation	214 mg/m <sup>3</sup>
Long-term - systemic effects, oral	7.1 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	53.6 mg/m <sup>3</sup>
Long-term - systemic effects, dermal	3570 mg/kg bodyweight/day
<b>PNEC (Water)</b>	
PNEC aqua (freshwater)	5.1 mg/l
PNEC aqua (marine water)	0.26 mg/l
PNEC aqua (intermittent, freshwater)	4.72 mg/l
<b>PNEC (Sediment)</b>	
PNEC sediment (freshwater)	23 mg/kg dwt
PNEC sediment (marine water)	1.17 mg/kg dwt
<b>PNEC (Soil)</b>	
PNEC soil	1.43 mg/kg wet weight
<b>PNEC (STP)</b>	
PNEC sewage treatment plant	71 mg/l

### 8.2. Exposure controls

Personal protective equipment	: Avoid all unnecessary exposure.
Materials for protective clothing	: GIVE GOOD RESISTANCE: nitrile rubber. PVA. GIVE POOR RESISTANCE: natural rubber. butyl rubber. neoprene. PVC. viton
Hand protection	: Gloves
Eye protection	: Safety glasses
Skin and body protection	: Head/neck protection. Protective clothing
Respiratory protection	: Gas mask with filter type AX. High vapour/gas concentration: self-contained respirator
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	: Liquid.
Molecular mass	: 88.15 g/mol
Colour	: Colourless.
Odour	: Camphor odour. Ether-like odour. Peppermint odour.
Odour threshold	: 0.13 ppm 0.47 mg/m <sup>3</sup>
pH	: No data available
Relative evaporation rate (butylacetate=1)	: 8.5
Relative evaporation rate (ether=1)	: 1.6
Melting point	: -109 °C
Freezing point	: No data available
Boiling point	: 55 °C
Flash point	: -28 °C
Critical temperature	: 224 °C
Auto-ignition temperature	: 460 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 268 hPa (20 °C)

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Vapour pressure at 50 °C	: 850 hPa (50 °C)
Critical pressure	: 34300 hPa
Relative vapour density at 20 °C	: 3.0
Relative density	: 0.74
Relative density of saturated gas/air mixture	: 1.5
Density	: 740 kg/m <sup>3</sup>
Solubility	: Moderately soluble in water. Substance floats in water. Soluble in ethanol. Soluble in ether. Soluble in gasoline. Water: 4.8 g/100ml
Log Pow	: 1.06 (Experimental value)
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 0.00030 Pa.s (20 °C)
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 1.6 - 8.5 vol % 60 - 310 g/m <sup>3</sup>

### 9.2. Other information

Specific conductivity	: 16000 pS/m
Saturation concentration	: 1165 g/m <sup>3</sup>
VOC content	: 100 %
Other properties	: Gas/vapour heavier than air at 20°C. Clear. Highly volatile. Substance has neutral reaction.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Upon combustion: CO and CO<sub>2</sub> are formed. Reacts violently with (strong) oxidizers: (increased) risk of fire/explosion. Reacts violently with (some) acids. Prolonged storage: may form peroxides. This reaction is accelerated on exposure to light.

### 10.2. Chemical stability

Stable under normal conditions.

### 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

fume. Carbon monoxide. Carbon dioxide. May release flammable gases.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

<b>tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane (1634-04-4)</b>	
LD50 oral rat	4000 mg/kg (Rat)
LD50 dermal rat	> 6800 mg/kg (Rat)
LD50 dermal rabbit	> 10000 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	85 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	23576 ppm/4h (Rat)

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Not classified Based on available data, the classification criteria are not met
Respiratory or skin sensitisation	: Not classified Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified Based on available data, the classification criteria are not met
Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met

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Specific target organ toxicity (single exposure)	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (repeated exposure)	: Not classified Based on available data, the classification criteria are not met
Aspiration hazard	: Not classified Based on available data, the classification criteria are not met

### tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane (1634-04-4)

Viscosity, kinematic	0.40540541 mm <sup>2</sup> /s
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Potential adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.
IARC group	: 3

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general	: Classification concerning the environment: not applicable.
Ecology - air	: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). TA-Luft Klasse 5.2.5.
Ecology - water	: Mild water pollutant (surface water). Ground water pollutant. Slightly harmful to fishes (LC50(96h) 100-1000 mg/l). Slightly harmful to invertebrates (Daphnia) (EC50 (48h): 100 - 1000 mg/l). Practically non-toxic to algae (EC50 >100 mg/l). Inhibition of activated sludge.

### tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane (1634-04-4)

LC50 fish 1	672 - 706 mg/l (LC50; 96 h; Pimephales promelas)
EC50 Daphnia 1	651 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna)

### 12.2. Persistence and degradability

<b>tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane (1634-04-4)</b>	
Persistence and degradability	Not readily biodegradable in water.

### 12.3. Bioaccumulative potential

#### tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane (1634-04-4)

BCF fish 1	1.5 (BCF; 672 h)
Log Pow	1.06 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

### 12.4. Mobility in soil

#### tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane (1634-04-4)

Surface tension	0.020 N/m (20 °C)
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### 12.5. Results of PBT and vPvB assessment

#### tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane (1634-04-4)

Results of PBT assessment	The product does not meet the PBT and vPvB classification criteria
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### 12.6. Other adverse effects

Additional information	: Avoid release to the environment
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## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations	: Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an authorized waste incinerator for solvents with energy recovery.
Additional information	: LWCA (the Netherlands): KGA category 06. Hazardous waste according to Directive 2008/98/EC.
Ecology - waste materials	: Avoid release to the environment.
European List of Waste (LoW) code	: 07 01 04* - other organic solvents, washing liquids and mother liquors

## SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN



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### 14.1. UN number

UN-No. (ADR)	: 2398
UN-No. (IMDG)	: 2398
UN-No. (IATA)	: 2398
UN-No. (ADN)	: 2398
UN-No. (RID)	: 2398

### 14.2. UN proper shipping name

Proper Shipping Name (ADR)	: Methyl tert-butyl ether
Proper Shipping Name (IMDG)	: Methyl-tert-butylether
Proper Shipping Name (IATA)	: Methyl-tert-butylether
Proper Shipping Name (ADN)	: METHYL TERT-BUTYL ETHER
Proper Shipping Name (RID)	: Methyl-tert-butylether
Transport document description (ADR)	: UN 2398 Methyl tert-butyl ether, 3, II, (D/E)
Transport document description (IMDG)	: UN 2398 Methyl-tert-butylether, 3, II

### 14.3. Transport hazard class(es)

#### ADR

Transport hazard class(es) (ADR)	: 3
Danger labels (ADR)	: 3



#### IMDG

Transport hazard class(es) (IMDG)	: 3
Danger labels (IMDG)	: 3



#### IATA

Transport hazard class(es) (IATA)	: 3
Hazard labels (IATA)	: 3



#### ADN

Transport hazard class(es) (ADN)	: 3
Danger labels (ADN)	: 3



#### RID

Transport hazard class(es) (RID)	: 3
Danger labels (RID)	: 3

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:



### 14.4. Packing group

Packing group (ADR)	: II
Packing group (IMDG)	: II
Packing group (IATA)	: II
Packing group (ADN)	: II
Packing group (RID)	: II

### 14.5. Environmental hazards

Dangerous for the environment	: No
Marine pollutant	: No
Other information	: No supplementary information available

### 14.6. Special precautions for user

#### - Overland transport

Transport regulations (ADR)	: Subject
Classification code (ADR)	: F1
Limited quantities (ADR)	: 11
Hazard identification number (Kemler No.)	: 33
Orange plates	:



Tunnel restriction code (ADR)	: D/E
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#### - Transport by sea

Transport regulations (IMDG)	: Subject
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#### - Air transport

Transport regulations (IATA)	: Subject to the provisions
PCA limited quantity max net quantity (IATA)	: 1L
CAO max net quantity (IATA)	: 60L

#### - Inland waterway transport

Classification code (ADN)	: F1
Limited quantities (ADN)	: 1L
Excepted quantities (ADN)	: E2
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EX, A
Ventilation (ADN)	: VE01
Number of blue cones/lights (ADN)	: 1
Not subject to ADN	: No

#### - Rail transport

Transport regulations (RID)	: Subject
Classification code (RID)	: F1
Limited quantities (RID)	: 1L
Carriage prohibited (RID)	: No

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

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3. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008	tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane
3.a. Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F	tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane
3.b. Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10	tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane
40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.	tert-butyl methyl ether, MTBE, 2-methoxy-2-methylpropane

MTBE is not on the REACH Candidate List

MTBE is not on the REACH Annex XIV List

### SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

Full text of H- and EUH-statements:

Flam. Liq. 2	Flammable liquids, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
H225	Highly flammable liquid and vapour
H315	Causes skin irritation

List of telephone numbers of poison centres in the European Economic Area:

<b>AUSTRIA</b> (Vienna Wien)	+43 1 40 400 2222
<b>BELGIUM</b> (Brussels Bruxelles)	+32 70 245 245
<b>BULGARIA</b> (Sofia)	+359 2 9154 409 / +359 887 435 325
<b>CZECH REPUBLIC</b> (Prague Praha)	+42 2 2491 9293 or +42 2 2491 5402
<b>DENMARK</b> (Copenhagen)	+45 35 31 54 04
<b>FINLAND</b> (Helsinki )	+358 9 471 977
<b>FRANCE</b> (Paris)	+33 1 40 05 48 48
<b>GERMANY</b> (Berlin)	+49 30 450 653565
<b>GREECE</b> (Athens Athinai)	+30 10 779 3777
<b>HUNGARY</b> (Budapest)	+36 80 20 11 99
<b>ICELAND</b> (Reykjavik)	+354 525 111, +354 543 2222
<b>IRELAND</b> (Dublin)	+353 1 8379964
<b>ITALY</b> (Rome)	+39 06 305 4343
<b>LATVIA</b> (Riga)	+371 704 2468
<b>LITHUANIA</b> (Vilnius)	+370 2 36 20 52, +370 2 36 20 92
<b>NETHERLANDS</b> (Bilthoven)	+31 30 274 88 88
<b>NORWAY</b> (Oslo)	+47 22 591300
<b>POLAND</b> (Gdansk)	+48 58 301 65 16 or +48 58 349 2831
<b>PORTUGAL</b> (Lisbon Lisboa )	808 250 143 (for use only in Portugal), +351 21 330 3284
<b>ROMANIA</b> (Bucharest)	+40 21 230 8000;
<b>SLOVAKIA</b> (Bratislava)	+421 2 54 77 4 166
<b>SLOVENIA</b> (Ljubljana)	+ 386 41 650 500
<b>SPAIN</b> (Barcelona)	+34 93 227 98 33 or +34 93 227 54 00 bleep 190
<b>SWEDEN</b> (Stockholm)	+46 8 33 12 31 (International) 112 (National)
<b>UNITED KINGDOM</b> (London)	0870 243 2241