

tert-Butyl methyl ether

Safety Data Sheet

according to Regulation (EU) 2015/830

Date of issue: 03/04/2017

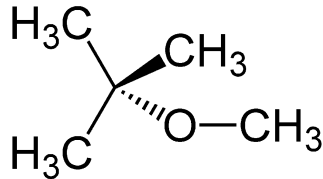
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Substance name : tert-butyl methyl ether
EC Index-No. : 603-181-00-X
EC-No. : 216-653-1
CAS-No. : 1634-04-4
Type of product : Pure substance
Formula : C₅H₁₂O
Chemical structure :



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 / 2-methoxy-2-methylpropane / tertiary-butylmethyl ether / tertiary-butylmethyl ether chromasolv

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Solvent
Fuel: additive
Laboratory chemical

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

ISOLAB GmbH
Bahnhofstrasse 10, D-97877
Wertheim - Germany
T +49 93 42 912 355 - F +49 93 42 912 357
prodsafe@isolab.de

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Germany	Giftnotruf der Charité CBF, Haus VIII (Wirtschaftgebäude), UG	Hindenburgdamm 30 12203 Berlin	+49 30 19240	

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 hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

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/sparks/open flames/hot surfaces. - No smoking P240 - Ground/bond container and receiving equipment P302+P352 - IF ON SKIN: Wash with plenty of soap and water P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%
tert-Butyl methyl ether	(CAS-No.) 1634-04-4 (EC-No.) 216-653-1 (EC Index-No.) 603-181-00-X	100

Full text of H-statements: see section 16

3.2. Mixtures

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 (www.big.be/antigif.htm). 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/effects 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/effects after skin contact	: Tingling/irritation of the skin.
Symptoms/effects after eye contact	: Slight irritation. Redness of the eye tissue. EXPOSURE TO HIGH CONCENTRATIONS: Lacrimation.
Symptoms/effects 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: Fire-fighting 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.

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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. Reactions involving a fire hazard: see "Reactivity 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. Reactions with explosion hazards: see "Reactivity Hazard".

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

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. See "Material-Handling" to select protective clothing.
- 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

No additional information available

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. Consult "Material-handling" to select material of 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. See "Material-handling" for suitable container materials. 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

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- 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.

7.2. Conditions for safe storage, including any incompatibilities

- Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
- Information 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.

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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 (1634-04-4)		
EU	Local name	Tertiary-butyl-methyl ether
EU	IOELV TWA (mg/m ³)	183.5 mg/m ³ (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 ³)	367 mg/m ³ (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)
Austria	Local name	tert-Butylmethylether
Austria	MAK (mg/m ³)	180 mg/m ³
Austria	MAK (ppm)	50 ppm
Austria	MAK Short time value (mg/m ³)	360 mg/m ³
Austria	MAK Short time value (ppm)	100 ppm
Belgium	Local name	Oxyde de méthyle et de tert-butyle # Methyl tertair butyl ether
Belgium	Limit value (mg/m ³)	146 mg/m ³ (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 ³)	367 mg/m ³ (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)
Bulgaria	Local name	Метил-третичен-бутил-етер
Bulgaria	OEL TWA (mg/m ³)	183.5 mg/m ³
Bulgaria	OEL TWA (ppm)	50 ppm
Bulgaria	OEL STEL (mg/m ³)	367 mg/m ³
Bulgaria	OEL STEL (ppm)	100 ppm
Bulgaria	Notes	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Croatia	Local name	MTBE; (Tert-butyl-metil-eter; 2-Metoksi-2-metil-propan)
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	183.5 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (ppm)	50 ppm
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³)	367 mg/m ³
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (ppm)	100 ppm
Croatia	Naznake (HR)	EU*** (naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2009/161/ EU (treća lista)); F (lako zapaljivo); Xi (nadražujuće)
Czech Republic	Local name	terc-Butyl- methylether
Czech Republic	Expoziční limity (PEL) (mg/m ³)	100 mg/m ³
Czech Republic	Expoziční limity (PEL) (ppm)	28 ppm
Czech Republic	Expoziční limity (NPK-P) (mg/m ³)	200 mg/m ³
Czech Republic	Expoziční limity (NPK-P) (ppm)	55 ppm
Denmark	Local name	2-Methoxy-2-methylpropan (Methyl-tert-butylether)

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Denmark	Grænseværdie (langvarig) (mg/m ³)	144 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	40 ppm
Estonia	Local name	Tertsiaarbutüülmetüüleeter
Estonia	OEL TWA (mg/m ³)	183.5 mg/m ³
Estonia	OEL TWA (ppm)	50 ppm
Estonia	OEL STEL (mg/m ³)	367 mg/m ³
Finland	Local name	Metyyli-tert-butylieetteri
Finland	HTP-arvo (8h) (mg/m ³)	180 mg/m ³
Finland	HTP-arvo (8h) (ppm)	50 ppm
Finland	HTP-arvo (15 min)	360 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	100 ppm
France	Local name	oxyde de tert-butyle et de méthyle
France	VME (mg/m ³)	183.5 mg/m ³ (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 ³)	367 mg/m ³ (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)
France	Note (FR)	Valeurs réglementaires contraignantes
Germany	Local name	(tert-Butyl)methylether
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	180 mg/m ³
Germany	TRGS 900 Occupational exposure limit value (ppm)	50 ppm
Germany	Remark (TRGS 900)	DFG,EU,Y
Hungary	Local name	terc-BUTIL-METIL-ÉTER
Hungary	AK-érték	183.5 mg/m ³
Hungary	CK-érték	367 mg/m ³
Hungary	Megjegyzések (HU)	EU4
Ireland	Local name	Tert-Butyl-methyl ether
Ireland	OEL (8 hours ref) (mg/m ³)	183.5 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	50 ppm
Ireland	OEL (15 min ref) (mg/m ³)	367 mg/m ³
Ireland	OEL (15 min ref) (ppm)	100 ppm
Ireland	Notes (IE)	IOELV
Italy	Local name	Ossido di terz-butile e metile
Italy	OEL TWA (mg/m ³)	183.5 mg/m ³
Italy	OEL TWA (ppm)	50 ppm
Italy	OEL STEL (mg/m ³)	357 mg/m ³
Italy	OEL STEL (ppm)	100 ppm
Latvia	Local name	Tercbutilmetilēteris
Latvia	OEL TWA (mg/m ³)	183.5 mg/m ³
Latvia	OEL TWA (ppm)	50 ppm
Latvia	OEL STEL (mg/m ³)	367 mg/m ³
Latvia	OEL STEL (ppm)	100 ppm
Lithuania	Local name	Tret-butil-metil-eteris
Lithuania	IPRV (mg/m ³)	183.5 mg/m ³

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Lithuania	IPRV (ppm)	50 ppm
Lithuania	TPRV (mg/m ³)	367 mg/m ³
Lithuania	TPRV (ppm)	100 ppm
Lithuania	Remark (LT)	Ū (ūmus poveikis)
Netherlands	Local name	tert-Butylmethylether
Netherlands	Grenswaarde TGG 8H (mg/m ³)	180 mg/m ³ (tert-Butylmethylether; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)
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 ³)	360 mg/m ³ (tert-Butylmethylether; Netherlands; Short time value; Public occupational exposure limit value)
Netherlands	Grenswaarde TGG 15MIN (ppm)	98 ppm (tert-Butylmethylether; Netherlands; Short time value; Public occupational exposure limit value)
Poland	Local name	Eter tert-butylometylowy
Poland	NDS (mg/m ³)	180 mg/m ³
Poland	NDSch (mg/m ³)	270 mg/m ³
Portugal	Local name	Éter metil-terc-butílico (MTBE)
Portugal	OEL TWA (ppm)	50 ppm
Slovakia	Local name	terc-Butyl-metyl-éter
Slovakia	NPHV (priemerná) (mg/m ³)	183.5 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	50 ppm
Slovakia	OEL STEL (mg/m ³)	367 mg/m ³
Slovakia	OEL STEL (ppm)	100 ppm
Slovenia	Local name	terc-butilmetileter
Slovenia	OEL TWA (mg/m ³)	183.5 mg/m ³
Slovenia	OEL TWA (ppm)	50 ppm
Slovenia	OEL STEL (mg/m ³)	367 mg/m ³
Slovenia	OEL STEL (ppm)	100 ppm
Spain	Local name	Metil terc-butiléter (Éter metil-terc-butílico)
Spain	VLA-ED (mg/m ³)	183.5 mg/m ³
Spain	VLA-ED (ppm)	50 ppm
Spain	VLA-EC (mg/m ³)	367 mg/m ³
Spain	VLA-EC (ppm)	100 ppm
Spain	Notes	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 transposición 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).
Sweden	Local name	Metyltertiärbutyleter
Sweden	nivågränsvärde (NVG) (mg/m ³)	110 mg/m ³ 110 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	30 ppm 30 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	367 mg/m ³ 367 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	100 ppm 100 ppm
United Kingdom	Local name	Methyl-tert-butyl-ether (Tertiary-butyl-methyl-ether)

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United Kingdom	WEL TWA (mg/m ³)	183.5 mg/m ³ 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 ³)	367 mg/m ³ 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)
Russian Federation	Local name	2-Метил-2-метоксипропан
Russian Federation	OEL Ceiling (mg/m ³)	300 mg/m ³
Russian Federation	OEL TWA (mg/m ³)	100 mg/m ³
Russian Federation	Remark (RU)	4 класс опасности - умеренно опасное; п (пары и/или газы)
Norway	Local name	tert-butylmetyleter (MTBE)
Norway	Grenseverdier (AN) (mg/m ³)	183.5 mg/m ³
Norway	Grenseverdier (AN) (ppm)	50 ppm
Norway	Grenseverdier (Korttidsverdi) (mg/m ³)	367 mg/m ³
Norway	Grenseverdier (Korttidsverdi) (ppm)	100 ppm
Norway	Merknader (NO)	E (EU har en veiledende grenseverdi for stoffet); S (Korttidsverdi er en verdi for gjennomsnittskonsentrasjonen av et kjemisk stoff i pustesonen til en arbeidstaker som ikke skal overskrides i en fastsatt referanseperiode. Referanseperioden er 15 minutter hvis ikke annet er oppgitt)
Switzerland	Local name	Methyl-tert-butylether
Switzerland	VME (mg/m ³)	180 mg/m ³
Switzerland	VME (ppm)	50 ppm
Switzerland	VLE (mg/m ³)	270 mg/m ³
Switzerland	VLE (ppm)	75 ppm
Switzerland	Remark (CH)	SS _C - OAW, Niere ^{KT AN} - NIOSH
Turkey	Local name	Tersiyer-bütül-metil-eter
Turkey	OEL TWA (mg/m ³)	183.5 mg/m ³
Turkey	OEL TWA (ppm)	50 ppm
Turkey	OEL STEL (mg/m ³)	367 mg/m ³
Turkey	OEL STEL (ppm)	100 ppm
Australia	Local name	Methyl-tert butyl ether
Australia	TWA (mg/m ³)	92 mg/m ³
Australia	TWA (ppm)	25 ppm
Australia	STEL (mg/m ³)	275 mg/m ³
Australia	STEL (ppm)	75 ppm
USA - ACGIH	Local name	Methyl tert-butyl ether
USA - ACGIH	ACGIH TWA (ppm)	50 ppm (Methyl-tert butyl ether (MTBE)); USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
USA - ACGIH	Remark (ACGIH)	URT irr; kidney dam

8.2. Exposure controls

Materials for protective clothing:

GIVE GOOD RESISTANCE: nitrile rubber. PVA. GIVE POOR RESISTANCE: natural rubber. butyl rubber. neoprene. PVC. viton

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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

Device	Filter type	Condition	Standard
Gas mask	Type AX - Low-boiling (<65 °C) organic compounds		



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 ³
pH	: No data available
Relative evaporation rate (butylacetate=1)	: 8.5
Relative evaporation rate (ether=1)	: 1.6
Melting point	: -108.6 °C
Freezing point	: No data available
Boiling point	: 55.3 °C
Flash point	: -30 °C
Critical temperature	: 224 °C
Auto-ignition temperature	: > 375 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 268 hPa (20 °C)
Vapour pressure at 50 °C	: 850 hPa (50 °C)
Critical pressure	: 34300 hPa
Relative vapour density at 20 °C	: 3
Relative density	: 0.74
Relative density of saturated gas/air mixture	: 1.5
Density	: 740 kg/m ³
Solubility	: Moderately soluble in water. Substance floats in water. Soluble in ethanol. Soluble in ether. Soluble in gasoline. Water: 4.2 g/100ml
Log Pow	: 1.06 (Experimental value)
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 0.0003 Pa.s (20 °C)
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 1.5 - 8.5 vol %

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9.2. Other information

Specific conductivity	: 16000 pS/m
Saturation concentration	: 1165 g/m ³
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 CO₂ 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

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

tert-Butyl methyl ether (1634-04-4)	
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
Respiratory or skin sensitisation	: 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
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 (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)

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12.2. Persistence and degradability

tert-Butyl methyl ether (1634-04-4)	
Persistence and degradability	Not readily biodegradable in water.

12.3. Bioaccumulative potential

tert-Butyl methyl ether (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 (1634-04-4)	
Surface tension	0.02 N/m (20 °C)

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods






Product/Packaging 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.

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
2398	2398	2398	2398	2398
14.2. UN proper shipping name				
METHYL TERT-BUTYL ETHER	METHYL tert-BUTYL ETHER	Methyl tert-butyl ether	METHYL TERT-BUTYL ETHER	METHYL tert-BUTYL ETHER
Transport document description				
UN 2398 METHYL TERT-BUTYL ETHER, 3, II, (D/E)	UN 2398 METHYL tert-BUTYL ETHER, 3, II (< -18°C c.c.)	UN 2398 Methyl tert-butyl ether, 3, II	UN 2398 METHYL TERT-BUTYL ETHER, 3, II	UN 2398 METHYL tert-BUTYL ETHER, 3, II
14.3. Transport hazard class(es)				
3	3	3	3	3
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

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14.6. Special precautions for user

- Overland transport

Classification code (ADR)	: F1
Limited quantities (ADR)	: 11
Excepted quantities (ADR)	: E2
Packing instructions (ADR)	: P001, IBC02, R001
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T7
Portable tank and bulk container special provisions (ADR)	: TP1
Tank code (ADR)	: LGBF
Vehicle for tank carriage	: FL
Transport category (ADR)	: 2
Special provisions for carriage - Operation (ADR)	: S2, S20
Hazard identification number (Kemler No.)	: 33
Orange plates	:



Tunnel restriction code (ADR) : D/E

- Transport by sea

Transport regulations (IMDG)	: Subject
Limited quantities (IMDG)	: 1 L
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC02
Tank instructions (IMDG)	: T7
Tank special provisions (IMDG)	: TP1
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-D
Stowage category (IMDG)	: E
Flash point (IMDG)	: below -18°C c.c.
Properties and observations (IMDG)	: Colourless liquid. Flashpoint: below -18°C c.c. Explosive limits: 1.7% to 8.4% Boiling point: 55°C. Immiscible with water.
MFAG-No	: 127

- Air transport

Transport regulations (IATA)	: Subject to the provisions
PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y341
PCA limited quantity max net quantity (IATA)	: 1L
PCA packing instructions (IATA)	: 353
PCA max net quantity (IATA)	: 5L
CAO packing instructions (IATA)	: 364
CAO max net quantity (IATA)	: 60L
ERG code (IATA)	: 3L

- Inland waterway transport

Classification code (ADN)	: F1
Limited quantities (ADN)	: 1 L
Excepted quantities (ADN)	: E2
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EX, A
Ventilation (ADN)	: VE01

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Number of blue cones/lights (ADN) : 1

- Rail transport

Transport regulations (RID) : Subject
Classification code (RID) : F1
Limited quantities (RID) : 1L
Excepted quantities (RID) : E2
Packing instructions (RID) : P001, IBC02, R001
Mixed packing provisions (RID) : MP19
Portable tank and bulk container instructions (RID) : T7
Portable tank and bulk container special provisions (RID) : TP1
Tank codes for RID tanks (RID) : LGBF
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE7
Hazard identification number (RID) : 33

14.7. Transport in bulk according to Annex II of Marpol 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

No REACH Annex XVII restrictions
tert-Butyl methyl ether is not on the REACH Candidate List
tert-Butyl methyl ether is not on the REACH Annex XIV List

VOC content : 100 %

15.1.2. National regulations

Germany

VwVwS Annex reference : Water hazard class (WGK) 1, low hazard to waters (Classification according to VwVwS, Annex 1 or 2; ID No. 1200)
WGK remark : Classification water polluting in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 27 July 2005 (Anhang 2)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Classification remarks : Emergency management guidelines for the storage of flammable liquids must be followed

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road

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ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
EC50	Median effective concentration
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail

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.

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

SDS ISOLAB

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product