

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1. Product identifier**

Name of the Substance: MTBE
Other names (synonyms): tert-butyl methyl ether
EC No.: 216-653-1
CAS No.: 1634-04-4
Index No.: 603-181-00-X
REACH Registration No.: 01-2119452786-27-0013

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

Relevant identified uses: automotive fuel (petrol) high-octane additive.
Uses advised against: no other use is recommended.

1.3. Details of the supplier of the safety data sheet

Manufacturer:
Public Company *ORLEN Lietuva*
Juodeikiai, LT-89453 Mažeikiai District, Lithuania
Tel.: +370 443 92121
E-mail address: post@orlenlietuva.lt

1.4. Emergency telephone number

Poison Information Bureau. In case of poisoning (24/7): +370 52 362052 or +370 687 53378
General helpline number in Europe (24/7): 112

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
For the full text of Hazard Statements: see SECTION 16.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 (CLP)
Signal word: DANGER
Hazard pictogram:



GHS02



GHS07

Hazard Statements:

H225: Highly flammable liquid and vapour.

H315: Causes skin irritation.

Precautionary statements:

P210: Keep away from heat, sparks, open flames, hot surfaces and other ignition sources. No smoking.

P243: Take precautionary measures against static discharge.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P403+P235: Store in a well-ventilated place. Keep cool.

P302+P352: IF ON SKIN: Wash with plenty of soap and water.

2.3. Other hazards



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Does not contain any substances assessed to be a PBT or a vPvB or having endocrine disrupting properties with concentration equal to or greater than 0.1 %.

Product is extremely flammable liquid which may generate explosive mixtures of hydrocarbon vapours and air at ambient temperatures.

Vapour is moderately irritating to skin, eyes and respiratory tract. Liquid product splashes is not readily irritate eyes and skin. Absorption by inhalation or ingestion of high doses may cause CNS damage.

Toxic to aquatic organisms. May cause long-term adverse effects to aquatic environment. Risk of soil and ground water contamination.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Substance Name	Concentration, %	Labelling according to CLP Regulation
MTBE EC No.: 216-653-1 CAS No.: 1634-04-4 Index No.: 603-181-00-X REACH Registration No.: 01-2119452786-27-0013	Up to 100	Flam. Liq. 2, H225 Skin Irrit. 2, H315
Methanol EC Nr.: 200-659-6 CAS Nr.: 67-56-1	0 – 5	Flam. Liquid 2, H225 Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 STOT SE 1, H370 (Optic nerve (nervus opticus), central nervous system)

Contains substances for which workplace exposure limit value is established.
Occupational exposure limits, if available, are listed in SECTION 8.
For 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

Before attempting to rescue casualties, isolate area from all potential sources of ignition including disconnecting electrical supply.

Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces.

Drench contaminated clothing with water before removing to avoid risk of sparks from static electricity.

Inhalation

If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not leave the victim unattended. Keep patient warm and at rest.

If the casualty:

- if breathing is difficult, give oxygen; If unconscious place in recovery position and seek medical advice; In the event of unconsciousness, apnea or cardiac arrests (no pulse) apply cardiopulmonary resuscitation.

Immediately seek medical attention if casualty has an altered state of consciousness or if symptoms do not resolve.

Skin Contact



Immediately flush affected area with plenty of soap and water for at least 15 minutes. While removing contaminated clothing and shoe. If irritation persists get medical advice/attention.

Eye Contact

Flush eyes with water thoroughly and continuously for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists get medical attention. The patient should be seen by an ophthalmologist.

Ingestion

Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration. Do not give milk or alcoholic beverages. Get medical attention immediately in case of ingestion high doses, assume that aspiration (chemical pneumonia) has occurred.

Never give anything by mouth to an unconscious person.

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

Inhalation of high concentrations vapours occur signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath and (or) fever. The onset of respiratory symptoms may be delayed. Absorption by inhalation or ingestion of high doses may cause CNS symptoms like headache, dizziness, fatigue, muscular, weakness, drowsiness and lack of coordination.

Skin contact – irritation.

Eye contact – slight irritation (unspecific).

Ingestion – may cause lung damage if swallowed (aspiration).

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

Treatment according to symptoms. In case of ingestion the stomach should be emptied by gastric lavage under qualified medical supervision. In case of ingestion, always assume that aspiration has occurred. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

SECTION 5: FIREFIGHTING MEASURES

Flammability

Highly flammable liquid.

5.1. Extinguishing media

Suitable extinguishing media:

SMALL FIRE: Use dry chemicals powder, CO₂, water spray or alcohol-resistant foam.

LARGE FIRE: Use water spray, water fog or alcohol-resistant foam.

Unsuitable extinguishing media:

Do not use solid water stream.

5.2. Special hazards arising from the substance or mixture

Combustion Products

Incomplete combustion is likely to give rise to a carbon monoxide and other toxic compounds.

Specific Hazards

Releases flammable vapors below normal ambient temperatures. Flammable vapors may be heavier than air. May travel long distances along the ground before igniting and flashing back to source of vapor. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined.

Move containers from fire area if you can do it without risk. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Always stay away from tanks engulfed in fire. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Further information



Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

5.3. Advice for firefighters

Wear positive pressure self-contained breathing apparatus (SCBA) and impervious protective clothes. Structural firefighter's protective clothing will only provide limited protection from MTBE.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Stop or contain leak at the source if safe to do so. Avoid direct contact with released material. MTBE is highly volatile, partially water soluble substance with very low flash point, any spillage or leak is severe fire or explosion hazard. Has only a minimal tendency to adhere to soil particles. Even small volumes can pose a threat to the environment and nearby water resources. Surface spills can reach groundwater through porous soil or cracked surfaces. All efforts should be made to prevent any leaks or spills, and to protect water resources. Where spills are possible, a comprehensive spill response plan should be developed and implemented. If a leak or spill reaches the groundwater, the groundwater may become contaminated. If the groundwater is a source of drinking water, the associated drinking water well(s) could become contaminated. MTBE can impart an unpleasant taste and odor to water at very low concentrations.

Stay upwind. In case of large spillages, alert occupants in downwind areas.

Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Except in case of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency. Eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares).

If required, notify relevant authorities according to all applicable regulations.

6.1.2. For emergency responders

Small spillages: normal antistatic working clothes are usually adequate. Large spillages: full body suit of chemically resistant and antistatic material. Work gloves providing adequate chemical resistance, specifically to aromatic hydrocarbons.

NOTE: gloves made of PVA are not water-resistant, and are not suitable for emergency use.

Work helmet. Antistatic non-skid safety shoes or boots. Goggles or face shield, if splashes or contact with eyes is possible or anticipated.

Respiratory protection: A half or full-face respirator with filter(s) for organic vapours or a Self Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used.

Ensure adequate ventilation. Evacuate personnel to safe areas.

Product is extremely flammable liquid, any spillage or leak is a severe fire or explosion hazard.

6.2. Environmental precautions

Spillages onto Land

Stop leak product if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Contain large spills with dike as necessary.

Water spray may reduce vapor; but may not prevent ignition in closed spaces.

When inside buildings or confined spaces, ensure adequate ventilation.

Spillages on water or at sea

Stop leak product if you can do it without risk. In case of small spillages in closed waters (i.e. ports), contain product with floating barriers or other equipment.

6.3. Methods and material for containment and cleaning up

Spillages onto Land



Absorbent or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. Place recovered product in salvage containers.

Spillages on Water or at Sea

Collect spilled product by absorbing with specific floating absorbents. Collect recovered product and other materials in suitable tanks or containers for recovery or safe disposal.

Additional information

NOTE: recommended measures are based on the most likely spillage scenarios for this material; however, local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions. For this reason, local experts should be consulted when necessary. Local regulations may also prescribe or limit actions to be taken.

Spillages of limited amounts of products, especially in the open air when vapours will be usually quickly dispersed, are dynamic situations, which are unlikely to entail exposure to dangerous concentrations. A possible exception may regard the build-up of dangerous concentrations in specific spots, like trenches, depressions or confined spaces. In all these circumstances, however, the correct actions should be assessed on a case-by-case basis.

6.4. Reference to other sections

See SECTION 8 for Exposure controls/personal protection. See SECTION 13 for Disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid release to the environment. Risk of explosive mixtures of vapour and air. Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products, are followed.

Keep away from ignition sources (sparks, open flames, hot surfaces) and strong oxidizing agents. No smoking.

Use and store only outdoors or in a well-ventilated area. Avoid contact with the product. Wear recommended personal protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Handling

During product transfer activities (loading and unloading of mobile tanks) and during sampling there is a risk of static electrical discharge, therefore precautionary measures against static electricity shall be taken.

Adequate hermetic mobile tanks should be used for MTBE transportation. Keep container tightly closed when not in use. Ground and bond containers, tanks and transfer/receiving equipment.

Avoid contact product with incompatible agents.

Carefully vent any internal pressure before removing closure. Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair. Handle empty containers with care; vapor/residue may be flammable. Use explosion-proof electrical, ventilating, lighting equipment, which conforms to applicable electric codes and regulatory requirements. Use only non-sparking tools.

The vapour is heavier than the air. Beware of accumulation in pits and confined spaces. Check atmosphere for explosiveness and oxygen deficiencies. Use personal protective equipment. Avoid contact with skin and eyes. Do not ingest. Avoid breathing vapours.

Storage

Storage area layout, tank design, equipment, electrical equipment and operating procedures must comply with the relevant European, national or local legislation. For product storage tanks or containers with floaters (pontoons), which are suitable for storage of extremely flammable liquids, shall be used. Storage installations should be designed with adequate bunds so as to prevent ground and water pollution in case of leaks or spills.



Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations. Before entering storage tanks and commencing any operation in a confined area check the atmosphere for oxygen content and flammability.

MTBE vapours can build up in the headspace of tanks that may cause flammability/explosion hazards; therefore static electrical discharge and ignition sources should be avoided when measuring product level or sampling in the tanks.

Recommended and Unsuitable Materials for Storage

Recommended materials: For containers (tanks), or container linings use carbon steel, stainless steel.

Unsuitable materials: some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Compatibility should be checked with the manufacturer.

Container Advice

Keep only in a suitable container for this kind of product. Keep containers tightly closed and properly labelled. Protect from the sunlight.

Flammable vapours can build up in the headspace of containers. These can cause flammability/explosion hazards. Do not weld, solder, drill, cut or grind containers, unless they have been properly cleaned.

Do not pressurize containers. Do not puncture or incinerate containers. Empty pressure vessels should be returned to the supplier.

Hygiene measures

Ensure that proper housekeeping measures are in place. Contaminated materials should not be allowed to accumulate in the workplace and should never be kept inside the pockets. Keep away from food and beverages. Do not eat, drink or smoke while using this product. Wash the hands thoroughly after handling. Change contaminated clothes at the end of working shift.

7.3. Specific end use(s)

Product is used as a component to fuel in spark-ignition (gasoline) internal combustion engines.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Substances for which occupational exposure limit values need to be controlled in the work environment:

MTBE, CAS No. 1634-04-4

Lithuanian Hygiene Standard HN 23:2011:

Substance Name	CAS No.	Limit value						Markers of health effects	Note
		Long-term exposure limit value (LTEL)		Short-term exposure limit value (STEL)		Threshold Limit Value (TLV)			
		mg/m ³	ppm	mg/m ³	ppm	mg/m ³	ppm		
MTBE	1634-04-4	183.5	50	367	100	-	-	Acute exposure	Lithuanian Hygiene Standard HN 23:2011

Exposure Limits

Comply with established national occupational exposure limits. Where not established, the following short-term exposure limit is recommended – 180 mg/m³.

Substance: MTBE CAS No. 1634-04-4			
State	Limit value – Eight hours	Limit value – Short term	Legal basis

	ppm	mg/m ³	ppm	mg/m ³	
Austria	50	180	100	360	Source: GESTIS International Limit Value Database
Belgium	40	146	100 ⁽¹⁾	367 ⁽¹⁾	Source: GESTIS International Limit Value Database
Canada	40	144			Source: GESTIS International Limit Value Database
Denmark	40	144	80	288	Source: GESTIS International Limit Value Database
European Union	50	183.5	100 ⁽¹⁾	367 ⁽¹⁾	Source: GESTIS International Limit Value Database
Finland	50	180	100 ⁽¹⁾	360 ⁽¹⁾	Source: GESTIS International Limit Value Database
France	50	183.5	100	367	Source: GESTIS International Limit Value Database
Germany	50	180	75 ⁽¹⁾	270 ⁽¹⁾	Source: GESTIS International Limit Value Database
Hungary		183.5		367 ⁽¹⁾	Source: GESTIS International Limit Value Database
Ireland	50	183.5	100 ⁽¹⁾	367 ⁽¹⁾	Source: GESTIS International Limit Value Database
Italy	50	183.5	100 ⁽¹⁾	367 ⁽¹⁾	Source: GESTIS International Limit Value Database
Latvia	50	183.5	100 ⁽¹⁾	367 ⁽¹⁾	Source: GESTIS International Limit Value Database
Norway	50	183.5	100 ⁽¹⁾	367 ⁽¹⁾	Source: GESTIS International Limit Value Database
Poland		180		270	Source: GESTIS International Limit Value Database
Romania	50	183.5	100 ⁽¹⁾	367 ⁽¹⁾	Source: GESTIS International Limit Value Database
Spain	50	183.5	100 ⁽¹⁾	367 ⁽¹⁾	Source: GESTIS International Limit Value Database
Sweden	30	110	100 ⁽¹⁾	367 ⁽¹⁾	Source: GESTIS International Limit Value Database
Switzerland	50	180	75	270	Source: GESTIS International Limit Value Database
The Netherlands		180		360 ⁽¹⁾	Source: GESTIS International Limit Value Database
Turkey	50	183.5	100 ⁽¹⁾	367 ⁽¹⁾	Source: GESTIS International Limit Value Database
United Kingdom	50	183.5	100 ⁽¹⁾	367 ⁽¹⁾	Source: GESTIS International Limit Value Database
Remarks					
Belgium	⁽¹⁾ 15 minutes average value				
European Union	⁽¹⁾ 15 minutes average value				
Finland	⁽¹⁾ 15 minutes average value				
Germany	⁽¹⁾ 15 minutes average value				
Hungary	⁽¹⁾ 15 minutes average value				
Ireland	⁽¹⁾ 15 minutes average value				
Norway	⁽¹⁾ 15 minutes average value				
Romania	⁽¹⁾ 15 minutes average value				
Spain	⁽¹⁾ 15 minutes average value				
Sweden	⁽¹⁾ 15 minutes average value				



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The Netherlands	(¹) 15 minutes average value
Turkey	(¹) 15 minutes average value
United Kingdom	(¹) 15 minutes average value

Biological limit values (BLV)

No biological limit value has been established for this substance.

Recommended monitoring procedures

Standard monitoring procedures must be followed.

Follow the monitoring measures applied in the country.

Derived No Effect Level DNEL

Derived No Effect Level (DNEL) or other conclusions of hazardous health effects:

Route of exposure	Type of exposure	Hazard assessment conclusion	Most sensitive endpoint
Workers			
Systemic effects			
Inhalation	Long term exposure	DNEL 178.5 mg/m ³	Repeated dose toxicity
Inhalation	Acute/short term exposure	No hazard identified	
Dermal	Long term exposure	DNEL 5100 mg/m ³ bw/day	Repeated dose toxicity
Dermal	Acute/short term exposure	No hazard identified	
Local effects			
Inhalation	Long term exposure	No hazard identified	
Inhalation	Acute/short term exposure	DNEL 357 mg/m ³	Irritation (respiratory tract)
Dermal	Long term exposure	No hazard identified	
Dermal	Acute/short term exposure	No hazard identified	Skin irritation/corrosion
Eyes	Local effects	No hazard identified	
General Population			
Systemic effects			
Inhalation	Long term exposure	DNEL 53.6 mg/m ³	Repeated dose toxicity
Inhalation	Acute/short term exposure	No hazard identified	
Dermal	Long term exposure	DNEL 3570 mg/m ³	Repeated dose toxicity
Dermal	Acute/short term exposure	No hazard identified	
Oral	Long term exposure	DNEL 7.1 mg/m ³	Repeated dose toxicity
Oral	Acute/short term exposure	No hazard identified	
Local effects			
Inhalation	Long term exposure	No hazard identified	
Inhalation	Acute/short term exposure	DNEL 214 mg/m ³	Irritation (respiratory tract)
Dermal	Long term exposure	No hazard identified	



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Dermal	Acute/short term exposure	No hazard identified	Skin irritation/corrosion
Eyes	Local effects	No hazard identified	

Predicted No Effect Concentrations PNEC

Hazard for aquatic organisms	
Freshwater	PNEC 5.1 mg/l
Freshwater	PNEC (intermittent releases):47.2 mg/l
Marine water	PNEC 0.26 mg/l
STP	PNEC STP 71 mg/l
Hazard for terrestrial organisms	
Soil	PNEC 1.56 mg/kg soil dw
Hazard for predators	
Secondary poisoning	No potential for bioaccumulation

8.2. Exposure controls

8.2.1. Appropriate engineering controls

During various technical and process operations MTBE vapour may be emitted into the environment, therefore provide adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

8.2.2. Individual protection measures, such as personal protective equipment

a) Eye/face protection

Wear safety glasses in circumstances where eye contact may occur (e.g. acc. to EN 166). Conditions may warrant the use of tightly fitting chemical goggles and possibly a face shield.

b) Skin protection

i) Hand protection

Wear product resistant protective gloves (e.g. acc. to EN 374). Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

ii) Other

For routine occupational should wear protective clothes (e.g. acc. to EN 465) and other protection equipment. Choose body protection according to the amount and concentration of the dangerous substance at the work place. Use personal protective equipment that is chemical resistant to the product and prevents skin contact. Protective clothing should be regularly inspected and maintained.

c) Respiratory protection

If during operations the exposure of employees to large amounts of product vapour and gas is inevitable, suitable respiratory protective equipment, such as respirator (e.g. according to EN 140) with type A filter or better or A2 filtering mask or analogous should be applied (e.g. according to EN 14387). When working in vessel internals or other confined spaces do not use filtering masks but the special self-contained protective equipment. Respiratory protection equipment should be selected and used in accordance with the manufacturer's instructions and requirements established by the law.

d) Thermal hazards

If applicable, use heat-resistant personal protective equipment.

Hygiene measures

Comply with personal hygiene requirements. Wash hands before breaks and after work. Wash immediately in case of skin contact. Take off contaminated clothing and wash before reuse.

8.2.3. Environmental exposure controls

To ensure the compliance of ventilation and process equipment with requirements of environmental legislation, emissions of such equipment are subject to verification. In some cases vapour filtering installations or process equipment modifications may be necessary for the reduction of emission to allowed limit.

Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

a) Physical state	Liquid
b) Colour	Clear, colourless
c) Odour	Odour characteristic to ether
d) Melting point/freezing point	~ minus 108 °C
e) Boiling point or initial boiling point and boiling range	~ 55 °C
f) Flammability	Flamable liquid
g) Lower and upper explosion limit	1.4–10 %
h) Flash point	~ minus 28 °C
i) Auto-ignition temperature	460 °C
j) Decomposition temperature	Not applicable
k) pH	Not applicable
l) Kinematic viscosity	~ 0,46 mm ² /s (at 20 °C)
m) Solubility	42 g/l (in water, at 20 °C)
n) Partition coefficient n-octanol/water (log value)	1.06 at 20 °C
o) Vapour pressure	~ 33 kPa (at 25 °C)
p) Density and/or relative density	~ 0.75 g/cm ³ (at 15 °C)
q) Relative vapour density	Vapours are heavier than air
r) Particle characteristics	Not applicable for liquids

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Based on the available data, meets the CLP Regulation criteria as Category 2 Flammable Liquids.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

This material is stable when properly handled and stored.

10.3. Possibility of hazardous reactions

Not expected to occur.

10.4. Conditions to avoid

High ambient temperature.

Avoid electrostatic discharges and other ignition sources.

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Product may accumulate static electrical charges, and may cause ignition of the vapors.

10.5. Incompatible materials

Avoid contact with strong oxidizing agents. Contact with strong acids can decompose this material and generate extremely flammable isobutene.

10.6. Hazardous decomposition products

Thermal decomposition products vary depending on conditions.

Partial decomposition produces fume, carbon dioxide, carbon monoxide and other harmful gases.

Concentration of toxic gas in a confined space or premises may reach a hazardous limit.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

a) acute toxicity

Not classified for acute oral toxicity based on an oral LD₅₀ > 2000 mg/kg bw (test method OECD 401).

Not classified for acute inhalation toxicity based on an inhalation LC₅₀ 85 mg/l air (test method equivalent or similar to OECD 403).

Not classified for acute dermal toxicity based on a dermal LD₅₀ of > 2000 mg/kg body weight (test method OECD 402).

b) skin corrosion/irritation

Classified as irritating to the skin, Cat. 2, H315: Causes skin irritation. Test method OECD 404.

c) serious eye damage/irritation

Does not meet the classification criteria based on available data. Test method OECD 405.

d) respiratory or skin sensitisation

Does not meet the classification criteria based on available data (test method equivalent or similar to OECD 406).

e) germ cell mutagenicity

Does not meet the classification criteria based on available data (weight of evidence approach).

f) carcinogenicity

Does not meet the classification criteria based on available data (weight of evidence approach).

g) reproductive toxicity

Does not meet the classification criteria based on available data (weight of evidence approach).

h) STOT-single exposure

Does not meet the classification criteria based on available data (weight of evidence approach).

i) STOT-repeated exposure

Does not meet the classification criteria based on available data (weight of evidence approach).

j) aspiration hazard

Does not meet the classification criteria based on available data (weight of evidence approach).

Symptoms related to the physical, chemical and toxicological characteristics, delayed and immediate effects as well as chronic effects from short and long-term exposure

Vapour of low concentration is slightly irritating to eyes and respiratory system. The liquid product, when in contact with the eyes, may cause transient eye stinging or redness, and if splashed on the skin, it may slightly irritate the skin.

Unlikely to cause harm if swallowed in small amounts, though larger quantities may cause nausea and aspiration.

Prolonged or repeated contact with product may cause nausea, dizziness, headache and drowsiness; possible chemical pneumonitis.

NOTE. Product handling under typical conditions does not pose a toxicological hazard; however, even a short deliberate inhalation of large quantity of high concentration of product vapour may effects on the CNS.

11.2 Information on other hazards

Endocrine disrupting properties

Not applicable. The substance is not considered an endocrine disruptor.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Does not meet the classification criteria as harmful to aquatic organisms based on available data.

Short term toxicity to fish

The 96 h LC₅₀ for freshwater fish (*Pimephales promelas*) is 672 mg/l (based on data of similar substances).

The 96 h LC₅₀ for marine fish (*Menidia beryllina*) is 574 mg/l (based on data of similar substances).

Long-term toxicity to fish

The 21-day NOEC is considered as 62 mg/l in the freshwater fish *Pimephales promelas* (based on data of similar substances).

Short-term toxicity to aquatic invertebrates

EC₅₀ (*Daphnia magna*, 48 h) 472 mg/l (based on data of similar substances).

For marine invertebrates the harmonised 96-h LC₅₀ of 106 mg/l in *Americamysis bahia* (based on data of similar substances).

Long-term toxicity to aquatic invertebrates

NOEC 21-day value 51 mg/l in *Daphnia magna*.

For marine invertebrates the 28 day NOEC is 26 mg/l found in *Americamysis bahia*.

Toxicity to aquatic algae and cyanobacteria

IC₂₀ (*Pseudokirchnerella subcapitata*, 96 h) value 103 mg/l. The IC₅₀ (*Pseudokirchnerella subcapitata*, 96 h) is 491 mg/l.

Toxicity to microorganisms

Nominal concentrations of MTBE for *Rana temporaria* is 100 to 10000 mg/l.

12.2. Persistence and degradability

The product is inherently biodegradable. At ambient temperatures disperse in the atmosphere.

12.3. Bioaccumulative potential

The product is not considered bioaccumulative.

12.4. Mobility in soil

Spillage, depending on the ambient temperatures, may evaporate in significant quantities, and the rest of the spilled product may penetrate the soil and contaminate ground waters.

12.5. Results of PBT and vPvB assessment

This substance does not contain constituents included in the SVHC candidate list as PBT/vPvB at concentrations above 0.1%.

12.6. Endocrine disrupting properties

This material does not contain any hydrocarbon structures that have been identified as having endocrine disrupting properties at concentrations equal to or greater than 0.1%.

12.7. Other adverse effects

No data available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste is disposed of by de-harming it in accordance with national requirements and local regulations or via a licensed waste disposal contractor. Identify the hazards of waste handling and undertake required safety measures. Personal protective equipment is necessary for waste managing personnel.

Contaminated product, soil or water may be hazardous waste due to potentially low flash point of MTBE. Dispose of in compliance with respective national and local regulations. Assure effluent complies with applicable regulations. Landfill solids at permitted sites.

Burn concentrated liquids in systems designed for low flash point material. Avoid flame-outs. Assure emissions comply with applicable regulations. Dilute aqueous waste may biodegrade.

Empty tanks and tank cars may contain some remaining product; therefore, hazard-warning labels are to be retained as a guide to the safe tank handling and waste disposal.

DO NOT weld, solder and repair in other ways the tanks without proper preparation.

SECTION 14: TRANSPORT INFORMATION

Labels



Marine pollutant

Land transport (ADR-RID)

14.1. UN number or ID number

2398

14.2. UN proper shipping name

UN 2398, METHYL tert-BUTYL ETHER

14.3. Transport hazard class(es)

3

14.4. Packing group

II

14.5. Environmental hazards

Environmentally hazardous.

14.6. Special precautions for user

Hazard identification No. 33

Classification code F1

Labels 3

Tunnel restriction code 2 (D/E)

For details on special provisions, see In chapter 3.3 of the ADR / RID regulation.

See also SECTION 7 of the SDS for handling and storage advice.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

Inland waterway transport (UN RTDG/ADN(R))

14.1. UN number or ID number

2398

14.2. UN proper shipping name

UN 2398, METHYL tert-BUTYL ETHER

14.3. Transport hazard class(es)

3

14.4. Packing group

II

14.5. Environmental hazards

Environmentally hazardous.

14.6. Special precautions for user



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Classification code F1
Labels 3
Equipment required PP, EX, A

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

Marine transport (UN RTDG/IMDG)

14.1. UN number or ID number

2398

14.2. UN proper shipping name

UN 2398, METHYL tert-BUTYL ETHER

14.3. Transport hazard class(es)

3

14.4. Packing group

II

14.5. Environmental hazards

Environmentally hazardous.

14.6. Special precautions for user

EmS number F-E, S-D
Limited and excepted quantities 1 L
IBC instructions IBC02
2398 is category E for stacking and separation

14.7. Maritime transport in bulk according to IMO instruments

IMO tank instructions -

Air transport (UN RTDG/ICAO/IATA)

14.1. UN number or ID number

2398

14.2. UN proper shipping name

UN 2398, METHYL tert-BUTYL ETHER

14.3. Transport hazard class(es)

3

14.4. Packing group

II

14.5. Environmental hazards

Environmentally hazardous.

14.6. Special precautions for user

Not known.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: REGULATORY INFORMATION

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

Relevant EU/international legislations:

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

**SAFETY DATA SHEET**Acc. to Regulation (EC) No. 1907/2006 (REACH), Annex II
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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 (CLP)
Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
Council Regulation (EC) No 440/2008 of 30 May 2008 laying down test methods pursuant to Regulation (EC) No 1907/2006 (REACH)
Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste
Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances
Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work
Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work
Council Directive 94/33/EC of 22 June 1994 on the protection of young people at work
European Agreement on the International Carriage of Dangerous Goods by Road / Waterways (ADR / MDG)
European Agreement on the International Carriage of Dangerous Goods by Air (IATA)
2000/532/EC: Commission Decision of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes
Regulation (EC) No 1907/2006 (REACH):
SVHC (Candidate List of substances of very high concern for Authorisation): Not applicable
REACH Annex XIV (Authorisation List): Not applicable
REACH Annex XVII (Substances restricted under REACH): Not applicable
Regulation (EU) No 649/2012 (PIC): Not applicable
Regulation (EC) No 850/2004 (POT): Not applicable
Regulation (EC) No 1107/2009 (Plant protection products): Not applicable
Regulation (EU) No 528/2012 (Biocidal products): Not applicable
Regulation (EC) No 648/2004 (Detergents): Not applicable
Regulation (EC) No 1005/2009 (OSAM): Not applicable
Directive 2004/37/EC (related to exposure to carcinogens or mutagens at work): Not applicable

Note: Any subsequent updates, amendments and/or additions to the legislation should be duly considered. The list of legal acts is not exhaustive.

15.2. Chemical safety assessment

Chemical safety assessment has been conducted.

SECTION 16: OTHER INFORMATION

Revision of safety data sheet: 2022-12-09

Revised: all sections.

During the review of the SDS, the data presented were clarified and arranged in accordance with the European Commission Regulation (EU) No. 2020/878 requirements.

Abbreviations and acronyms:

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

ADR Agreement concerning the International Carriage of Dangerous Goods by Road

BLV Biological limit values

CAS Chemical Abstracts Service

CLP	Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
DNEL	Derived No-Effect Level
EC	EINECS (European Inventory of Existing Commercial Chemical Substances) or ELINCS (European List of Notified Chemical Substances)
EL ₅₀	Effective loading rate resulting in 50% effect
EmS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EN	European standard of European Committee for Standardization
ErL ₅₀	Loading Rate of Test Substance (in dilution water) which causes 50% reduction in algal growth rate
EU	European Union
IATA	International Air Transport Association
IBC	Intermediate bulk container
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
IMO	International Maritime Organization
JT	United Nations
LC ₅₀	Lethal concentration for 50 % percent of test organisms
LD ₅₀	Lethal dose for 50 % of test organisms (median lethal dose)
LL ₅₀	Lethal load for 50 % of the test organisms
LR	Republic of Lithuania
LTEL	Long-term exposure limit value
NOAEC	No observed adverse effect concentration
NOAEL	No observed adverse effect level
NOEL	Non observed effect level
OECD	Organization for Economic Cooperation and Development
PBT	Persistent, bioaccumulative and toxic
PNEC	Predicted no-effect concentration
RCR	Risk characterization ratio
RID	The Regulation concerning the International Carriage of Dangerous Goods by Rail
RTDG	Recommendations on the Transport of Dangerous Goods
REACH	Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL	Short-term exposure limit value
STOT	Specific target organ toxicity
UFI	Unique Formula Identifier
UVCB	Substance of unknown or variable composition, complex reaction products or biological materials
vPvB	very Persistent and very Bioaccumulative

Full text of Hazard Statements:

H225: Highly flammable liquid and vapour.

H315: Causes skin irritation.

Key literature references and sources for data

Registration documentation

Publicly available data from the national limit value databases of the European Chemicals Agency (ECHA), The GESTIS International Limit values Database.

Training advice

Employees/users must be trained/familiarized with the relevant safety information provided.

Do not use the product for any purposes other than indicated in the manufacturer's information.

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During such use the user may be exposed to unforeseen hazards.

Should you have any questions or doubts regarding SDS, its contents or any other concerns related to safety of the product, please contact us by e mail: post@orlenlietuva.lt

NOTE: Information provided herein is considered to be accurate as of the date specified below. No warranty is made as to the accuracy or completeness of the data and information provided in this MSDS. Information provided herein serves only as guidelines for safe work, use, processing, storage, and waste handling. It cannot be considered as a warranty or statement of quality. This information applies only to the specific product and may not be suitable for use of the product in combination with any other substances or in any other manner contrary to that described in this document.

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