



Preparing for the New Era of Laboratories

MATERIAL SAFETY DATA SHEET (MSDS)

According to regulation (EU) no.1907/2006

TERT-BUTYL METHYL ETHER AR

PRODUCT CODE : B-3070

CAS No : 1634-04-4

FORMULA : $C_5H_{12}O$

UN No : 2398

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MSDS Number : 0388

Date : Sept 2nd, 2024

Version : 1.0

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

- 1.1 Product Name** : TERT-BUTYL METHYL ETHER AR
Synonyms : Methyl tert-butyl ether, MTB, MTBE
CAS No. : 1634-04-4
HS Code : 2909 30 90
Chemical Formula : $(CH_3)_3COCH_3$ Hill : $C_5H_{12}O$
Molecular Weight : 88.15 g/mol
Product Code : B-3070
Brand : Labotiq
1.2 Manufacturer : Labotiq
Address : Jl.Terapi Raya AD2-Bumi Menteng Asri Bogor, Jawa Barat Indonesia – 16111
Website : www.labotiq.net
Email : labotiq.id@gmail.com
For information : Phone : (+62-251) 839110, 8311662, Fax : (+62-251) 83135710
Emergency number : +6281316894650
1.3 Application : Laboratory chemicals, Manufacture of substances, General Chemical reagent

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 2), H225

Skin irritation (Category 2), H315

For the full text of the H-Statements mentioned in this Section, see Section 16

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word

Danger

Hazard statement(s)

H225

Highly flammable liquid and vapour.

H315

Causes skin irritation.

Precautionary statement(s)

P210

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

P233

Keep container tightly closed.

P240

Ground and bond container and receiving equipment.

P241

Use explosion-proof electrical/ ventilating/ lighting/ equipment.

P242

Use non-sparking tools.

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P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

Supplemental Hazard Statements

none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Methyl tert-butyl ether, MTB, MTBE
 Formula : $(CH_3)_3COCH_3$ Hill : $C_5H_{12}O$
 Molecular weight : 88.15 g/mol
 CAS-No. : 1634-04-4
 EC-No. : 216-653-1
 Index-No. : 603-181-00-X

3.2 Mixture

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
tert-Butyl methyl ether CAS-No. 1634-04-4 EC-No. 216-653-1 Index-No. 603-181-00-X	Flam. Liq. 2; Skin Irrit. 2; H225, H315	<=100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂) Foam Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given

5.2 Special hazards arising from the substance or mixture

Carbon oxides Combustible.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.

Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing.

Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place.

Keep away from heat and sources of ignition.

Storage class

Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls

Appropriat engineering controls

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de). Splash contact Material: Nitrile rubber Minimum layer thickness: 0,4 mm Break through time: 120 min Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0,4 mm

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Break through time: 120 min

Material tested: Camatril®

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: Filter type AX

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Form: liquid
	Colour colourless
Odour	characteristic
Odour Threshold	0,053 ppm
pH	No data available
Melting point/freezingpoint	Melting point: -108,6 °C at 1.013 hPa
Initial boiling point and boiling range	55 - 56 °C - lit.
Flash point	-28 °C - closed cup
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or	Upper explosion limit: 8,5 % (V)
	Lower explosion limit: 1,6 % (V)
explosive limits	No data available
Vapour pressure	330 hPa at 25 °C - OECD Test Guideline 104
Vapour density	No data available
Relative density	0,74 g/cm ³ at 25 °C - lit.
Water solubility	42 g/l at 20 °C - OECD Test Guideline 105
Partition coefficient: noctanol/water	log Pow: 1,06 at 20 °C - OECD Test Guideline 107 -
	Bioaccumulation is not expected.
Auto-ignition temperature	460 °C at 1013,0 hPa - DIN 51794
Decomposition temperature	Distillable in an undecomposed state at normal pressure.
Viscosity	Viscosity, kinematic: 0,409 mm ² /s at 40 °C - OECD Test Guideline 114
	Viscosity, dynamic: 0,36 mPa.s at 20 °C
Explosive properties	No data available
Oxidizing properties	No data available

9.2 Other safety information

Surface tension	72,5 mN/m at 1,07g/l at 21,5 °C - Surface tension
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SECTION 10: Stability and reactivity

10.1 Reactivity

Vapors may form explosive mixture with air

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Violent reactions possible with: Oxidizing agents Strong acids halogens Strong bases

10.4 Conditions to avoid

Heat, flames and sparks. Warming.

10.5 Incompatible materials

rubber, various plastics

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 Oral - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 401) Symptoms: Nausea, Vomiting, Pulmonary failure possible after aspiration of vomit., Aspiration may cause pulmonary edema and pneumonitis.

LC50 Inhalation - Rat - male and female - 4 h - 85 mg/l (OECD Test Guideline 403) Symptoms: Possible damages:, mucosal irritations LD50 Dermal - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 402)

Acute inhalation toxicity

LC50 Rat: 85 mg/l; 4 h ; vapour OECD Test Guideline 403 Symptoms: Possible damages:, mucosal irritations

Acute dermal toxicity

LD50 Rabbit: > 2.000 mg/kg OECD Test Guideline 402

Skin corrosion/irritation

Skin - Rabbit Result: Skin irritation - 4 h (OECD Test Guideline 404)
Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation

Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation

Maximization Test - Guinea pig Result: negative (OECD Test Guideline 406)

Germ cell mutagenicity

No data available

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Test Type: In vitro mammalian cell gene mutation test
 Test system: Chinese hamster lung cells Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 476
 Result: negative Test Type: Ames test

Test system: Salmonella typhimurium
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative Test Type: Mutagenicity (mammal cell test): micronucleus. Test system: mouse lymphoma cells Metabolic activation: without metabolic activation
 Method: OECD Test Guideline 473
 Result: negative Test
 Type: unscheduled DNA synthesis assay
 Species: Mouse Cell type: Liver cells Application
 Route: inhalation (vapor)
 Method: OECD Test Guideline 486
 Result: negative
 Test Type: Micronucleus test Species: Mouse Cell type: Bone marrow
 Application Route: inhalation (vapor)
 Method: US-EPA Result: negative Test Type: Mutagenicity (mammal cell test): chromosome aberration. Species: Rat

Cell type: Bone marrow
 Application Route: inhalation (vapor)
 Method: US-EPA Result: negative Test
 Type: Transgenic rodent somatic cell gene mutation assay
 Species: Rat Cell type: Bone marrow
 Application Route: inhalation (vapor)
 Method: OECD Test Guideline 488
 Result: negative

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 3.000 mg/kg
 Remarks: Subchronic toxicity

RTECS: KN5250000 Nausea, Vomiting, Dizziness, Central nervous system depression, Aspiration or inhalation may cause chemical pneumonitis., MTBE (methyl-tert-butyl ether) is reported to metabolize to tert-butyl alcohol and formaldehyde by microsomal demethylation, MTBE (methyl-tertbutyl ether) should be considered a "potential human carcinogen" due to an increase in leydig

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interstitial cell tumors of testes in male rats and an increase in lymphomas, leukemias, and uterine sarcomas in female rats., In another unpublished study MTBE was shown to be carcinogenic due to "increased incidence of a rare type of kidney tumor" in male rats and an "increase in the incidence of hepatocellular adenomas" in female mice. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated

SECTION 12: Ecological information**12.1 Toxicity***Toxicity to fish semi-static test*

LC50 - Menidia beryllina - 574 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates

flow-through test EC50 - Americamysis bahia (Mysid) - 187 mg/l - 96 h (US-EPA OPPTS 850.1035)

Toxicity to algae

static test IC50 - Pseudokirchneriella subcapitata (green algae) - 491 mg/l - 96 h

Toxicity to bacteria

static test EC10 - Pseudomonas putida - 710 mg/l - 18 h Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: 0 % - Not readily biodegradable. (OECD Test Guideline 301D))

12.3 Bioaccumulative potential

Bioaccumulation Cyprinus carpio (Carp) - 28 d at 25 °C(tert-butyl methyl ether)

Bioconcentration factor (BCF): 1,5

12.4 Mobility in soil

No data available(tert-Butyl methyl ether)

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product**

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. Only for Italy-Do not translate!!! See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions. This Phrase is only for slovenian purposes. Do not translate in other languages! Special phrase only for Poland! (chapter 13, product) Notice Directive on waste 2008/98/EC.

Contaminated packaging

Dispose of as unused product.

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SECTION 14: Transport information

14.1 UN number

ADR/RID: 2398

IMDG: 2398

IATA: 2398

14.2 UN proper shipping name

ADR/RID: METHYL tert-BUTYL ETHER

IMDG: METHYL tert-BUTYL ETHER

IATA: Methyl tert-butyl ether

14.3 Transport hazard class(es)

ADR/RID: 3

IMDG : 3

IATA: 3

14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H225 Highly flammable liquid and vapor.

H315 Causes skin irritation.

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Labotiq shall not be held liable for any damage resulting from handling or from contact with the above product.

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