

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

1.1 Product identifier

Product name	METHYL-t-BUTYL ETHER
CAS-No.	1634-04-4
Product code	AR1125, GP1125, LC1125, LV1125, PS1125, RP1125

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

Identified uses	Chemical for analysis and production.
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1.3 Details of the supplier of the safety data sheet

Company	RCI LABSCAN LIMITED. 24 Rama 1 Road, Pathumwan, Bangkok 10330 Thailand
Telephone number	(662) 613-7911-4
Fax number	(662) 613-7915

1.4 Emergency Telephone Number

Emergency phone	(662) 613-7911-4
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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.

P242

Use non-sparking tools.

P243

Take action to prevent static discharges.

P264

Wash hand thoroughly after handling.

P280

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

P302 + P352

IF ON SKIN: Wash with plenty water.

P303 + P361 + P353

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

P332 + P317

If skin irritation occurs: Get medical help.

P362 + P364 Take off contaminated clothing and wash it before reuse.
 P403 + P235 Store in a well-ventilated place. Keep cool.

2.3 Other hazards None

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms tert-Butyl methyl ether, 1, 1-Dimethylethyl methyl ether, 2-Methoxy-2-methylpropane, Methyl-1,1-dimethylethyl ether, tert-Butoxymethane, 2-Methyl-2-methoxypropane, MtBE, 2-Methyl butane-2-ol.

CAS-No	EC-No	EC-Index-No	Formula	Molecular Weight	Weight %
1634-04-4	216-653-1	603-181-00-X	CH ₃ OC(CH ₃) ₃	88.15 g/mol	<=100

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

Component	Concentration	Classification
Methyl-t-butyl ether		
CAS-No 1634-04-4	<=100%	Flammable liquids (Category 2), H225 Skin irritation (Category 2), H315
EC-No 216-653-1		
EC-Index-No 603-181-00-X		

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	Show this safety data sheet to the doctor in attendance.
Inhalation	Move to fresh air in case of accidental inhalation of vapors. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus.
Skin contact	Remove contaminated clothing and wash affected skin with soap and water. If signs of poisoning appear, treat as for inhalation. Obtain medical attention. Wash contaminated clothing before reuse. Contaminated combustible material, e.g. clothing ignites more readily and burns fiercely.
Eye contact	If the substance has got into the eyes, immediately wash out with plenty of water at least 15 minutes. Obtain medical attention.
Ingestion	Rinse mouth. Do not induce vomiting. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus. Obtain medical attention. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2.2 and section 11

4.3 Indication of any immediate medical attention and special treatment needed

After swallowing: caution if victim vomits. Risk of aspiration. Keep airways free.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Extinguish with carbon dioxide, dry chemical or foam. In the event of fire, cool tanks with water spray.

5.2 Special hazards arising from the substance or mixture

Vapors may form explosive mixture with air at ambient temperature. Flash back possible over considerable distance.

5.3 Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

5.4 Further information

Standard procedure for chemical fires. Take measures to prevent electrostatic charging. Prevent firefighting water from entering surface water or groundwater.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Do not breathe vapors or spray mist. Wear a positive-pressure supplied-air respirator, flame retardant antistatic protective clothing. Shut off leaks if without risk. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Contain or absorb leaking liquid with sand or earth, consults an expert. Prevent liquid entering sewers, basements and workpits. If substance has entered a water course or sewer or contaminated soil, advise police.

6.3 Methods and materials for containment and cleaning up

Spillage: May react with combustible substances creating fire or explosion hazard and formation of toxic fumes. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Soak up with inert absorbent material (e.g. sand, silica gel or chemical absorbent pads). Prevent liquid entering sewers, basements and workpits; vapor may create explosive atmosphere. Transfer to covered steel drums. Dispose of promptly.

6.4 Reference to other sections

For disposal see **Section 13**.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep container tightly closed. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Do not empty into drains.

7.2 Conditions for safe storage, including any incompatibilities

Keep tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep out of direct sunlight and away from incompatible materials. Store in original container. Electrical equipment should be protected to the appropriate standard.

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

Appropriate engineering controls

The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Ventilation hoods and fans required when working with organic solvents or in hot melt applications.

Individual protection measures (Personal protective equipment, PPE)

Eye/face protection

Goggles giving complete protection to eyes.

Skin protection

Chemical resistant apron / flame retardant antistatic protective clothing, heavy duty work shoes.

Handle with gloves

- Splash contact wears gloves from nitrile rubber material.

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

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are generated filter AX (EN 371).

Environmental exposure controls

Prevent liquid entering sewers, basements and workpits.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: Form	Liquid
: Color	Colorless
Odour	Characteristic
Odour Threshold	Not Available
pH	Not Available
Melting point/range	-108.6 °C
Boiling point/range	55.3 °C at 1013 hPa
Flash point	-28 °C (closed cup)
Evaporation rate	Not Available
Flammability (solid, gas)	Not Available
Explosion limits: lower	1.5 % (V)
upper	8.5 % (V)
Vapor Pressure	268 hPa at 20°C
Relative Vapor Density	2.60
Density	0.740 g/ml at 20°C
Water solubility	42 g/l at 20°C
Partition coefficient (n-octanol/water)	log Pow: 1.06
Auto-Ignition temperature	460 °C
Decomposition Temperature	Not Available
Viscosity	0.36 mPa.s at 20°C
Explosive properties	Not Explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

SECTION 10: Stability and reactivity

10.1 Reactivity

Highly inflammable. Light-sensitive.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

The substance can react dangerously with oxidizing agent, strong acids, halogens, strong bases.

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Oxidizing agent, strong acids, halogens, strong bases.

Unsuitable working material is various plastics, rubber.

10.6 Hazardous decomposition products

Peroxide, Carbon monoxides, Carbon dioxides (Hazardous decomposition products from under fire condition).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LC₅₀ (inhalation, rat): 85 mg/l /4h.

LD₅₀ (oral, rat): > 2000 mg/kg.

LD₅₀ (dermal, rabbit): 2000 mg/kg.

Acute oral toxicity

Absorption

Symptoms : nausea and vomiting. Aspiration may cause pulmonary oedema and pneumonitis.

Acute inhalation toxicity

Absorption

Symptoms: mucosal irritations, irritation symptoms in the respiratory tract. In high concentrations: unconsciousness..

Skin corrosion/irritation

Slight irritations. Danger of skin absorption. Drying out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation

Not Available

Respiratory or skin sensitization

Sensitization test (Magnusson and Kligman): No sensitizing effect.

Germ cell mutagenicity

Bacterial mutagenicity: Salmonella typhimurium: negative.

Mutagenicity (mammal cell test): micronucleus negative.

Carcinogenicity

Not Available

Reproductive toxicity

Not Available

Teratogenicity

Not Available

Specific target organ toxicity (STOT) - single exposure

Not Available

Specific target organ toxicity (STOT) - repeated exposure

Not Available

Aspiration hazard

Not Available

Further information

After accidental swallowing the substance may pose a risk of aspiration. Passage into the lung (vomiting) can result in a condition resembling pneumonia (chemical pneumonitis).

After absorption of large quantities: drowsiness, dizziness, euphoria, excitation, spasms in certain circumstances narcosis.

The product should be handled with the care usual when dealing with chemicals.

SECTION 12: Ecological information**12.1 Toxicity**

Toxicity to fish	LC ₅₀ P.promelas : 672 mg/l /96h.
Toxicity to daphnia and other aquatic invertebrates	EC ₅₀ Daphnia magna: 651 mg/l /48h.
Toxicity to algae	IC ₅₀ Desmodesmus subspicatus : >800 mg/l /72h.
Toxicity to bacteria	EC ₁₀ Ps. Putida : 700 mg/l /18h.

12.2 Persistence and degradability

Biodegradability 2% /28 d, Not readily biodegradable.

12.3 Bioaccumulative potential

Partition coefficient (n-octanol/water) log Pow: 1.06 (experimental).
No bioaccumulation is to be expected (log P o/w 1-3)

12.4 Mobility in soil

Not Available

12.5 Other adverse effects

Do not allow to enter waters, waste water or soil.

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

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding law and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste or burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Contaminated packaging

Disposal in compliance with official regulations. Handle contaminated packaging as hazardous waste in the same way of the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

SECTION 14: Transport information**Land Transport (ADR/RID)**

UN Number	2398
UN proper shipping name	METHYL tert-BUTYL ETHER
Transport hazard class(es)	3
Packing group	II
Environmental hazards	No
Special precautions for user	Yes

Sea transport (IMDG)

UN Number	2398
UN proper shipping name	METHYL tert-BUTYL ETHER
Transport hazard class(es)	3
Packing group	II
Marine pollutant	No
Special precautions for user	Yes
EmS	F-E S-D

Air transport (IATA)

UN Number	2398
UN proper shipping name	METHYL tert-BUTYL ETHER
Transport hazard class(es)	3
Packing group	II
Environmental hazards	No
Special precautions for user	No

River transport (AND/ADNR)

(Not examined)

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

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

Not Available

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 vapour.
H315	Causes skin irritation.

Recommended restrictions

Take notice of labels and safety data sheets for the working. Chemicals Take necessary action to avoid static electricity discharge.

Reference

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
 Labelling according to EC Directives 67/548 EEC and Regulation (EC) No 1272/2008.
 Transportation information according to Recommendations on the Transport of Dangerous Goods, Model Regulations. Twelfth revised edition. United Nations.

Institute for Occupational Safety and Health of the German Social Accident Insurance in Sankt Augustin/Germany,
Source: IFA for Databases on hazardous substances (GESTIS).

Further information

Contact to RCI Labscan Limited.

Revision Date

01/05/2021

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.