Product name:
tert- Butyl methyl ether

Cat No:
B142

Synonyms:
MTBE, Methyl tert-butyl ether

CAS-No. :
1634-04-4

Company Information:
LEONID CHEMICALS Pvt Ltd,

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Flammable liquids (Category 2)
Skin irritation (Category 2)
Classification according to EU Directives 67/548/EEC or 1999/45/EC
Highly flammable. Irritating to skin.
Label elements
Labelling according Regulation (EC) No 1272/2008 [CLP]
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/sparks/open flames/hot surfaces. - No smoking.
Supplemental Hazard
Statements

none
According to European Directive 67/548/EEC as amended.
Hazard symbol(s)
R-phrase(s)
R11 Highly flammable.
R38 Irritating to skin.
S-phrase(s)
S 9 Keep container in a well-ventilated place.
S16 Keep away from sources of ignition - No smoking.
S24 Avoid contact with skin.
Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula: $C_5H_{12}O$
Molecular Weight: 88.15 g/mol
CAS-No.: 1634-04-4

4. FIRST AID MEASURES

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
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Flush eyes with water as a precaution.
If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Most important symptoms and effects, both acute and delayed
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-tert-butyl ether) should be considered a
"potential human carcinogen" due to an increase in leydig 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an increase in lymphomas, leukemias, and uterine sarcomas in female rats., In another unpublished study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.

Indication of any immediate medical attention and special treatment needed

no data available

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

Carbon oxides

Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage, including any incompatibilities

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

Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Specific end uses
no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Components with workplace control parameters
Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment
Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique
(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
Wash and dry hands.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Body Protection
impervious clothing, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
a) Appearance Form: liquid
b) Odour: no data available
c) Odour Threshold: no data available
d) pH: no data available
e) Melting point/freezing point: no data available

f) Initial boiling point and boiling range: 55 - 56 °C - lit.
g) Flash point: -33.0 °C - closed cup
h) Evaporation rate: no data available
i) Flammability (solid, gas): no data available
j) Upper/lower flammability or explosive limits
Upper explosion limit: 15.1 %(V)
Lower explosion limit: 1.6 %(V)
k) Vapour pressure: 1.018,7 hPa at 55.0 °C
: 279.2 hPa at 20.0 °C
l) Vapour density: no data available
m) Relative density: 0.74 g/cm3 at 25 °C
n) Water solubility: no data available
o) Partition coefficient: noctanol/waterlog Pow: 1,77log Pow: 0.94
p) Autoignition temperature: 374.0 °C
q) Decomposition temperature: no data available
r) Viscosity: no data available
s) Explosive properties: no data available
t) Oxidizing properties: no data available

Other safety information
no data available

10. STABILITY AND REACTIVITY

Reactivity
no data available
Chemical stability
no data available
Possibility of hazardous reactions
no data available
Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.
Incompatible materials
Oxidizing agents, Strong acids
Hazardous decomposition products
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity
LD50 Oral - rat - 4.000 mg/kg
LC50 Inhalation - rat - 4 h - 23576 ppm
Skin corrosion/irritation

Skin - rabbit - Skin irritation
Serious eye damage/eye irritation
Eyes - rabbit - No eye irritation
Respiratory or skin sensitization
Will not occur
Germ cell mutagenicity
no data available
Carcinogenicity
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (tert-Butyl methyl ether)
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
Potential health effects
Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion May be harmful if swallowed.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Signs and Symptoms of Exposure
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-tert-butyl ether) should be considered a
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Additional Information
RTECS: KN5250000

12. ECOLOGICAL INFORMATION

Toxicity
Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 672,00 mg/l - 96 h

LC50 - other fish - > 1.000,00 mg/l - 96 h

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

Results of PBT and vPvB assessment
no data available

Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

UN number
ADR/RID: 2398 IMDG: 2398 IATA: 2398

UN proper shipping name
ADR/RID: METHYL tert-BUTYL ETHER
IMDG: METHYL tert-BUTYL ETHER
IATA: Methyl tert-butyl ether

Transport hazard class(es)
ADR/RID: 3 IMDG: 3 IATA: 3

Packaging group
ADR/RID: II IMDG: II IATA: II

Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no

Special precautions for user
no data available

15. REGULATORY INFORMATION

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

Safety, health and environmental regulations/legislation specific for the substance or mixture
no data available
Chemical Safety Assessment
no data available

16. OTHER INFORMATION

Further information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Leonid Chemicals be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Leonid Chemicals has been advised of the possibility of such damages.

Specification manual - tert Butyl Methyl Ether

$C_5H_{12}O$ **Mol Wt: 88.15**

Product : **tert Butyl Methyl Ether LR**
Description : **Clear colourless, flammable liquid**
Cat No : **B142**
Cas No : **1634-04-4**
Prepared Date : **07.03.2005**
Approved Date : **07.03.2005**

REVISION HISTORY				
Issue/Rev	**Description of Change**		**Author**	**Effective Date**
01/00	*Initial Release*		*S. Paul Joshua*	*07.03.2005*
02/00	*Reviewed no changes*		*S. Paul Joshua*	*01.04.2011*
Next Review Due :	*02.04.2015*			
To be reviewed by :	Head-QC/QA			

Sl. No.	Tests	Specification
		LR
1	Assay (GC)	>98.5%
2	Boiling point	54-56°C

Approved By: S.Paul Joshua,Head Quality Control and Quality Assurance