MATERIAL SAFETY DATA SHEET
SDS/MSDS

TERT-BUTYL METHYL ETHER
CAS No 1634-04-4

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

1.1 Product identifiers
   Product name: tert-Butyl Methyl Ether
   CAS-No.: 1634-04-4

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses: Laboratory chemicals, Industrial & for professional use only.

1.3 Details of the supplier of the safety data sheet
   Company: Central Drug House (P) Ltd
   7/28 Vardaan House
   New Delhi -110002
   INDIA
   Telephone: +91 11 49404040
   Email: care@cdhfinechemical.com

1.4 Emergency telephone number
   Emergency Phone #: +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

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/sparks/open flames/hot surfaces. No smoking.
   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: MTBE
Methyl tert-butyl ether

<table>
<thead>
<tr>
<th>Formula</th>
<th>Molecular weight</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₈H₁₂O</td>
<td>88.15 g/mol</td>
<td>1634-04-4</td>
<td>216-653-1</td>
<td>603-181-00-X</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>tert-Butyl methyl ether</td>
<td>Flam. Liq. 2; Skin Irrit. 2;</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>1634-04-4</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>216-653-1</td>
<td>H225, H315</td>
</tr>
<tr>
<td>Index-No.</td>
<td>603-181-00-X</td>
<td></td>
</tr>
</tbody>
</table>

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
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.

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
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, 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.
For personal protection see section 8.

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

6.3 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).

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 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.
For precautions see section 2.2.

7.2 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.
Store under inert gas. hygroscopic
Storage class (TRGS 510): 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
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.
**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 (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engine 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).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### SECTION 9: Physical and chemical properties

#### 9.1 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 764.1 mmHg at 55.0 °C
209.4 mmHg 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: n-octanol/water log Pow: 1.77 log Pow: 0.94
p) Auto-ignition 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

#### 9.2 Other safety information
No data available
SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Oxidizing agents, Strong acids

10.6 Hazardous decomposition products
Other decomposition products - No data available
Hazardous decomposition products formed under fire conditions. - Carbon oxides
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 4,000 mg/kg(tert-Butyl methyl ether)
LC50 Inhalation - Rat - 4 h - 23576 ppm(tert-Butyl methyl ether)

Skin corrosion/irritation
Skin - Rabbit(tert-Butyl methyl ether)
Result: Skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit(tert-Butyl methyl ether)
Result: No eye irritation

Respiratory or skin sensitisation
Will not occur(tert-Butyl methyl ether)

Germ cell mutagenicity
No data available(tert-Butyl methyl ether)

Carcinogenicity
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (tert-Butyl methyl ether)

Reproductive toxicity
No data available(tert-Butyl methyl ether)

Specific target organ toxicity - single exposure
No data available(tert-Butyl methyl ether)

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available(tert-Butyl methyl ether)

Additional Information
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-tert-butyl ether) should be considered a "potential human car tumors of testes in male rats and an increase in lymphomas, leukemias, an, In another unpublished study MTBE was shown to be carcinogenic due to "inc rats and an "increase in the incidence of hepatocellular adenomas" in fem, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (tert-Butyl methyl ether)

Central nervous system - (tert-Butyl methyl ether)

SECTION 12: Ecological information

12.1 Toxicity
Toxicity to fish
LC50 - Pimephales promelas (fathead minnow) - 672.00 mg/l - 96 h(tert-Butyl methyl ether)
LC50 - other fish - > 1,000.00 mg/l - 96 h(tert-Butyl methyl ether)
Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 472 mg/l - 48 h(tert-Butyl methyl ether)
Toxicity to algae
EC50 - Pseudokirchneriella subcapitata (green algae) - 491 mg/l - 96 h(tert-Butyl methyl ether)

12.2 Persistence and degradability
Biodegradability
Result: 0 % - Not readily biodegradable.
(OECD Test Guideline 301D)

12.3 Bioaccumulative potential
No data available

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
Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 2398
IMDG: 2398
IATA: 2398
14.2 UN proper shipping name
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 vapour.
H315 Causes skin irritation.

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. Central Drug House (P) Ltd and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.cdhfinechemical.com for additional terms and conditions of sale.