Safety Data Sheets

Revision Date: 06-Mar.-2018

Section 1. Identification of substance

Product Name： Methyl tert-butyl ether
Synonym: methyl tert-butyl ether, MTBE, 2-methoxy-2-methylpropane, butyl methyl ether, t-butyl methyl ether, TBME, tert-butoxymethane, 1,1-dimethylethyl methyl ether, methyl 1,1-dimethylethyl ether
CAS Number: 1634-04-4
Manufacturer/Supplier：TASCO Chemical Corporation
Plant Address：Plant Address: 1 kung-Yeh, 2nd Rd., Lin-Yuan, Kaohsiung, Taiwan
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Section 2. Hazards identification

2.1 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.

2.2 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 and 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.

Section 3. Composition/information on ingredients

Chemical Name：MTBE; tert-Butyl methyl ether; Methyl tert-butyl ether
CAS Number: 1634-04-4
Formula： $C_5H_{12}O$
Synonyms：2-methoxy-2-methylpropane, butyl methyl ether, t-butyl methyl ether, tert-butoxymethane, 1,1-dimethylethyl methyl ether, methyl 1,1-dimethylethyl ether

Section4. 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.

Section 5. Fire Fighting Measures

Extinguishing media
Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

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.

Section 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).

Section 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.

Section 8. Exposure Controls, Personal Protection

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).

Section 9. Physical /Chemical Properties

Appearance :Clear liquid	Molecular Weight: 88.15 g/mol
Melting point： -108.6℃	Boiling Point: 55 ℃
Vapour pressure： 245mmHg at 25 ℃	Flash Point: -28 ℃ - closed cup
Vapor density ：3.04 (air=1)	Explosion limit：2.5-15.1%
Density: 0.7404 (water=1)	Autoignition temperature：193℃

Section 10. Stability and Reactivity

STABILITY:
This compound is stable at ambient conditions.

POLYMERIZATION:
Hazardous polymerization will not occur.

INCOMPATABILITY WITH OTHER MATERIALS:
MTBE reacts violently with strong oxidants causing a fire hazard. MTBE decomposes on contact with acids.

DECOMPOSITION:
In the case of a fire, oxides of carbon, hydrocarbons, fumes, and smoke may be produced.

CONDITIONS TO AVOID:
Keep away from all sources of ignition including static electricity.
Prevent build-up of electrostatic charge by grounding.

Section11. Toxicological Information

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 3600 mg/kg [Mouse].
Acute dermal toxicity (LD50): 12800 mg/kg [Rabbit].
Acute toxicity of the vapor (LC50): 16000 8 hours [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS:
A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.
DEVELOPMENTAL TOXICITY:
Classified Reproductive system/toxin/female, Development toxin [POSSIBLE].
May cause damage to the following organs: kidneys, liver, skin, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of ingestion, of inhalation.
Slightly hazardous in case of skin contact (irritant, sensitizer, permeator).
Special Remarks on Toxicity to Animals: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin:
May cause mild skin irritation, and sensitization.
Eyes:
Can cause eye irritation.
Inhalation:
Breathing in small amounts of this material during normal handling is not likely to cause harmful effects. However, breathing large amounts may be harmful and may affect the respiratory system and mucous membranes (irritation), behavior and brain (Central nervous system depression - headache, dizziness, drowsiness, stupor, incoordination, unconciousness, coma and possible death), peripheral nerve and senstation, blood, urinary system, and liver.
Ingestion:
Swallowing small amouts during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. Swallowing large amounts may cause gastrointestinal tract irritation with nausea, vomiting and diarrhea, abdominal pain. It also may affect the urinary system, cardiovascular system, sense organs, behavior or central nervous system (somnolence, generally depressed activity, irritability, headache, dizziness, drowsiness), liver, and respiratory system (breathing difficulty).

Chronic Potential Health Effects:
May cause defatting of the skin and dermatitis and allergic reaction. May cause adverse reproductive effects based on animal data (studies).

Section 12. Ecological Information

Ecotoxicity:
LD50: 4gm /kg (mouse)
LC50 :23576 ppm/4hr

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation:
The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13. Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14. Transport Information

DOT (US)
UN-Number: 2398 Class: 3 Packing group: II
Proper shipping name: Methyl tert-butyl ether
Reportable Quantity (RQ): 1000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

Section 15. Regulatory Information

Section 16. Additional Information

Remark	” - ” means no data，and ” /” means not suitable.

※ This information is only suitable for this product, and It does not suit that if this product is to be a additive agent or mixed with other chemicals.

※ 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.