Material Safety Data Sheet
tert-Butyl methyl ether

Section 1 - Chemical Product and Company Identification

MSDS Name: tert-Butyl methyl ether
Catalog Numbers: 17704-0000, 17704-0010, 17704-0025, 17704-0051, 17704-0250, 17704-2500,
37521-0000, 37521-0010, 37521-1000, 37522-0000, 37522-0010, 37522-1000,
37872-0000, 37872-0010, 37872-0025, 38905-0010, 38905-0025, 39048-0000,
39048-0010, 39048-0025
Synonyms: Methyl tert-butyl ether; MTBE; 2-Methyl-2-methoxy propane

Company Identification: Acros Organics BVBA
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium

Company Identification: (USA) Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

For information in the US, call: 800-ACROS-01
For information in Europe, call: +32 14 57 52 11
Emergency Number, Europe: +32 14 57 52 99
Emergency Number US: 201-796-7100
CHEMTREC Phone Number, US: 800-424-9300
CHEMTREC Phone Number, Europe: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS# Chemical Name: % EINECS#
1634-04-4 tert-Butyl methyl ether >98% 216-653-1

Hazard Symbols: XI F

Risk Phrases: 11 38

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Highly flammable. Irritating to skin.
Potential Health Effects

Eye: May cause eye irritation. Causes redness and pain.

Skin: Causes skin irritation. May be absorbed through the skin. Causes symptoms similar to those of inhalation.

Ingestion: Aspiration hazard. May cause unconsciousness. May cause central nervous system effects. May cause headache, nausea, fatigue, and dizziness. May cause respiratory tract irritation. Exposure produces central nervous system depression. May cause headache. Inhalation of vapors may cause nausea, vomiting, dizziness, and loss of consciousness.

Chronic: Repeated inhalation may cause nasal and tracheal inflammation. Chronic exposure may cause liver damage.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Possible aspiration hazard. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Containers may explode in the heat of a fire. Flammable liquid and vapor. Use water spray to cool fire-exposed containers. This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained. Use water spray, dry chemical, carbon dioxide, or chemical foam.

Extinguishing Media: General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Scoop up with a nonsparking tool, then place into a suitable container for disposal. Remove all sources of ignition. Use a spark-proof tool.

Section 7 - Handling and Storage
Use spark-proof tools and explosion proof equipment. Avoid contact with skin and eyes. Do not breathe dust, vapor, mist, or gas. Take precautionary measures against static discharges.

Storage: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits
CAS# 1634-04-4:
United Kingdom, WEL - TWA: 25 ppm TWA; 92 mg/m3 TWA
United Kingdom, WEL - STEL: 75 ppm STEL; 275 mg/m3 STEL

Belgium - TWA: 40 ppm VLE; 146 mg/m3 VLE

Germany: 50 ppm TWA; 180 mg/m3 TWA

Malaysia: 40 ppm TWA; 144 mg/m3 TWA
Netherlands: 100 ppm STEL; 360 mg/m3 STEL Netherlands: 50 ppm MAC; 180 mg/m3 MAC
Russia: 100 mg/m3 TWA (vapour)
Spain: 40 ppm VLA-ED; 147 mg/m3 VLA-ED

Personal Protective Equipment
Eyes: Wear chemical splash goggles.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149

Respirators: approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Clear liquid
Color: colorless
Odor: turpentine - mild odor
pH: Not available
Vapor Pressure: 268 mbar @ 20 deg C
Viscosity: 0.36 mPa.s @ 20 deg C
Boiling Point: 54 - 56 deg C @ 760 mmHg
Freezing/Melting Point: -110 deg C (-166.00°F)
Autoignition Temperature: 224 deg C (435.20 deg F)
Flash Point: -28 deg C (-18.40 deg F)
Explosion Limits: Lower: 1.6 Vol %
Explosion Limits: Upper: 15.1 Vol %
Decomposition Temperature: Not available
Solubility in water: 51 g/l (20°C)
Specific Gravity/Density: 0.740
Molecular Formula: C₅H₁₂O
Molecular Weight: 88.15

Section 10 - Stability and Reactivity
Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials, light, ignition sources, excess heat.
Incompatibilities with Other Materials: Oxidizing agents, strong acids, amines, ammonia, chlorinated solvents, plastics, aldehydes (e.g. acetaldehyde, acrolein, chloral, formaldehyde), caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide).
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, peroxides, formic acid, butyl formate, methyl radicals, acetone.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information
RTECS#: CAS# 1634-04-4: KN5250000

RTECS:
**CAS# 1634-04-4:** Inhalation, mouse: LC₅₀ = 141 gm/m³/15M;
Inhalation, mouse: LC₅₀ = 28000 mg/m³/2H;
Inhalation, rat: LC₅₀ = 23576 ppm/4H;
**LD₅₀/LC₅₀:** Inhalation, rat: LC₅₀ = 41000 mg/m³/4H;
Oral, mouse: LD₅₀ = 5960 uL/kg;
Oral, rat: LD₅₀ = 4 gm/kg;

tert-Butyl methyl ether - ACGIH: A3 - Confirmed animal carcinogen with Carcinogenicity: unknown relevance to humans IARC: Group 3 (not classifiable)

Other: See actual entry in RTECS for complete information. The toxicological
properties have not been fully investigated.

Section 12 - Ecological Information

Bacteria: Pseudomonas putida: EC10 : ca. 700 mg/l; 18H; Bringmann-Kühn test
Fish: Leuciscus idus: LC50 : > 100 mg/l; 48H; .
Ecotoxicity: Fish: Fathead Minnow: LC50 : 110 mg/L; 96h; .
Daphnia: Daphnia: EC50 : 651 mg/l; 48H; .

Avoid entering into waters or underground water. Do not empty into drains. Non-
Other: biodegradable.
log POW = 1.06

Section 13 - Disposal Considerations
Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

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USA RQ: CAS# 1634-04-4: 1000 lb final RQ; 454 kg final RQ

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XI F
Risk Phrases:
R 11 Highly flammable.
R 38 Irritating to skin.
Safety Phrases:
S 9 Keep container in a well-ventilated place.
S 16 Keep away from sources of ignition - No smoking.
S 24 Avoid contact with skin.

WGK (Water Danger/Protection)
CAS# 1634-04-4: 1

Canada
CAS# 1634-04-4 is listed on Canada's DSL List
</TD>
US Federal
TSCA

CAS# 1634-04-4 is listed on the TSCA Inventory.

Section 16 - Other Information
MSDS Creation Date: 7/16/1996
Revision #3 Date 4/26/2005
Revisions were made in Sections: General revision.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility 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 the company 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 the company has been advised of the possibility of such damages.

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