

Material Safety Data Sheet

tert-Amyl methyl ether, 94%

ACC# 68380

Section 1 - Chemical Product and Company Identification

MSDS Name: tert-Amyl methyl ether, 94%

Catalog Numbers: AC133050000, AC133050050, AC133051000, NC9170321, XXAC13305-55LI

Synonyms: TAME; 2-Methoxy-2-methylbutane; Methyl tert-pentyl ether; 1,1-Dimethylpropyl methyl ether; Methyl tert-amyl ether.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
994-05-8	tert-Amyl methyl ether	94	213-611-4

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless clear liquid. Flash Point: -11 deg C.

Danger! Extremely flammable liquid and vapor. Vapor may cause flash fire. Causes eye and skin irritation. May be harmful if swallowed or inhaled. May cause respiratory tract irritation.

Target Organs: Eyes, nervous system, reproductive system, skin.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation. No data found on whether or not this chemical would be likely to cause an allergic skin reaction. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May be harmful if swallowed.

Inhalation: May cause respiratory tract irritation. May be harmful if inhaled.

Chronic: Adverse reproductive effects have been reported in animals. Chronic exposure will cause neurological degradation and/or abnormalities.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

Skin: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid. Wash clothing before reuse.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: If inhaled, remove to fresh air. 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. Use water spray to keep fire-exposed containers cool. Extremely flammable liquid and vapor. Vapor may cause flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Flash Point: -11 deg C (12.20 deg F)

Autoignition Temperature: 415 deg C (779.00 deg F)

Explosion Limits, Lower: 1.0%

Upper: 7.1%

NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 0

Section 6 - Accidental Release Measures

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. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Take precautionary measures against static discharges. Keep container tightly closed. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
tert-Amyl methyl ether	20 ppm TWA	none listed	none listed

OSHA Vacated PELs: tert-Amyl methyl ether: No OSHA Vacated PELs are listed for this chemical.

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.

Respirators: 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 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

Appearance: clear, colorless

Odor: mild ether-like odor

pH: Not applicable.

Vapor Pressure: 75 mm Hg @ 25 deg C

Vapor Density: 3.52 (air=1)

Evaporation Rate:Not available.

Viscosity: Not available.

Boiling Point: 85 - 86 deg C @ 760 mm Hg

Freezing/Melting Point:Not available.

Decomposition Temperature:Not available.

Solubility: 1.15 g/100 g soln

Specific Gravity/Density:.7640 g/cm³

Molecular Formula:C₆H₁₄O

Molecular Weight:102.17

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Ignition sources, excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 994-05-8: EK4421000

LD50/LC50:

CAS# 994-05-8:

Draize test, rabbit, eye: 100 uL/24H Severe;

Draize test, rabbit, skin: 500 uL/4H Severe;

Inhalation, mouse: LC50 = 27400 mg/m³;

Inhalation, rat: LC50 = >5400 mg/m³/4H;

Inhalation, rat: LC50 = 31800 mg/m³;

Oral, mouse: LD50 = 3333 mg/kg;

Oral, rat: LD50 = 1602 mg/kg;

Oral, rat: LD50 = 3500 mg/kg;

Carcinogenicity:

CAS# 994-05-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: See actual entry in RTECS for complete information.

Mutagenicity: No information available.

Neurotoxicity: The NOEL for acute neurotoxicity was reported as 250 ppm for male rats and 1500 ppm for females, while the NOEL for subchronic neurotoxicity was 3500 ppm for both male and female rats.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: TAME is a volatile, nonhydrophobic, water-soluble liquid that tends to evaporate readily to the atmosphere from the aqueous solution. TAME is not expected to be absorbed into organic matter in soil or sediment; it is not readily biodegradable; it has a low aquatic organism toxicity; and it is not expected to bioaccumulate.

Physical: log Pow: 1.6

Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	ETHERS, N.O.S.	Ethers, N.O.S. (TERT AMYL METHYL ETHER)
Hazard Class:	3	3
UN Number:	UN3271	UN3271
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 994-05-8 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 994-05-8: Effective 12/28/94, Sunset 6/30/98 (Section 716.20 (b) (3) applies)

Chemical Test Rules

CAS# 994-05-8: Test for Health Effects

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 994-05-8: immediate, delayed, fire.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 994-05-8 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN F

Risk Phrases:

R 11 Highly flammable.
R 20/22 Harmful by inhalation and if swallowed.
R 36/38 Irritating to eyes and skin.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 37/39 Wear suitable gloves and eye/face protection.

WGK (Water Danger/Protection)

CAS# 994-05-8: 1

Canada - DSL/NDSL

CAS# 994-05-8 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 5/26/1998

Revision #4 Date: 5/10/2004

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 Fisher 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 Fisher has been advised of the possibility of such damages.