

# • SAFETY DATA SHEET

Version 8.8  
Revision Date 12/31/2025  
Print Date 01/01/2026

## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : tert-Butyl ethyl ether for synthesis

Product Number : 8.41873  
Catalogue No. : 841873  
Brand : Millipore  
CAS-No. : 637-92-3

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Chemical for synthesis

### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

### 1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

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## SECTION 2. HAZARDS IDENTIFICATION

### GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

#### Hazards for the product as supplied

Flammable liquids : Category 2

Specific target organ : Category 3 (Central nervous system)  
toxicity - single exposure

#### Other hazards

None known.

#### GHS label elements

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Hazard pictograms



Signal word

: Danger

Hazard statements

: H225 Highly flammable liquid and vapour.  
H336 May cause drowsiness or dizziness.

Precautionary statements

**Prevention:**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof electrical/ ventilating/ lighting equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P261 Avoid breathing mist or vapours.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage:**

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

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### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture

: Substance

CAS-No.

: 637-92-3

## Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
2-Ethoxy-2-methylpropane	637-92-3*	>= 80 - <= 100	TSC

\* Indicates that the identifier is a CAS No.

TSC- the actual concentration or concentration range is withheld as a trade secret

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## SECTION 4. FIRST AID MEASURES

- General advice : Show this safety data sheet to the doctor in attendance.
- If inhaled : After inhalation: fresh air. Call in physician.
- In case of skin contact : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- In case of eye contact : After eye contact: rinse out with plenty of water. Remove contact lenses.
- If swallowed : After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
- 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
- Protection of first-aiders : For personal protection see section 8.
- Notes to physician : No data available

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## SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Foam  
Dry powder
- Unsuitable extinguishing media : For this substance/mixture no limitations of extinguishing agents are given.
- Specific hazards during fire fighting : Combustible.

Pay attention to flashback.

Vapours are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air at ambient temperatures.

Hazardous combustion products	:	Nature of decomposition products not known.
Specific extinguishing methods	:	No data available
Further information	:	Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.
Environmental precautions	:	Do not let product enter drains. Risk of explosion.
Methods and materials for containment and cleaning up	:	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemisorb® ). Dispose of properly. Clean up affected area.

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

- Advice on protection against fire and explosion : Keep away from open flames, hot surfaces and sources of ignition.  
Take precautionary measures against static discharge.
- Advice on safe handling : Work under hood. Do not inhale substance/mixture.  
Avoid generation of vapours/aerosols.
- Further information on storage conditions : Protected from light.  
Keep away from heat and sources of ignition.  
Keep container tightly closed in a dry and well-ventilated place.
- Storage class : 3, Flammable liquids
- Recommended storage temperature : Recommended storage temperature see product label.
- Further information on storage stability : Recommended storage temperature see product label.

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
2-Ethoxy-2-methylpropane	637-92-3	TWA	25 ppm	ACGIH

**Engineering measures** : No data available

### Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated.  
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Hand protection

Material : butyl-rubber  
Break through time : 480 min  
Glove thickness : 0.7 mm  
Protective index : Full contact  
Manufacturer : Butoject® (KCL 898)

Material : Nitrile rubber  
Break through time : 30 min  
Glove thickness : 0.4 mm  
Protective index : Splash contact  
Manufacturer : Camatril® (KCL 730 / Aldrich Z677442, Size M)

Remarks : This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Eye protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).  
Safety glasses

Skin and body protection : Flame retardant antistatic protective clothing.

Hygiene measures : Change contaminated clothing. Wash hands after working with substance.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid (68 °F / 20 °C, 1,013 hPa)

Color : colourless

Odor : No data available  
 Odor Threshold : No data available  
 pH : No data available  
 Melting point/ range : -143 °F / -97 °C  
  
 Boiling point/boiling range : 158 °F / 70 °C (1,013 hPa)  
  
 Flash point : -2 °F / -19 °C  
 (1013.0 hPa)  
 Method: closed cup  
  
 Evaporation rate : No data available  
 Flammability (solid, gas) : No data available  
 Flammability (liquids) : No data available  
 Burning rate : No data available  
 Self-ignition : 738 °F / 392 °C  
 100.34 - 100.92 kPa  
 GLP: yes  
  
 Upper explosion limit /  
 Upper flammability limit : No data available  
  
 Lower explosion limit /  
 Lower flammability limit : No data available  
  
 Vapor pressure : 207 hPa (77 °F / 25 °C)  
 Relative vapour density : No data available  
 Relative density : 0.75 (59 °F / 15 °C)  
 Density : 0.740 g/cm<sup>3</sup>  
 Solubility(ies)  
     Water solubility : 14.3 g/l (77.00 °F / 25.00 °C)  
                             pH: 7  
                             Method: OECD Test Guideline 105  
  
 Partition coefficient: n-  
 octanol/water : log Pow: 1.48 (77 °F / 25 °C)  
                             pH: 7  
                             Bioaccumulation is not expected.  
  
 Autoignition temperature : No data available

Decomposition temperature	: No data available
Viscosity	
Viscosity, dynamic	: No data available
Viscosity, kinematic	: 0.53 mm <sup>2</sup> /s (68 °F / 20 °C) Method: OECD Test Guideline 114 GLP: yes
Flow time	: No data available
Explosive properties	: Not classified as explosive.
Oxidizing properties	: none
Surface tension	: 72.1 mN/m, 1.21 g/l, 70 °F / 21 °C, Regulation (EC) No. 440/2008, Annex, A.5, GLP: yes
Molecular weight	: 102.18 g/mol
Particle characteristics	
Particle size	: No data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Vapours may form explosive mixture with air.
Chemical stability	: The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	: Violent reactions possible with: Strong oxidizing agents
Conditions to avoid	: Warming.
Incompatible materials	: No data available
Hazardous decomposition products	: In the event of fire: see section 5

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male and female - > 2,003 mg/kg  
(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 5.88 mg/l - vapour

(OECD Test Guideline 403)  
LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg  
(OECD Test Guideline 402)

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 4 h  
(OECD Test Guideline 404)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye irritation - 4 h  
(OECD Test Guideline 405)

#### **Respiratory or skin sensitization**

Maximisation Test - Guinea pig

Result: Not a skin sensitizer.  
(OECD Test Guideline 406)

#### **Germ cell mutagenicity**

Test Type: Ames test

Test system: *S. typhimurium*

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: Ames test

Test system: *Salmonella typhimurium*

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: unscheduled DNA synthesis assay

Test system: *Escherichia coli*

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 482

Result: positive

Test Type: In vivo micronucleus test

Species: Rat

Cell type: Bone marrow

Application Route: inhalation (vapour)

Result: negative

Remarks: (ECHA)

Test Type: In vivo micronucleus test

Species: Rat

Cell type: Bone marrow

Application Route: Oral

Result: negative

Remarks: (ECHA)

#### **Carcinogenicity**

IARC: 2B - Group 2B: Possibly carcinogenic to humans (2-Ethoxy-2-methylpropane)

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NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

#### **Reproductive toxicity**

No data available

#### **Specific target organ toxicity - single exposure**

Inhalation - May cause drowsiness or dizziness. - Central nervous system

#### **Specific target organ toxicity - repeated exposure**

No data available

#### **Aspiration hazard**

No data available

### **11.2 Additional Information**

Repeated dose toxicity - Rat - male and female - Inhalation - 90 d

Remarks: Subchronic toxicity

Repeated dose toxicity - Rat - male and female - Oral - 182 d - No observed adverse effect level - 100 mg/kg

Repeated dose toxicity - Rat - male and female - Inhalation - 104 Weeks

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## **SECTION 12. ECOLOGICAL INFORMATION**

### **Ecotoxicity**

#### **Components:**

#### **2-Ethoxy-2-methylpropane:**

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): > 974.1 mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: semi-static test  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 110 mg/l  
Exposure time: 48 h  
Test Type: static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 202  
GLP: yes

Toxicity to algae/aquatic : NOEC (Pseudokirchneriella subcapitata (green algae)):

plants 7.5 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Analytical monitoring: yes  
 Method: OECD Test Guideline 201  
 GLP: yes

EC50 (*Pseudokirchneriella subcapitata* (algae)): 1,100 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Analytical monitoring: yes  
 Method: OECD Test Guideline 201  
 GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): 51 mg/l  
 Exposure time: 21 d  
 Test Type: static test  
 Analytical monitoring: yes  
 Method: OPPTS 850.1300  
 GLP: yes

Toxicity to microorganisms : EC50 (*Pseudomonas putida*): 510 mg/l  
 Exposure time: 16 h  
 Test Type: static test  
 Analytical monitoring: yes  
 Method: ISO 10712  
 GLP: yes

NOEC (*Pseudomonas putida*): 78 mg/l  
 Exposure time: 16 h  
 Test Type: static test  
 Analytical monitoring: yes  
 Method: ISO 10712  
 GLP: yes

**Persistence and degradability**

**Components:**

**2-Ethoxy-2-methylpropane:**

Biodegradability : aerobic  
 Inoculum: activated sludge  
 Concentration: 2.5 mg/l  
 Result: Readily biodegradable.  
 Biodegradation: 94.16 %  
 Exposure time: 14 d  
 Method: OECD Test Guideline 301D

## Bioaccumulative potential

### Components:

#### **2-Ethoxy-2-methylpropane:**

Partition coefficient: n-octanol/water : log Pow: 1.48 (77 °F / 25 °C)  
pH: 7  
Remarks: Bioaccumulation is not expected.

#### **Mobility in soil**

No data available

#### **Other adverse effects**

No data available

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## SECTION 13. DISPOSAL CONSIDERATIONS

### **Disposal methods**

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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## SECTION 14. TRANSPORT INFORMATION

### **International Regulations**

#### **IATA-DGR**

UN/ID No. : UN 1179  
Proper shipping name : Ethyl butyl ether  
Class : 3  
Packing group : II  
Labels : Class 3 - Flammable liquids  
Packing instruction (cargo aircraft) : 364  
Packing instruction (passenger aircraft) : 353

#### **IMDG-Code**

UN number : UN 1179  
Proper shipping name : ETHYL BUTYL ETHER  
  
Class : 3  
Packing group : II  
Labels : 3  
EmS Code : F-E, S-D  
Marine pollutant : no

#### **Transport in bulk according to IMO instruments**

Not applicable for product as supplied.

#### **National Regulations**

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**49 CFR Road**

UN/ID/NA number : UN 1179  
Proper shipping name : Ethyl butyl ether

Class : 3  
Packing group : II  
Labels : Class 3 - Flammable liquids  
ERG Code : 127  
Marine pollutant : no

Poison Inhalation Hazard : No

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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**SECTION 15. REGULATORY INFORMATION****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**US State Regulations****Massachusetts Right To Know**

No components are subject to the Massachusetts Right to Know Act.

**Maine Chemicals of High Concern**

Product does not contain any listed chemicals

**Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

**Washington Chemicals of High Concern**

Product does not contain any listed chemicals

**The components of this product are reported in the following inventories:**

TSCA : All substances listed as active on the TSCA inventory

## TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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## SECTION 16. OTHER INFORMATION

### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
ACGIH / TWA : 8-hour, time-weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall

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Revision Date : 12/31/2025

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