



# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 05/12/2014

Version 1.3

## SECTION 1. Identification

### Product identifier

Product number	101849
Product name	tert-Butyl methyl ether for analysis EMSURE® ACS
CAS-No.	1634-04-4

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

Identified uses	Reagent for analysis
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### Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	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

Flammable liquid, Category 2, H225  
Skin irritation, Category 2, H315

For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

#### Hazard pictograms



Signal Word  
Danger

#### Hazard Statements

H225 Highly flammable liquid and vapor.  
H315 Causes skin irritation.

#### Precautionary Statements

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P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P233 Keep container tightly closed.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P403 + P235 Store in a well-ventilated place. Keep cool.

## OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS and may deviate from the GHS information.

## Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

Chemical nature	Contains Methanol (as impurity)	
Formula	(CH <sub>3</sub> ) <sub>3</sub> COCH <sub>3</sub>	C <sub>5</sub> H <sub>12</sub> O (Hill)
Molar mass	88.15 g/mol	

## Hazardous ingredients

*Chemical Name (Concentration)*

CAS-No.

*tert-butyl methyl ether (>= 90 % - <= 100 % )*

1634-04-4

Exact percentages are being withheld as a trade secret.

*methanol (>= 0.1 % - < 1 % )*

67-56-1

Exact percentages are being withheld as a trade secret.

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## SECTION 4. First aid measures

### Description of first-aid measures

*Inhalation*

After inhalation: fresh air.

*Skin contact*

After skin contact: wash off with plenty of water. Remove contaminated clothing.

*Eye contact*

After eye contact: rinse out with plenty of water.

*Ingestion*

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

Never give anything by mouth to an unconscious person.

### Most important symptoms and effects, both acute and delayed

irritant effects, Dizziness, Unconsciousness, narcosis, agitation, spasms, euphoria, Nausea, Vomiting, drowsiness, CNS disorders  
Drying-out effect resulting in rough and chapped skin.

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## Indication of any immediate medical attention and special treatment needed

No information available.

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## SECTION 5. Fire-fighting measures

### Extinguishing media

*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.

### Special hazards arising from the substance or mixture

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Pay attention to flashback.

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

### Advice for firefighters

*Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Prevent fire extinguishing water from contaminating surface water or the ground water system.

Remove container from danger zone and cool with water.

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## SECTION 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, 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: Protective equipment see section 8.

### Environmental precautions

Do not empty into 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

### Precautions for safe handling

Observe label precautions.

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### *Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

### **Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Protected from light.

Store at +15°C to +25°C (+59°F to +77°F).

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## **SECTION 8. Exposure controls/personal protection**

### **Exposure limit(s)**

#### *Ingredients*

Basis	Value	Threshold limits	Remarks
<i>tert-butyl methyl ether 1634-04-4</i>			
ACGIH	Time Weighted Average (TWA):	50 ppm	

### **Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### **Individual protection measures**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

### *Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

### *Eye/face protection*

Safety glasses

### *Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

### *Other protective equipment:*

Flame retardant antistatic protective clothing

### *Respiratory protection*

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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## **SECTION 9. Physical and chemical properties**

Physical state	liquid
Color	colorless

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Odor	characteristic
Odor Threshold	No information available.
pH	not applicable
Melting point	-108.6 °C
Boiling point/boiling range	131.5 °F (55.3 °C) at 1,013 hPa
Flash point	-18 °F (-28 °C) Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1.5 %(V)
Upper explosion limit	8.5 %(V)
Vapor pressure	ca.268 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Density	ca.0.74 g/cm <sup>3</sup> at 68 °F (20 °C)
Relative density	No information available.
Water solubility	ca.42 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: 1.06 OECD Test Guideline 107 Bioaccumulation is not expected.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	0.36 mPa.s at 68 °F (20 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none

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Ignition temperature 860 °F (460 °C)  
Method: DIN 51794

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## SECTION 10. Stability and reactivity

### Reactivity

Vapors may form explosive mixture with air.  
Formation of peroxides possible.

### Chemical stability

Sensitivity to light

### Possibility of hazardous reactions

Violent reactions possible with:  
Oxidizing agents, Strong acids, halogens, Strong bases

### Conditions to avoid

Warming.

### Incompatible materials

rubber, various plastics

### Hazardous decomposition products

Peroxides

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## SECTION 11. Toxicological information

### Information on toxicological effects

#### *Likely route of exposure*

Inhalation, Eye contact, Skin contact

#### *Acute oral toxicity*

LD50 rat: > 2,000 mg/kg  
OECD Test Guideline 401

Symptoms: Nausea, Vomiting, Pulmonary failure possible after aspiration of vomit., Aspiration may cause pulmonary edema and pneumonitis.

#### *Acute inhalation toxicity*

LC50 rat: 85 mg/l; 4 h (IUCLID)

Symptoms: Possible damages: mucosal irritations

#### *Acute dermal toxicity*

LD50 rabbit: > 2,000 mg/kg  
OECD Test Guideline 402

absorption

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## *Skin irritation*

rabbit

Result: Irritations

OECD Test Guideline 404

Drying-out effect resulting in rough and chapped skin.

Causes skin irritation.

## *Eye irritation*

rabbit

Result: No eye irritation

OECD Test Guideline 405

## *Sensitization*

Sensitization test (Magnusson and Kligman):

Result: negative

(IUCLID)

## *Genotoxicity in vitro*

Mutagenicity (mammal cell test): micronucleus.

Result: negative

(IUCLID)

Ames test

Result: negative

Method: OECD Test Guideline 471

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

The substance or mixture is not classified as specific target organ toxicant, single exposure.

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

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

## *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

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

ACGIH

Confirmed animal carcinogen with unknown relevance to humans.

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## **Further information**

Systemic effects:

After absorption of large quantities:

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drowsiness, Dizziness, euphoria, agitation, spasms, CNS disorders, Unconsciousness, narcosis  
Handle in accordance with good industrial hygiene and safety practice.

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### SECTION 12. Ecological information

#### Ecotoxicity

##### *Toxicity to fish*

LC50 Pimephales promelas (fathead minnow): 672 mg/l; 96 h (IUCLID)

##### *Toxicity to daphnia and other aquatic invertebrates*

EC50 Daphnia magna (Water flea): 651 mg/l; 48 h (IUCLID)

##### *Toxicity to algae*

IC50 Desmodesmus subspicatus (green algae): > 800 mg/l; 72 h (IUCLID)

##### *Toxicity to bacteria*

EC10 Pseudomonas putida: ca. 700 mg/l; 18 h (IUCLID)

#### Persistence and degradability

##### *Biodegradability*

2 %; 28 d

OECD Test Guideline 301B

Not readily biodegradable.

#### Bioaccumulative potential

##### *Partition coefficient: n-octanol/water*

log Pow: 1.06

OECD Test Guideline 107

Bioaccumulation is not expected.

#### Mobility in soil

No information available.

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### SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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### SECTION 14. Transport information

#### Land transport (DOT)

UN number	UN 2398
Proper shipping name	METHYL TERT-BUTYL ETHER
Class	3
Packing group	II
Environmentally hazardous	--

#### Air transport (IATA)



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**UN number** UN 2398  
**Proper shipping name** METHYL TERT-BUTYL ETHER  
**Class** 3  
**Packing group** II  
**Environmentally hazardous** --  
**Special precautions for user** no

### Sea transport (IMDG)

**UN number** UN 2398  
**Proper shipping name** METHYL TERT-BUTYL ETHER  
**Class** 3  
**Packing group** II  
**Environmentally hazardous** --  
**Special precautions for user** yes  
EmS F-E S-D

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## SECTION 15. Regulatory information

### United States of America

#### OSHA Hazards

Flammable Liquid  
Skin irritant

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

#### SARA 311/312 Hazards

Fire Hazard  
Acute Health Hazard

#### SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

##### *Ingredients*

tert-butyl methyl ether	1634-04-4	98.0001 %
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#### SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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## Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

## DEA List I

Not listed

## DEA List II

Not listed

## US State Regulations

### Massachusetts Right To Know

#### *Ingredients*

tert-butyl methyl ether

### Pennsylvania Right To Know

#### *Ingredients*

tert-butyl methyl ether

### New Jersey Right To Know

#### *Ingredients*

tert-butyl methyl ether

methanol

### California Prop 65 Components

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

#### *Ingredients*

methanol

## Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

### Full text of H-Statements referred to under sections 2 and 3.

H225 Highly flammable liquid and vapor.

H315 Causes skin irritation.

### Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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