

## Safety Data Sheet

### 1. Identification of the substance/mixture and of the company/undertaking

#### Product identifier:

Product name: tert-Butyl methyl ether

Product code(SDS NO): 63454jis\_J\_E1-1

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

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-Cho, Koshigaya, Saitama 343-0844, Japan

Division: Quality Assurance Department

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### 2. Hazards identification

#### GHS classification and label elements of the product

#### Classification of the substance or mixture

##### PHYSICAL HAZARDS

Flammable liquids: Category 2

##### HEALTH HAZARDS

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 2B

Carcinogenicity: Category 2

Specific target organ toxicity – single exposure: Respiratory tract irritation Category 3

Specific target organ toxicity – single exposure: Narcosis Category 3

Aspiration hazard: Category 1

(Note) GHS classification without description: Not applicable/Out of classification/Not classifiable

#### Label elements



Signal word : Danger

#### HAZARD STATEMENT

Highly flammable liquid and vapor

Causes skin irritation

Causes eye irritation

Suspected of causing cancer

May cause respiratory irritation

May cause drowsiness or dizziness

May be fatal if swallowed and enters airways

#### PRECAUTIONARY STATEMENT

##### Prevention

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.  
Avoid breathing dust/fume/gas/mist/vapors/spray.  
Use only outdoors or in a well-ventilated area.  
Wash contaminated parts thoroughly after handling.  
Wear protective gloves and face protection.  
Use personal protective equipment as required.

#### Response

In case of fire: Use appropriate media than water for extinction.  
IF exposed or concerned: Get medical advice/attention.  
Call a POISON CENTER or doctor/physician if you feel unwell.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
IF ON SKIN: Wash with plenty of soap and water.  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
If skin irritation occurs: Get medical advice/attention.  
Take off contaminated clothing and wash it before reuse.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/attention.  
IF SWALLOWED: Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

#### Storage

Store in a well-ventilated place. Keep container tightly closed. Keep cool.  
Store locked up.

#### Disposal

Dispose of contents/container in accordance with local/national regulation.

#### Physical and Chemical hazards

Highly flammable liquid. Vapor/air mixture may explode.

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### 3. Composition/information on ingredients

#### Substance/Mixture:

##### Substance

Ingredient name: tert-Butyl methyl ether  
Content(%): 99.8 <  
Chemical formula: C<sub>5</sub>H<sub>12</sub>O  
Chemicals No, Japan: 2-3220  
CAS No.: 1634-04-4  
MW: 88.15  
ECNO: 216-653-1

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### 4. First-aid measures

#### Descriptions of first-aid measures

##### General measures

IF exposed or concerned: Get medical attention/advice.  
Call a POISON CENTER or doctor/physician if you feel unwell.

##### IF INHALED

Remove person to fresh air and keep comfortable for breathing.  
Call a POISON CENTER or doctor/physician if you feel unwell.

##### IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water/shower.  
Wash with plenty of soap and water.  
If skin irritation or rash occurs: Get medical advice/attention.  
If skin irritation occurs: Get medical advice/attention.

**IF IN EYES**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

**IF SWALLOWED**

Rinse mouth. Do NOT induce vomiting.

Immediately call a POISON CENTER or doctor/physician.

Call a POISON CENTER or doctor/physician if you feel unwell.

**5. Fire-fighting measures**

## Extinguishing media

## Suitable extinguishing media

In case of fire, use foam, dry powder, CO<sub>2</sub>.

## Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

## Advice for firefighters

## Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Cool container with water spray.

## Special protective equipment and precautions for fire-fighters

Wear fire/ flame resistant/retardant clothing.

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

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

**6. Accidental release measures**

## Personnel precautions, protective equipment and emergency procedures

Ventilate area after material pick up is complete.

Wear proper protective equipment.

## Environmental precautions

Avoid release to the rivers, lakes, ocean, groundwater.

## Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

## Preventive measures for secondary accident

Collect spillage.

**7. Handling and storage**

## Precautions for safe handling

## Preventive measures

(Exposure Control for handling personnel)

Avoid breathing dust/fume/gas/mist/vapors/spray.

(Protective measures against fire & explosion)

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

## Exhaust/ventilator

Exhaust/ventilator should be available.

**Safety treatments**

- Avoid contact with skin.
- Avoid contact with eyes.
- Avoid breathing dust, vapor, mist, or gas.

**Safety Measures/Incompatibility**

- Do not handle until all safety precautions have been read and understood.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves, protective clothing or face protection.
- Wear protective gloves and face protection.
- Use personal protective equipment as required.
- When using do not eat, drink or smoke.

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

- Store in a well-ventilated place. Keep container tightly closed.
- Keep cool. Protect from sunlight.
- Store locked up.

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**8. Exposure controls/personal protection****Control parameters****Adopted value**

ACGIH(1999) TWA: 50ppm (URT irr; kidney dam)

**Exposure controls****Appropriate engineering controls**

- Do not use in areas without adequate ventilation.
- Eye wash station should be available.
- Washing facilities should be available.

**Individual protection measures****Respiratory protection**

- Wear respiratory protection.

**Hand protection**

- Wear protective gloves.

**Eye protection**

- Wear eye/face protection.

**Safety and Health measures**

- Wash ... thoroughly after handling.
- Take off contaminated clothing and wash it before reuse.

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**9. Physical and Chemical Properties****Information on basic physical and chemical properties****Physical properties**

- Appearance: Liquid
- Color: Colorless
- Odor: Characteristic odor
- pH data N.A.

**Phase change temperature**

- Initial Boiling Point/Boiling point: 55°C
- Melting point/Freezing point: -109°C
- Decomposition temperature data N.A.
- Flash point: (C.C.) -28°C
- Auto-ignition temperature: 375°C
- Explosive properties: Flammability or explosive limit
  - lower limit: 1.6 vol %

upper limit: 15.1 vol %

Vapor pressure: 27 kPa (20°C)

Relative Vapor Density (Air=1): 3.0

Relative density of the Vapor/air-mixture at 20°C (Air = 1): 1.5

Specific gravity/Density: 0.738~0.741g/ml (20°C)

Solubility

Solubility in water: 51g/liter

n-Octanol /water partition coefficient: log Pow1.06

## 10. Stability and Reactivity

### Reactivity

Runaway polymerization will not occur.

### Chemical stability

Stable under normal storage/handling conditions.

Highly flammable.

### Possibility of hazardous reactions

The vapour is heavier than air and may travel along the ground; distant ignition possible.

Reacts violently with strong oxidants. This generates fire hazard. Decomposes on contact with acids.

### Conditions to avoid

Contact with incompatible materials.

Open flames. Heat.

### Incompatible materials

Acids, Strong oxidizing agents

### Hazardous decomposition products

Carbon oxides

## 11. Toxicological Information

### Information on toxicological effects

#### Acute toxicity

##### Acute toxicity (Oral)

[GHS Cat. Japan, base data]

rat LD50 =2963 mg/kg (IARC 73, 1999)

##### Acute toxicity (Dermal)

[GHS Cat. Japan, base data]

rabbit LD50 >2000mg/kg (EU-RAR, 2002)

##### Acute toxicity (Inhalation)

[GHS Cat. Japan, base data]

vapor : rat LC50 =79.004mg/L/4hr (converted value : 21946ppm)(calc.)

#### Irritant properties

##### Skin corrosion/irritation

[GHS Cat. Japan, base data]

rabbit: moderate ~ severe edema (EU-RAR, 2002)

##### Serious eye damage /irritation

[GHS Cat. Japan, base data]

rabbit : Change of the eye which indicates irritation was seen and it recover within 7 days

(ACGIH, 2002 et al.).

##### Skin sensitization

[GHS Cat. Japan, base data]

guinea pigs (Maximization test) : Sensitizing property was not acknowledged(EHC 206, 1998).

#### Germ cell mutagenicity

[GHS Cat. Japan, base data]

in vivo mutagenicity tests using a somatic (rat, mouse) : Negative

**Carcinogenicity**

[GHS Cat. Japan, base data]

According to ACGIH (1999) A3.

IARC-Gr.3 : Not Classifiable as a Human Carcinogen

ACGIH-A3(1999) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

No Teratogenic effects data available

No reproductive toxicity data available

Delayed and immediate effects and also chronic effects from short- and long-term exposure

**STOT**

STOT-single exposure

[cat.3(resp. irrit.)]

[Japan published data]

Respiratory tract irritation ( ACGIH, 2002 )

[cat.3(drow./dizz.)]

[Japan published data]

Narcosis ( ACGIH, 2002 )

**Aspiration hazard**

[cat.1]

[GHS Cat. Japan, base data]

When the liquid is swallowed, the chemical pneumonia may be occurred in aspiration into lungs.

(EPA\_JP risk assessment vol.4, 2005)

**12. Ecological Information****Toxicity****Aquatic toxicity**

Aquatic acute toxicity component(s) data

[GHS Cat. Japan, base data]

Crustacea(Mysidopsis bahia) EC50=136mg/L/96hr (EU-RAR, 2002)

**Water solubility**

51 g/L (PHYSPROP Database, 2005)

**Persistence and degradability**

BOD\_Degradation : 0% (Registered chemicals data check &amp; review, Japan)

**Bioaccumulative potential**

log Pow=1.06 (ICSC, 2000)

**13. Disposal considerations****Waste treatment methods**

Dispose of contents/container in accordance with local/national regulation.

**14. Transport Information****UN No, UN CLASS**

UN number: 2398

UN proper shipping name:METHYL tert-BUTYL ETHER

Transport hazard class(es): 3

Packing group: II

**ERG GUIDE NO.: 127**

Transport in bulk according to Annex II of MARPOL73/78 and IBC Code

Noxious Liquid ; Cat. Z...tert-Butyl methyl ether

## 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

US major regulations

TSCA

tert-Butyl methyl ether

Other regulatory information

We are not able to check up the regulatory information in regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

## 16. Other information

GHS classification and labelling

Flam. Liq. 2: H225 Highly flammable liquid and vapor

Skin Irrit. 2: H315 Causes skin irritation

Eye Irrit. 2B: H320 Causes eye irritation

Carc. 2: H351 Suspected of causing cancer

STOT SE 3: H335 May cause respiratory irritation

STOT SE 3: H336 May cause drowsiness or dizziness

Asp. Tox. 1: H304 May be fatal if swallowed and enters airways

Reference Book

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN Recommendations on the TRANSPORT OF DANGEROUS GOODS 18th edit., 2013 UN Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012) 2012 EMERGENCY RESPONSE GUIDEBOOK(US DOT)

2015 TLVs and BEIs. (ACGIH)

<http://monographs.iarc.fr/ENG/Classification/index.php>

Supplier's data/information

Chemical Risk Information Platform (CHRIP)(NITE) <http://www.safe.nite.go.jp/japan/db.html>

GHS Classification Guidance for Enterprises 2013 Revised Edition (August, 2013, METI)

General Disclaimer

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its use. It are advised to make their own tests to determinate the safety and suitability of each such product or combination for their own purposes.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data.