



## Safety Data Sheet

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

**Product identifier:**

Product name: tert-Butyl alcohol

SDS No. : 1091E-2

**Details of the supplier of the safety data sheet**

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Safety Management Dept. of Chemicals

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

e-mail address: kagakuhinanzenkanri@kishida.co.jp

### 2. Hazards identification

**GHS classification and label elements of the product****Classification of the substance or mixture****PHYSICAL AND CHEMICAL HAZARDS**

Flammable solids: Category 1

**HEALTH HAZARDS**

Serious eye damage/eye irritation: Category 2A

Reproductive toxicity: Category 2

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

Specific target organ toxicity – single exposure: Category 3 (Narcosis)

(Note) GHS classification without description: Not classified/Classification not possible

**Label elements**

Signal word: Danger

**HAZARD STATEMENT**

Flammable solid

Causes serious eye irritation

Suspected of damaging fertility or the unborn child

May cause respiratory irritation

May cause drowsiness or dizziness

**PRECAUTIONARY STATEMENT****Prevention**

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

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/protective clothing/eye protection/face protection.

**Response**

In case of fire: Use appropriate media other 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 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.

#### Storage

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

#### Disposal

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

#### Specific Physical and Chemical hazards

Flammable solid. Vapor/air mixture may explode.

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### 3. Composition/information on ingredients

#### Mixture/Substance selection:

##### Substance

Ingredient name:tert-Butyl alcohol

Content (%):98(min)

Chemical formula:C4H10O

Chemicals No, Japan:2-3049

CAS No.:75-65-0

MW:74.12

ECNO:200-889-7

Note : The figures shown above are not the specifications of the product.

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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.

If skin irritation or rash 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.

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

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### 5. Fire-fighting measures

#### Extinguishing media

##### Suitable extinguishing media

In case of fire, use water mist, foam, dry powder, CO2 to extinguish.

##### Unsuitable extinguishing media

Indoor firefighting equipment or outdoor firefighting equipment

Sprinkler equipment

Dry-powder firefighting equipment – except for phosphate etc.,hydrogen carbonate etc.

Straight stream water extinguisher



Water mist extinguisher  
Reinforcing liquid jet extinguisher  
Dry-powder extinguisher – except for phosphate etc.,hydrogen carbonate etc.  
Bucket of water or tank of water

Specific hazards arising from the substance or mixture

Containers may explode when heated.  
Fire may produce irritating, corrosive and/or toxic gases.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

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.

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## 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.  
Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.  
Avoid raising dust.

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.  
Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident

Collect spillage.

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## 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 and 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.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Use only outdoors or in a well-ventilated area.

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

When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity"

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.



### Storage

#### Conditions for safe storage

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

#### Container and packaging materials for safe handling

Polyethylene

Iron

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## 8. Exposure controls/personal protection

### Control parameters

#### Adopted value

(tert-Butyl alcohol)

ACGIH(1992) TWA: 100ppm (CNS impair)

#### OSHA-PEL

tert-Butyl alcoholTWA: 100ppm, 300mg/m<sup>3</sup>

### 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.

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## 9. Physical and Chemical Properties

### Information on basic physical and chemical properties

Physical state: Crystalline solid to crystalline powder or liquid

Color: Colorless, Clear

Odor: Characteristic odor

pH data is not available.

Boiling point or initial boiling point: 83°C

Boiling range data is not available.

Melting point/Freezing point: 25°C

Decomposition temperature data is not available.

Flammability (gases, liquids and solids) data is not available.

Flash point: (tert-Butyl alcohol)(C.C.) 11°C

Auto-ignition temperature: 470°C

Lower and upper explosion limit/flammability limit:

Lower explosion limit: 1.7 vol %

Upper explosion limit: 8.0 vol %

Vapor pressure: 4.1 kPa (20°C)

Relative vapor density (Air=1): 2.6

Relative density of the Vapor/air - mixture at 20°C (Air = 1): 1.06

Density and/or relative density: 0.79g/ml(20°C)

Dynamic viscosity: 3.35mPas

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Miscible



n-Octanol/water partition coefficient: log Pow0.3

No Particle characteristics data is not available.

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## 10. Stability and Reactivity

### Reactivity

Not available.

### Chemical stability

Stable under normal storage/handling conditions.

### Possibility of hazardous reactions

The vapour mixes well with air, explosive mixtures are easily formed.

Decomposes on contact with strong mineral acids or strong oxidants. This generates fire and explosion hazard. (ICSC 0114)

### Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

### Incompatible materials

Strong oxidizing agents, Strong mineral acids

### Hazardous decomposition products

Carbon oxides

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## 11. Toxicological Information

### Information on toxicological effects

#### Acute toxicity

##### Acute toxicity (Oral)

[GHS Cat. Japan, base data]

(tert-Butyl alcohol)

rat LD50=2200-3500mg/kg (DFGOT vol.19, 2003)

#### Irritant properties

Skin corrosion/irritation data is not available.

##### Serious eye damage/irritation

[GHS Cat. Japan, base data]

(tert-Butyl alcohol)

rabbit severe (no wash)/moderate (wash) (NITE risk assessment, 2007)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

#### Carcinogenicity

(tert-Butyl alcohol)

ACGIH-A4(1992) : Not Classifiable as a Human Carcinogen

#### Reproductive toxicity

[GHS Cat. Japan, base data]

(tert-Butyl alcohol)

cat. 2; rat : CERI/NITE risk assessment, 2007

#### STOT

##### STOT-single exposure

[cat.3 (resp. irrit.)]

[GHS Cat. Japan, base data]

(tert-Butyl alcohol)

respiratory tract irritation (DFGMAK-Doc.19, 2003)

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

[GHS Cat. Japan, base data]

(tert-Butyl alcohol)

narcosis (DFGMAK-Doc.19, 2003)



STOT-repeated exposure data is not available.

Aspiration hazard data is not available.

Additional data

May cause lung disorders by massive inhalation of powdered substance.

-e.g. fibrosis of lung tissue, cough, sputum, breath shortness, dyspnea, decline of lung function, interstitial lung disease, pneumothorax

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## 12. Ecological Information

Ecotoxicity

Aquatic toxicity

Aquatic acute toxicity component(s) data

[GHS Cat. Japan, base data]

(tert-Butyl alcohol)

Algae (*Pseudokirchneriella subcapitata*) ErC50 > 110mg/L/72hr (MOE Japan, 2009)

Aquatic chronic toxicity component(s) data

[GHS Cat. Japan, base data]

(tert-Butyl alcohol)

Algae (*Pseudokirchneriella subcapitata*) NOEC=110mg/L/72hr (MOE Japan, 2009)

Water solubility

(tert-Butyl alcohol)

miscible (ICSC, 2008)

Persistence and degradability

(tert-Butyl alcohol)

Not degrade rapidly (BOD\_Degradation : 25% Registered chemicals data check & review 1977)

Bioaccumulative potential

(tert-Butyl alcohol)

log Pow=0.3 (ICSC, 2008)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

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## 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

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

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## 14. Transport Information

UN No.: 1120

Proper Shipping Name :

BUTANOLE

Class or division : 3

Packing group : II

ERG GUIDE No.: 129

IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 1120

Proper Shipping Name :

BUTANOLE

Class or division : 3

Packing group : II

**IATA Dangerous Goods Regulations**

UN No.: 1120

Proper Shipping Name :

BUTANOLE

Class or division : 3

Hazard labels : Flamm.liquid

Packing group : II

Special provisions No.: A3

**Environmental hazards**

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

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

Flammable Liquid

tert-Butyl alcohol

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**15. Regulatory Information**

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

**US major regulations**

Chemicals listed in TSCA Inventory

tert-Butyl alcohol

**Other regulatory information**

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

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**16. Other information****GHS classification and labelling**

Flam. Sol. 1: H228 Flammable solid

Eye Irrit. 2A: H319 Causes serious eye irritation

Repr. 2: H361 Suspected of damaging fertility or the unborn child

STOT SE 3: H335 May cause respiratory irritation

STOT SE 3: H336 May cause drowsiness or dizziness

**Reference Book**

Globally Harmonized System of classification and labelling of chemicals, (6th ed., 2015), UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN

IMDG Code, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (60th Edition) 2019

Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)

2016 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2019 TLVs and BEIs. (ACGIH)

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

Supplier's data/information

**General Disclaimer**

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

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 (NITE published in 2018).