



## Safety Data Sheet

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

**Product identifier:**

Product name: Toluene

SDS No. : 7902E-3

**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 liquids: Category 2

**HEALTH HAZARDS**

Acute toxicity (Inhalation): Category 4

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 2B

Reproductive toxicity: Category 1A

Reproductive toxicity – effects on or via lactation: Additional category

Specific target organ toxicity – single exposure: Category 1(CNS)

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

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

Specific target organ toxicity – repeated exposure: Category 1(CNS; kidney)

Aspiration hazard: Category 1

**ENVIRONMENT HAZARDS**

Hazardous to the aquatic environment (Acute): Category 2

Hazardous to the aquatic environment (Long-term): Category 3

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

**Label elements**

Signal word: Danger

**HAZARD STATEMENT**

Highly flammable liquid and vapor

Harmful if inhaled

Causes skin irritation

Causes eye irritation

May damage fertility or the unborn child

May cause harm to breast-fed children

Causes damage to organs after single exposure(CNS)

May cause respiratory irritation

May cause drowsiness or dizziness



Causes damage to organs through prolonged or repeated exposure(CNS; kidney)  
May be fatal if swallowed and enters airways  
Toxic to aquatic life  
Harmful to aquatic life with long lasting effects

**PRECAUTIONARY STATEMENT****Prevention**

Avoid release to the environment.  
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.  
Do not breathe 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.  
Do not eat, drink or smoke when using this product.

**Response**

In case of fire: Use appropriate media other than water for extinction.  
Get medical advice/attention if you feel unwell.  
IF exposed or concerned: Get medical advice/attention.  
Call a POISON CENTER or doctor/physician if you feel unwell.  
IF exposed or concerned: Call a POISON CENTER or doctor/physician.  
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.  
Do NOT induce vomiting.  
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

**Storage**

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

**Disposal**

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

**Specific Physical and Chemical hazards**

Highly flammable liquid. Vapor/air mixture may explode.

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**3. Composition/information on ingredients****Mixture/Substance selection:****Substance**

Ingredient name:Toluene  
Content (%):99(min)  
Chemical formula:C6H5CH3  
Chemicals No, Japan:3-2  
CAS No.:108-88-3  
MW:92.14  
ECNO:203-625-9

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

Get medical attention/advice 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 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.

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#### 5. Fire-fighting measures

##### Extinguishing media

###### Suitable extinguishing media

In case of fire, use 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.

### 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.

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## 7. Handling and storage

### Precautions for safe handling

#### Preventive measures

(Exposure Control for handling personnel)

Do not breathe 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.

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.

#### Safety Measures

Use only outdoors or in a well-ventilated area.

Wear protective gloves, protective clothing or 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.

Do not eat, drink or smoke when using this product.

Take off contaminated clothing and wash it before reuse.

### Storage

#### Conditions for safe storage

Keep container tightly closed.

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

Keep under lock and key.

#### Container and packaging materials for safe handling

Glass

Iron



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## 8. Exposure controls/personal protection

### Control parameters

#### Adopted value

(Toluene)

ACGIH(2006) TWA: 20ppm (Visual impair; female repro; pregnancy loss)

#### OSHA-PEL

TolueneTWA: 200ppm; STEL: C 300ppm

Acceptable maximum peak: 500ppm; Maximum Duration: 10min

### 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: Liquid

Color: Colorless, clear

Odor: Characteristic odor

pH data is not available.

Boiling point or initial boiling point: 111°C

Boiling range data is not available.

Melting point/Freezing point: -95°C

Decomposition temperature data is not available.

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

Flash point: (Toluene)(C.C.) 4°C

Auto-ignition temperature: 480°C

Lower and upper explosion limit/flammability limit:

Lower explosion limit: 1.1 vol %

Upper explosion limit: 7.1 vol %

Vapor pressure: 3.8 kPa (25 °C)

Relative vapor density (Air=1): 3.1

Relative density of the Vapor/air - mixture at 20°C (Air = 1): 1.01

Density and/or relative density: 0.87

Kinematic viscosity data is not available.

Solubility:

Solubility in water: None

n-Octanol/water partition coefficient: log Pow2.69

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. As a result of flow, agitation, etc., electrostatic charges can be generated.

Reacts violently with strong oxidants. This generates fire and explosion hazard. (ICSC 0078)

### Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

### Incompatible materials

Strong oxidizing agents

### Hazardous decomposition products

Carbon oxides

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## 11. Toxicological Information

### Information on toxicological effects

#### Acute toxicity

##### Acute toxicity (Inhalation)

[GHS Cat. Japan, base data]

(Toluene)

vapor: rat LC50=3319-8800ppm/4hr (EU-RAR, 2003) et al.

#### Irritant properties

##### Skin corrosion/irritation

[GHS Cat. Japan, base data]

(Toluene)

rabbit moderate irritation (EU-RAR, 2003)

##### Serious eye damage/irritation

[GHS Cat. Japan, base data]

(Toluene)

rabbit slight eyes irritation (EU-RAR, 2003)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

#### Carcinogenicity

(Toluene)

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

(Toluene)

ACGIH-A4(2006) : Not Classifiable as a Human Carcinogen

#### Reproductive toxicity

[GHS Cat. Japan, base data]

(Toluene)

cat. 1A; CERI/NITE risk assessment 87, 2006

(Toluene)

cat. add; SIDS(J), Access on Apr. 2012

#### STOT

##### STOT-single exposure

[cat.1]

[GHS Cat. Japan, base data]

(Toluene)

CNS (IARC 47, 1989; IRIS tox. Review, 2005)



[cat.3 (resp. irrit.)]

[GHS Cat. Japan, base data]

(Toluene)

respiratory tract irritation (PATTY 5th, 2001)

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

[GHS Cat. Japan, base data]

(Toluene)

narcosis (EHC 52, 1985; IARC 47, 1989)

STOT-repeated exposure

[cat.1]

[GHS Cat. Japan, base data]

(Toluene)

CNS; kidney (Occupational medicine vol.36, 1994)

Aspiration hazard

[cat.1]

[GHS Cat. Japan, base data]

(Toluene)

cat. 1; hydrocarbon, kinematic viscosity =0.86 mm<sup>2</sup>/s (40°C)

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## 12. Ecological Information

Ecotoxicity

Aquatic toxicity

Toxic to aquatic life

Harmful to aquatic life with long lasting effects

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(Toluene)

Crustacea (Ceriodaphnia dubia) EC50=3.78mg/L/48hr (NITE primary risk assessment, 2006)

Hazardous to the aquatic environment (Long-term)

[GHS Cat. Japan, base data]

(Toluene)

Crustacea (Ceriodaphnia dubia) NOEC=0.74mg/L/7days (NITE primary risk assessment, 2006)

Water solubility

(Toluene)

none (ICSC, 2002)

Persistence and degradability

(Toluene)

BOD\_Degradation : 123% (Registered chemicals data check & review)

Bioaccumulative potential

(Toluene)

log Kow=2.73 (PHYSPROP DB, 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

Avoid release to the environment (- if this is not the intended use).

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



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**14. Transport Information**

UN No.: 1294

Proper Shipping Name :

TOLUENE

Class or division : 3

Packing group : II

ERG GUIDE No.: 130

**IMDG Code (International Maritime Dangerous Goods Regulations)**

UN No.: 1294

Proper Shipping Name :

TOLUENE

Class or division : 3

Packing group : II

**IATA Dangerous Goods Regulations**

UN No.: 1294

Proper Shipping Name :

TOLUENE

Class or division : 3

Hazard labels : Flamm.liquid

Packing group : II

**Environmental hazards****MARPOL Annex III – Prevention of pollution by harmful substances**

Marine pollutants (yes/no) : no

**MARPOL Annex V – Prevention of pollution by garbage discharge**

Reproductive toxicity: cat.1, 1A, 1B

Toluene

Specific target organ toxicity – repeated exposure: cat.1

Toluene

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

Noxious Liquid ; Cat. Y

Toluene

Oil

Toluene

Flammable Liquid

Toluene

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**15. Regulatory Information**

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

**US Federal Regulations**

Chemicals listed in TSCA Inventory

Toluene

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

Acute Tox. 4: H332 Harmful if inhaled

Skin Irrit. 2: H315 Causes skin irritation

Eye Irrit. 2B: H320 Causes eye irritation



Repr. 1A: H360 May damage fertility or the unborn child  
Lact.: H362 May cause harm to breast-fed children  
STOT SE 1: H370 Causes damage to organs after single exposure  
STOT SE 3: H335 May cause respiratory irritation  
STOT SE 3: H336 May cause drowsiness or dizziness  
STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure  
Asp. Tox. 1: H304 May be fatal if swallowed and enters airways  
Aquatic Acute 2: H401 Toxic to aquatic life  
Aquatic Chronic 3: H412 Harmful to aquatic life with long lasting effects

**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 (61th Edition) 2020  
Classification, labelling and packaging of substances and mixtures (Table 3 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).