



## Safety Data Sheet

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

**Product identifier:**

Product name: Chloroform

SDS No. : 1601E-3

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

Research and Development

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

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

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

Division: Chemical Safety Management Department

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

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### Section 2. Hazards identification

**GHS classification and label elements of the product****Classification of the substance or mixture****HEALTH HAZARDS**

Acute toxicity (Oral): Category 4

Acute toxicity (Inhalation): Category 3

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 1

Germ cell mutagenicity: Category 2

Carcinogenicity: Category 1A

Reproductive toxicity: Category 1A

Specific target organ toxicity – single exposure: Category 1 (cardiovascular system, liver, respiratory system, kidneys)

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

Specific target organ toxicity – repeated exposure: Category 1 (liver, central nervous system, respiratory system, kidneys)

Specific target organ toxicity – repeated exposure: Category 2 (liver)

**ENVIRONMENT HAZARDS**

Hazardous to the aquatic environment, short-term (acute): Category 3

Hazardous to the aquatic environment, long-term (chronic): Category 1

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

**Label elements**

Signal word: Danger

**HAZARD STATEMENT**

Harmful if swallowed

Toxic if inhaled

Causes skin irritation

Causes serious eye damage

Suspected of causing genetic defects

May cause cancer

May damage fertility or the unborn child



Causes damage to organs (cardiovascular system, liver, respiratory system, kidneys)  
May cause drowsiness or dizziness  
Causes damage to organs through prolonged or repeated exposure (liver, central nervous system, respiratory system, kidneys)  
May cause damage to organs through prolonged or repeated exposure (liver)  
Harmful to aquatic life  
Very toxic to aquatic life with long lasting effects

**PRECAUTIONARY STATEMENT****Prevention**

Avoid release to the environment.  
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.  
Wear eye protection/face protection.  
Do not eat, drink or smoke when using this product.

**Response**

Collect spillage.  
Get medical advice/attention if you feel unwell.  
IF exposed or concerned: Get medical advice/attention.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
IF ON SKIN: Wash with plenty of soap and water.  
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 SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.  
IF SWALLOWED: Rinse mouth.

**Storage**

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

**Disposal**

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

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

Ingredient name:Chloroform  
Content (%):99(min)  
Chemical formula:CHCl<sub>3</sub>  
Chemicals No, Japan:2-37  
CAS No.:67-66-3  
MW:119.4  
ECNO:200-663-8

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

**Stabilizing additives**

Ethanol  $\leq$ 1.0% (CAS No. 64-17-5)



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**Section 4. First-aid measures****Descriptions of first-aid measures****General measures**

Get medical advice/attention if you feel unwell.

**IF INHALED**

Remove person to fresh air and keep comfortable for breathing.

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

**IF ON SKIN (or hair)**

Take off immediately all contaminated clothing. Rinse skin with water or 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.

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

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**Section 5. Fire-fighting measures****Extinguishing media****Suitable extinguishing media**

Use appropriate extinguishing media suitable for surrounding facilities.

**Unsuitable extinguishing media**

Unsuitable extinguishing media data is not available.

**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 resistant or flame 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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**Section 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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**Section 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, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(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.

Wear 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.

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

Stainless steel

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

(Chloroform)

ACGIH(1995) TWA: 10ppm (Liver & embryo/fetal dam; CNS impair)

(Ethanol)

ACGIH(2009) STEL: 1000ppm (URT irr)

**OSHA-PEL**

(Chloroform)

STEL: C 50ppm, 240mg/m<sup>3</sup>

(Ethanol)

TWA: 1000ppm, 1900mg/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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## Section 9. Physical and Chemical Properties

### Information on basic physical and chemical properties

- Physical state: Liquid
- Color: Colorless, Clear
- Odor: Characteristic odor
- Melting point/Freezing point:  $-64^{\circ}\text{C}$
- Boiling point or initial boiling point:  $62^{\circ}\text{C}$
- Boiling range data is not available.
- Flammability (gases, liquids and solids) data is not available.
- Lower and upper explosion limit/flammability limit data is not available.
- Flash point data is not available.
- Auto-ignition temperature data is not available.
- Decomposition temperature data is not available.
- pH data is not available.
- Kinematic viscosity data is not available.
- Solubility:
  - Solubility in water: 0.8g/100 ml ( $20^{\circ}\text{C}$ )
  - n-Octanol/water partition coefficient:  $\log P_{ow} 1.97$
  - Vapor pressure: 21.2kPa( $20^{\circ}\text{C}$ )
  - Density and/or relative density: 1.48 g/ml
  - Relative vapor density (Air=1): 4.12
  - Relative density of the Vapor/air - mixture at  $20^{\circ}\text{C}$  (Air = 1): 1.7
  - Particle characteristics data is not available.

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## Section 10. Stability and Reactivity

### Reactivity

Not available.

### Chemical stability

Decomposes under the influence of light or air.

### Possibility of hazardous reactions

(Chloroform)

The vapour is heavier than air.

Decomposes on contact with hot surfaces or flames. This produces toxic and corrosive fumes of hydrogen chloride, phosgene and chlorine. Reacts violently with strong bases, strong oxidants and some metals such as aluminium, magnesium and zinc. This generates fire and explosion hazard. Attacks plastics, rubber and coatings. (ICSC 0027)

### Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

### Incompatible materials

Strong bases, Strong oxidizing agents, Metals

### Hazardous decomposition products

Carbon oxides, Hydrogen chloride, Phosgene, Chlorine



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**Section 11. Toxicological Information**

## Information on toxicological effects

## Acute toxicity

## Acute toxicity (Oral)

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chloroform)

male rat LD50=445mg/kg (CLH Report, 2010)

## Acute toxicity (Dermal)

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chloroform)

rabbit LD50 &gt;3980mg/kg (AICIS IMAP, 2014)

## Acute toxicity (Inhalation)

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chloroform)

vapor: rat LC50=9.2g/m<sup>3</sup>/6hr (cal.: 11.3g/m<sup>3</sup>/4hr, 2310ppm/4hr) (AICIS IMAP, 2014)

## Irritant properties

## Skin corrosion/irritation

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chloroform)

rabbit moderate skin necrosis et al (EHC 163, 1994)

## Serious eye damage/irritation

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chloroform)

rabbit severe irritation (EHC 163, 1994)

(Ethanol)

rabbit recover within 7 days (ECETOC TR No.48(2), 1998 et al)

Allergenic and sensitizing effects data is not available.

## Germ cell mutagenicity

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chloroform)

cat. 2; GERI/NITE Hazard Assessment Report, 2008

## Carcinogenicity

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chloroform)

cat.2; IARC Gr. 2B (IARC, 1999 et al.)

(Ethanol)

cat.1A; (IARC, 2010)

[IARC]

(Chloroform)

Group 2B : Possibly carcinogenic to humans

(Ethanol)

Group 1 : Carcinogenic to humans

[ACGIH]

(Chloroform)

A3(1995) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

(Ethanol)



A3(2009) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

[EU]

(Chloroform)

Category 2; Substances suspected human carcinogens

Reproductive toxicity

[Data for components of the product]

[GHS Cat. Japan, base data]

(Chloroform)

cat. 2; CERI/NITE Hazard Assessment Report, 2008

(Ethanol)

cat. 1A; human : PATTY 6th, 2012

Specific target organ toxicity (STOT)

STOT-single exposure

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

(Chloroform)

cardiovascular system, liver, respiratory system, kidneys (EU-RAR, 2007 et al.)

[cat.3 (respiratory tract irritation)]

[GHS Cat. Japan, base data]

(Ethanol)

respiratory tract irritation (PATTY 6th, 2012)

[cat.3 (narcotic effects)]

[GHS Cat. Japan, base data]

(Chloroform)

narcotic effect (EU-RAR, 2007 et al.)

(Ethanol)

narcotic effect (PATTY 6th, 2012; SIDS, 2005)

STOT-repeated exposure

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

(Chloroform)

liver, central nervous system, respiratory system, kidneys (PATTY 6th, 2012; CERI/NITE

Hazard Assessment Report, 2008)

(Ethanol)

liver (DFGOT vol.12, 1999)

[cat.2]

[GHS Cat. Japan, base data]

(Ethanol)

central nervous system (HSDB, Access on Jun. 2013)

Aspiration hazard data is not available.

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## Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Data for components of the product]

Hazardous to the aquatic environment, short-term (acute)

[GHS Cat. Japan, base data]

(Chloroform)

Algae (Chlamydomonas) EC50=13.3mg/L/72hr (EU-RAR, 2007)

(Ethanol)

Algae (Chlorella) EC50=1000mg/L/96hr (SIDS, 2005)



Hazardous to the aquatic environment, long-term (chronic)

[GHS Cat. Japan, base data]

(Chloroform)

Fish (rainbow trout) NOEC=0.059mg/L/21days (MOE Japan, 2003)

(Ethanol)

Crustacea (Ceriodaphnia sp.) NOEC=9.6mg/L/10days (SIDS, 2005)

Water solubility

(Chloroform)

0.8 g/100 ml (20°C) (ICSC, 2000)

(Ethanol)

miscible (ICSC, 2000)

Persistence and degradability

[Data for components of the product]

(Chloroform)

Not rapidly degradable (BOD\_Degradation : 0%/14 days; GC\_Degradation: 4.6%/14 days (MITI official bulletin))

(Ethanol)

Rapidly degradable (BOD\_Degradation : 89% (METI existing chemical safety inspections, 1993))

Bioaccumulative potential

[Data for components of the product]

(Chloroform)

log Pow=1.97 (ICSC, 2000) ; BCF=13 (Check & Review, Japan)

(Ethanol)

log Pow=-0.32 (ICSC, 2000)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

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### Section 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.

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

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### Section 14. Transport Information

UN Number or ID Number : 1888

UN Proper Shipping Name :

CHLOROFORM

Class or division (Transport hazard class) : 6.1

Packing group : III

ERG GUIDE No.: 151

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 1888

UN Proper Shipping Name :

CHLOROFORM

Class or division (Transport hazard class) : 6.1

Packing group : III

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 1888

UN Proper Shipping Name :



**CHLOROFORM**

Class or division (Transport hazard class) : 6.1

Hazard labels : Toxic

Packing group : III

## Environmental hazards

Marine pollutants (yes/no) : yes

## Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Noxious Liquid Substances ; Cat. Y

Chloroform

Noxious Liquid Substances ; Cat. Z

Ethanol

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**Section 15. Regulatory Information**

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

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

Ethanol; Chloroform

## Other regulatory information

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

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**Section 16. Other information**

## GHS classification and labelling

Acute toxicity, Category 4: H302 Harmful if swallowed

Acute toxicity, Category 3: H331 Toxic if inhaled

Skin corrosion/irritation, Category 2: H315 Causes skin irritation

Serious eye damage/eye irritation, Category 1: H318 Causes serious eye damage

Germ cell mutagenicity, Category 2: H341 Suspected of causing genetic defects

Carcinogenicity, Category 1A: H350 May cause cancer

Reproductive toxicity, Category 1A: H360 May damage fertility or the unborn child

STOT – single exposure, Category 1: H370 Causes damage to organs

STOT – single exposure, Category 3, Narcotic effects: H336 May cause drowsiness or dizziness.

STOT – Repeated exposure, Category 1: H372 Causes damage to organs through prolonged or repeated exposure

STOT – Repeated exposure, Category 2: H373 May cause damage to organs through prolonged or repeated exposure

Hazardous to the aquatic environment, short-term (acute), Category 3: H402 Harmful to aquatic life

Hazardous to the aquatic environment, long-term (chronic), Category 1: H410 Very toxic to aquatic life with long lasting effects

## References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN

IMDG Code, 2020 Edition (Incorporating Amendment 40-20)

IATA Dangerous Goods Regulations (62nd Edition) 2021

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2022 TLVs and BEIs. (ACGIH)

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 2021).