

## Safety Data Sheet

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

**Product identifier:**

Product name: Chloroform

Reference number(SDS): 28560jis\_J\_E1-4

**Product type:**

Reagent

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

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

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

Division: Quality Assurance Department

Telephone number: +81-48-986-6161

FAX: +81-48-989-2787

e-mail address: shiyaku-t@junsei.co.jp

### 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 2

Reproductive toxicity: Category 2

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

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

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

**ENVIRONMENT HAZARDS**

Hazardous to the aquatic environment (Acute): Category 3

Hazardous to the aquatic environment (Long-term): Category 1

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

**Label elements**

Signal word: Danger

**HAZARD STATEMENT**

H302-Harmful if swallowed

H331-Toxic if inhaled

H315-Causes skin irritation

H318-Causes serious eye damage

H341-Suspected of causing genetic defects

H351-Suspected of causing cancer

- H361–Suspected of damaging fertility or the unborn child
- H370–Causes damage to organs
- H336–May cause drowsiness or dizziness
- H372–Causes damage to organs through prolonged or repeated exposure
- H402–Harmful to aquatic life
- H410–Very toxic to aquatic life with long lasting effects

**PRECAUTIONARY STATEMENT****Prevention**

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Avoid release to the environment.
- Do not breathe vapors.
- Use only outdoors or in a well-ventilated area.
- Wash contaminated parts thoroughly after handling.
- Wear protective gloves.
- Wear eye protection/face protection.
- Use personal protective equipment as required.
- 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.
- Immediately call a POISON CENTER/doctor/physician.
- Call a POISON CENTER/doctor/physician if you feel unwell.
- IF exposed or concerned: Call a POISON CENTER/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 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: Rinse mouth. Call a POISON CENTER/doctor/physician if you feel unwell.

**Storage**

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

**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 (%): 99.0 <  
Chemical formula: CHCl<sub>3</sub>  
Chemicals No, Japan: 2-37  
CAS No.: 67-66-3  
MW: 119.38  
ECNO: 200-663-8

**Stabilizing additives**

Ethanol (0.3~1.0%)

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

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

- Get medical advice/attention if you feel unwell.
- Immediately call a POISON CENTER/doctor/physician.
- Keep victim warm and quiet.
- Call emergency medical service.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

**IF INHALED**

- Remove person to fresh air and keep comfortable for breathing.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- 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 skin irritation occurs: Get medical advice/attention.
- Remove and isolate contaminated clothing and shoes.
- For minor skin contact, avoid spreading material on unaffected skin.

**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.
- If victim is conscious, give 1 – 2 glasses of water.
- Call a POISON CENTER/doctor/physician if you feel unwell.

**Most important symptoms and effects, both acute and delayed****(Symptoms when inhalation or ingestion)**

Nausea. Abdominal pain. Headache. Drowsiness. Cough. Dizziness. Unconsciousness.. Vomiting.

**(Symptoms when skin and/or eye contact)**

Dry skin. Conjunctival redness of the eyes. Redness of the skin. Pain.

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

- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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

- Use appropriate extinguishing media suitable for surrounding facilities.
- The product is non-flammable.

**Unsuitable extinguishing media**

- Do not use direct water jet.

**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 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**

- Keep unauthorized personnel away.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Ventilate area until material pick up is complete.
- Wear proper protective equipment.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- EVACUATION : Spill:** See the Table of Initial Isolation and Protective Action Distances for highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

**Environmental precautions**

- Avoid release to headsprings, rivers, lakes, ocean and 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.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- Do not get water inside containers.
- Keep out of low areas.

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**Section 7. Handling and storage****Precautions for safe handling****Preventive measures**

(Exposure Control for handling personnel)

- Do not breathe vapors.

(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**

- Obtain special instructions before use.
- 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/eye protection/face protection.
- Use personal protective equipment as required.
- When using do not eat, drink or smoke.

**Any incompatibilities**

Strong bases, Strong oxidizing agents, Aluminium, Magnesium, Zinc. should not be mixed with the chemicals.

**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**

Store in a well-ventilated place. Keep container tightly closed.  
Keep cool. Protect from sunlight.  
Store in accordance with local/national regulation.  
Store locked up.

Container and packaging materials for safe handling data is not available.

**Specific end use(s)**

See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

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

Japan control value (2009)  $\leq$  3ppm

**Adopted value**

JSOH(2005) 3ppm; 14.7mg/m<sup>3</sup> (dermal)  
ACGIH(1995) TWA: 10ppm (Liver & embryo/fetal dam; CNS impair)

**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.  
Wear positive pressure self-contained breathing apparatus (SCBA).

**Hand protection**

Wear protective gloves. Recommended material(s): viton  
Inspect before use and replace worn or damaged gloves.  
Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.

**Eye protection**

Wear safety glasses with side-shields.  
Wear eye/face protection.

**Skin and body protection**

Wear impervious clothing and boots in case of repeated or prolonged treatment.

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

Physical state: Volatile liquid

Color: Colorless

Odor: Characteristic odor

Odor threshold: 85ppm; 250~1000mg/cm<sup>3</sup>

Melting point/Freezing point: -64°C

Boiling point or initial boiling point: 62°C  
Boiling range data is not available.  
Flammability (gases, liquids and solids): Non-flammable  
Lower and upper explosion limit/flammability limit data is not available.  
Flash point: Non-flammable  
Auto-ignition temperature data is not available.  
Decomposition temperature data is not available.  
Self-Accelerating Decomposition Temperature/SADT data is not available.  
pH data is not available.  
Dynamic viscosity: 0.56mPas(20°C)  
Kinematic viscosity: 0.38mm<sup>2</sup>/s(20°C)  
Solubility:  
    Solubility in water: 0.8g/100 ml (20°C)  
    Solubility in solvent: Miscible with ethanol (99.5) and diethyl ether.  
n-Octanol/water partition coefficient: log Pow1.97  
Vapor pressure: 21.2kPa(20°C)  
Density and/or relative density: 1.48g/cm<sup>3</sup>(20°C)  
Relative vapor density (Air=1): 4.12  
Relative density of the Vapor/air – mixture at 20°C (Air = 1): 1.7  
Particle characteristics data is not available.  
Other information  
    Critical temperature: 263.2 °C  
    Evaporation rate data is not available.  
    VOC data is not available.

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## Section 10. Stability and Reactivity

### Reactivity

Runaway polymerization will not occur.

### Chemical stability

Stable under normal storage/handling conditions.

### Possibility of hazardous reactions

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(eg. Polyvinyl chloride), rubber(eg. Natural rubber) and coatings.

### Conditions to avoid

Contact with incompatible materials.

Open flames. Heating. Sparks. Light.

### Incompatible materials

Strong bases, Strong oxidizing agents, Aluminium, Magnesium, Zinc.

### 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)

[Product]

Category 4, Harmful if swallowed

[Data for components of the product]

[GHS Cat. Japan, base data]

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

Acute toxicity (Dermal)

[Product]

Based on available data, the classification criteria are not met.

[Data for components of the product]

[GHS Cat. Japan, base data]

rabbit LD50 >3980mg/kg (AICIS IMAP, 2014)

Acute toxicity (Inhalation)

[Product]

Category 3, Toxic if inhaled

[Data for components of the product]

[GHS Cat. Japan, base data]

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

Labor standard law, Japan; Toxic

Chloroform

Irritant properties

Skin corrosion/irritation

[Product]

Category 2, Causes skin irritation

[Data for components of the product]

[GHS Cat. Japan, base data]

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

Serious eye damage/irritation

[Product]

Category 1, Causes serious eye damage

[Data for components of the product]

[GHS Cat. Japan, base data]

rabbit : severe irritation (EHC 163, 1994)

Sensitization

Respiratory sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Skin sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Germ cell mutagenicity

[Product]

Category 2, Suspected of causing genetic defects

[Data for components of the product]

[GHS Cat. Japan, base data]

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

Carcinogenicity

[Product]

Category 2, Suspected of causing cancer

[Data for components of the product]

[GHS Cat. Japan, base data]

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

[IARC]

Group 2B : Possibly carcinogenic to humans

[ACGIH]

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

[JSOH]

Group 2B: The agents which are probably or possibly carcinogenic to humans

[NTP]

RAHC : Reasonably Anticipated to be Human Carcinogens

[EPA]

NL; Not likely to be carcinogenic to humans(Any route of exposure under exposure conditions that do not cause cytotoxicity and cell regeneration)

L; Likely to be carcinogenic to humans(All routes of exposure under high-exposure conditions that lead to cytotoxicity and regenerative hyperplasia in susceptible tissues)(1999)

[EU]

Category 2; Substances suspected human carcinogens

#### Reproductive toxicity

[Product]

Category 2, Suspected of damaging fertility or the unborn child

[Data for components of the product]

[GHS Cat. Japan, base data]

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

#### Specific target organ toxicity (STOT)

STOT-single exposure

[Product]

Category 1, Causes damage to organs

Category 3, May cause drowsiness or dizziness

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

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

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

[GHS Cat. Japan, base data]

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

STOT-repeated exposure

[Product]

Category 1, Causes damage to organs through prolonged or repeated exposure

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

liver, central nervous system, respiratory system, kidneys (PATTY 6th, 2012; CERI/NITE Hazard Assessment Report, 2008)

#### Aspiration hazard

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

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## Section 12. Ecological Information

### Toxicity

#### Aquatic toxicity

[Product]

Category 3, Harmful to aquatic life

Category 1, Very toxic to aquatic life with long lasting effects



[Data for components of the product]

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

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

Hazardous to the aquatic environment (Long-term)

[GHS Cat. Japan, base data]

Fish (rainbow trout) NOEC=0.059mg/L/21days

(Environmental Risk Assessment for Chemicals by MOE in Japan vol. 2, 2003)

Water solubility

[Data for components of the product]

0.8 g/100 ml (20°C) (ICSC, 2000)

Persistence and degradability

[Data for components of the product]

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

Bioaccumulative potential

[Data for components of the product]

log Pow=1.97 (ICSC, 2000) ; BCF=13 (Registered chemicals data check & review, Japan)

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 No., UN CLASS

UN No. or ID No.: 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 No.: 1888

Proper Shipping Name : CHLOROFORM

Class or division : 6.1

Packing group : III

IATA Dangerous Goods Regulations

UN No.: 1888

Proper Shipping Name : CHLOROFORM

Class or division : 6.1

Hazard labels : Toxic

Packing group : III

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : yes

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

Specific target organ toxicity – repeated exposure: cat.1

Chloroform

Hazardous to the aquatic environment – long-term hazard: cat.1, 2

Chloroform

## Maritime transport in bulk according to IMO instruments

Noxious Liquid ; Cat. Y

Chloroform(Y-146)

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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

67-66-3; 64-17-5

All components are listed or exempted.

## Superfund Amendments and Reauthorizations Act (SARA), Title III

## SARA 313 (TRI)

Chloroform

## Other regulatory information

We are not able to check up the regulatory information with 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.

Regulatory information in this section are limited to intentional ingredient(s), but does not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

## Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

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**Section 16. Other information**

## GHS classification and labelling

H302–Acute toxicity, Category 4: H302 Harmful if swallowed

H331–Acute toxicity, Category 3: H331 Toxic if inhaled

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

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

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

H351–Carcinogenicity, Category 2: H351 Suspected of causing cancer

H361–Reproductive toxicity, Category 2: H361 Suspected of damaging fertility or the unborn child

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

H336–STOT – single exposure, Category 3, Respiratory tract irritation: H336 May cause drowsiness or dizziness.

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

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

H410–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, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (62nd Edition) 2021

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2022 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2019

JIS Z 7253 : 2019

2021 Recommendation on TLVs (JSOH)

Supplier's data/information

Chemicals safety data management system "GHS Assistant" Version 4.19 (<https://www.asahi-ghs.com/>)

NITE Chemical Risk Information Platform "NITE-CHRIP"

([https://www.nite.go.jp/en/chem/chrip/chrip\\_search/systemTop](https://www.nite.go.jp/en/chem/chrip/chrip_search/systemTop))

GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.0) (Mar. 2020, METI)

#### Abbreviations and acronyms

SDS (Safety Data Sheet)

LD50 (Lethal Dose, 50%)

LC50 (Lethal Concentration, 50%)

IARC (International Agency for Research on Cancer)

ACGIH (American Conference of Governmental Industrial Hygienists)

EPA (US Environmental Protection Agency)

NTP (US National Toxicology Program)

JSOH (Japan Society for Occupational Health)

EU (European Union)

EC50 (Effective Concentration, 50%)

NOEC (No Observed Effect Concentration)

BOD (Biochemical Oxygen Demand)

COD (Chemical Oxygen Demand)

BCF (Bioconcentration Factor)

anh (anhydride)

#### 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).