

## Safety Data Sheet

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

#### Product identifier:

Product name: Cyclohexane

Product code (SDS NO): 33805jis\_E1-3

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

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

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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 AND CHEMICAL HAZARDS

Flammable liquids: Category 2

##### HEALTH HAZARDS

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 2

Specific target organ toxicity – single exposure: Category 2((cardiovascular system))

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

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

##### ENVIRONMENT HAZARDS

Hazardous to the aquatic environment (Acute): Category 1

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

(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 serious eye irritation

May cause damage to organs after single exposure

May cause respiratory irritation

May cause drowsiness or dizziness

Very 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/eye protection/face protection.
- Wear eye protection/face protection.
- Do not eat, drink or smoke when using this product.

**Response**

- In case of fire: Use appropriate media for extinction.
- Collect spillage.
- 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.

**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.

**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: Cyclohexane
- Content (%): 99.0 <
- Chemical formula: C<sub>6</sub>H<sub>12</sub>
- Chemicals No, Japan: 3-2233
- CAS No.: 110-82-7
- MW: 84.16
- ECNO: 203-806-2

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

- 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.

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

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

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

Aspiration hazard!

(Symptoms when skin and/or eye contact)

Redness. Dry skin.

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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**

Do not use direct water jet.

Water may be effective for cooling, but may not effect extinguishment.

**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.

Water may be ineffective.

**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**

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.

**PUBLIC SAFETY:** Ventilate closed spaces before entering.

**Environmental precautions**

Runoff to sewer may create fire or explosion hazard.

Vapor explosion hazard indoors, outdoors or in sewers.

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.

Use clean non-sparking tools to collect absorbed material.

All equipment used when handling the product must be grounded.

Preventive measures for secondary accident

Collect spillage.

Stop leak if you can do it without risk.

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Prevent entry into waterways, sewers, basements or confined areas.

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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.

Avoid breathing dust, fume, gas, mist or vapor.

#### Safety Measures/Incompatibility

Use only outdoors or in a well-ventilated area.

Wear protective gloves, protective clothing or face protection.

Wear protective gloves and face protection.

Wear eye protection/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

No control value data available in MHLW

#### Adopted value

JSOH(1970) 150ppm; 520mg/m<sup>3</sup>

ACGIH(1964) TWA: 100ppm (CNS impair)

#### OSHA-PEL

TWA: 300ppm, 1050mg/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.

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

**Hand protection**

Wear protective gloves. Recommended material(s): nitrile, viton

Consult with your glove and/or personnel equipment manufacturer for selection of appropriate compatible materials.

**Eye protection**

Wear safety glasses with side-shields.

Wear eye/face protection.

**Safety and Health measures**

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.

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

Appearance: Liquid

Color: Colorless-Clear

Odor: Characteristic odor

pH data N.A.

**Phase change temperature**

Initial Boiling Point/Boiling point: 81°C

Melting point/Freezing point: 7°C

Decomposition temperature data N.A.

Flash point: (C.C.) -18°C

Auto-ignition temperature: 260°C

Explosive properties: Flammability or explosive limit

Lower limit: 1.3 vol %

Upper limit: 8.4 vol %

Vapor pressure: 10.3 kPa (20°C)

Relative Vapor Density (Air=1): 2.9

Relative density of the Vapor/air - mixture at 20°C (Air = 1): 1.2

Specific gravity/Density: 0.7781 (20/4°C)

**Solubility**

Solubility in water: 0.0058 g/100 ml (25°C)

Solubility in solvent: Miscible in ethanol or diethyl ether.

n-Octanol /water partition coefficient: log Pow3.4

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**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.

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

Heating may cause violent combustion or explosion.

Reacts with strong oxidants.

## Conditions to avoid

- Contact with incompatible materials.
- Open flames. Heat. Sparks.

## 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 (Oral)

- [GHS Cat. Japan, base data]
- rat LD50 >5000 mg/kg (EU-RAR, 2004)

## Irritant properties

## Skin corrosion/irritation

- [GHS Cat. Japan, base data]
- rabbit/human : reversible disability (EU-RAR, 2004 et al.)

## Serious eye damage /irritation

- [GHS Cat. Japan, base data]
- animal/human : irritation (PATTY 6th, 2012 et al.)

No Allergenic and sensitizing effects data available

No Mutagenic effects data available

## Carcinogenicity

- EPA-I; "Inadequate Information to Assess Carcinogenic Potencial"(2005)

No reproductive toxicity data available

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

## STOT

## STOT-single exposure

- [cat.2]
- [GHS Cat. Japan, base data]
- vascular system (ACGIH 7th, 2002)
- [cat.3 (resp. irrit.)]
- [GHS Cat. Japan, base data]
- respiratory tract irritation (ACGIH 7th, 2002)
- [cat.3 (drow./dizz.)]
- [GHS Cat. Japan, base data]
- narcosis (ACGIH 7th, 2002)

No Aspiration hazard data available

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## 12. Ecological Information

## Ecotoxicity

## Aquatic toxicity

- Very toxic to aquatic life
- Harmful to aquatic life with long lasting effects

## Aquatic acute toxicity component(s) data

- [GHS Cat. Japan, base data]
- Crustacea (Daphnia magna) EC50=0.9mg/L/48hr (EU-RAR, 2004)

## Aquatic chronic toxicity component(s) data

- [GHS Cat. Japan, base data]
- Algae (Pseudokirchneriella subcapitata) NOEC=0.94mg/L/72hr (EU-RAR, 2004)

## Water solubility

0.0058 g/100 ml (25°C) (ICSC, 2011)

## Persistence and degradability

OECD TG 301F\_Degradation/28days : 77% (EU-RAR, 2004)

## Bioaccumulative potential

log Pow=3.4 (ICSC, 2011)

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**13. Disposal considerations**

## 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, UN CLASS

UN No.: 1145

Proper Shipping Name : CYCLOHEXANE

Class or division : 3

Packing group : II

ERG GUIDE No.: 128

## IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 1145

Proper Shipping Name :CYCLOHEXANE

Class or division : 3

Packing group : II

## IATA Dangerous Goods Regulations

UN No.: 1145

Proper Shipping Name :CYCLOHEXANE

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) : yes

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**15. Regulatory Information**

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

## Environmental hazards

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

Noxious Liquid ; Cat. Y

Cyclohexane

Flammable Liquid

Cyclohexane

## US major regulations

TSCA

Cyclohexane

## 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.

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## 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. 2: H319 Causes serious eye irritation

STOT SE 2: H371 May cause damage to organs after single exposure

STOT SE 3: H335 May cause respiratory irritation

STOT SE 3: H336 May cause drowsiness or dizziness

Aquatic Acute 1: H400 Very 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, (5th ed., 2013), 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)

2018 TLVs and BEIs. (ACGIH)

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

Supplier's data/information

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 2013 Revised Edition (Aug. 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 is advised to make their own tests to determine 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 (NITE published in 2017).