

Safety Data Sheet

1. Chemical product and company identification

Product name : Methylcyclohexane

Company information

Name of manufacturer : KANTO CHEMICAL CO., INC.
 Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
 Name of section : Business Administration Department, Reagent Division
 Telephone number : +81-3-6214-1090
 Facsimile number : +81-3-3241-1047
 Mail address : BC32@kanto.co.jp
 Reference No : 25231
 Product numbers applied by the SDS : 25231, 25291
 Recommended use : For research use only
 Restrictions on use : Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity (inhalation:vapors)	Category 4
	Serious eye damage/eye irritation	Category 2B
	Specific target organ toxicity (single exposure)	Category 3 (narcosis)
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation.)
	Specific target organ toxicity (repeated exposure)	Category 2 (kidney)
	Aspiration hazard	Category 1
Environmental hazards	Aquatic acute	Category 1
	Aquatic chronic	Category 1

Hazard pictograms



Signal word : Danger

Hazard statements : Highly flammable liquid and vapor
 May be fatal if swallowed and enters airways
 Causes eye irritation
 Harmful if inhaled
 May cause respiratory irritation
 May cause drowsiness or dizziness
 May cause damage to organs (kidney) through prolonged or repeated



exposure
 Very toxic to aquatic life
 Very toxic to aquatic life with long lasting effects

Precautionary statements

- Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 Keep container tightly closed.
 Ground and bond container and receiving equipment.
 Use explosion-proof electrical/ventilating/lighting equipment.
 Use only non-sparking tools.
 Take action to prevent static discharges.
 Do not breathe mist/vapors.
 Wash hands, forearms and face thoroughly after handling.
 Use only outdoors or in a well-ventilated area.
 Avoid release to the environment.
 Wear protective gloves/protective clothing/eye protection/face protection.
- Response : IF SWALLOWED: Immediately call a POISON CENTER or doctor.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water .
 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.
 Call a POISON CENTER or doctor if you feel unwell.
 Get medical advice/attention if you feel unwell.
 Do not induce vomiting.
 If eye irritation persists: Get medical advice/attention.
 Collect spillage.
- Storage : Store in a well-ventilated place. Keep container tightly closed.
 Store in a well-ventilated place. Keep cool.
 Store locked up.
- Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

- Distinction of substance or mixture : Substance
- Synonyms : Hexahydrotoluene

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Methylcyclohexane	≥ 98	C7H14	Listed	203-624-3	108-87-2

4. First aid measures

First aid measures

- First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle. If necessary, get medical treatment.
- First-aid measures after skin contact : Wash the affected areas under running water.



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- First-aid measures after eye contact : Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.
- First-aid measures after ingestion : The chemical is volatile. Do not induce vomiting because it increases the risk of aspiration into the lungs. Get medical attention immediately. If necessary, rinse mouth with water.
- Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

Most Important Symptoms/Effects

- Symptoms/effects : If inhaled, causes state of dizziness, lethargy.

5. Fire fighting measures

- Suitable extinguishing media : Dry chemical powder, carbon dioxide, dry sand, foam
- Unsuitable extinguishing media : Water spray
- Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.
- Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Foam extinguisher is effective for a large scale fire.
- Personal protection (Emergency response) : Wear breathing apparatus.

6. Accidental release measures**Personal Precautions, Protective Equipment and Emergency Procedures**

- General measures : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Remove all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.

Environmental precautions

- Environmental precautions : Attention should be given to avoid damage to the environment by flowing of spillage to rivers.

Methods and Equipment for Containment and Cleaning up

- For containment : Absorb spill with inert material (e.g, diatomaceous earth, sand) and flush spillage area with copious amounts of water.
- Prevention Measures for Secondary Accidents : Remove nearby sources of ignition and prepare extinguishing media.

7. Handling and storage**Handling**

- Technical measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited.
- Ventilate well at working places.
- Precautions for safe handling : Use with an enclosed system or a local exhaust ventilation. Use in well-ventilated areas.
- Do not allow contact with oxidizing substances.

Storage

- Storage conditions : Store in a dark, cool place and tightly closed.



Material used in : Glass, fluorine resin, stainless steel.
packaging/containers Do not use polyvinyl chloride resin, polystyrene, polyethylene etc.

8. Exposure controls / Personal protection equipment

ACGIH TWA	400 ppm
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Appropriate engineering controls : Use with an enclosed system or a local exhaust ventilation.

Protective equipment

Respiratory protection : If necessary, wear chemical cartridge respirator with an organic vapor cartage

Hand protection : Impervious protective gloves

Eye protection : Safety goggles

Skin and body protection : Protective clothing, protective boots

9. Physical and chemical properties

Physical state : Liquid

Color : Colorless.

Odor : Aromatic

pH : Neutral

Melting point : -126.596 ° C

Freezing point : No data available

Boiling point : 100.934 ° C

Flash point : -4 ° C (C.C.)

Auto-ignition temperature : 265 ° C

Decomposition temperature : No data available

Flammability : Flammable

Vapor pressure : 48 hPa (20°C)

Relative density : No data available

Density : 0.767 - 0.771 g/cm³ (20°C)

Relative gas density : 3.39

Solubility : Water: Insoluble. Organic solvents: Soluble in many kinds of organic solvents.

Partition coefficient n-octanol/water (log Pow) : 3.61

Explosive limits (vol %) : 1.1 - 6.7 vol %

Viscosity, kinematic : 0.89 mm²/s (25°C)

Particle characteristics : No data available

10. Stability and reactivity

Reactivity : It is isomerized with aluminum chloride to give ethylcyclopentane and dimethylcyclopentane.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Stable under normal conditions of use.



Conditions to avoid : Light, heat.
Incompatible materials : Oxidizing substances.
Hazardous decomposition : Carbon monoxide.
products

11. Toxicological information

Acute toxicity (oral) : Classification not possible
Acute toxicity (dermal) : No classification
Acute toxicity (inhalation) : No classification (gas)
Harmful if inhaled (vapor)
mouse LC50=7071.1-8838.8ppm/4h
Classification not possible (dust, mist)

Skin corrosion/irritation : No classification
In rabbit skin irritation tests with this substance, no edema was observed, and after 24 hours of exposure very slight erythema was observed, which was reversible.

Serious eye damage/irritation : Causes eye irritation
In rabbit eye irritation tests with this substance (conforming to OECD TG 405), conjunctival redness was observed after 1 hour and 24 hours of exposure, but, the effects disappeared after 48 hours. Thus, it was classified into category 2B.

Respiratory sensitization : Classification not possible
Skin sensitization : Classification not possible
Germ cell mutagenicity : Classification not possible
As for in vitro, there are negative data on reverse mutation test in bacteria, and chromosome aberration tests in cultured mammalian cells.

Carcinogenicity : Classification not possible
Reproductive toxicity : Classification not possible
In a combined repeated dose and reproductive/developmental toxicity test by oral gavage in rats (OECD TG 422), no reproductive effects were observed at dosing levels toxic to parent animals. No reproductive effects were observed, but it is a screening test, and there is no data on developmental toxicity. Thus, the classification was not possible because of insufficient data.

STOT-single exposure : May cause drowsiness or dizziness
May cause respiratory irritation
Human studies have shown that inhalation exposure to the substance causes dizziness, drowsiness, nose and throat irritation. The substance vapor is reported to induce short-term central nervous system depression. In a 1-hour single inhalation exposure study in rats and mice, hyperactivity, incoordination, and weakness were observed at 26.3 mg/L, but no fatal cases were reported. In addition, inhalation exposure of rabbits to 59.9 mg/L for 70 minutes caused severe convulsions before death, rapid coma, labored respiration, salivation, and conjunctival congestion. Thus, it was classified into category 3 (narcosis, respiratory tract irritation).



- STOT-repeated exposure : May cause damage to organs (kidney) through prolonged or repeated exposure
In a 28-day repeated dose toxicity study by oral gavage in rats, renal hyaline droplet (reversible) in males of 300 mg/kg/day and above, and increased liver weight, hepatocyte hypertrophy in males and females, renal hyaline droplet (irreversible) in females of 1000 mg/kg/day were observed. In addition, in a combined repeated dose and reproductive/developmental toxicity test by oral gavage in rats (OECD TG 422), hyaline droplets in the renal tubular epithelium (not due to α 2u-globulin accumulation from the results of immunostaining) in males of 250 mg/kg/day and above, and increased ALT, increase in total cholesterol, increased liver weight, and increased kidney weight in males and females of 1000 mg/kg/day were observed. Thus, it was classified into category 2 (kidney).
- Aspiration hazard : May be fatal if swallowed and enters airways
The substance is a hydrocarbon with dynamic viscosity of 0.89 mm²/s at 25°C, which results in the dynamic viscosity of 20.5 mm²/s or lower at 40°C. Thus, it was classified into category 1.

12. Ecological information

Ecotoxicity

- Aquatic acute : Very toxic to aquatic life
Daphnia magna EC50=0.33mg/L/48h
- Aquatic chronic : Very toxic to aquatic life with long lasting effects
Pseudokirchneriella subcapitata NOEC=0.067mg/L/72h

Persistence and degradability

Not readily biodegradable
BOD : 0%

Bioaccumulative potential

Low bioconcentration
BCF : 95-321 (0.1mg/L), 134-237 (0.01mg/L)

Mobility in soil

No additional information available

Hazardous to the ozone layer

- Ozone : Classification not possible

13. Disposal considerations

- Ecological waste information : Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.
- Contaminated container and packaging : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea (IMDG)

- UN-No. (IMDG) : 2296



Proper Shipping Name (IMDG) : METHYLCYCLOHEXANE
Packing group (IMDG) : II
Transport hazard class(es) : 3
(IMDG)

Air transport(IATA)

UN-No. (IATA) : 2296
Proper Shipping Name (IATA) : Methylcyclohexane
Packing group (IATA) : II
Transport hazard class(es) : 3
(IATA)

Marine pollutant : Applicable

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

Pollutant category : Y
MFAG-No : 128

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : Solvents Handbook, T, Asahara el, Kodansha Scientific Ltd.
(1976) .
Dictionary of Organic Compounds, The society of Synthetic
Organic Chemistry, Kodansha Ltd. (1985) .
Handbook of Dangerous Substances Springer-Verlag Tokyo
(1991) .
Handbook of 17322 Chemical Products, The Chemical Daily Co.
(2022) .
NITE Chemical Risk Information Platform (NITE-CHRIP), National
Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet (SDS) is prepared based on JIS Z7253.

