

GHS-0056E

SAFETY DATA SHEET

PRODUCT NAME Cyclohexane

Date of issue 01/30/2012

Date of revision -

1 Identification of the substance or mixture and the supplier

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| Product name: | Cyclohexane |
| Name of supplier: | Kyoto Electronics Manufacturing Co., Ltd. |
| Address: | 68 Ninodan-cho, Shinden, Kisshoin, Minami-ku, Kyoto, Japan |
| Division: | Quality Assurance Department |
| Phone: | +81-75-691-4121 |
| Fax: | +81-75-691-4127 |
| Emergency phone No.: | +81-75-691-4125 |
| MSDS No. | GHS-0056E |

2 Hazard identification
GHS hazard class and category

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| Physical hazards; | Flammable liquids: | Category 2 |
| Health hazards; | Skin corrosion/irritation: | Category 2 |
| | Eye damage/irritation: | Category 2A-2B |
| | Toxic to reproduction: | Category 2 |
| | Specific target organ systemic toxicity (singled exposure): | Category 2 (Blood vascular system) category 2 (Respiratory tract irritation, Narcotic effects) |
| | Aspiration to toxicity | Category 2 |
| Environmental hazards; | hazardous to the aquatic environment -Acute hazard: | Category 1 |

Other hazard identification are not shown above because of the reasons below;
Not applicable / Classification not possible

Label elements

Pictogram



Signal word

Danger

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| Hazard statements | Highly flammable liquid and vapour Causes skin irritation Causes serious eye irritation Suspected of damaging fertility or the unborn child May cause harm to breast-fed children May cause damage to organs (Blood vascular system) May cause respiratory irritation; or May cause drowsiness and dizziness May be harmful if swallowed and enters airways Very toxic to aquatic |
| Precautionary statements | |
| Prevention | Do not handle until all safety precautions have been read and understood. Keep away from ignition sources such as heat/sparks/open flames/ – No smoking. Do not breathe dust/fume/gas/mist/vapours/spray. Wear protective gloves and eye/face protection. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment– if this is not the intended use. Avoid contact during pregnancy/while nursing. Keep container tightly closed. Ground/bond container and receiving equipment. |
| Response | 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. IH INHALALED: Remove to fresh air and keep at rest in a position comfortable for breathing. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs, seek medical advice/attention. Call a POISON CENTRE or doctor/physician if exposed or you feel unwell. Collect spillage. In case of fire, use for extinction appropriate media – if water increases risk. |
| Storage | Store locked up. Store container tightly closed in cool/well-ventilated place. |
| Disposal | Dispose of contents and container in accordance with regulation. |

3 Composition/Information on ingredients

Substance/Mixture: Substance
 Chemical identity Cyclohexane
 (or common name):

| Ingredient name | Composition (%) | Chemical formula | CAS No. |
|-----------------|-----------------|------------------|----------|
| Cyclohexane | Min. 99.5 | C6H12 | 110-82-7 |

Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance;
None

4 First-aid measures

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| General description of necessary first aid measures: | <p>Move victim to fresh air. Keep victim warm and quiet. Call emergency medical service. Apply artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Remove and isolate contaminated clothing and shoes. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.</p> |
| Inhalation: | <p>In case of accident by inhalation: remove casualty to fresh air and keep at rest. If breathing is weak, irregular or has stopped, open his airway, loosen his collar and belt and administer artificial respiration.</p> |
| Skin contact: | <p>Wash skin with soap and water. Remove contaminated clothing.</p> |
| Eye contact: | <p>In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.</p> |
| Ingestion: | <p>If swallowed, seek medical advice immediately and show this container or label. Rinse mouth with water and dilute with water. Do not induce vomiting as this may increase the risk of aspiration of the liquid into the lungs causing chemical pneumonitis. Consumption of non-oily liquids (such as milk) may assist in delaying absorption of the liquid.</p> |
| Protections for first-aid persons: | <p>Protect yourself by wearing rubber gloves and air-tight safety goggles.</p> |
| Information for the physician: | <p>Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. (Cyclohexane)[ACGIH 2004] CNS</p> |

5 Fire-fighting measures

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| Extinguishing media: | <p>CAUTION: All these products have a very low flash point. Use of water spray when fighting fire may be inefficient. In case of fire, use foam, dry powder, CO₂, dry sand. Water may be effective for cooling, but may not effect extinguishment.</p> |
| Incompatible extinguishing media: | <p>Nothing particular</p> |
| Specific hazards arising from the chemical (and with regard to fire-fighting measures): | <p>Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. Toxic gases will form upon combustion of : carbon monoxide</p> |

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| Specific fire-fighting measures: | <p>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.</p> <p>Dry chemical powder, carbon dioxide or dry sand should be used for small fires.</p> <p>Foam extinguisher is effective for a large scale fire.</p> |
| Special protective equipment and precautions for fire-fighters: | <p>Fire-fighters should wear proper protective equipment.</p> |

6 Accidental release measures

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| Personal precautions, protective equipment and emergency procedures: | <p>Evacuate non-essential personnel.</p> <p>Wear appropriate protective clothing.</p> |
| Environmental precautions: | <p>Attention should be given not to cause damage to the environment by flowing of spillage to rivers.</p> |
| Measures and materials for containment and clean up: | <p>Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.</p> <p>Use clean non-sparking tools to collect absorbed material.</p> <p>A vapour suppressing foam may be used to reduce vapours.</p> <p>For small spill, absorb spill with absorbent and move to a chemical waste container. For large spill, prevent leakage by surrounded with earth and lead the spill to a safety place to collect.</p> |
| Appropriate containment techniques/clean up procedures: | <p>Shut off the leakage source and stop leak if you can do it without risk.</p> |
| Preventive measures for secondary accident: | <p>Keep unauthorized personnel away.</p> <p>All equipment used when handling the product must be grounded.</p> <p>Eliminate all sources of ignition and ventilate the area.</p> <p>Prepare extinguishers before catching fire.</p> |

7 Handling and storage

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| Precautions for safe handling: | |
| Countermeasure technique(s): | <p>(Exposure control for handling personnel)</p> <p>Wear proper equipment not to contact with skin or inhale the vapour.</p> <p>(Protective measures against fire & explosion)</p> <p>Take precautionary measures against static discharges.</p> <p>Shut off all gas pilot and electrical (spark or hot wire) igniters and other sources of ignition during use and until all vapours (odors) are gone.</p> |
| Preventive measures: | <p>Most vapours are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).</p> <p>Many liquids are lighter than water.</p> <p>Use with an enclosed system or a local exhaust ventilation.</p> |
| Safety measures/ incompatibility: | <p>Do not shock, overturn, drop, or drag containers.</p> |

Conditions for safe storage, including any incompatibilities:

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| Incompatibilities: | Fire is strictly prohibited. |
| Storage: | (Recommendation for storage) Keep tightly closed in dark cool place. |
| Recommendation on container and packaging materials: | Glass, etc. |

8 Exposure controls/Personal protection

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| Appropriate engineering controls: | Keep source tightly closed or install local exhaust ventilation. Provide shower and vanity unit nearby and make clear the location of these. |
| Control value: | Japan control value (2005) Not established. |
| Adopted value: | [JSOH] 150 ppm; 520 mg/m ³ [ACGIH] TLV:100 ppm as TWA MAK: 200 ppm, 700 mg/m ³ ; Peak limitation category: II (4); Pregnancy risk group: IIc;(DFG 2004) |

Individual protection measures, such as personal protective equipment (PPE):

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| Eye/face protection: | Wear protective eyeglasses or chemical safety goggles. Wear face protection. |
| Hand protection: | Wear impervious glove made from chloroprene, as appropriate. |
| Skin and body protection: | To prevent any contact, wear impervious clothing such as apron, boots, or whole-body suits made from chloroprene, as appropriate. |
| Respiratory protector: | Wear positive pressure self-contained breathing apparatus (SCBA). Gas masks for organic compounds |

9 Physical and chemical properties

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| Appearance, color: | Colorless liquid |
| Odor: | Characteristic odor |
| pH: | Not available |
| Melting point/ freezing point: | 7C |
| Boiling point: | Approx.81C |
| Flash point: | 18C (C.C.) |
| Auto-ignition temperature: | 260C |
| Upper/lower flammability or explosive limits: | Lower limit; 1.3vol% Upper limit; 8.4vol% |
| Vapour pressure: | 12.7kPa (25C) |
| Vapour density (Air = 1): | 2.9 |
| Specific gravity (Density): | 0.776–0.780 g/cm ³ (20C) |

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| Solubility: | Solubility in water; Slightly soluble Solubility in solvent; Very soluble in ethanol and diethyl ether |
| Octanol/water partition coefficient (log Pow): | 3.4 |
| Decomposition temperature: | Not available |
| Viscosity: | Not available |

10 Stability and reactivity

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| Chemical stability: | This product is considered a stable material under normal and anticipated storage and handling conditions. |
| Possibility of hazardous reactions: | May react with oxidizing agents |
| Conditions to avoid: | Sunlight, heat, contact with oxidizing substances |
| Incompatible materials: | Polyvinyl chloride resin, acrylic resin, polystyrene, etc. |
| Hazardous decomposition products: | Not available (except for carbon monoxide, carbon dioxide and water) |

11 Toxicological information

Acute toxicity:

[Emergency Response Guidebook]

Vapours may cause dizziness or suffocation.

Dense vapour is anesthetic and if inhaled vapour, cause nose and throat irritation, nausea, headache, vomiting.

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| Oral: | rat | LD50 12.7 g/kg |
| | rat | LD50 813mg/kg |

Irritant properties:

Inhalation or contact with material may irritate or burn skin and eyes.

Allergenic and sensitizing effects:

Not available

Chronic toxicity:

Not available

Carcinogenic effects:

Not available

Mutagenic effects:

Not available

Toxicity for reproduction:

Not available

12 Ecological information

Ecotoxicity:

Harmful to aquatic organisms.

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| Fish toxicity: | Japanese gillfish | LC50/48H 9 mg/L |
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Persistence and degradability:



Non biodegradability
0.6% by BOD

Bioaccumulative potential:

Low or non residuality in fish or shells.
Concentration (magnification)
Carp 31 to 102 fold (100 ppb)
37 to 129 fold (10 ppb)

Biotransportability:

Not available

13 Disposal considerations

Contact a licensed professional waste disposal service to dispose of this material. Comply with all country, national and local regulations. Do not dump this product into sewers, on the ground or into any body of water.

14 Transport information

Basic classification information for the transporting/shipment:

Sea; Controlled under IMDG's regulations.

UN Number: 1145
UN Proper shipping name: Cyclohexane
Class or Division: 3
Packing group: II

Air; Controlled under ICAO/IATA's regulations.

UN Number: 1145
UN Proper shipping name: Cyclohexane
Class or Division: 3
Packing group: II

Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises:

Protection from direct sun light in transportation, and confirm the container does not leak.
Carefully load it onto a transporter without dropping, overturning or damaging so that it will stably stays on the transporter.
Fire is strictly prohibited.

15 Regulatory information

Follow all laws and regulations in your country.

Disclaimer

For R&D use only. Not for drug, household or other uses.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.