

Cyclohexanone (055)

Version 1

Revision Date 10/17/2007

Print Date 01/24/2008

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Cyclohexanone
MSDS Number : 000000012163
Product Use Description : Solvent

Company : Honeywell International Inc.
1953 South Harvey Street
Muskegon, MI 49442

For more information call : 1-800-368-0050
(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : Medical: 1-800-498-5701
: **Transportation: 1-800-424-9300 or 703-527-3887**
: (24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION**Emergency Overview**

Form : liquid, clear

Color : colourless

Odor : characteristic mint-like

Hazard Summary : Flammable. In use, may form flammable/explosive vapour-air mixture. May be harmful if swallowed. May be harmful if absorbed through skin. Irritating to eyes, respiratory system and skin. Causes headache, drowsiness or other effects to the central nervous system. The product may be absorbed through the skin. Repeated exposure may cause skin dryness or cracking. Do not swallow. Avoid breathing vapors, mist or gas. Avoid contact with skin, eyes and clothing. Confirmed animal carcinogen with unknown relevance to humans.

Potential Health Effects

Skin : Irritating to skin.
The product may be absorbed through the skin.
May cause systemic poisoning with symptoms paralleling those of inhalation.
May cause burns or external ulcers.
Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness and possible blistering.

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- Eyes** : Irritating to eyes.
Causes itching, burning, redness and tearing.
May cause corneal injury.
- Ingestion** : May be harmful if swallowed.
Causes headache, drowsiness or other effects to the central nervous system.
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
May cause systemic poisoning with symptoms paralleling those of inhalation.
- Inhalation** : Causes respiratory tract irritation.
Causes headache, drowsiness or other effects to the central nervous system.
Repeated or prolonged exposure to the substance can produce liver damage.
Repeated or prolonged exposure to the substance can produce kidney damage.
- Chronic Exposure** : Repeated or prolonged exposure to the substance can produce liver damage.
Repeated or prolonged exposure to the substance can produce kidney damage.
Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness and possible blistering.
Confirmed animal carcinogen with unknown relevance to humans.
- Aggravated Medical Condition** : Skin disorders
Eye disorders
Neurological disorders
Liver disorders
Kidney disorders
Respiratory disorders
- Target Organs** : Eyes
Skin
Respiratory system
Central nervous system
Liver
Kidney

Carcinogenicity

ACGIH: Cyclohexanone

108-94-1

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Weight %
Cyclohexanone	108-94-1	100.00

SECTION 4. FIRST AID MEASURES

- Inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician.
- Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Call a physician.
- Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician.
- Ingestion : Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician.

Notes to physician

- Treatment : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

- Flash point : 44 °C (111 °F)
closed cup
- Ignition temperature : 420 °C (788 °F)
- Lower explosion limit : 1.1 %(V)
- Upper explosion limit : 9.4 %(V)
- Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Extinguishing media which shall not be used for safety reasons : Water may be ineffective.
Do not use a solid water stream as it may scatter and spread fire.

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- Specific hazards during fire fighting : Flammable.
Vapours may form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.
Cool closed containers exposed to fire with water spray.
Do not allow run-off from fire fighting to enter drains or water courses.
In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO₂)
- Special protective equipment for fire-fighters : In the event of fire and/or explosion do not breathe fumes.
Wear self-contained breathing apparatus and protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions : Immediately evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Wear personal protective equipment. Unprotected persons must be kept away.
Ensure adequate ventilation.
Remove all sources of ignition.
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.
Do not swallow.
Avoid breathing vapors, mist or gas.
Avoid contact with skin, eyes and clothing.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.
Discharge into the environment must be avoided.
Do not flush into surface water or sanitary sewer system.
Prevent product from entering drains.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- Methods for cleaning up : Ventilate the area.
No sparking tools should be used.
Use explosion-proof equipment.
Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13).

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SECTION 7. HANDLING AND STORAGE**Handling**

Handling : Handle with care.
Wear personal protective equipment.
Use only in well-ventilated areas.
Keep container tightly closed.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep away from fire, sparks and heated surfaces.
Take precautionary measures against static discharges.
Ensure all equipment is electrically grounded before beginning transfer operations.
No sparking tools should be used.
Use explosion-proof equipment.
Do not smoke.
Do not swallow.
Avoid breathing vapors, mist or gas.
Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion : Vapours may form explosive mixtures with air.
Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limits.
Vapours are heavier than air and may spread along floors.
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.
Container hazardous when empty.
Keep product and empty container away from heat and sources of ignition.
Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Take measures to prevent the build up of electrostatic charge.
To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded.
Electrical equipment should be protected to the appropriate standard.
No sparking tools should be used.
Use explosion-proof equipment.
No smoking.

Storage

Requirements for storage areas and containers : Storage rooms must be properly ventilated.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.

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Keep away from heat and sources of ignition.
Keep away from direct sunlight.
Store in area designed for storage of flammable liquids. Protect from physical damage.
Store away from incompatible substances.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.
Do not swallow.
Avoid breathing vapors, mist or gas.
Avoid contact with skin, eyes and clothing.
- Engineering measures : Use with local exhaust ventilation.
Prevent vapor buildup by providing adequate ventilation during and after use.
- Eye protection : Do not wear contact lenses.
Wear as appropriate:
Safety glasses with side-shields
If splashes are likely to occur, wear:
Goggles or face shield, giving complete protection to eyes
- Hand protection : Solvent-resistant gloves
Gloves must be inspected prior to use.
Replace when worn.
- Skin and body protection : Wear as appropriate:
Solvent-resistant apron and boots
Flame retardant antistatic protective clothing
If splashes are likely to occur, wear:
Protective suit
- Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
When using, do not eat, drink or smoke.
Wash hands before breaks and immediately after handling the product.
Keep working clothes separately.
Do not swallow.
Avoid breathing vapors, mist or gas.
Avoid contact with skin, eyes and clothing.

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Exposure Guidelines

Cyclohexanone	108-94-1	ACGIH	TWA	20 ppm
		ACGIH	STEL	50 ppm
		Skin designation: Can be absorbed through the skin.		
		NIOSH	REL	25 ppm 100 mg/m3
		Skin designation: Can be absorbed through the skin.		
		OSHA Z1	PEL	50 ppm 200 mg/m3
		OSHA Z1A	TWA	25 ppm 100 mg/m3
		Skin designation (Final Rule Limit applies): Can be absorbed through the skin.		
		US CA OEL	TWA PEL	25 ppm 100 mg/m3
		Skin designation: Can be absorbed through the skin.		

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: liquid, clear
Color	: colourless
Odor	: characteristic mint-like
Molecular Weight	: 98.16 g/mol
pH	: not applicable
Melting point/range	: -31 °C (-24 °F)
Boiling point/boiling range	: 155.6 °C (312.1 °F)
Vapor pressure	: 6.9 hPa
Relative vapour density	: 3.4 (Air = 1.0)
Density	: 0.95 g/cm3

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Water solubility : ca.150 g/l

SECTION 10. STABILITY AND REACTIVITY

- Conditions to avoid : Heat, flames and sparks.
Keep away from direct sunlight.
- Materials to avoid : Acids
Bases
Oxidizing agents
Nitric acid
May attack many plastics, rubbers and coatings.
Adhesives and/or sealants
- Hazardous decomposition products : In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO₂)
- Hazardous reactions : Hazardous polymerisation does not occur.
Stable under normal conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

- Acute oral toxicity : LD50 rat
Dose: 1,535 mg/kg
- Acute oral toxicity : LD50 mouse
Dose: 1,400 mg/kg
- Acute dermal toxicity : LD50 rabbit
Dose: 948 mg/kg
- Acute inhalation toxicity : LC50 rat
Dose: 8000 ppm
Exposure time: 4 h
- Additional advice : Confirmed animal carcinogen with unknown relevance to humans.

SECTION 12. ECOLOGICAL INFORMATION

- Toxicity to fish : flow-through test LC50
Species: Pimephales promelas (fathead minnow)

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Dose: 527 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates. :
 Species: Daphnia
 Dose: 820 mg/l
 Exposure time: 48 h

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Information: Avoid contact of spilled material and runoff with soil and surface waterways. Consult an environmental professional to determine if local, regional or national regulations would classify spilled or contaminated materials as hazardous waste. Use only approved transporters, recyclers, treatment, storage or disposal facilities. Dispose of according to all federal, state and local applicable regulations.

Other Disposal Considerations: Observe all Federal, State, and Local Environmental regulations.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

SECTION 14. TRANSPORT INFORMATION

DOT Proper shipping name : CYCLOHEXANONE
 UN-Number : 1915
 Class : 3
 Packing group : III

IATA UN Number : 1915
 Description of the goods : CYCLOHEXANONE
 Class : 3
 Packaging group : III
 Hazard Label : 3
 Packing instruction (cargo aircraft) : 310
 Packing instruction (passenger aircraft) : 309
 Packing instruction (passenger aircraft) : Y309

IMDG Substance No. : UN 1915
 Description of the goods : CYCLOHEXANONE
 Class : 3
 Packaging group : III
 Hazard Label : 3
 EmS Number : F-E

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Marine pollutant : no

SECTION 15. REGULATORY INFORMATION**Inventories**

EU. EINECS : On or in compliance with the inventory

US. Toxic Substances
Control Act : On TSCA InventoryAustralia. Industrial
Chemical (Notification and
Assessment) Act : On or in compliance with the inventoryCanada. Canadian
Environmental Protection
Act (CEPA). Domestic
Substances List (DSL).
(Can. Gaz. Part II, Vol. 133) : All components of this product are on the Canadian DSL list.

Japan. Kashin-Hou Law List : On or in compliance with the inventory

Korea. Toxic Chemical
Control Law (TCCL) List : On or in compliance with the inventoryPhilippines. The Toxic
Substances and Hazardous
and Nuclear Waste Control
Act : On or in compliance with the inventoryChina. Inventory of Existing
Chemical Substances : On or in compliance with the inventorySwitzerland. Consolidated
Inventory : On or in compliance with the inventoryNew Zealand. Interim
Inventory of Chemicals (as
published by ERMA new
Zealand) : On or in compliance with the inventory**National regulatory information****SARA 311/312 Hazards** : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

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**CERCLA Reportable
Quantity** : 5000 lbs**California Prop. 65** : This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.**Massachusetts RTK** : Cyclohexanone 108-94-1**New Jersey RTK** : Cyclohexanone 108-94-1**Pennsylvania RTK** : Cyclohexanone 108-94-1**WHMIS Classification** : D1B
D2B
B3**SECTION 16. OTHER INFORMATION**

	HMIS III	NFPA
Health Hazard	: 2	1
Flammability	: 2	2
Physical Hazard	: 0	
Instability	:	0