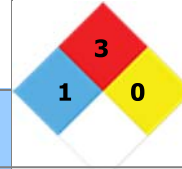




# Safety Data Sheet



Code: 10040085  
Ref: 5  
Date: 20-01-2020  
Page: 1/13

## Cyclohexane

### 1 Identification of the substance or mixture and of the supplier

#### 1.1 GHS Product name or GHS product identifier

- 1.1.1 Common name: Cyclohexane
- 1.1.2 Chemical formula: C<sub>6</sub>H<sub>12</sub>
- 1.1.3 Commercial name: Cyclohexane
- 1.1.4 CAS number: 110-82-7
- 1.1.5 Molecular weight:

#### 1.2 Other product identifier

- 1.2.1 UN Number: 1145
- 1.2.2 Annex I, EU directive 67/948/EC:
- 1.2.3 EC number:

#### 1.3 Recommendation for use and other prohibitions for use

### 1.4 Manufacturer or Supplier Detail

- 1.4.1 Manufacturer or Supplier : PTT Global Chemical Public Company Limited
- 1.4.2 Address : 4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong 21150 Thailand.
- 1.4.3 Telephone number : +66-(0)-2-140-8798

#### 1.5 Emergency telephone number :

**+66-(0)-38-972-222**

#### 1.6 Other information

- 1.6.1 Hazardous substance:  No  Yes
- 1.6.2 Hazardous category : N/A
- 1.6.3 Max quantity storage :
- 1.6.4 Uses

#### 1.6.5 Other

## 2

## Hazards identification

## 2.1. GHS classification of the substance/mixture and any national or regional information

## 2.1.1. Hazard classification according to the GHS

- Flammable liquids - Category 2
- Skin Corrosion/Irritation - Hazard category 2 Irritant
- Serious Eye Damage/ Eye Irritation - Hazard category 2A Irritant
- Toxic To Reproduction - HazardCategory 2
- Specific Target Organ Toxicity (Single Exposure) - Category 2
- Specific Target Organ Toxicity (Repeated Exposure) - Category 2
- Aspiration Hazard - Hazard category 1
- Aquatic Hazard (Acute) - Hazard category 1

## 2.2 GHS label elements, including precautionary statements

2.2.1. Chemical name : Cyclohexane

2.2.2. Product name or GHS product identifier :

2.2.3. Symbol and Hazard pictograms

2.2.4. Signal words : **Danger**

2.2.5. Hazard statement

- Highly flammable liquid and vapour
- Causes skin irritation
- Causes serious eye irritation
- Suspected of damaging fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
- May cause damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
- May cause damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
- May be fatal if swallowed and enters airways
- Very toxic to aquatic life



# Safety Data Sheet



Code: 10040085  
Ref: 5  
Date: 20-01-2020  
Page: 3/13

## Cyclohexane

### 2

### Hazards identification (cont.)

#### 2.2.6 Precautionary information

- Keep away from heat, [sparks] [and flame] [- No Smoking]
- No open flames, no sparks and no smoking
- Take precautionary measures against static charges
- Use adequate ventilation and/or engineering controls in high temperature processing to prevent exposure to vapours
- Avoid contact with skin and eyes
- Wear suitable [protective clothing] [gloves] [and eye/face protection]
- In case of insufficient ventilation, wear suitable respiratory equipment

#### 2.2.7 Supplemental information

#### 2.3 Other hazards which do not result in classification or are not covered by the GHS

##### 2.3.1 Potential Chronic Health Effects

###### 2.3.1.1 Carcinogen effects

Maybe-Carcinogen     Carcinogen     Non-Carcinogen     N/A

###### 2.3.1.2 Mutagenic effects

Mutagenic     Non-Mutagenic     N/A

###### 2.3.1.3 Other

#### 2.4 Environmental Hazards



# Safety Data Sheet



Code: 10040085  
Ref: 5  
Date: 20-01-2020  
Page: 4/13

## Cyclohexane

### 3 Composition / information on ingredients

3.1.  Homogeneous substance  Mixture substance

3.1.1. Chemical identity

3.1.2. Common-name                      Cyclohexane

3.1.3 Synonym

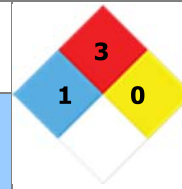
3.1.4 CAS number and other unique identifiers : 110-82-7

3.1.5 Impurities and stabilizing additives



# Safety Data Sheet

## Cyclohexane



Code: 10040085  
Ref: 5  
Date: 20-01-2020  
Page: 5/13

### 4

### First-aid measures

#### 4.1 First-aid

##### 4.1.1 Inhalation

**INHALATION** : If any signs or symptoms as described in this document occur, move the person to fresh air. If any of these effects continue, see a doctor.

##### 4.1.2 Skin contact

**SKIN CONTACT** : Remove contaminated clothing. Wash skin thoroughly with soap and water. See a doctor if any signs or symptoms described in this document occur. Discard contaminated non-waterproof shoes and boots. Wash contaminated clothing.

##### 4.1.3 Eyes contact

**EYE CONTACT** : Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. If irritation persists, see a doctor.

##### 4.1.4 Ingestion

**INGESTION** : If swallowed, **DO NOT** make person vomit unless directed to do so by medical personnel.

#### 4.2 Most important symptoms/effects

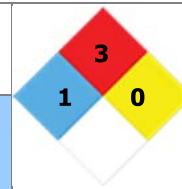
##### 4.2.1 Immediate effects

##### 4.2.2 Delayed effects

#### 4.3 Indication of immediate medical attention

#### 4.4 Special treatment needed, if necessary

#### 4.5 Other

**5****Fire fighting measures**

5.1 Unsuitable extinguishing media :

5.2 Suitable extinguishing media :  
SMALL FIRE: Use DRY chemical powder.  
LARGE FIRE: Use water spray or fog.

5.3 Specific hazards arising from the chemical

Extremely flammable. Vapors may form explosive mixtures with air. Vapors are heavier than air and may spread along floors.

5.4 Special protective equipment and precautions for fire-fighters

Wear self-contained breathing apparatus and protective suit

5.5 Precautions for fire fighters

5.6 Other information

**6****Accidental release measures**

6.1 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.

6.2 Protective equipment



6.3 Emergency procedures

6.3.1 Massive leak

Immediately evacuate personnel to safe areas.  
Remove all sources of ignition.  
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.

6.3.2 Slight leak

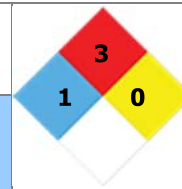
Immediately evacuate personnel to safe areas.  
Remove all sources of ignition.  
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.

6.4 Environmental precautions

Discharge into the environment must be avoided. Do not flush into surface water or sanitary sewer system.  
Prevent product from entering drains.

6.5 Methods and materials for containment and cleaning up

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.



**7**

**Handling and storage**

7.1 Precautions for safe handling

Handle with care. Wear personal protective equipment. Keep container tightly closed. Keep away from fire, sparks and heated surfaces.

7.2 Incompatibility

7.2.1 Safe storage condition

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

7.2.2 Incompatible chemicals storage prohibitions

7.3 Storage area GC4 Cyclohexane unit

7.4 Incompatible chemicals condition

7.5 Hazard Class by UN : 3

7.6 Classification by law :

**8**

**Exposure controls/personal protection**

8.1 Occupational exposure limit values or biological limit values

Name	TLV-TWA	TLV-STEL	TLV-C	PEL	Thai	biological limit values
Cyclohexane	100 ppm			300 ppm		

8.2 Appropriate engineering controls

8.3 Personal protective equipment



8.4 Personal hygiene

Chemical Cartridges 6003 Organic Vapor/Acid Gases (Yellow)

8.5 Other protection



# Safety Data Sheet



Code: 10040085  
 Ref: 5  
 Date: 20-01-2020  
 Page: 8/13

## Cyclohexane

### 9

### Physical and chemical properties

9.1 Appearance	Liquid
9.2 Odour	mild sweet
9.3 Odour threshold limit	25
9.4 PH-value	7 (N/A)
9.5 Melting point and Freezing point :	Melting point 6.47 °C Freezing point °C
9.6 Initial boiling point/Boiling range :	Boiling point 80.7 °C Boiling range °C - °C
9.7 Flash point	-18.3 °C (close cup)
9.8 Evaporation rate	1.95 mg/sec
9.9 Flammability (solid, gas)	Burning time sec and/or Burning Rate mm/sec
9.10 Upper/Lower flammability or explosive limits	1.3 %LEL and/or 8 %UEL
9.11 Vapour pressure	3.26 kPa at - °C
9.12 Vapour density	Respect to air 2.98 kpa
9.13 Relative density	0.78 g/cm <sup>3</sup> or kg/m <sup>3</sup> at °C
9.14 Solubility(ies)	Soluble in hydrocarbon solvents, natural oils, fat
9.15 Partition coefficient : n-octanol/water :	-
9.16 Auto-ignition temperature	260 °C
9.17 Decomposition temperature	- °C
9.18 Viscosity	0.953 cSt kJ/g
9.19 Heat of Combustion	- °C
9.20 The ignition distance test	- cm
9.21 The enclosed space ignition test	- s/m <sup>3</sup>
9.22 The foam test	Respect to air - cm Flame duration - sec
9.23 Burn rate test	

Detail	Chemical		Unit
	Non-metal powder	Metal powder	
Wetted zone stops the fire	-	-	min
Burning time	-	-	sec
Burning rate	-	-	mm/s





# Safety Data Sheet

## Cyclohexane



Code: 10040085  
Ref: 5  
Date: 20-01-2020  
Page: 9/13

### 10

#### Stability and reactivity

- 10.1 Reactivity :
- 10.2 Chemical Stability :  Stability  Instability and emit gas  N/A
- 10.3 Possibility of Hazardous reaction :
- 10.4 Conditions to avoid : Heat, ignition sources, incompatible materials
- 10.5 Incompatible materials : Strong oxidizing agents, nitrogen dioxide
- 10.6 Hazardous decomposition products : Carbon monoxide, carbon dioxide
- 10.7 Corrosivity :

### 11

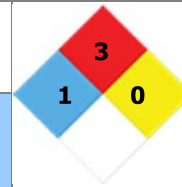
#### Toxicological information

- 11.1 Route of entry  Inhalation  Ingestion  Skin contact  Eyes contact
- 11.2 Symptoms related to the physical, chemical and toxicological characteristics
- 11.2.1 Symptom related with physical characteristic
- 11.2.2 Symptom related with chemical characteristic
- 11.2.3 Symptom related with toxicology :
- Skin: It may cause skin irritation. It may be absorbed through the skin. Eyes: It may cause eye irritation. Inhalation: It may cause respiratory tract (nose, throat) irritation. Exposure to high concentrations of vapor may cause nausea, increased respiration rate.
- 11.3 Contact delayed, immediate and chronic effects
- Skin: Prolonged or repeated skin contact may cause drying, cracking and chapping of exposed areas. Ingestion and Ingestion: Prolonged or repeated inhalation or ingestion may cause liver and kidney damage.
- 11.4 Numerical measures of toxicity
- 11.4.1 Acute oral toxicity 813 mg/kg [Mouse].
- 11.4.2 Acute dermal toxicity
- 11.4.3 Acute toxic of the vapour



# Safety Data Sheet

## Cyclohexane



Code: 10040085  
Ref: 5  
Date: 20-01-2020  
Page: 10/13

### 12

#### Ecological information

##### 12.1 Ecotoxicity (aquatic and terrestrial, where available)

- 12.1.1 Immediate fish toxic : 4.53 mg/l Exposure time: 96 h
- 12.1.2 Immediate crustaceans toxic :
- 12.1.3 Immediate algae toxic : EbC50: 3.4 mg/l Exposure time: 72 h

##### 12.2. Persistence and degradability :

- 12.3. Bio-accumulative potential : Bioconcentration factor (BCF): 167  
This material is not expected to bioaccumulate.

##### 12.4. Mobility in soil :

##### 12.5. Other adverse effects :

### 13

#### Disposal considerations

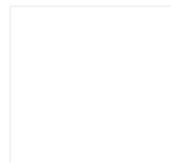
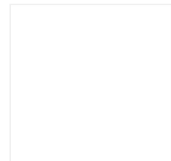
- 13.1 Waste information : Waste must be disposed of in accordance with federal, state and local environmental control regulations
- 13.2 Remain materials :
- 13.3 Waste disposal :
- 13.4 Package contaminated disposal :

### 14

#### Transport information

- 14.1 UN Number : 1145
- 14.2 UN Proper Shipping Name : CYCLOHEXANE
- 14.3 Transport Class/Division : 3
- 14.4 Package group (if any) : II
- 14.5 Marine pollution :  Yes  No  N/A  
hazardous to the aquatic environment
- 14.6 Special precautionary for user :
- 14.7 DGF(Transport in bulk) :
- 14.8 Classification code : F1
- 14.9 Other details

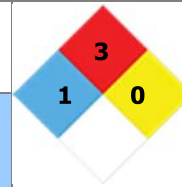
#### Pictogram





# Safety Data Sheet

## Cyclohexane



Code: 10040085  
Ref: 5  
Date: 20-01-2020  
Page: 11/13

### 15

#### Regulatory information

15.1 Safety, health and environmental regulations

### 16

#### Other information

16.1 Date of latest issue

20-01-2020

16.2 Description of point of Safety Data Sheet changing

16.3 Abbreviation explanation

NFPA Hazard Code	HMIS Hazard	Rating System
<p>Health      Fire Hazard      Reactivity</p> <p>Specific</p>	<b>1</b> Health	0 = No hazard (No hazard)
	<b>3</b> Flammability	1 = Slight hazard (Slight hazard)
	<b>0</b> Reactivity	2 = Moderate hazard (Moderate hazard)
		3 = Serious hazard (Serious hazard)
		4 = Severe hazard (Severe hazard)

16.5 Information Safety Data Sheet files :

master file (Master file)

reference file (Reference file)

16.6 Local regulations :

16.7 Reference

16.8 Other details

# Cyclohexane

## NFPA Rating and GHS Pictogram



Emergency call  
**+66-(0)-38-972-222**

UN Number : **1145** CAS Number : **110-82-7**  
Flash point : **-18.3 °C** Auto-ignition **260 °C**

TWA-TLV:

Hazard statement

**Causes skin irritation, Causes serious eye irritation, May cause damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard), Very toxic to aquatic life**

### Health hazard



Causes skin irritation  
Harmful in contact with skin  
Causes eye irritation  
May be fatal if swallowed and enters airways

### Personal protection equipment

Protective clothing must be worn, Face masks must be used where appropriate, Safety helmets must be worn where appropriate, Use hand protection in this area, Foot protection must be worn where appropriate



### First aids



INHALATION : If any signs or symptoms as described in this document occur, move the person to fresh air.  
SKIN CONTACT : Remove contaminated clothing. Wash skin thoroughly with soap and water. See a doctor.  
EYE CONTACT : Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids o

### Fire extinguishing media



SMALL FIRE: Use DRY chemical powder.  
LARGE FIRE: Use water spray or fog.

### Store and transportation



Handle with care. Wear personal protective equipment. Keep container tightly closed. Keep away from fire, sparks and heated surfaces.  
Use chemical Cartridges 6003 Organic Vapor/Acid Gases (Yellow)

### Leakage handling



Handle with care. Wear personal protective equipment. Keep container tightly closed. Keep away from fire, sparks and heated surfaces.

For more information please contact : Safety, Health and Environmental Department

Code No. 10040085 Number of Revision 5

Warning :

# Cyclohexane

UN No : 1145

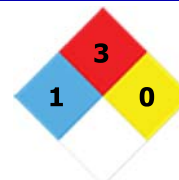
CAS No : 110-82-7



**Signal words : Danger**

## Hazard statement

Causes skin irritation, Causes serious eye irritation, May cause damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard), Very toxic to aquatic life



## Precautionary Statement

- Keep away from heat, [sparks] [and flame] [– No Smoking]
- No open flames, no sparks and no smoking
- Take precautionary measures against static charges
- Use adequate ventilation and/or engineering controls in high temperature processing to prevent exposure to vapours
- Avoid contact with skin and eyes
- Wear suitable [protective clothing] [gloves] [and eye/face protection]
- In case of insufficient ventilation, wear suitable respiratory equipment

## First aids :

**INHALATION :** If any signs or symptoms as described in this document occur, move the person to fresh air.  
**SKIN CONTACT :** Remove contaminated clothing. Wash skin thoroughly with soap and water. See a doctor.  
**EYE CONTACT :** Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids o

## Emergency number :

**+66-(0)-38-972-222**

## Protective equipment:



## Manufacturer / Supplier

**Company:** PTT Global Chemical Public Company Limited

**Address:** 4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong 21150 Thailand.

**Telephone number:** +66-(0)-2-140-8798