

# Safety Data Sheet

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name/designation:	Cyclohexane Analytical reagent
Product No.:	C3072-EXP
Synonymes:	Hexamethylene
CAS No.	110-82-7

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses:	General chemical reagent
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**1.3 Details of the supplier of the safety data sheet****Supplier****Avantor Performance Materials India Ltd.**

Street	501, 5th floor, Tiffany Building, Hiranandani Business Park,
Postal code/City	Thane, Maharashtra - 400607, India
Telephone	022-41288100

**Emergency phone number**

Telephone	1800105561
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**Preparation Information**

Product Information Compliance

**1.4 E-mail**

SDS@avantorsciences.com

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

#### Physical hazards

Flammable liquid, category 2

#### Health hazards

Aspiration hazard, category 1

Skin irritation, category 2

Specific target organ toxicity (single exposure), category 3, narcotic effect

#### Environmental hazards

Hazardous to the aquatic environment, chronic, category 1

### 2.2 Label elements

#### Hazard pictograms



**Signal word:** Danger

Highly flammable liquid and vapour.  
May be fatal if swallowed and enters airways.  
Causes skin irritation.  
May cause drowsiness or dizziness.  
Very toxic to aquatic life with long lasting effects.

#### Prevention

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Take precautionary measures against static discharge.  
Wear protective gloves/protective clothing/eye protection/face protection.  
Avoid release to the environment.

#### Response:

IF SWALLOWED: Do NOT induce vomiting.  
IF ON SKIN: Wash with plenty of water/...  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
IF exposed or concerned: Immediately call a POISON CENTER/doctor.

**2.3 Other hazards** This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

## SECTION 3: Composition / information on ingredients

### Substances

Substance name	Cyclohexane
Molecular formula	C <sub>6</sub> H <sub>12</sub>
Molecular weight	84.16 g/mol
CAS No.	110-82-7

## **SECTION 4: First aid measures**

### **4.1 General information**

IF exposed: Immediately call a POISON CENTRE/doctor. If unconscious but breathing normally, place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person or a person with cramps. Change contaminated, saturated clothing. Do not leave affected person unattended.

#### **After inhalation**

Immediately call a POISON CENTRE/doctor. Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

#### **In case of skin contact**

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin reactions, consult a physician.

#### **After eye contact**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye. Remove contact lenses, if present and easy to do. Continue rinsing.

#### **In case of ingestion**

Immediately call a POISON CENTRE/doctor. Do NOT induce vomiting. Rinse mouth thoroughly with water. Give nothing to eat or drink.

#### **Self-protection of the first aider**

First aider: Pay attention to self-protection!

### **4.2 Most important symptoms and effects, both acute and delayed**

no data available

### **4.3 Indication of any immediate medical attention and special treatment needed**

no data available

## **SECTION 5: Firefighting measures**

### **5.1 Extinguishing media**

#### **Suitable extinguishing media**

Water spray  
ABC-powder  
Carbon dioxide (CO<sub>2</sub>)  
Nitrogen

#### **Extinguishing media which must not be used for safety reasons**

no restriction

### **5.2 Special hazards arising from the substance or mixture**

In case of fire may be liberated:  
Carbon monoxide  
Carbon dioxide (CO<sub>2</sub>)

### **5.3 Advice for firefighters**

DO NOT fight fire when fire reaches explosives.  
Special protective equipment for firefighters  
Wear a self-contained breathing apparatus and chemical protective clothing.

#### **5.4 Additional information**

Do not allow run-off from fire-fighting to enter drains or water courses.

Do not inhale explosion and combustion gases.

Use caution when applying carbon dioxide in confined spaces. Carbon dioxide can displace oxygen.

Use water spray jet to protect personnel and to cool endangered containers.

In case of fire: Evacuate area.

### **SECTION 6: Accidental release measures**

#### **6.1 Personal precautions, protective equipment and emergency procedures**

In case of major fire and large quantities: Remove persons to safety.

#### **6.2 Environmental precautions**

Discharge into the environment must be avoided.

#### **6.3 Methods and material for containment and cleaning up**

Spilled product must never be returned to the original container for recycling. Collect in closed and suitable containers for disposal.

#### **6.4 Additional information**

Clear spills immediately.

### **SECTION 7: Handling and storage**

#### **7.1 Precautions for safe handling**

Avoid:

Inhalation

Avoid contact with eyes and skin.

Use extractor hood (laboratory).

If handled uncovered, arrangements with local exhaust ventilation have to be used.

If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means.

Keep away from sources of ignition - No smoking.

Usual measures for fire prevention.

Take precautionary measures against static discharges.

#### **7.2 Conditions for safe storage, including any incompatibilities**

Recommended storage temperature: 15-25°C

Keep container tightly closed and in a well-ventilated place. Keep/Store away from combustible materials.

#### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

### **SECTION 8: Exposure controls/personal protection**

#### **8.1 Control parameters**

Does not contain substances above concentration limits fixing an occupational exposure limit.

#### **8.2 Exposure controls**

##### **Appropriate engineering controls**

Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.

**Personal protection equipment**

Wear suitable protective clothing. When handling with chemical substances, protective clothing with CE-labels including the four control digits must be worn.

*Eye/face protection*

Eye glasses with side protection

*Skin protection*

no data available

By short-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,12 mm
Breakthrough time::	> 480 min

By long-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,38 mm
Breakthrough time::	> 480 min

*Respiratory protection*

no data available

*Additional information*

Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

*Environmental exposure controls*

no data available

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |                      |                   |
|----------------------|-------------------|
| (a) Appearance       |                   |
| Physical state:      | liquid            |
| Colour:              | colourless        |
| (b) Odour:           | no data available |
| (c) Odour threshold: | no data available |

### Safety relevant basic data

- |  |                                     |
|--|-------------------------------------|
| (d) pH:                                      | no data available                   |
| (e) Melting point/freezing point:            | 7 °C                                |
| (f) Initial boiling point and boiling range: | 81 °C (1013 hPa)                    |
| (g) Flash point:                             | -18 °C                              |
| (h) Evaporation rate:                        | no data available                   |
| (i) Flammability (solid, gas):               | Highly flammable liquid and vapour. |
| (j) Flammability or explosive limits         |                                     |
| Lower explosion limit:                       | 1.3 % (v/v)                         |
| Upper explosion limit:                       | 8.4 % (v/v)                         |
| (k) Vapour pressure:                         | 103 hPa (20 °C)                     |
| (l) Vapour density:                          | 2.9 (20 °C)                         |
| (m) Relative density:                        | 0.7785 g/cm <sup>3</sup> (20 °C)    |
| (n) Solubility(ies)                          |                                     |
| Water solubility:                            | 500 mg/l (20 °C)                    |
| Soluble (g/L) in Ethanol:                    | no data available                   |
| (o) Partition coefficient: n-octanol/water:  | 3.44 (20 °C)                        |
| (p) Auto-ignition temperature:               | 260 °C                              |
| (q) Decomposition temperature:               | no data available                   |
| (r) Viscosity                                |                                     |
| Kinematic viscosity:                         | no data available                   |
| Dynamic viscosity:                           | 0.98 mPa*s (20 °C)                  |
| (s) Explosive properties:                    | not applicable                      |
| (t) Oxidising properties:                    | not applicable                      |

### 9.2 Other information

- |                        |                        |
|------------------------|------------------------|
| Bulk density:          | no data available      |
| Refraction index:      | 1.4264 (589 nm; 20 °C) |
| Dissociation constant: | no data available      |
| Surface tension:       | no data available      |
| Henry's Law Constant:  | no data available      |

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Vapours can form explosive mixtures with air.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

**10.3 Possibility of hazardous reactions**

Formation of explosive mixtures with:  
Oxidising agent, strong

**10.4 Conditions to avoid**

This material is combustible and can be ignited by heat, sparks, flames, or other sources of ignition (e.g. static electricity, pilot lights, or mechanical/electrical equipment).

**10.5 Incompatible materials**

Rubber articles  
Plastic articles

**10.6 Hazardous decomposition products**

no data available

**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Acute effects**

*Acute oral toxicity:*

LD50: < 5000 mg/kg - Rat - (IUCLID)

*Acute dermal toxicity:*

LD50: < 2000 mg/kg - Rabbit - (IUCLID)

*Acute inhalation toxicity:*

LC50: 13,9 mg/l - Rat - (IUCLID)

**Irritant and corrosive effects**

*Primary irritation to the skin:*

Causes skin irritation.

*Irritation to eyes:*

not applicable

*Irritation to respiratory tract:*

not applicable

**Respiratory or skin sensitisation**

In case of skin contact: not sensitising

After inhalation: not sensitising

**STOT-single exposure**

May cause drowsiness or dizziness.

**STOT-repeated exposure**

not applicable

**CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)****Carcinogenicity**

The table below indicates whether each agency has listed any ingredient as a carcinogen.

**Germ cell mutagenicity**

No indications of human germ cell mutagenicity exist.

**Reproductive toxicity**

No indications of human reproductive toxicity exist.

**Aspiration hazard**

May be fatal if swallowed and enters airways.

**Other adverse effects**

no data available

<b>SECTION 12: Ecological information</b>
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**12.1 Ecotoxicity****Fish toxicity:**

LC50: 42.3 mg/l (96 h)

**Daphnia toxicity:**

no data available

**Algae toxicity:**

no data available

**Bacteria toxicity:**

no data available

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**

Partition coefficient: n-octanol/water: 3.44 (20 °C)

**12.4 Mobility in soil:**

no data available

**12.5 Results of PBT/vPvB assessment**

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

**12.6 Other adverse effects**

no data available



## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Appropriate disposal / Product

Dispose according to local legislation. Consult the appropriate local waste disposal expert about waste disposal.

#### Appropriate disposal / Package

Dispose according to local legislation. Handle contaminated packages in the same way as the substance itself.

## SECTION 14: Transport information

### Land transport (ADR/RID)

14.1	UN-No.:	1145
14.2	Proper Shipping Name:	CYCLOHEXANE
14.3	Class(es):	3
	Classification code:	F1
	Hazard label(s):	3
14.4	Packing group:	II
14.5	Environmental hazards:	Dangerous for the environment
14.6	Special precautions for user:	
	Hazard identification number (Kemler No.):	33
	tunnel restriction code:	D/E
		(Passage forbidden through tunnels of category D when carried in bulk or in tanks. Passage forbidden through tunnels of category E.)

### Sea transport (IMDG)

14.1	UN-No.:	1145
14.2	Proper Shipping Name:	CYCLOHEXANE
14.3	Class(es):	3
	Classification code:	
	Hazard label(s):	3
14.4	Packing group:	II
14.5	Environmental hazards:	Dangerous for the environment
	Marine pollutant:	Yes (P)
14.6	Special precautions for user:	
	Segregation group:	-
	EmS-No.	F-E S-D
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	
	not relevant	

**Air transport (ICAO-TI / IATA-DGR)**

14.1	UN-No.:	1145
14.2	Proper Shipping Name:	CYCLOHEXANE
14.3	Class(es):	3
	Classification code:	
	Hazard label(s):	3
14.4	Packing group:	II
14.5	Special precautions for user:	

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****SECTION 16: Other information****Abbreviations and acronyms**

ACGIH - American Conference of Governmental Industrial Hygienists  
ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road  
AGS - Committee on Hazardous Substances (Ausschuss für Gefahrstoffe)  
CLP - Regulation on Classification, Labelling and Packaging of Substances and Mixtures  
DFG - German Research Foundation (Deutsche Forschungsgemeinschaft)  
Gestis - Information system on hazardous substances of the German Social Accident Insurance (Gefahrstoffinformationssystem der Deutschen Gesetzlichen Unfallversicherung)  
IATA-DGR - International Air Transport Association-Dangerous Goods Regulations  
ICAO-TI - International Civil Aviation Organization-Technical Instructions  
IMDG - International Maritime Code for Dangerous Goods  
LTV - Long Term Value  
NIOSH - National Institute for Occupational Safety and Health  
OSHA - Occupational Safety & Health Administration  
PBT - Persistent, Bioaccumulative and Toxic  
RID - Regulation concerning the International Carriage of Dangerous Goods by Rail  
STV - Short Term Value  
SVHC - Substances of Very High Concern  
vPvB - very Persistent, very Bioaccumulative

Training advice: Provide adequate information, instruction and training for operators.

**Additional information**

Indication of changes:                      general update

If you need an explanation of the change, contact the supplier. (SDS@avantorsciences.com)

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