

SECTION 1: Identification of Product and Company

1.1. Product identifier

Trade name	: Cyclohexane
Chemical name	: Cyclohexane
IUPAC name	: Cyclohexane
Product code	: P949
Recommended use	: Solvent used in adhesive formulations and as a dehydrating alcohol

1.2. Company identification

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Emergency number	: CHEMTREC Brazil (Rio De Janeiro): +(55)-2139581449 Portuguese CHEMTREC Brazil (São Paulo): +(55)-1143491359 Portuguese CHEMTREC Brazil: 0800 892 0479 Portuguese +1 703 527 3887 (CHEMTREC International)
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to GHS BR (ABNT NBR 14725)

Flammable liquids, Category 2
 Skin corrosion/irritation, Category 2
 Specific target organ toxicity — Single exposure, Category 3, Narcosis
 Aspiration hazard, Category 1
 Hazardous to the aquatic environment — Acute Hazard, Category 1
 Hazardous to the aquatic environment — Chronic Hazard, Category 1

2.2. Label elements

GHS BR labelling

Hazard pictograms (GHS BR)



Signal word (GHS BR) : Danger

Hazard statements (GHS BR)

- : H225 - Highly flammable liquid and vapour.
 - : H304 - May be fatal if swallowed and enters airways.
 - : H315 - Causes skin irritation.
 - : H336 - May cause drowsiness or dizziness.
 - : H400 - Very toxic to aquatic life.
 - : H410 - Very toxic to aquatic life with long lasting effects.
- Precautionary statements (GHS BR)
- : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - : P233 - Keep container tightly closed.
 - : P240 - Ground/bond container and receiving equipment.
 - : P241 - Use explosion-proof electrical, lighting, ventilating equipment.
 - : P242 - Use only non-sparking tools.
 - : P243 - Take precautionary measures against static discharge.
 - : P261 - Avoid breathing vapours, mist.
 - : P264 - Wash hands thoroughly after handling.
 - : P271 - Use only outdoors or in a well-ventilated area.
 - : P273 - Avoid release to the environment.
 - : P280 - Wear eye protection, protective gloves.
 - : P301+P310 - IF SWALLOWED: Immediately call a doctor, a POISON CENTER.
 - : P302+P352 - IF ON SKIN: Wash with plenty of water.
 - : P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 - : P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 - : P312 - Call a doctor, a POISON CENTER if you feel unwell.

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P321 - Specific treatment (see supplemental first aid instruction on this label).
P331 - Do NOT induce vomiting.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P370+P378 - In case of fire: Use carbon dioxide (CO₂), extinguishing powder, foam, sand to extinguish.
P391 - Collect spillage.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards not contributing to the classification

Handling this product may result in electrostatic accumulation. Use proper grounding procedures, Heavier than air, vapours may travel long distances along ground, ignite and flash back to source, Burning liquid may float on water

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : Cyclohexane
CAS-No. : 110-82-7
EC-No. : 203-806-2
EC Index-No. : 601-017-00-1
Synonyms : Hexahydroxylbenzene; / hexahydroxylbenzol; / hexanaphtene; / hexamethylene
Formula : C₆H₁₂

Name	Product identifier	%
Benzene	CAS-No.: 71-43-2	< 0.1

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Do not induce vomiting. Call a physician immediately.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Evacuate personnel to a safe area. If breathing is difficult, give oxygen. Seek medical attention immediately.
First-aid measures after skin contact : Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact : Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.
First-aid measures after ingestion : Do not induce vomiting. If swallowed, rinse mouth with water (only if the person is conscious). Never give anything by mouth to an unconscious person. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects : May cause drowsiness or dizziness.
Symptoms/effects after inhalation : Inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract. Excessive concentrations may cause nervous system depression, headache, and weakness leading to unconsciousness. May have a narcotic effect at high concentrations.
Symptoms/effects after skin contact : Causes skin irritation. Prolonged or repeated contact with the skin may cause dermatitis.
Symptoms/effects after eye contact : May cause slight irritation.
Symptoms/effects after ingestion : May be fatal if swallowed and enters airways. May result in aspiration into the lungs, causing chemical pneumonia. Risk of lung oedema.

4.3. Indication of any immediate medical attention and special treatment needed

Note to physician : : Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide (CO₂), dry chemical powder, foam.

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Unsuitable extinguishing media : Do not use a water jet since it may cause the fire to spread. Cool containers / tanks with spray water if possible.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapour. Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases.

Explosion hazard : No flames, no sparks. Eliminate all sources of ignition. May form flammable/explosive vapour-air mixture. Heavier than air, vapours may travel long distances along ground, ignite and flash back to source. Handling this product may result in electrostatic accumulation. Use proper grounding procedures.

Hazardous decomposition products in case of fire : Toxic fumes may be released

5.3. Advice for firefighters

Firefighting instructions : Cool containers / tanks with spray water if possible.

Protective equipment for firefighters : Exposure controls / Personal protection equipment. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. For further information refer to section 8: "Exposure controls/personal protection".

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : No flames, no sparks. Eliminate all sources of ignition. Avoid contact with skin, eyes and clothing. For further information refer to section 8: "Exposure controls/personal protection".

6.1.1. For non-emergency personnel

Protective equipment : Complete protective clothing.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Complete protective clothing. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : No flames, no sparks. Eliminate all sources of ignition. Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment. Do not allow run-off from fire fighting to enter drains or water courses. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up : Use only non-sparking tools. Take up liquid spill into absorbent material. This material and its container must be disposed of in a safe way, and as per local legislation. Collect all waste in suitable and labelled containers and dispose according to local legislation. Comply with applicable regulations for solid waste disposal. Notify authorities if product enters sewers or public waters.

Other information : Do not allow run-off from fire fighting to enter drains or water courses. Dispose of materials or solid residues at an authorized site.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Work in a well-ventilated area. Avoid formation of vapours. Avoid all unnecessary exposure. Take precautionary measures against static discharge. Handling this product may result in electrostatic accumulation. Use proper grounding procedures. Use only non-sparking tools.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Avoid static electricity discharges. Store in dry, cool, well-ventilated area. Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Do not store near oxidizing agents or acidic material. Ground/bond container and receiving equipment.

Storage conditions : Store in tightly closed, properly ventilated containers away from heat, sparks, open flame. Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

Incompatible materials : Strong oxidizing agents. Strong acids. Bases.

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Storage area	: Keep away from open flames, hot surfaces and sources of ignition. Store in dry, cool, well-ventilated area. Store in tightly closed, leak-proof containers.
Packaging materials	: Carbon steel. Stainless steel. Glass. Teflon. Viton. Avoid: Polypropylene.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Cyclohexane (110-82-7)	
Brazil - Occupational Exposure Limits	
Local name	Ciclohexano
OEL TWA	820 mg/m ³
OEL TWA [ppm]	235 ppm
Regulatory reference	Norma Regulamentadora N° 15 - Atividades e Operações Insalubres
USA - ACGIH - Occupational Exposure Limits	
Local name	Cyclohexane
ACGIH OEL TWA [ppm]	100 ppm
Remark (ACGIH)	CNS impair
Regulatory reference	ACGIH 2022
Benzene (71-43-2)	
Brazil - Occupational Exposure Limits	
Local name	Benzeno
OEL TWA [ppm]	1 ppm 2.5 ppm
Remark (NR-15)	Os valores estabelecidos para os VRT-MPT são: a) 1,0 (um) ppm para as empresas que transportam, armazenam, utilizam ou manipulam benzeno e suas misturas líquidas contendo 1% (um por cento) ou mais de volume e aquelas por elas contratadas, no que couber (com exceção das empresas siderúrgicas, as produtoras de álcool anidro e aquelas que deverão substituir o benzeno a partir de 1º.01.97). b) 2,5 (dois e meio) ppm para as empresas siderúrgicas. Fator de Conversão da concentração de benzeno de ppm para mg/m ³ é: 1ppm = 3,19 mg/m ³ nas condições de 25° C, 101 kPa ou 1 atm.
Regulatory reference	Norma Regulamentadora N° 15 - Atividades e Operações Insalubres
Brazil - Biological limit values	
Local name	Benzeno
BLV	45 µg/g creatinine Parâmetro: Ácido s-fenilmercaptúrico (S-PMA) - Meio: Urina - Momento de amostragem: Final de jornada de trabalho - Interpretação: IBE/EE - Indicadores Biológicos de Exposição Excessiva - Observações: Encontrado em populações não expostas ocupacionalmente. Valores para não fumantes. 750 µg/g creatinine Parâmetro: Ácido trans-transmucônico (TTMA) - Meio: Urina - Momento de amostragem: Final de jornada de trabalho - Interpretação: IBE/EE - Indicadores Biológicos de Exposição Excessiva - Observações: Encontrado em populações não expostas ocupacionalmente. Não específico (pode ser encontrado por exposições a outras substâncias). Para a siderurgia será mantida a regra atualmente vigente.
Regulatory reference	NR 7 - PCMSO
USA - ACGIH - Occupational Exposure Limits	
Local name	Benzene
ACGIH OEL TWA [ppm]	0.5 ppm
ACGIH OEL STEL [ppm]	2.5 ppm
Remark (ACGIH)	TLV® Basis: Leukemia. Notations: Skin; A1 (Confirmed Human Carcinogen); BEI

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Benzene (71-43-2)	
ACGIH chemical category	Confirmed Human Carcinogen, Skin - potential significant contribution to overall exposure by the cutaneous route
Regulatory reference	ACGIH 2022
USA - ACGIH - Biological Exposure Indices	
Local name	BENZENE
BEI	25 µg/g creatinine Parameter: S-Phenylmercapturic acid - Medium: urine - Sampling time: End of shift - Notations: B 500 µg/g creatinine Parameter: t,t-Muconic acid - Medium: urine - Sampling time: End of shift - Notations: B
Regulatory reference	ACGIH 2022

8.2. Exposure controls

Appropriate engineering controls	: Provide local exhaust or general room ventilation to minimize vapour concentrations. Use explosion-proof equipment. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Contact lenses should not be worn.
Environmental exposure controls	: Do not allow into drains or water courses. Do not allow run-off from fire fighting to enter drains or water courses. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Avoid release to the environment.

8.3. Personal protective equipment

Hand protection:

Wear suitable gloves resistant to chemical penetration. This material may attack some forms of plastics and rubbers. Use neoprene or rubber gloves. Choosing the proper glove is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer

Eye protection:

Chemical goggles or safety glasses

Respiratory protection:

An approved organic vapour respirator/supplied air or self-contained breathing apparatus must be used when vapour concentration exceeds applicable exposure limits. [In case of inadequate ventilation] wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear.
Colour	: Colourless
Odour	: Pungent
Odour threshold	: Not available
pH	: Not available
Melting point	: 7 °C
Freezing point	: Not available
Boiling point	: 81 °C
Flash point	: -20 °C
Relative evaporation rate (butylacetate=1)	: Not available
Flammability (solid, gas)	: Not available
Explosive limits	: 1.3 – 8.4 vol %
Vapour pressure	: 95 mm Hg (20°C)
Relative vapour density at 20 °C	: 2.9
Relative density	: Not available
Density	: 0.775 – 0.785 (20°C)
Solubility	: Insoluble in water. Soluble in: Acetone.
Partition coefficient n-octanol/water (Log Pow)	: 3.44
Partition coefficient n-octanol/water (Log Kow)	: Not available
Auto-ignition temperature	: 245 °C

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Decomposition temperature	: Not available
Viscosity, kinematic	: Not available
Viscosity, dynamic	: Not available

9.2. Other information

Not available

SECTION 10: Stability and reactivity

Chemical stability	: The product is stable at normal handling and storage conditions.
Conditions to avoid	: Avoid ignition sources. Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition. Avoid the build-up of electrostatic charge.
Hazardous decomposition products	: No hazardous decomposition products known at room temperature. Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases.
Incompatible materials	: Strong oxidizing agents. Strong acids. Bases.
Possibility of hazardous reactions	: No dangerous reactions known under normal conditions of use.
Reactivity	: Highly flammable liquid and vapour.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not available
Acute toxicity (dermal)	: Not available
Acute toxicity (inhalation)	: Not available

Cyclohexane (110-82-7)	
LC50 Inhalation - Rat	> 32880 mg/m ³ (Exposure time: 4 h)
Benzene (71-43-2)	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rabbit	> 8200 mg/kg
LC50 Inhalation - Rat	44.66 mg/l/4h
ATE BR (oral)	810 mg/kg bodyweight

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Not available
Respiratory or skin sensitisation	: Not available
Germ cell mutagenicity	: Not available
Carcinogenicity	: Not available
Reproductive toxicity	: Not available
STOT-single exposure	: May cause drowsiness or dizziness.
STOT-repeated exposure	: Not available

Benzene (71-43-2)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : May be fatal if swallowed and enters airways.

11.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects	: May cause drowsiness or dizziness.
Symptoms/effects after inhalation	: Inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract. Excessive concentrations may cause nervous system depression, headache, and weakness leading to unconsciousness. May have a narcotic effect at high concentrations.
Symptoms/effects after skin contact	: Causes skin irritation. Prolonged or repeated contact with the skin may cause dermatitis.
Symptoms/effects after eye contact	: May cause slight irritation.
Symptoms/effects after ingestion	: May be fatal if swallowed and enters airways. May result in aspiration into the lungs, causing chemical pneumonia. Risk of lung oedema.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Very toxic to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short-term (acute)	: Very toxic to aquatic life.
Hazardous to the aquatic environment, long-term (chronic)	: Very toxic to aquatic life with long lasting effects.

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Cyclohexane (110-82-7)	
LC50 - Fish [1]	3.96 – 5.18 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
LC50 - Fish [2]	23.03 – 42.07 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])

Benzene (71-43-2)	
LC50 - Fish [1]	10.7 – 14.7 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 - Crustacea [1]	8.76 – 15.6 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 - Fish [2]	5.3 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 - Crustacea [2]	10 mg/l (Exposure time: 48 h - Species: Daphnia magna)

12.2. Persistence and degradability

Benzene (71-43-2)	
Persistence and degradability	Readily biodegradable in water.

12.3. Bioaccumulative potential

Cyclohexane (110-82-7)	
BCF - Fish [1]	167 mg/l
Partition coefficient n-octanol/water (Log Pow)	3.44

Benzene (71-43-2)	
BCF - Fish [1]	3.5 – 4.4
Bioconcentration factor (BCF REACH)	> 2000
Partition coefficient n-octanol/water (Log Pow)	1.83
Bioaccumulative potential	not bioaccumulable.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Hazardous to the ozone layer : Not available

SECTION 13: Disposal considerations

Regional legislation (waste)	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Dispose of at authorized waste collection point. Dispose of this material and its container at hazardous or special waste collection point.

SECTION 14: Transport information

14.1 National and international Regulations

Overland transport

UN-No.(RES 5232)	: 1145
Proper Shipping Name (RES 5232)	: CICLO HEXANO
Class (RES 5232)	: 3
Risk Number (Res 5232)	: 33
Packing group (Res 5232)	: II
Dangerous for the environment	: Yes

Transport by sea

UN-No. (IMDG)	: 1145
Proper Shipping Name (IMDG)	: CYCLOHEXANE
Class (IMDG)	: 3
Packing group (IMDG)	: II
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-D
Dangerous for the environment	: Yes

Air transport

UN-No. (IATA)	: 1145
Proper Shipping Name (IATA)	: Cyclohexane

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Class (IATA) : 3
Packing group (IATA) : II
Dangerous for the environment : Yes

14.2 Other information

No additional information available

SECTION 15: Regulatory information

15.1. National regulations

Regulatory reference : Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
Listed on the Canadian DSL (Domestic Substances List)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)
Subject to reporting requirements of United States SARA Section 313
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemicals Inventory)

SECTION 16: Other information

No additional information available

Indication of changes:			
Section	Changed item	Change	Comments
2	GHS BR classification	Modified	

Braskem - SDS_Brazil (modified 210803)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. It warns that the handling of any chemical substance requires the previous knowledge of its hazards for the user. It is up to the user of the product company providing this SDS to and promote the training of its employees about possible risks come upon of the product. The information contained herein is not absolute, but only general information on the use of the chemical and indication of safety and security measures.