

Cyclohexane

Safety Data Sheet

according to Regulation (EU) 2015/830

Date of issue: 03/04/2017 Version: 0.0

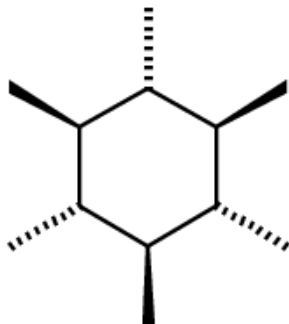
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Substance name : Cyclohexane
EC Index-No. : 601-017-00-1
EC-No. : 203-806-2
CAS-No. : 110-82-7
Type of product : Pure substance
Formula : C₆H₁₂
Chemical structure :



Synonyms : benzene hexahydride / benzene, hexahydro- / Cyclohexane / formula No 96100 / hexahydrobenzene / hexamethylene / hexanaphthene

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Solvent
Fungicide: component
Chemical intermediate
Industrial use
Laboratory chemical

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

ISOLAB Laborgeräte GmbH
Am Dillhof 2 - 63863 Eschau / GERMANY
Tel: + 49 93 74 / 978 55-0
Fax: +49 93 74 / 978 55-29
prodsafe@isolab.de

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Germany	Giftnotruf der Charité CBF, Haus VIII (Wirtschaftsgebäude), UG	Hindenburgdamm 30 12203 Berlin	+49 30 19240	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2 H225
Skin Irrit. 2 H315
STOT SE 3 H336
Asp. Tox. 1 H304
Aquatic Acute 1 H400
Aquatic Chronic 1 H410

Full text of hazard classes and H-statements : see section 16

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Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazard statements (CLP) :

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
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (CLP) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/bond container and receiving equipment.
P273 - Avoid release to the environment.
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%
Cyclohexane	(CAS-No.) 110-82-7 (EC-No.) 203-806-2 (EC Index-No.) 601-017-00-1	100

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general

: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation

: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact

: Wash immediately with lots of water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists.

First-aid measures after eye contact

: Rinse immediately with plenty of water. Take victim to an ophthalmologist if irritation persists. Do not apply neutralizing agents.

First-aid measures after ingestion

: Rinse mouth with water. Do not give milk/oil to drink. Do not induce vomiting. Give activated charcoal. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

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

Symptoms/effects after inhalation

: EXPOSURE TO HIGH CONCENTRATIONS: Central nervous system depression. Headache. Nausea. Dizziness. Mental confusion. Tremor. Coordination disorders. Disturbed motor response. Disturbances of consciousness.

Symptoms/effects after skin contact

: Tingling/irritation of the skin.

Symptoms/effects after eye contact

: Slight irritation.

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Symptoms/effects after ingestion : Risk of aspiration pneumonia. Nausea. AFTER ABSORPTION OF HIGH QUANTITIES: Vomiting. Diarrhoea. Central nervous system depression. Symptoms similar to those listed under inhalation.

Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. Skin rash/inflammation.

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

No additional information available

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media : Preferably: polyvalent foam. Water spray. AFFF foam. Alcohol-resistant foam. Polymer foam. BC powder. Carbon dioxide.

Unsuitable extinguishing media : Solid water jet ineffective as extinguishing medium.

5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD. Highly flammable. Gas/vapour flammable with air within explosion limits. INDIRECT FIRE HAZARD. May build up electrostatic charges: risk of ignition. May be ignited by sparks. Gas/vapour spreads at floor level: ignition hazard. Reactions involving a fire hazard: see "Reactivity Hazard".

Explosion hazard : DIRECT EXPLOSION HAZARD. Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD. may be ignited by sparks. Reactions with explosion hazards: see "Reactivity Hazard".

5.3. Advice for firefighters

Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.

Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Protective goggles. Head/neck protection. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus. See "Material-Handling" to select protective clothing.

Emergency procedures : Keep upwind. Mark the danger area. Consider evacuation. Seal off low-lying areas. Close doors and windows of adjacent premises. No naked flames or sparks. Stop engines and no smoking. Spark- and explosionproof appliances and lighting equipment. Keep containers closed. Wash contaminated clothes.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute/disperse combustible gas/vapour with water curtain. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills.

Methods for cleaning up : Take up liquid spill into a non combustible material e.g.: sand, earth, vermiculite or kieselguhr, powdered limestone. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Spill must not return in its original container. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Handle uncleaned empty containers as full ones. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Observe normal hygiene standards. Keep container tightly closed. Measure the concentration in the air regularly. Work under local exhaust/ventilation.

7.2. Conditions for safe storage, including any incompatibilities

Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Information on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. (strong) bases. highly flammable materials. peroxides.
Storage area : Store at room temperature. Keep out of direct sunlight. Ventilation at floor level. Fireproof storeroom. Provide for an automatic sprinkler system. Protect against frost. Provide for a tub to collect spills. Provide the tank with earthing. Under a shelter/in the open. Detached building. Store only in a limited quantity. Meet the legal requirements.
Special rules on packaging : SPECIAL REQUIREMENTS: closing. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials : SUITABLE MATERIAL: steel. stainless steel. aluminium. iron. glass. tin. MATERIAL TO AVOID: synthetic material.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Cyclohexane (110-82-7)		
EU	Local name	Cyclohexane
EU	IOELV TWA (mg/m ³)	700 mg/m ³ (Cyclohexane; EU; Time-weighted average exposure limit 8 h; Indicative occupational exposure limit value)
EU	IOELV TWA (ppm)	200 ppm (Cyclohexane; EU; Time-weighted average exposure limit 8 h; Indicative occupational exposure limit value)
Austria	Local name	Cyclohexan
Austria	MAK (mg/m ³)	700 mg/m ³
Austria	MAK (ppm)	200 ppm
Austria	MAK Short time value (mg/m ³)	2800 mg/m ³
Austria	MAK Short time value (ppm)	800 ppm
Belgium	Local name	Cyclohexane # Cyclohexaan
Belgium	Limit value (mg/m ³)	350 mg/m ³ (Cyclohexane; Belgium; Time-weighted average exposure limit 8 h)
Belgium	Limit value (ppm)	100 ppm (Cyclohexane; Belgium; Time-weighted average exposure limit 8 h)
Bulgaria	Local name	Циклохексан
Bulgaria	OEL TWA (mg/m ³)	700 mg/m ³
Bulgaria	OEL TWA (ppm)	200 ppm
Bulgaria	Notes	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Croatia	Local name	Cikloheksan
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	700 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (ppm)	200 ppm
Croatia	Naznake (HR)	EU** (naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2006/15/ EC (druga lista)); F (lako zapaljivo); Xn (Štetno); N (opasno za okoliš)
Czech Republic	Local name	Cyklohexan
Czech Republic	Expoziční limity (PEL) (mg/m ³)	700 mg/m ³
Czech Republic	Expoziční limity (PEL) (ppm)	200 ppm

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Cyclohexane (110-82-7)		
Czech Republic	Expoziční limity (NPK-P) (mg/m ³)	2000 mg/m ³
Czech Republic	Expoziční limity (NPK-P) (ppm)	580 ppm
Denmark	Local name	Cyclohexan
Denmark	Grænseværdie (langvarig) (mg/m ³)	172 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	50 ppm
Denmark	Anmærkninger (DK)	E (betyder, at stoffet har en EF-grænseværdi)
Estonia	Local name	Tsükloheksaan
Estonia	OEL TWA (mg/m ³)	700 mg/m ³
Estonia	OEL TWA (ppm)	200 ppm
Finland	Local name	Sykloheksaani
Finland	HTP-arvo (8h) (mg/m ³)	350 mg/m ³
Finland	HTP-arvo (8h) (ppm)	100 ppm
Finland	HTP-arvo (15 min)	875 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	250 ppm
France	Local name	Cyclohexane
France	VME (mg/m ³)	700 mg/m ³ (Cyclohexane; France; Time-weighted average exposure limit 8 h; VRC: Valeur réglementaire contraignante)
France	VME (ppm)	200 ppm (Cyclohexane; France; Time-weighted average exposure limit 8 h; VRC: Valeur réglementaire contraignante)
France	VLE (mg/m ³)	1300 mg/m ³ (Cyclohexane; France; Short time value; VL: Valeur non réglementaire indicative)
France	VLE (ppm)	375 ppm (Cyclohexane; France; Short time value; VL: Valeur non réglementaire indicative)
France	Note (FR)	VME réglementaire contraignante; la VLE n'est pas réglementaire et provient d'une circulaire du ministère chargé du travail
Germany	Local name	Cyclohexan
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	700 mg/m ³
Germany	TRGS 900 Occupational exposure limit value (ppm)	200 ppm
Germany	Remark (TRGS 900)	DFG,EU
Greece	OEL TWA (mg/m ³)	700 mg/m ³
Greece	OEL TWA (ppm)	200 ppm
Hungary	Local name	CIKLOHEXÁN
Hungary	AK-érték	700 mg/m ³
Hungary	Megjegyzések (HU)	II.1.
Ireland	Local name	Cyclohexane
Ireland	OEL (8 hours ref) (mg/m ³)	700 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	200 ppm
Ireland	Notes (IE)	IOELV
Italy	Local name	Cicloesano
Italy	OEL TWA (mg/m ³)	350 mg/m ³
Italy	OEL TWA (ppm)	100 ppm
Latvia	Local name	Cikloheksāns
Latvia	OEL TWA (mg/m ³)	80 mg/m ³
Latvia	OEL TWA (ppm)	23 ppm
Lithuania	Local name	Cikloheksanas
Lithuania	IPRV (mg/m ³)	700 mg/m ³
Lithuania	IPRV (ppm)	200 ppm
Luxembourg	Local name	Cyclohexane

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Cyclohexane (110-82-7)		
Luxembourg	OEL TWA (mg/m ³)	700 mg/m ³
Luxembourg	OEL TWA (ppm)	200 ppm
Malta	Local name	Cyclohexane
Malta	OEL TWA (mg/m ³)	700 mg/m ³
Malta	OEL TWA (ppm)	200 ppm
Netherlands	Local name	Cyclohexaan
Netherlands	Grenswaarde TGG 8H (mg/m ³)	700 mg/m ³ (Cyclohexaan; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)
Netherlands	Grenswaarde TGG 8H (ppm)	200 ppm (Cyclohexaan; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	1400 mg/m ³ (Cyclohexaan; Netherlands; Short time value; Public occupational exposure limit value)
Netherlands	Grenswaarde TGG 15MIN (ppm)	400 ppm (Cyclohexaan; Netherlands; Short time value; Public occupational exposure limit value)
Poland	Local name	Cykloheksan
Poland	NDS (mg/m ³)	300 mg/m ³
Poland	NDSch (mg/m ³)	1000 mg/m ³
Portugal	Local name	Ciclo-hexano
Portugal	OEL TWA (ppm)	100 ppm
Romania	Local name	Ciclohexan
Romania	OEL TWA (mg/m ³)	700 mg/m ³
Romania	OEL TWA (ppm)	200 ppm
Slovakia	Local name	Cyklohexán
Slovakia	NPHV (priemerná) (mg/m ³)	700 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	200 ppm
Slovenia	Local name	cikloheksan
Slovenia	OEL TWA (mg/m ³)	700 mg/m ³
Slovenia	OEL TWA (ppm)	200 ppm
Spain	Local name	Ciclohexano
Spain	VLA-ED (mg/m ³)	700 mg/m ³
Spain	VLA-ED (ppm)	200 ppm
Spain	Notes	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su transposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país), r (Esta sustancia tiene establecidas restricciones a la fabricación, la comercialización o el uso en los términos especificados en el "Reglamento (CE) nº 1907/2006 sobre Registro, Evaluación, Autorización y Restricción de sustancias y preparados químicos" (REACH) de 18 de diciembre de 2006 (DOUE L 369 de 30 de diciembre de 2006). Las restricciones de una sustancia pueden aplicarse a todos los usos o sólo a usos concretos. El anexo XVII del Reglamento REACH contiene la lista de todas las sustancias restringidas y especifica los usos que se han restringido).
Sweden	Local name	Cyklohexan
Sweden	nivågränsvärde (NVG) (mg/m ³)	700 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	200 ppm
United Kingdom	Local name	Cyclohexane

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Cyclohexane (110-82-7)		
United Kingdom	WEL TWA (mg/m ³)	350 mg/m ³ Cyclohexane; United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005)
United Kingdom	WEL TWA (ppm)	100 ppm Cyclohexane; United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005)
United Kingdom	WEL STEL (mg/m ³)	1050 mg/m ³ Cyclohexane; United Kingdom; Short time value; Workplace exposure limit (EH40/2005)
United Kingdom	WEL STEL (ppm)	300 ppm Cyclohexane; United Kingdom; Short time value; Workplace exposure limit (EH40/2005)
Iceland	Local name	Sýklóhexan
Iceland	OEL (8 hours ref) (mg/m ³)	175 mg/m ³
Iceland	OEL (8 hours ref) (ppm)	50 ppm
Russian Federation	Local name	Циклогексан
Russian Federation	OEL Ceiling (mg/m ³)	80 mg/m ³
Russian Federation	Remark (RU)	4 класс опасности - умеренно опасное; п (пары и/или газы)
Norway	Local name	Sykloheksan
Norway	Grenseverdier (AN) (mg/m ³)	525 mg/m ³
Norway	Grenseverdier (AN) (ppm)	150 ppm
Norway	Merknader (NO)	E (EU har en veiledende grenseverdi for stoffet)
Switzerland	Local name	Cyclohexan
Switzerland	VME (mg/m ³)	700 mg/m ³
Switzerland	VME (ppm)	200 ppm
Switzerland	VLE (mg/m ³)	2800 mg/m ³
Switzerland	VLE (ppm)	800 ppm
Switzerland	Remark (CH)	B - ZNS - NIOSH
Turkey	Local name	Sikloheksan
Turkey	OEL TWA (mg/m ³)	700 mg/m ³
Turkey	OEL TWA (ppm)	200 ppm
Australia	Local name	Cyclohexane
Australia	TWA (mg/m ³)	350 mg/m ³
Australia	TWA (ppm)	100 ppm
Australia	STEL (mg/m ³)	1050 mg/m ³
Australia	STEL (ppm)	300 ppm
USA - ACGIH	Local name	Cyclohexane
USA - ACGIH	ACGIH TWA (ppm)	100 ppm (Cyclohexane; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
USA - ACGIH	Remark (ACGIH)	CNS impair
USA - OSHA	Local name	Cyclohexane
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	1050 mg/m ³
USA - OSHA	OSHA PEL (TWA) (ppm)	300 ppm

8.2. Exposure controls

Materials for protective clothing:

GIVE EXCELLENT RESISTANCE: nitrile rubber. viton. GIVE GOOD RESISTANCE: PVA. tetrafluoroethylene. GIVE LESS RESISTANCE: butyl rubber. neoprene/butyl rubber. natural rubber. neoprene. polyethylene. PVC. neoprene/natural rubber. GIVE POOR RESISTANCE: No data available

Hand protection:

Gloves

Eye protection:

Safety glasses

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Skin and body protection:

Head/neck protection. Protective clothing

Respiratory protection:

Wear gas mask with filter type A if conc. in air > exposure limit

Device	Filter type	Condition	Standard
Gas mask	Type A - High-boiling (>65 °C) organic compounds	If conc. in air > exposure limit	



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 84.16 g/mol
Colour	: Colourless.
Odour	: Mild odour. Sweet odour. Petroleum-like odour. Commercial/unpurified substance: Irritating/pungent odour.
Odour threshold	: 25 - 300 ppm 86 - 1200 mg/m ³
pH	: No data available
Relative evaporation rate (butylacetate=1)	: 6
Relative evaporation rate (ether=1)	: 2.6
Melting point	: 6.5 °C
Freezing point	: No data available
Boiling point	: 81 °C
Flash point	: -18 °C
Critical temperature	: 280 °C
Auto-ignition temperature	: 260 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 124 hPa (24 °C)
Critical pressure	: 40700 hPa
Relative vapour density at 20 °C	: 2.9
Relative density	: 0.77 (25 °C)
Relative density of saturated gas/air mixture	: 1.2
Density	: 0.78 g/cm ³ (20 °C)
Solubility	: Insoluble in water. Substance floats in water. Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in tetrachloromethane. Soluble in ligroin. Soluble in oils/fats. Soluble in methanol. Water: 0.0052 g/100ml (23.5 °C)
Log Pow	: 3.44 (Experimental value; 25 °C)
Viscosity, kinematic	: 1.26 mm ² /s (20 °C)
Viscosity, dynamic	: 0.001 Pa.s (17 °C; 0.000894 mPa.s; 25 °C)
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 1.2 - 8.3 vol %

9.2. Other information

Minimum ignition energy	: 0.22 mJ
Specific conductivity	: 1.9 pS/m
Saturation concentration	: 10.13 %
VOC content	: 100 %

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Other properties : Gas/vapour heavier than air at 20°C. Clear. Volatile. Substance has neutral reaction. May generate electrostatic charges.

SECTION 10: Stability and reactivity

10.1. Reactivity

Upon combustion: CO and CO₂ are formed. Violent to explosive reaction with (strong) oxidizers: (increased) risk of fire/explosion.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Cyclohexane (110-82-7)	
LD50 oral rat	> 5000 mg/kg (Experimental value)
LD50 dermal rabbit	> 2000 mg/kg bodyweight (Rabbit; Experimental value; Equivalent or similar to OECD 402)
LC50 inhalation rat (mg/l)	> 19.07 mg/l/4h (Rat; Experimental value)
LC50 inhalation rat (ppm)	> 5540 ppm/4h (Rat)

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Not classified
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : May cause drowsiness or dizziness.
STOT-repeated exposure : Not classified
Aspiration hazard : May be fatal if swallowed and enters airways.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Dangerous for the environment.
Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). Not included in the list of fluorinated greenhouse gases (Regulation (EC) No 842/2006). TA-Luft Klasse 5.2.5/l.
Ecology - water : Fouling to shoreline. Ground water pollutant. Toxic to fishes. Very toxic to invertebrates (Daphnia). Toxic to algae. Taste alteration in fishes/aquatic organisms. Nitrification of activated sludge is inhibited.

Cyclohexane (110-82-7)	
LC50 fish 1	4.53 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Pimephales promelas; Flow-through system; Fresh water; Experimental value)
EC50 Daphnia 1	0.9 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
Threshold limit algae 1	3.428 mg/l (EbC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Selenastrum capricornutum)
Threshold limit algae 2	0.925 mg/l (NOEC; OECD 201: Alga, Growth Inhibition Test; 72 h; Selenastrum capricornutum)

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12.2. Persistence and degradability

Cyclohexane (110-82-7)	
Persistence and degradability	Readily biodegradable in water. Non degradable in the soil. Low potential for adsorption in soil.
Biochemical oxygen demand (BOD)	0.22 g O ₂ /g substance
ThOD	3.425 g O ₂ /g substance
BOD (% of ThOD)	< 0.5 (Literature study)

12.3. Bioaccumulative potential

Cyclohexane (110-82-7)	
BCF fish 2	31 - 129 (BCF; 8 weeks; Cyprinus carpio)
Log Pow	3.44 (Experimental value; 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

Cyclohexane (110-82-7)	
Surface tension	0.025 N/m (20 °C)
Log Koc	log Koc, Other; 2.89; QSAR; Koc; Other; 770; QSAR

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods






Product/Packaging disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle by distillation. Incinerate under surveillance with energy recovery. Do not discharge into surface water. May be discharged to wastewater treatment installation.

Additional information : LWCA (the Netherlands): KGA category 03. Hazardous waste according to Directive 2008/98/EC.

European List of Waste (LoW) code : 07 01 04* - other organic solvents, washing liquids and mother liquors

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
1145	1145	1145	1145	1145
14.2. UN proper shipping name				
CYCLOHEXANE	CYCLOHEXANE	Cyclohexane	CYCLOHEXANE	CYCLOHEXANE
Transport document description				
UN 1145 CYCLOHEXANE, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS	UN 1145 CYCLOHEXANE, 3, II, MARINE POLLUTANT/ENVIRONM ENTALLY HAZARDOUS (- 18°C c.c.)	UN 1145 Cyclohexane, 3, II, ENVIRONMENTALLY HAZARDOUS	UN 1145 CYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS	UN 1145 CYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS
14.3. Transport hazard class(es)				
3	3	3	3	3
				
14.4. Packing group				
II	II	II	II	II

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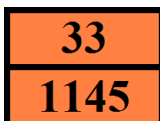


ADR	IMDG	IATA	ADN	RID
14.5. Environmental hazards				
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes
No supplementary information available				

14.6. Special precautions for user

- Overland transport

Classification code (ADR)	: F1
Limited quantities (ADR)	: 11
Excepted quantities (ADR)	: E2
Packing instructions (ADR)	: P001, IBC02, R001
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T4
Portable tank and bulk container special provisions (ADR)	: TP1
Tank code (ADR)	: LGBF
Vehicle for tank carriage	: FL
Transport category (ADR)	: 2
Special provisions for carriage - Operation (ADR)	: S2, S20
Hazard identification number (Kemler No.)	: 33
Orange plates	:



Tunnel restriction code (ADR)	: D/E
EAC code	: 3YE

- Transport by sea

Transport regulations (IMDG)	: Subject
Limited quantities (IMDG)	: 1 L
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC02
Tank instructions (IMDG)	: T4
Tank special provisions (IMDG)	: TP1
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-D
Stowage category (IMDG)	: E
Flash point (IMDG)	: -18°C c.c.
Properties and observations (IMDG)	: Colourless, mobile liquid with a sweet aromatic odour. Flashpoint: -18°C c.c. Explosive limits: 1.2% to 8.4% Immiscible with water. Slightly irritating to skin, eyes and mucous membranes. Narcotic in high concentrations.
MFAG-No	: 128

- Air transport

Transport regulations (IATA)	: Subject to the provisions
PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y341
PCA limited quantity max net quantity (IATA)	: 1L
PCA packing instructions (IATA)	: 353
PCA max net quantity (IATA)	: 5L
CAO packing instructions (IATA)	: 364
CAO max net quantity (IATA)	: 60L
ERG code (IATA)	: 3H

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- Inland waterway transport

Classification code (ADN) : F1
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E2
Carriage permitted (ADN) : T
Equipment required (ADN) : PP, EX, A
Ventilation (ADN) : VE01
Number of blue cones/lights (ADN) : 1

- Rail transport

Transport regulations (RID) : Subject
Classification code (RID) : F1
Limited quantities (RID) : 1L
Excepted quantities (RID) : E2
Packing instructions (RID) : P001, IBC02, R001
Mixed packing provisions (RID) : MP19
Portable tank and bulk container instructions (RID) : T4
Portable tank and bulk container special provisions (RID) : TP1
Tank codes for RID tanks (RID) : LGBF
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE7
Hazard identification number (RID) : 33

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions
Cyclohexane is not on the REACH Candidate List
Cyclohexane is not on the REACH Annex XIV List

VOC content : 100 %

15.1.2. National regulations

Germany

VwVwS Annex reference : Water hazard class (WGK) 2, hazard to waters (Classification according to VwVwS, Annex 1 or 2; ID No. 63)
WGK remark : Classification water polluting in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 27 July 2005 (Anhang 2)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Classification remarks : Emergency management guidelines for the storage of flammable liquids must be followed

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Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
EC50	Median effective concentration
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Full text of H- and EUH-statements:

Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Asp. Tox. 1	Aspiration hazard, Category 1
Flam. Liq. 2	Flammable liquids, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
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

SDS ISOLAB

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