

# SAFETY DATA SHEET

## 1. PRODUCT

### 1.1 Product identifiers

Name: Dicyclopentadiene

CAS-No.: 77-73-6

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

Identified uses : Laboratory chemicals, Synthesis of substances

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 2), H330

Skin irritation (Category 2), H315

Eye irritation (Category 2A), H319


Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

Acute aquatic toxicity (Category 2), H401

Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

Pictogram	
Signal word	Danger
Hazard statement(s)	H226 Flammable liquid and vapour. H302 Harmful if swallowed. H315 Causes skin irritation. H319 Causes serious eye irritation. H330 Fatal if inhaled. H335 May cause respiratory irritation. H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)	<p>P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.</p> <p>P233 Keep container tightly closed.</p> <p>P240 Ground/bond container and receiving equipment.</p> <p>P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.</p> <p>P242 Use only non-sparking tools.</p> <p>P243 Take precautionary measures against static discharge.</p> <p>P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.</p> <p>P264 Wash skin thoroughly after handling.</p> <p>P270 Do not eat, drink or smoke when using this product.</p> <p>P271 Use only outdoors or in a well-ventilated area.</p> <p>P273 Avoid release to the environment.</p> <p>P280 Wear protective gloves/ eye protection/ face protection.</p> <p>P284 Wear respiratory protection.</p> <p>P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.</p> <p>P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.</p> <p>P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.</p> <p>P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P332 + P313 If skin irritation occurs: Get medical advice/ attention.</p> <p>P337 + P313 If eye irritation persists: Get medical advice/ attention.</p> <p>P362 Take off contaminated clothing and wash before reuse.</p> <p>P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.</p> <p>P391 Collect spillage.</p> <p>P403 + P233 Store in a well-ventilated place. Keep container tightly closed.</p> <p>P403 + P235 Store in a well-ventilated place. Keep cool.</p> <p>P405 Store locked up.</p> <p>P501 Dispose of contents/ container to an approved waste disposal plant.</p>
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### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

No data available

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Synonyms:	4,7-Methano-3a,4,7,7a-tetrahydroindene Cyclopentadiene dimer
Formula:	C <sub>10</sub> H <sub>12</sub>
Molecular weight:	132.20 g/mol
CAS-No.:	77-73-6
EC-No.:	201-052-9

#### Hazardous components

Component	Classification	Concentration
<b>3a,4,7,7a-Tetrahydro-4,7-methanoindene</b>		
	Flam. Liq. 3; Acute Tox. 4; Acute Tox. 2; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Aquatic Acute 2; Aquatic Chronic 2; H226, H302, H315, H319, H330, H335, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

<b>General advice</b>
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
<b>If inhaled</b>
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
<b>In case of skin contact</b>
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
<b>In case of eye contact</b>
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

<b>If swallowed</b>
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

#### 4.2 Indication of any immediate medical attention and special treatment needed

No data available

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### 5. FIREFIGHTING MEASURES

#### 5.1 Extinguishing media

##### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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

No data available

#### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

#### 5.4 Further information

Use water spray to cool unopened containers.

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### 6. ACCIDENTAL RELEASE MEASURES

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

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations.

Vapours can accumulate in low areas.

For personal protection see section 8.

#### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

#### 6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

#### 6.4 Reference to other sections

For disposal see section 13.

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### 7. HANDLING AND STORAGE

#### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

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

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully

resealed and kept upright to prevent leakage.

Storage class (TRGS 510): Flammable liquids

### 7.3 Specific end use(s)

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

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
3a,4,7,7aTetrahydro-4,7methanoindene	77-73-6	TWA	5.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract, Lower Respiratory Tract & eye irritation		
		TWA	5.000000 ppm 30.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Exists in two stereoisomeric forms.		
		PEL	5 ppm 30 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

### 8.2 Exposure controls

#### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

#### Personal protective equipment

Eye/face protection	Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Splash contact Material: Nitrile rubber Minimum layer thickness: 0.4 mm Break through time: 45 min Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Body Protection	Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Control of environmental exposure	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance	Form: clear, liquid Colour: light yellow
Odour	pungent
Odour Threshold	No data available
pH	No data available

Melting point/freezing point	Melting point/range: < 4 °C (< 39 °F)
Initial boiling point and boiling range	140 °C (284 °F)
Flash point	24 °C (75 °F)
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 10 %(V) Lower explosion limit: 1 %(V)
Vapour pressure	5 - 40 hPa (4 - 30 mmHg) at 23.3 °C (73.9 °F)
Vapour density	No data available
Relative density	0.93 g/cm3 at 35 °C (95 °F)
Water solubility	insoluble
Partition coefficient: n-octanol/water	log Pow: 2.78 at 25 °C (77 °F)
Auto-ignition temperature	503 °C (937 °F)
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

## 9.2 Other safety information

Surface tension: 0.03 mN/m at 37.8 °C (100.0 °F)

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

Contains the following stabiliser(s):

BHT (0.05 %)

### 10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

### 10.4 Conditions to avoid

Heat, flames and sparks.

### 10.5 Incompatible materials

Strong oxidizing agents, Strong acids, Strong bases

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

In the event of fire: see section 5

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male and female - 590 mg/kg  
(OECD Test Guideline 401)  
LC50 Inhalation - Rat - 4 h - 1.88 mg/l  
(OECD Test Guideline 403)  
LD50 Dermal - Rabbit - 4,460 mg/kg  
(OECD Test Guideline 402)  
LD50 Intraperitoneal - Rat - 200 mg/kg

#### Skin corrosion/irritation

Skin - Rabbit Result: irritating - 24 h (OECD Test Guideline 404)
<b>Serious eye damage/eye irritation</b>
Eyes - Rabbit Result: Irritating to eyes. (OECD Test Guideline 405)
<b>Respiratory or skin sensitisation</b>
Draize Test - Guinea pig Does not cause skin sensitisation.
<b>Germ cell mutagenicity</b>
Hamster Lungs Result: negative
<b>Carcinogenicity</b>
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
<b>Reproductive toxicity</b>
No data available No data available
<b>Specific target organ toxicity -single exposure</b>
Inhalation - May cause respiratory irritation.
<b>Specific target organ toxicity -repeated exposure</b>
No data available
<b>Aspiration hazard</b>
No data available
<b>Additional Information</b>
Repeated dose toxicity Rat - male and female - inhalation (vapour) - NOAEL : 276 mg/m3 - OECD Test Guideline 413 RTECS: Not available To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Stomach - Irregularities - Based on Human Evidence Stomach - Irregularities - Based on Human Evidence

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Toxicity to fish	static test LC50 - Lepomis macrochirus (Bluegill) - 23.3 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia pulex (Water flea) - 4.2 mg/l - 48 h
Toxicity to algae	static test EC50 - Selenastrum capricornutum (green algae) - > 100 mg/l - 96 h
Toxicity to bacteria	IC50 - Protozoa - 5.3 mg/l - 24 h

### 12.2 Persistence and degradability

Biodegradability	Biotic/Aerobic - Exposure time 21 d Result: 1.6 % - Not readily biodegradable. Ratio BOD/ThBOD <= 4 %
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### 12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 14 d - 1 mg/l Bioconcentration factor (BCF): 53 (OECD Test Guideline 305)
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### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

## 12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life with long lasting effects.

No data available

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Contaminated packaging
Dispose of as unused product.

## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 2048 Class: 3 Packing group: III

Proper shipping name: Dicyclopentadiene

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

### IMDG

UN number: 2048 Class: 3 Packing group: III EMS-No: F-E, S-D

Proper shipping name: DICYCLOPENTADIENE

Marine pollutant:yes

### IATA

UN number: 2048 Class: 3 Packing group: III

Proper shipping name: Dicyclopentadiene

## 15. REGULATORY INFORMATION

### SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

Component	CAS-No.	Revision Date
3a,4,7,7a-Tetrahydro-4,7-methanoindene	77-73-6	2007-07-01

### SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

Component	CAS-No.	Revision Date
3a,4,7,7a-Tetrahydro-4,7-methanoindene	77-73-6	2007-07-01

### Pennsylvania Right To Know Components

Component	CAS-No.	Revision Date
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3a,4,7,7a-Tetrahydro-4,7-methanoindene	77-73-6	2007-07-01
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#### New Jersey Right To Know Components

Component	CAS-No.	Revision Date
3a,4,7,7a-Tetrahydro-4,7-methanoindene	77-73-6	2007-07-01

#### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

## 16. OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity

Aquatic Acute Acute aquatic toxicity

Aquatic Chronic Chronic aquatic toxicity

Eye Irrit. Eye irritation

Flam. Liq. Flammable liquids

H226 Flammable liquid and vapour.

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H330 Fatal if inhaled.

H335 May cause respiratory irritation.

H401 Toxic to aquatic life.

H411 Toxic to aquatic life with long lasting effects.

Skin Irrit. Skin irritation

STOT SE Specific target organ toxicity - single exposure

### HMIS Rating

Health hazard: 2

Chronic Health Hazard: \*

Flammability: 3

Physical Hazard 0

### NFPA Rating

Health hazard: 2

Fire Hazard: 3

Reactivity Hazard: 0