

## SAFETY DATA SHEET

Version 4.7  
Revision Date 06/24/2014  
Print Date 12/17/2014

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**1. PRODUCT AND COMPANY IDENTIFICATION****1.1 Product identifiers**

Product name : Dicyclopentadiene

Product Number : 454338

Brand : Aldrich

Index-No. : 601-044-00-9

CAS-No. : 77-73-6

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

Identified uses : Laboratory chemicals, Manufacture of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

**1.4 Emergency telephone number**

Emergency Phone # : (314) 776-6555

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**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) |                                                                                                                                  |
| P210                       | Keep away from heat/sparks/open flames/hot surfaces. - No smoking.                                                               |
| P233                       | Keep container tightly closed.                                                                                                   |
| P240                       | Ground/bond container and receiving equipment.                                                                                   |
| P241                       | Use explosion-proof electrical/ ventilating/ lighting/ equipment.                                                                |
| P242                       | Use only non-sparking tools.                                                                                                     |
| P243                       | Take precautionary measures against static discharge.                                                                            |
| P260                       | Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.                                                                            |
| P264                       | Wash skin thoroughly after handling.                                                                                             |
| P270                       | Do not eat, drink or smoke when using this product.                                                                              |
| P271                       | Use only outdoors or in a well-ventilated area.                                                                                  |
| P273                       | Avoid release to the environment.                                                                                                |
| P280                       | Wear protective gloves/ protective clothing/ eye protection/ face protection.                                                    |
| P284                       | Wear respiratory protection.                                                                                                     |
| P301 + P312                | IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.                                                      |
| P303 + P361 + P353         | IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.                     |
| P304 + P340                | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.                                 |
| P305 + P351 + P338         | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P310                       | Immediately call a POISON CENTER or doctor/ physician.                                                                           |
| P320                       | Specific treatment is urgent (see supplemental first aid instructions on this label).                                            |
| P330                       | Rinse mouth.                                                                                                                     |
| P332 + P313                | If skin irritation occurs: Get medical advice/ attention.                                                                        |
| P337 + P313                | If eye irritation persists: Get medical advice/ attention.                                                                       |
| P362                       | Take off contaminated clothing and wash before reuse.                                                                            |
| P370 + P378                | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.                                            |
| 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 an approved waste disposal plant.                                                              |

## 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

|                  |   |                                                                 |
|------------------|---|-----------------------------------------------------------------|
| Synonyms         | : | 4,7-Methano-3a,4,7,7a-tetrahydroindene<br>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                                                       |
| Index-No.        | : | 601-044-00-9                                                    |

### Hazardous components

| Component                                     | Classification                                                                                                                                             | Concentration |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>3a,4,7,7a-Tetrahydro-4,7-methanoindene</b> |                                                                                                                                                            |               |
|                                               | Flam. Liq. 3; Acute Tox. 4;<br>Acute Tox. 2; Skin Irrit. 2; Eye<br>Irrit. 2A; STOT SE 3; Aquatic<br>Acute 2; Aquatic Chronic 2;<br>H226, H302, H315, H319, | 90 - 100 %    |

|  |                  |  |
|--|------------------|--|
|  | H330, H335, H411 |  |
|--|------------------|--|

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

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

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

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

no data available

## 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

Carbon oxides

### 5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

## 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.

## 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.

## 7.3 Specific end use(s)

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

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# 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## 8.1 Control parameters

### Components with workplace control parameters

| Component                              | CAS-No. | Value                                                             | Control parameters            | Basis                                                         |
|----------------------------------------|---------|-------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------|
| 3a,4,7,7a-Tetrahydro-4,7-methanoindene | 77-73-6 | TWA                                                               | 5 ppm                         | USA. ACGIH Threshold Limit Values (TLV)                       |
|                                        | Remarks | Upper Respiratory Tract, Lower Respiratory Tract & eye irritation |                               |                                                               |
|                                        |         | TWA                                                               | 5 ppm<br>30 mg/m <sup>3</sup> | USA. NIOSH Recommended Exposure Limits                        |
|                                        |         | Exists in two stereoisomeric forms.                               |                               |                                                               |
|                                        |         | TWA                                                               | 5 ppm<br>30 mg/m <sup>3</sup> | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |

## 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.

#### 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.

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# 9. PHYSICAL AND CHEMICAL PROPERTIES

## 9.1 Information on basic physical and chemical properties

- |                    |                                             |
|--------------------|---------------------------------------------|
| a) Appearance      | Form: clear, liquid<br>Colour: light yellow |
| b) Odour           | no data available                           |
| c) Odour Threshold | no data available                           |
| d) pH              | no data available                           |

|                                                 |                                                                                     |
|-------------------------------------------------|-------------------------------------------------------------------------------------|
| e) Melting point/freezing point                 | Melting point/range: ca.32.5 °C (90.5 °F)                                           |
| f) Initial boiling point and boiling range      | 164 - 168 °C (327 - 334 °F) at 1,013 hPa (760 mmHg)                                 |
| g) Flash point                                  | 32 °C (90 °F) - closed cup                                                          |
| h) Evaporation rate                             | no data available                                                                   |
| i) Flammability (solid, gas)                    | no data available                                                                   |
| j) Upper/lower flammability or explosive limits | Upper explosion limit: 10 %(V)<br>Lower explosion limit: 1 %(V)                     |
| k) Vapour pressure                              | 13.00 hPa (9.75 mmHg) at 37.7 °C (99.9 °F)<br>1.86 hPa (1.40 mmHg) at 20 °C (68 °F) |
| l) Vapour density                               | no data available                                                                   |
| m) Relative density                             | 0.98 g/cm <sup>3</sup> at 20 °C (68 °F)                                             |
| n) Water solubility                             | 0.04 g/l at 20 - 25 °C (68 - 77 °F)                                                 |
| o) Partition coefficient: n-octanol/water       | log Pow: 2.89 at 20 °C (68 °F)                                                      |
| p) Auto-ignition temperature                    | no data available                                                                   |
| q) Decomposition temperature                    | no data available                                                                   |
| r) Viscosity                                    | no data available                                                                   |
| s) Explosive properties                         | no data available                                                                   |
| t) Oxidizing properties                         | no data available                                                                   |

## 9.2 Other safety information

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

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## 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

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - rat - 590 mg/kg  
(OECD Test Guideline 401)

LC50 Inhalation - rat - 6 h - 738.3 mg/m<sup>3</sup>

LD50 Dermal - rabbit - 5,080 mg/kg

LD50 Intraperitoneal - rat - 200 mg/kg

#### Skin corrosion/irritation

Skin - rabbit

Result: irritating

(OECD Test Guideline 404)

#### Serious eye damage/eye irritation

Eyes - rabbit

Result: Irritating to eyes.

(OECD Test Guideline 405)

#### Respiratory or skin sensitisation

- guinea pig

Did not cause sensitisation on laboratory animals.

#### Germ cell mutagenicity

Ames test

S. typhimurium

Result: negative

#### Carcinogenicity

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.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

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.

#### Reproductive toxicity

no data available

no data available

#### Specific target organ toxicity - single exposure

May cause respiratory irritation.

#### Specific target organ toxicity - repeated exposure

no data available

#### Aspiration hazard

no data available

#### Additional Information

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

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## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

|                                                     |                                                    |
|-----------------------------------------------------|----------------------------------------------------|
| Toxicity to fish                                    | LC50 - Ictalurus punctatus - 16.0 mg/l - 96.0 h    |
| Toxicity to daphnia and other aquatic invertebrates | EC50 - Daphnia magna (Water flea) - 11 mg/l - 48 h |
| Toxicity to algae                                   | EC50 - SELENASTRUM - > 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<br>Result: 1.6 % - Not readily biodegradable. |
| Ratio BOD/ThBOD  | <= 4 %                                                                            |

### 12.3 Bioaccumulative potential

|                 |                                                   |
|-----------------|---------------------------------------------------|
| Bioaccumulation | Lepomis macrochirus (Bluegill) - 96 h<br>- 1 mg/l |
|                 | Bioconcentration factor (BCF): 53                 |

### 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.

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## 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.

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## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 2048      Class: 3      Packing group: III  
Proper shipping name: Dicyclopentadiene  
Reportable Quantity (RQ):  
Marine pollutant: No  
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: No

### IATA

UN number: 2048      Class: 3      Packing group: III  
Proper shipping name: Dicyclopentadiene

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## 15. REGULATORY INFORMATION

### SARA 302 Components

SARA 302: 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:

|                                        | 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

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

### Pennsylvania Right To Know Components

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

### New Jersey Right To Know Components

|                                        | 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.

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## 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 |



**Further information**

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**Preparation Information**

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Product Safety – Americas Region  
1-800-521-8956

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