

## SAFETY DATA SHEET

Version 6.2  
Revision Date 10/24/2019  
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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : *cis,cis*-1,5-Cyclooctadiene

Product Number : 29580  
Brand : Aldrich  
CAS-No. : 1552-12-1

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

Identified uses : Laboratory chemicals, Synthesis of substances

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

Company : Sigma-Aldrich Inc.  
3050 Spruce Street  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone number**

Emergency Phone # : +1-703-527-3887

**SECTION 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 4), H332  
Aspiration hazard (Category 1), H304  
Short-term (acute) aquatic hazard (Category 2), H401  
Long-term (chronic) aquatic hazard (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 + H332                | Harmful if swallowed or if inhaled.                                                                                        |
| H304                       | May be fatal if swallowed and enters airways.                                                                              |
| 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.                                                                      |
| P261                       | Avoid breathing 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/ eye protection/ face protection.                                                                   |
| P301 + P310                | IF SWALLOWED: Immediately call a POISON CENTER/doctor.                                                                     |
| P303 + P361 + P353         | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.                        |
| P304 + P340 + P312         | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. |
| P331                       | Do NOT induce vomiting.                                                                                                    |
| P370 + P378                | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.                                       |
| P391                       | Collect spillage.                                                                                                          |
| 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

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                  |                |
|------------------|----------------|
| Synonyms         | : COD          |
| Molecular weight | : 108.18 g/mol |
| CAS-No.          | : 1552-12-1    |
| EC-No.           | : 216-291-4    |

| Component                        | Classification                                                                                                  | Concentration |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------|
| <b>(Z,Z)-Cycloocta-1,5-diene</b> |                                                                                                                 |               |
|                                  | Flam. Liq. 3; Acute Tox. 4; Asp. Tox. 1; Aquatic Acute 2; Aquatic Chronic 2; H226, H302, H332, H304, H401, H411 | <= 100 %      |

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## SECTION 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. 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

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Dry powder Dry sand

#### Unsuitable extinguishing media

Do NOT use water jet.

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

Carbon oxides

### 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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## SECTION 6: Accidental release measures

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

Use personal protective equipment. 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 non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

## **6.4 Reference to other sections**

For disposal see section 13.

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# **SECTION 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.

Store under inert gas. Air sensitive.

Storage class (TRGS 510): 3: Flammable liquids

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

## **8.1 Control parameters**

### **Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

## **8.2 Exposure controls**

### **Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### **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: 30 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.

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## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

- |                                            |                                                                    |
|--------------------------------------------|--------------------------------------------------------------------|
| a) Appearance                              | Form: clear, liquid<br>Colour: light brown                         |
| b) Odour                                   | No data available                                                  |
| c) Odour Threshold                         | No data available                                                  |
| d) pH                                      | No data available                                                  |
| e) Melting point/freezing point            | Melting point/freezing point: ca.70 °C (ca.158 °F) at ca.1,013 hPa |
| f) Initial boiling point and boiling range | ca.151 °C ca.304 °F                                                |
| 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                             | No data available                                                  |

flammability or  
explosive limits

- |                                              |                            |
|----------------------------------------------|----------------------------|
| k) Vapour pressure                           | 5.4 hPa at 20 °C (68 °F)   |
| l) Vapour density                            | No data available          |
| m) Relative density                          | 0.88 g/mL at 20 °C (68 °F) |
| n) Water solubility                          | 0.05 g/l                   |
| o) Partition coefficient:<br>n-octanol/water | log Pow: 3.16              |
| p) Auto-ignition<br>temperature              | No data available          |
| q) Decomposition<br>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

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 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

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male and female - 1,900 mg/kg

(OECD Test Guideline 401)

Inhalation: No data available

LD50 Dermal - Rat - 10,000 mg/kg  
(OECD Test Guideline 402)  
No data available

#### **Skin corrosion/irritation**

Skin - Rabbit  
Result: Mild skin irritation - 4 h  
(OECD Test Guideline 404)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit  
Result: Mild eye irritation - 72 h  
(OECD Test Guideline 405)

#### **Respiratory or skin sensitisation**

Maximisation Test - Guinea pig  
Result: Does not cause skin sensitisation.  
(OECD Test Guideline 406)

#### **Germ cell mutagenicity**

No data available

#### **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.  
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 on OSHA's list of regulated carcinogens.

#### **Reproductive toxicity**

No data available  
No data available

#### **Specific target organ toxicity - single exposure**

No data available

#### **Specific target organ toxicity - repeated exposure**

No data available

#### **Aspiration hazard**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

#### **Additional Information**

RTECS: GX9620000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

|                  |                                                                                       |
|------------------|---------------------------------------------------------------------------------------|
| Toxicity to fish | semi-static test LC50 - Leuciscus idus (Golden orfe) - 9.4 mg/l - 48 h<br>(DIN 38412) |
|------------------|---------------------------------------------------------------------------------------|

|                                                     |                                                                                                                                                                                                                                                  |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to daphnia and other aquatic invertebrates | static test EC50 - Daphnia magna (Water flea) - 1.1 mg/l - 48 h<br>(Directive 67/548/EEC, Annex V, C.2.)                                                                                                                                         |
| Toxicity to algae                                   | static test EC50 - Desmodesmus subspicatus (green algae) - 4.61 mg/l - 72 h<br>(Directive 67/548/EEC, Annex V, C.3.)<br><br>static test NOEC - Desmodesmus subspicatus (green algae) - 2.36 mg/l - 72 h<br>(Directive 67/548/EEC, Annex V, C.3.) |

#### **12.2 Persistence and degradability**

No data available

#### **12.3 Bioaccumulative potential**

No data available

#### **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

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### **SECTION 13: Disposal considerations**

#### **13.1 Waste treatment methods**

##### **Product**

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

##### **Contaminated packaging**

Dispose of as unused product.

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### **SECTION 14: Transport information**

#### **DOT (US)**

UN number: 2520    Class: 3    Packing group: III  
Proper shipping name: Cyclooctadienes  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No

#### **IMDG**

UN number: 2520    Class: 3    Packing group: III    EMS-No: F-E, S-D  
Proper shipping name: CYCLOOCTADIENES

**IATA**

UN number: 2520 Class: 3  
Proper shipping name: Cyclooctadienes

Packing group: III

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**SECTION 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**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard

**Massachusetts Right To Know Components**

|                           | CAS-No.   | Revision Date |
|---------------------------|-----------|---------------|
| (Z,Z)-Cycloocta-1,5-diene | 1552-12-1 | 1993-04-24    |

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

|                           | CAS-No.   | Revision Date |
|---------------------------|-----------|---------------|
| (Z,Z)-Cycloocta-1,5-diene | 1552-12-1 | 1993-04-24    |

|                           | CAS-No.   | Revision Date |
|---------------------------|-----------|---------------|
| (Z,Z)-Cycloocta-1,5-diene | 1552-12-1 | 1993-04-24    |

**New Jersey Right To Know Components**

|                           | CAS-No.   | Revision Date |
|---------------------------|-----------|---------------|
| (Z,Z)-Cycloocta-1,5-diene | 1552-12-1 | 1993-04-24    |

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**SECTION 16: Other information****Further information**

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