

## SAFETY DATA SHEET

Version 6.4  
Revision Date 07/16/2021  
Print Date 06/02/2022

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Spiro[2.4]hepta-4,6-diene

Product Number : 85625  
Brand : Aldrich  
CAS-No. : 765-46-8

**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 ST  
ST. LOUIS MO 63103  
UNITED STATES

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

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

**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 2), H225  
Acute toxicity, Oral (Category 3), H301  
Skin irritation (Category 2), H315  
Eye irritation (Category 2A), H319  
Carcinogenicity (Category 1B), H350  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
Aspiration hazard (Category 1), H304

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)        |  |
| H225                       | Highly flammable liquid and vapor.   |
| H301                       | Toxic if swallowed.  |
| H304                       | May be fatal if swallowed and enters airways.  |
| H315                       | Causes skin irritation.  |
| H319                       | Causes serious eye irritation.   |
| H335                       | May cause respiratory irritation.  |
| H350                       | May cause cancer.  |
| Precautionary statement(s) |  |
| P201                       | Obtain special instructions before use.  |
| P202                       | Do not handle until all safety precautions have been read and understood.  |
| 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/ vapors/ 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.  |
| P280                       | Wear protective gloves/ protective clothing/ eye protection/ face protection.  |
| P301 + P310 + P330         | IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.   |
| 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.      |
| P305 + P351 + P338         | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P308 + P313                | IF exposed or concerned: Get medical advice/ attention.  |
| P331                       | Do NOT induce vomiting.  |
| 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 to extinguish.   |
| 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

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Formula : C<sub>7</sub>H<sub>8</sub>  
Molecular weight : 92.14 g/mol

| Component                        |                       | Classification  | Concentration    |
|----------------------------------|-----------------------|---|------------------|
| <b>Spiro[2.4]hepta-4,6-diene</b> |                       |   |                  |
| CAS-No.                          | 765-46-8              | Flam. Liq. 2; Acute Tox. 3;<br>Skin Irrit. 2; Eye Irrit. 2A;<br>STOT SE 3; Asp. Tox. 1;<br>H225, H301, H315, H319,<br>H335, H304  | >= 90 - <= 100 % |
| <b>1,2-Dichloroethane</b>        |                       |   |                  |
| CAS-No.                          | 107-06-2              | Flam. Liq. 2; Acute Tox. 4;<br>Acute Tox. 3; Skin Irrit. 2;<br>Eye Irrit. 2A; Carc. 1B;<br>STOT SE 3; Asp. Tox. 1;<br>H225, H302, H331, H315,<br>H319, H350, H335, H304 | >= 5 - < 10 %    |
| EC-No.                           | 203-458-1             |   |                  |
| Index-No.                        | 602-012-00-7          |   |                  |
| Registration number              | 01-2119484658-20-XXXX |   |                  |
|                                  |                       |   |                  |

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

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Call in physician.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

#### If swallowed

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Pulmonary failure possible after aspiration of vomit.

### 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**

Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

#### **Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

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

Carbon oxides

Hydrogen chloride gas

Combustible.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

Risk of dust explosion.

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air at ambient temperatures.

### 5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### 5.4 Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6: Accidental release measures

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

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

### 6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

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

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

### 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

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

## 7.2 Conditions for safe storage, including any incompatibilities

### Storage conditions

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. Handle under argon.

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

### Storage stability

Recommended storage temperature

-20 °C

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

#### Ingredients with workplace control parameters

| Component          | CAS-No.  | Value                                  | Control parameters           | Basis                                   |
|--------------------|----------|--|------------------------------|---|
| 1,2-Dichloroethane | 107-06-2 | TWA                                    | 10 ppm                       | USA. ACGIH Threshold Limit Values (TLV) |
|                    | Remarks  | Not classifiable as a human carcinogen |                              |   |
|                    |          | ST                                     | 2 ppm<br>8 mg/m <sup>3</sup> | USA. NIOSH Recommended Exposure Limits  |
|                    |          | Potential Occupational Carcinogen      |                              |   |
|                    |          | TWA                                    | 1 ppm<br>4 mg/m <sup>3</sup> | USA. NIOSH Recommended Exposure Limits  |
|                    |          | Potential Occupational Carcinogen      |                              |   |

|  |  |      |                              |   |
|--|--|------|------------------------------|---|
|  |  | TWA  | 50 ppm                       | USA. Occupational Exposure Limits (OSHA) - Table Z-2                                    |
|  |  | CEIL | 100 ppm                      | USA. Occupational Exposure Limits (OSHA) - Table Z-2                                    |
|  |  | Peak | 200 ppm                      | USA. Occupational Exposure Limits (OSHA) - Table Z-2                                    |
|  |  | PEL  | 1 ppm<br>4 mg/m <sup>3</sup> | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|  |  | C    | 200 ppm                      | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|  |  | STEL | 2 ppm<br>8 mg/m <sup>3</sup> | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

## 8.2 Exposure controls

### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

#### Skin protection

required

#### Body Protection

Flame retardant antistatic protective clothing.

#### Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

#### Control of environmental exposure

Do not let product enter drains. Risk of explosion.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |                   |                                   |
|-------------------|-----------------------------------|
| a) Appearance     | Form: clear, liquid<br>Color: red |
| b) Odor           | No data available                 |
| c) Odor Threshold | No data available                 |
| d) pH             | No data available                 |
| e) Melting        | No data available                 |

|    |  |                            |
|----|--|----------------------------|
|    | point/freezing point                         |                            |
| f) | Initial boiling point and boiling range      | 57 °C 135 °F at 133 hPa    |
| g) | Flash point                                  | 15 °C (59 °F) - closed cup |
| h) | Evaporation rate                             | No data available          |
| i) | Flammability (solid, gas)                    | No data available          |
| j) | Upper/lower flammability or explosive limits | No data available          |
| k) | Vapor pressure                               | No data available          |
| l) | Vapor density                                | No data available          |
| m) | Density                                      | 0.92 g/mL at 20 °C (68 °F) |
|    | Relative density                             | No data available          |
| n) | Water solubility                             | No data available          |
| o) | Partition coefficient: n-octanol/water       | No data available          |
| p) | Autoignition 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

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Vapors may form explosive mixture with air.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Warming.

### 10.5 Incompatible materials

No data available

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

##### Acute toxicity

Acute toxicity estimate Oral - 108.5 mg/kg

(Calculation method)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute toxicity estimate Inhalation - 4 h - 86.67 mg/l

(Calculation method)

Symptoms: Possible symptoms: , mucosal irritations, Cough, Shortness of breath, Possible damages: , damage of respiratory tract

Acute toxicity estimate Dermal - > 5,000 mg/kg

(Calculation method)

No data available

##### Skin corrosion/irritation

No data available

Mixture causes skin irritation.

##### Serious eye damage/eye irritation

No data available

Mixture causes serious eye irritation.

##### Respiratory or skin sensitization

No data available

##### Germ cell mutagenicity

No data available

##### Carcinogenicity

Possible carcinogen.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (1,2-Dichloroethane)

NTP: No ingredient 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

Remarks: No data available

Mixture may cause respiratory irritation.

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

No data available



**Aspiration hazard**

No data available Aspiration hazard, Aspiration may cause pulmonary edema and pneumonitis.

**11.2 Additional Information**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Handle in accordance with good industrial hygiene and safety practice.

**Components****Spiro[2.4]hepta-4,6-diene****Acute toxicity**

Oral: No data available

LD50 Oral - 100 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

No data available

**Reproductive toxicity**

No data available

No data available

**Specific target organ toxicity - single exposure**

Inhalation - May cause respiratory irritation.

**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.

## 1,2-Dichloroethane

### Acute toxicity

LD50 Oral - Rat - male - 770 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 7.8 mg/l

(OECD Test Guideline 403)

LD50 Dermal - Rabbit - male - 4,890 mg/kg

(OECD Test Guideline 402)

### Skin corrosion/irritation

Skin - Rabbit

Result: irritating

(OECD Test Guideline 404)

### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Eye irritation

(OECD Test Guideline 405)

### Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

### Germ cell mutagenicity

Test Type: Ames test

Test system: *S. typhimurium*

Result: positive

Remarks: (ECHA)

Test Type: Ames test

Test system: *Escherichia coli*

Result: positive

Test Type: In vitro mammalian cell gene mutation test

Test system: human lymphoblastoid cells

Result: positive

Test Type: In vitro mammalian cell gene mutation test

Test system: human lymphoblastoid cells

Result: positive

Remarks: (ECHA)

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster lung cells

Result: positive

Remarks: (ECHA)

Test Type: unscheduled DNA synthesis assay

Test system: rat hepatocytes

Result: positive

Method: OECD Test Guideline 474

Species: Mouse - male and female

Result: negative

Method: OECD Test Guideline 474

Species: Mouse - male and female - Red blood cells (erythrocytes)

Result: negative

Species: Rat - female - mammary gland

Result: negative

Remarks: (ECHA)

Method: OECD Test Guideline 477  
Species: Drosophila melanogaster - male - sperm  
Result: positive  
Species: Mouse - male  
Result: negative  
Remarks: (ECHA)

**Carcinogenicity**

Presumed to have carcinogenic potential for humans

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**

**Aspiration hazard**

Aspiration may cause pulmonary edema and pneumonitis.

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## SECTION 12: Ecological information

### 12.1 Toxicity

**Mixture**

No data available

### 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

No data available

**Components**

**Spiro[2.4]hepta-4,6-diene**

No data available

**1,2-Dichloroethane**

Toxicity to fish

flow-through test LC50 - Pimephales promelas (fathead minnow) - 136 mg/l - 96 h  
(OECD Test Guideline 203)

Toxicity to daphnia  
and other aquatic  
invertebrates

static test EC50 - Daphnia magna (Water flea) - 160 mg/l - 48 h  
Remarks: (in soft water)  
(IUCLID)

|                      |   |
|----------------------|---|
| Toxicity to algae    | static test EC50 - Desmodesmus subspicatus (green algae) - 166 mg/l - 72 h<br>(OECD Test Guideline 201) |
| Toxicity to bacteria | static test EC50 - activated sludge - 35,500 mg/l - 3 h<br>(OECD Test Guideline 209)                    |

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### DOT (US)

UN number: 1992 Class: 3 (6.1) Packing group: II  
 Proper shipping name: Flammable liquids, toxic, n.o.s. (Spiro[2.4]hepta-4,6-diene, 1,2-Dichloroethane)  
 Reportable Quantity (RQ): 1111 lbs  
 Reportable Quantity (RQ): 100 lbs  
 Poison Inhalation Hazard: No

### IMDG

UN number: 1992 Class: 3 (6.1) Packing group: II EMS-No: F-E, S-D  
 Proper shipping name: FLAMMABLE LIQUID, TOXIC, N.O.S. (Spiro[2.4]hepta-4,6-diene, 1,2-Dichloroethane)

### IATA

UN number: 1992 Class: 3 (6.1) Packing group: II  
 Proper shipping name: Flammable liquid, toxic, n.o.s. (Spiro[2.4]hepta-4,6-diene, 1,2-Dichloroethane)

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## SECTION 15: Regulatory information

### SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

### SARA 313 Components

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

|                    | CAS-No.  | Revision Date |
|--------------------|----------|---------------|
| 1,2-Dichloroethane | 107-06-2 | 2020-07-14    |

### SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard  
 :

**Reportable Quantity**      D028 lbs

**Massachusetts Right To Know Components**

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

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**SECTION 16: Other information**

**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.4

Revision Date: 07/16/2021

Print Date: 06/02/2022