

## SAFETY DATA SHEET

Version 6.3  
Revision Date 05/06/2021  
Print Date 01/15/2022

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

Product name : 1-Hexene

Product Number : 320323  
Brand : Aldrich  
CAS-No. : 592-41-6

**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  
Aspiration hazard (Category 1), H304  
Short-term (acute) aquatic hazard (Category 1), H400

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.

|                            |                                                                                                      |
|----------------------------|------------------------------------------------------------------------------------------------------|
| H304                       | May be fatal if swallowed and enters airways.                                                        |
| H400                       | Very toxic to aquatic life.                                                                          |
| 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.                                                |
| 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. |
| 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

|                  |                                  |
|------------------|----------------------------------|
| Formula          | : C <sub>6</sub> H <sub>12</sub> |
| Molecular weight | : 84.16 g/mol                    |
| CAS-No.          | : 592-41-6                       |
| EC-No.           | : 209-753-1                      |

| Component        | Classification                                                                                       | Concentration |
|------------------|------------------------------------------------------------------------------------------------------|---------------|
| <b>Hex-1-ene</b> |                                                                                                      |               |
|                  | Flam. Liq. 2; Asp. Tox. 1;<br>Aquatic Acute 1; H225,<br>H304, H400<br>M-Factor - Aquatic Acute:<br>1 | <= 100 %      |

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.

**In case of skin contact**

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

**In case of eye contact**

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

**If swallowed**

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

**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

Combustible.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

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**

In the event of fire, wear self-contained breathing apparatus.

**5.4 Further information**

Remove container from danger zone and cool with water. 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 protection against fire and explosion

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

#### Hygiene measures

Change contaminated clothing. Wash hands 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. Keep away from heat and sources of ignition.

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                                                                                   |
|-----------|----------|-------|---------------------------------|-----------------------------------------------------------------------------------------|
| Hex-1-ene | 592-41-6 | TWA   | 50 ppm                          | USA. ACGIH Threshold Limit Values (TLV)                                                 |
|           |          | PEL   | 50 ppm<br>180 mg/m <sup>3</sup> | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

### 8.2 Exposure controls

#### Appropriate engineering controls

Change contaminated clothing. Wash hands 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

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.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 480 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 30 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, 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 EC 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**

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.

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

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

- |                                            |                                  |
|--------------------------------------------|----------------------------------|
| a) Appearance                              | Form: liquid                     |
| b) Odor                                    | No data available                |
| c) Odor Threshold                          | No data available                |
| d) pH                                      | No data available                |
| e) Melting point/freezing point            | -140.0 °C (-220.0 °F)            |
| f) Initial boiling point and boiling range | 60 - 66 °C 140 - 151 °F - lit.   |
| g) Flash point                             | -25.0 °C (-13.0 °F) - closed cup |
| h) Evaporation rate                        | No data available                |
| i) Flammability (solid, gas)               | No data available                |
| j) Upper/lower                             | Lower explosion limit: 1.2 %(V)  |

flammability or  
explosive limits

- |                                              |                                |
|----------------------------------------------|--------------------------------|
| k) Vapor pressure                            | 206.6 hPa at 21.1 °C (70.0 °F) |
| l) Vapor density                             | No data available              |
| m) Relative density                          | No data available              |
| n) Water solubility                          | No data available              |
| o) Partition coefficient:<br>n-octanol/water | No data available              |
| p) Autoignition<br>temperature               | 253.0 °C (487.4 °F)            |
| 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

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

acids, Strong oxidizing agents

### 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

#### Acute toxicity

LD50 Oral - Rat - male and female - > 5,600 mg/kg  
(OECD Test Guideline 420)

LC50 Inhalation - Rat - male - 4 h - 40.02 mg/l  
(OECD Test Guideline 403)

LD50 Dermal - Rabbit - male - > 2,000 mg/kg  
(OECD Test Guideline 402)

No data available

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h  
(OECD Test Guideline 404)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation  
(OECD Test Guideline 405)

#### Respiratory or skin sensitization

Local lymph node assay (LLNA) - Guinea pig

Result: negative  
(OECD Test Guideline 406)

#### Germ cell mutagenicity

No data available

Test Type: Ames test

Test system: *S. typhimurium*

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: Ames test

Test system: *E. coli*

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: Chromosome aberration test in vitro

Test system: lymphocyte

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster ovary cells

Metabolic activation: without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative  
Test Type: Chromosome aberration test in vitro  
Test system: mammalian cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative  
Test Type: Chromosome aberration test in vitro  
Test system: mammalian cells  
Metabolic activation: without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative  
Test Type: Micronucleus test  
Species: Mouse

Application Route: inhalation (vapor)  
Method: OECD Test Guideline 474  
Result: negative  
Test Type: Micronucleus test  
Species: Mouse

Application Route: Oral  
Method: OECD Test Guideline 474  
Result: negative  
Test Type: Micronucleus test  
Species: Mouse

Application Route: Intraperitoneal injection  
Method: OECD Test Guideline 474  
Result: negative

### **Carcinogenicity**

IARC: No ingredient 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 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

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

No data available

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

No data available

### **Aspiration hazard**

May be fatal if swallowed and enters airways.

## **11.2 Additional Information**

Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 1,000 mg/kg  
Remarks: Subchronic toxicity

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RTECS: MP6670000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, May cause cyanosis., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## SECTION 12: Ecological information

### 12.1 Toxicity

|                                                     |                                                                                                                      |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                    | semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - 5.6 mg/l - 96 h<br>(OECD Test Guideline 203)           |
| Toxicity to daphnia and other aquatic invertebrates | EC50 - Daphnia magna (Water flea) - 0.56 - 1 mg/l - 48 h<br>(OECD Test Guideline 202)                                |
| Toxicity to algae                                   | static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 1 - 1.8 mg/l - 72 h<br>(OECD Test Guideline 201) |

### 12.2 Persistence and degradability

|                  |                                                                                                          |
|------------------|----------------------------------------------------------------------------------------------------------|
| Biodegradability | aerobic - Exposure time 28 d<br>Result: 91 - 96 % - Readily biodegradable.<br>(OECD Test Guideline 301C) |
|------------------|----------------------------------------------------------------------------------------------------------|

### 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

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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: 2370 Class: 3

Packing group: II

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Proper shipping name: 1-Hexene  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No

**IMDG**

UN number: 2370 Class: 3  
Proper shipping name: 1-HEXENE

Packing group: II

EMS-No: F-E, S-D

**IATA**

UN number: 2370 Class: 3  
Proper shipping name: 1-Hexene

Packing group: II

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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**

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

**Massachusetts Right To Know Components**

Hex-1-ene

CAS-No.  
592-41-6

Revision Date  
1993-04-24

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

**Pennsylvania Right To Know Components**

Hex-1-ene

CAS-No.  
592-41-6

Revision Date  
1993-04-24

**New Jersey Right To Know Components**

Hex-1-ene

CAS-No.  
592-41-6

Revision Date  
1993-04-24

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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: 6.3

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