1-Hexene
Safety Data Sheet P-6237

SECTION 1. Product and company identification

1.1. Product identifier
Product form : Substance
Substance name : 1-Hexene
CAS-No. : 592-41-6
Formula : C6H12

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture : Industrial use; Use as directed.

1.3. Details of the supplier of the safety data sheet
Praxair, Inc.
10 Riverview Drive
Danbury, CT 06810-6268 - USA
T 1-800-772-9247 (1-800-PRAXAIR) - F 1-716-879-2146
www.praxair.com

1.4. Emergency telephone number
Emergency number : Onsite Emergency: 1-800-645-4633
CHEMTREC, 24hr/day 7days/week
— Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887
(collect calls accepted, Contract 17729)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
GHS US classification
Flam. Liq. 2 H225
Asp. Tox. 1 H304

2.2. Label elements
GHS US labeling
Hazard pictograms (GHS US) :

Signal word (GHS US) : Danger
Hazard statements (GHS US) : H225 - HIGHLY FLAMMABLE LIQUID AND VAPOR
H304 - MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS
Precautionary statements (GHS US) : P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from Heat/Open flames/Sparks/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.
P271+P403 - Use and store only outdoors or in a well- ventilated place.
P280 - Wear protective gloves/protective clothing/ eye protection/face protection.
P303 - IF ON SKIN (or hair):
P361 - Take off immediately all contaminated clothing.
P353 - Rinse skin with water/shower.
P370 - IN CASE OF FIRE:
P378 - Use media other than water to extinguish.
P301 - IF SWALLOWED:
1-Hexene
Safety Data Sheet P-6237
Date of issue: 06/01/2000 Revision date: 01/23/2019 Supersedes: 03/19/2015

P310 - Immediately call a poison center or doctor/physician.
P331 - Do NOT induce vomiting.
P335 - Keep cool.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

2.3. Other hazards
No additional information available

2.4. Unknown acute toxicity (GHS US)
No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Hexene (Main constituent)</td>
<td>(CAS-No.) 592-41-6</td>
<td>100</td>
</tr>
</tbody>
</table>

3.2. Mixtures
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.

First-aid measures after skin contact: In case of contact, immediately flush affected areas with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash clothing before reuse. Discard contaminated shoes.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

First-aid measures after ingestion: Immediately call a poison center or doctor/physician. Do not induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/effects after ingestion: MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media: Carbon dioxide, Dry chemical, Water spray or fog.

5.2. Special hazards arising from the substance or mixture
Fire hazard: HIGHLY FLAMMABLE LIQUID AND VAPOR.
Explosion hazard: May form flammable/explosive vapor-air mixture.

5.3. Advice for firefighters
Firefighting instructions: Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.
1-Hexene
Safety Data Sheet P-6237
Date of issue: 06/01/2000  Revision date: 01/23/2019  Supersedes: 03/19/2015

Protection during firefighting

**Danger: FLAMMABLE LIQUID AND VAPOR.** Evacuate all personnel from danger area. Use self-contained breathing apparatus. Immediately cool surrounding containers with water spray from maximum distance, taking care not to extinguish flames. Avoid spreading burning liquid with water. Remove ignition sources if safe to do so. If flames are accidentally extinguished, explosive reignition may occur. Reduce vapors with water spray or fog. Stop flow of liquid if safe to do so, while continuing cooling water spray. Remove all containers from area of fire if safe to do so. Allow fire to burn out. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1919 Subpart L - Fire Protection.

Other information

Vapor forms explosive mixtures with air and oxidizing agents. If leaking gas catches fire, do not extinguish flames. Flammable and toxic vapors may spread from leak and could explode if reignited by sparks or flames. Vapors are heavier than air and may collect in low spots. Explosive atmospheres may linger. Before entering area, especially confined areas, check with an appropriate device.

**SECTION 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

**6.1.1. For non-emergency personnel**

No additional information available

**6.1.2. For emergency responders**

No additional information available

**6.2. Environmental precautions**

Prevent waste from contaminating the surrounding environment. Prevent soil and water pollution. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

**6.3. Methods and material for containment and cleaning up**

For containment: On land, sweep or shovel into suitable containers.

**6.4. Reference to other sections**

See Heading 8. Exposure controls and personal protection.

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

**Additional hazards when processed**

May irritate skin, eyes, and respiratory tract. Use only with adequate ventilation or respiratory protection. Do not get liquid or vapor in eyes, on skin, or on clothing. Have safety showers and eyewash fountains immediately available. May form explosive mixtures with air. Keep away from heat, sparks, and open flame. Use only spark-proof tools and explosion-proof equipment. Protect containers from damage. Use a suitable hand truck to move containers; do not drag, roll, slide, or drop. For other precautions in using this product, see section 16.

**Precautions for safe handling**

Handle empty containers with care because residual vapors are flammable. Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g, wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open the valve slowly. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to activate prematurely, venting the container contents. For other precautions in using this product, see section 16.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment.
7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store only where temperature will not exceed 125°F (52°C). Post “No Smoking/No Open Flames” signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g., NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16.

Conditions to avoid: Sources of ignition. Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| 1-Hexene (592-41-6) | 
|-------------------|-------------------|
| ACGIH | ACGIH TLV-TWA (ppm) | 50 ppm |

8.2. Exposure controls

Personal protective equipment: Avoid all unnecessary exposure.

Hand protection: Wear protective gloves.

Eye protection: Chemical goggles or safety glasses.

Respiratory protection: When workplace conditions warrant respirator use, follow a respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable). Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

Other information: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Sweet</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>65 ppm</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>-139.8 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>63.5 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>-7 °C CC</td>
</tr>
<tr>
<td>Critical temperature</td>
<td>235.3 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>253 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>1.2 - 6.9</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>200 hPa (at 20 °C)</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>673.1 kg/m³ (at 20 °C)</td>
</tr>
<tr>
<td>Relative gas density</td>
<td>2.9</td>
</tr>
</tbody>
</table>
1-Hexene
Safety Data Sheet P-6237
Date of issue: 06/01/2000   Revision date: 01/23/2019   Supersedes: 03/19/2015

Solubility: Water: 50 mg/l (at 20 °C)
Log Pow: 3.39 (at 20 °C)
Log Kow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidizing properties: No data available
Explosion limits: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
May occur.

10.4. Conditions to avoid
Extremely high or low temperatures. Open flame. Sparks.

10.5. Incompatible materials

10.6. Hazardous decomposition products
Carbon dioxide. Carbon monoxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

1-Hexene (\( \text{C}_6\text{H}_{12} \))

LD50 oral rat: > 5600 mg/kg
LD50 dermal rabbit: > 2000 mg/kg
LC50 inhalation rat (ppm): 32000 ppm/4h
ATE US (gases): 32000 ppmV/4h

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
Specific target organ toxicity – single exposure: Not classified
Specific target organ toxicity – repeated exposure: Not classified

Aspiration hazard: MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.
Symptoms/effects after ingestion: MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.

SECTION 12: Ecological information

12.1. Toxicity

EN (English US)   SDS ID: P-6237   5/8

This document is only controlled while on the Praxair, Inc. website and a copy of this controlled version is available for download. Praxair cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.
1-Hexene
Safety Data Sheet P-6237
Date of issue: 06/01/2000  Revision date: 01/23/2019  Supersedes: 03/19/2015

<table>
<thead>
<tr>
<th>1-Hexene (592-41-6)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>5.6 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static])</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>230 mg/l (Exposure time: 48 h - Species: Daphnia magna)</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
<td>30 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>1-Hexene (592-41-6)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>Not established.</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>1-Hexene (592-41-6)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>3.39 (at 20 °C)</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>Not established.</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information: Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations: Do not attempt to dispose of residual or unused quantities. Return container to supplier.

Additional information: Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT
Transport document description: UN2370 1-Hexene, 3, II
UN-No.(DOT): UN2370
Proper Shipping Name (DOT): 1-Hexene
Class (DOT): 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Hazard labels (DOT): 3 - Flammable liquid

Packing group (DOT): II - Medium Danger
DOT Special Provisions (49 CFR 172.102): IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T4 - 2.65 178.274(d)(2) Normal......... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

Additional information
Emergency Response Guide (ERG) Number: 128
Other information: No supplementary information available.

Transport by sea

UN-No. (IMDG): 2370
Proper Shipping Name (IMDG): 1-HEXENE
1-Hexene
Safety Data Sheet P-6237
Date of issue: 06/01/2000  Revision date: 01/23/2019  Supersedes: 03/19/2015

Class (IMDG) : 3 - Flammable liquids
Packing group (IMDG) : II - substances presenting medium danger

Air transport
UN-No. (IATA) : 2370
Proper Shipping Name (IATA) : 1-Hexene
Class (IATA) : 3 - Flammable Liquids
Packing group (IATA) : II - Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations
1-Hexene (592-41-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
SARA Section 311/312 Hazard Classes
Immediate (acute) health hazard
Fire hazard

15.2. International regulations
CANADA
1-Hexene (592-41-6)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations
1-Hexene (592-41-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.2.2. National regulations
1-Hexene (592-41-6)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations
1-Hexene(592-41-6)
U.S. - California - Proposition 65 - Carcinogens List No
U.S. - California - Proposition 65 - Developmental Toxicity No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male No
State or local regulations
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

This document is only controlled while on the Praxair, Inc. website and a copy of this controlled version is available for download. Praxair cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.
SECTION 16: Other information

Other information: When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product.

Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair, Inc, it is the user's obligation to determine the conditions of safe use of the product.

Praxair SDSs are furnished on sale or delivery by Praxair or the independent distributors and suppliers who package and sell our products. To obtain current SDSs for these products, contact your Praxair sales representative, local distributor, or supplier, or download from www.praxair.com. If you have questions regarding Praxair SDSs, would like the document number and date of the latest SDS, or would like the names of the Praxair suppliers in your area, phone or write the Praxair Call Center (Phone: 1-800-PRAXAIR/1-800-772-9247; Address: Praxair Call Center, Praxair, Inc, P.O. Box 44, Tonawanda, NY 14151-0044).

PRAAXAIR, the Flowing Airstream design, Medipure, and the Medipure design are trademarks or registered trademarks of Praxair Technology, Inc. in the United States and/or other countries.

Revision date: 01/23/2019

NFPA health hazard: 1 - Materials that, under emergency conditions, can cause significant irritation.

NFPA fire hazard: 3 - Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions.

NFPA reactivity: 0 - Material that in themselves are normally stable, even under fire conditions.

SDS US (GHS HazCom 2012) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.