

### SECTION 1: Identification

#### 1.1. Identification

|                               |                                  |
|-------------------------------|----------------------------------|
| Product form                  | : Substance                      |
| Substance name                | : 1-Pentene                      |
| CAS No                        | : 109-67-1                       |
| Product code                  | : 1300-1-09                      |
| Formula                       | : C <sub>5</sub> H <sub>10</sub> |
| Synonyms                      | : n-Amylene                      |
| Other means of identification | : MFCD00003567                   |

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

|                              |  |
|------------------------------|--|
| Use of the substance/mixture | : Laboratory chemicals<br>Manufacture of substances<br>Scientific research and development |
|------------------------------|--|

#### 1.3. Details of the supplier of the safety data sheet

SynQuest Laboratories, Inc.  
P.O. Box 309  
Alachua, FL 32615 - United States of America  
T (386) 462-0788 - F (386) 462-7097  
[info@synquestlabs.com](mailto:info@synquestlabs.com) - [www.synquestlabs.com](http://www.synquestlabs.com)

#### 1.4. Emergency telephone number

Emergency number : (844) 523-4086 (3E Company - Account 10069)

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### Classification (GHS-US)

|                   |  |
|-------------------|--|
| Flam. Liq. 1      | H224 - Extremely flammable liquid and vapour             |
| Skin Irrit. 2     | H315 - Causes skin irritation                            |
| Eye Irrit. 2A     | H319 - Causes serious eye irritation                     |
| STOT SE 3         | H335 - May cause respiratory irritation                  |
| Asp. Tox. 1       | H304 - May be fatal if swallowed and enters airways      |
| Aquatic Acute 3   | H402 - Harmful to aquatic life                           |
| Aquatic Chronic 3 | H412 - Harmful to aquatic life with long lasting effects |

Full text of H-phrases: see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H224 - Extremely flammable liquid and vapor  
H304 - May be fatal if swallowed and enters airways  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H335 - May cause respiratory irritation  
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (GHS-US) :

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 fumes, mist, spray, vapors  
P264 - Wash skin thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area

# 1-Pentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P273 - Avoid release to the environment  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P301+P310 - If swallowed: Immediately call a poison center/doctor/...  
P302+P352 - If on skin: Wash with plenty of soap and water  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P312 - Call a POISON CENTER or doctor/physician if you feel unwell  
P321 - Specific treatment (see supplemental first aid instructions on this label)  
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+P364 - Take off contaminated clothing and wash it 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. Other hazards

Other hazards not contributing to the classification : In use may form flammable/explosive vapor-air mixture.

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Substance type : Mono-constituent

| Name                            | Product identifier | %      | Classification (GHS-US)  |
|---------------------------------|--------------------|--------|--|
| 1-Pentene<br>(Main constituent) | (CAS No) 109-67-1  | <= 100 | Flam. Liq. 1, H224<br>Skin Irrit. 2, H315<br>Eye Irrit. 2A, H319<br>STOT SE 3, H335<br>Asp. Tox. 1, H304<br>Aquatic Acute 3, H402<br>Aquatic Chronic 3, H412 |

Full text of H-phrases: see section 16

### 3.2. Mixture

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Move the affected personnel away from the contaminated area.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Get immediate medical advice/attention.

First-aid measures after skin contact : Wash with plenty of soap and water. Get immediate medical advice/attention.

First-aid measures after eye contact : Remove contact lenses, if present and easy to do. Continue rinsing. Immediately flush eyes thoroughly with water for at least 15 minutes. Get immediate medical advice/attention.

First-aid measures after ingestion : Due to its physical form, exposure to this chemical is not likely. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get immediate medical advice/attention.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

Symptoms/injuries after inhalation : May cause drowsiness or dizziness.

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

No additional information available

# 1-Pentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media : Alcohol resistant foam. Carbon dioxide. Dry powder. Water spray. Use extinguishing media appropriate for surrounding fire.

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

Fire hazard : Thermal decomposition generates: Carbon oxides.  
Explosion hazard : Risk of explosion if heated under confinement. Use water spray or fog for cooling exposed containers. May form flammable/explosive vapor-air mixture.

#### 5.3. Advice for firefighters

Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.  
Protection during firefighting : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus. For further information refer to section 8: "Exposure controls/personal protection".

### SECTION 6: Accidental release measures

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

General measures : Evacuate unnecessary personnel. Ensure adequate air ventilation. Do not breathe gas, fumes, vapor or spray.

##### 6.1.1. For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene.

##### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".  
Emergency procedures : Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level. Consider the risk of potentially explosive atmospheres. Eliminate every possible source of ignition.

#### 6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

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

For containment : Stop leak if safe to do so. Dike for recovery or absorb with appropriate material.  
Methods for cleaning up : Take up large spills with pump or vacuum and finish with dry chemical absorbent. Use explosion-proof equipment. Take up small spills with dry chemical absorbent. Sweep or shovel spills into appropriate container for disposal. Ventilate area.  
Other information : For disposal of solid materials or residues refer to section 13 : "Disposal considerations".

#### 6.4. Reference to other sections

No additional information available

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.  
Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Ensure good ventilation of the work station. Do not breathe fumes, mist, spray, vapors. Wear personal protective equipment. Avoid contact with skin and eyes. Keep away from ignition sources (including static discharges). Proper grounding procedures to avoid static electricity should be followed. Use only non-sparking tools.  
Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

#### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.  
Storage conditions : Keep container closed when not in use. Keep away from ignition sources.  
Incompatible materials : Refer to Section 10 on Incompatible Materials.  
Storage temperature : 2 - 8 °C Use explosion proof refrigerator  
Storage area : Store in dry, well-ventilated area.

# 1-Pentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

No additional information available

#### 8.2. Exposure controls

|                                  |   |
|----------------------------------|---|
| Appropriate engineering controls | : Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. |
| Hand protection                  | : Protective gloves. 29 CFR 1910.138: Hand Protection.  |
| Eye protection                   | : Chemical goggles or safety glasses. Face shield. 29 CFR 1910.133: Eye and Face Protection.  |
| Skin and body protection         | : Wear suitable protective clothing.  |
| Respiratory protection           | : In case of inadequate ventilation wear respiratory protection. 29 CFR 1910.134: Respiratory Protection.   |
| Other information                | : Safety shoes. 29 CFR 1910.136: Foot Protection.   |

### SECTION 9: Physical and chemical properties

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

|   |                         |
|---|-------------------------|
| Physical state                              | : Liquid                |
| Color                                       | : No data available     |
| Odor  | : No data available     |
| Odor threshold                              | : No data available     |
| pH  | : No data available     |
| Melting point                               | : -138 °C               |
| Freezing point                              | : No data available     |
| Boiling point                               | : 30 °C                 |
| Flash point                                 | : -51 °C                |
| Relative evaporation rate (butyl acetate=1) | : No data available     |
| Flammability (solid, gas)                   | : No data available     |
| Explosion limits                            | : No data available     |
| Explosive properties                        | : No data available     |
| Oxidizing properties                        | : No data available     |
| Vapor pressure                              | : 10.27 psia (@ 20 °C)  |
| Relative density                            | : No data available     |
| Relative vapor density at 20 °C             | : No data available     |
| Specific gravity / density                  | : 0.6458 g/ml (@ 25 °C) |
| Molecular mass                              | : 70.1329 g/mol         |
| Solubility                                  | : No data available     |
| Log Pow                                     | : No data available     |
| Auto-ignition temperature                   | : 275 °C                |
| Decomposition temperature                   | : No data available     |
| Viscosity                                   | : No data available     |
| Viscosity, kinematic                        | : No data available     |
| Viscosity, dynamic                          | : No data available     |

#### 9.2. Other information

|                  |                    |
|------------------|--------------------|
| Refractive index | : 1.3717 (@ 20 °C) |
|------------------|--------------------|

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No additional information available

#### 10.2. Chemical stability

The product is stable at normal handling and storage conditions.

#### 10.3. Possibility of hazardous reactions

No additional information available

# 1-Pentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 10.4. Conditions to avoid

Keep away from heat, sparks and flame.

### 10.5. Incompatible materials

Strong oxidizing agents.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous decomposition products in case of fire, see Section 5.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

|  |   |
|--|---|
| Acute toxicity                                     | : Not classified                                |
| Skin corrosion/irritation                          | : Causes skin irritation.                       |
| Serious eye damage/irritation                      | : Causes serious eye irritation.                |
| Respiratory or skin sensitization                  | : Not classified                                |
| Germ cell mutagenicity                             | : Not classified                                |
| Carcinogenicity                                    | : Not classified                                |
| Reproductive toxicity                              | : Not classified                                |
| Specific target organ toxicity (single exposure)   | : May cause respiratory irritation.             |
| Specific target organ toxicity (repeated exposure) | : Not classified                                |
| Aspiration hazard                                  | : May be fatal if swallowed and enters airways. |
| Symptoms/injuries after inhalation                 | : May cause drowsiness or dizziness.            |

## SECTION 12: Ecological information

### 12.1. Toxicity

No additional information available

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

|                                |   |
|--------------------------------|---|
| Waste treatment methods        | : Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber.   |
| Waste disposal recommendations | : Dispose of contents/container in accordance with licensed collector's sorting instructions. |
| Additional information         | : Recycle the material as far as possible.  |

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

|                                  |   |
|----------------------------------|---|
| Transport document description   | : UN1108 1-Pentene (n-amylene), 3, I                            |
| UN-No.(DOT)                      | : UN1108  |
| Proper Shipping Name (DOT)       | : 1-Pentene (n-amylene)   |
| Transport hazard class(es) (DOT) | : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120 |

# 1-Pentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Hazard labels (DOT) : 3 - Flammable liquid



Packing group (DOT) : I - Great Danger

DOT Packaging Non Bulk (49 CFR 173.xxx) : 201

DOT Packaging Bulk (49 CFR 173.xxx) : 243

DOT Special Provisions (49 CFR 172.102) : T11 - 6 178.274(d)(2) Normal..... 178.275(d)(3)  
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where:  $t_r$  is the maximum mean bulk temperature during transport,  $t_f$  is the temperature in degrees celsius of the liquid during filling, and  $a$  is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling ( $t_f$ ) and the maximum mean bulk temperature during transportation ( $t_r$ ) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where:  $d_{15}$  and  $d_{50}$  are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.

DOT Packaging Exceptions (49 CFR 173.xxx) : 150

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L

DOT Vessel Stowage Location : E - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length, but is prohibited from carriage on passenger vessels in which the limiting number of passengers is exceeded.

Emergency Response Guide (ERG) Number : 128

Other information : No supplementary information available.

### TDG

No additional information available

### Transport by sea

UN-No. (IMDG) : 1108

Proper Shipping Name (IMDG) : 1-PENTENE (n-AMYLENE)

Class (IMDG) : 3 - Flammable liquids

Packing group (IMDG) : I - substances presenting high danger

### Air transport

UN-No. (IATA) : 1108

Proper Shipping Name (IATA) : 1-Pentene

Class (IATA) : 3 - Flammable Liquids

Packing group (IATA) : I - Great Danger

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### 1-Pentene (109-67-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

### 15.2. International regulations

#### CANADA

#### 1-Pentene (109-67-1)

Listed on the Canadian DSL (Domestic Substances List)

# 1-Pentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### EU-Regulations

No additional information available

### National regulations

#### 1-Pentene (109-67-1)

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-Pentene (109-67-1)

|                            |   |
|----------------------------|---|
| State or local regulations | U.S. - Massachusetts - Right To Know List<br>U.S. - New Jersey - Right to Know Hazardous Substance List<br>U.S. - Pennsylvania - RTK (Right to Know) List |
|----------------------------|---|

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm

## SECTION 16: Other information

Full text of H-phrases:

|                   |  |
|-------------------|--|
| Aquatic Acute 3   | Hazardous to the aquatic environment - Acute Hazard Category 3   |
| Aquatic Chronic 3 | Hazardous to the aquatic environment - Chronic Hazard Category 3 |
| Asp. Tox. 1       | Aspiration hazard Category 1                                     |
| Eye Irrit. 2A     | Serious eye damage/eye irritation Category 2A                    |
| Flam. Liq. 1      | Flammable liquids Category 1                                     |
| Skin Irrit. 2     | Skin corrosion/irritation Category 2                             |
| STOT SE 3         | Specific target organ toxicity (single exposure) Category 3      |
| H224              | Extremely flammable liquid and vapor                             |
| H304              | May be fatal if swallowed and enters airways                     |
| H315              | Causes skin irritation   |
| H319              | Causes serious eye irritation                                    |
| H335              | May cause respiratory irritation                                 |
| H402              | Harmful to aquatic life  |
| H412              | Harmful to aquatic life with long lasting effects                |

NFPA health hazard

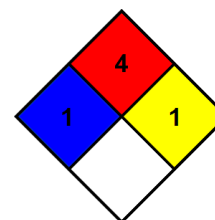
: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard

: 4 - Will rapidly or completely vaporize at normal pressure and temperature, or is readily dispersed in air and will burn readily.

NFPA reactivity

: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



HMIS III Rating

Health

: 2 Moderate Hazard - Temporary or minor injury may occur

Flammability

: 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)

Physical

: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

SDS US (GHS HazCom 2012)

*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 offered solely for your consideration, investigation, and verification. It does not represent any guarantee of the properties of the product nor that the hazard precautions or procedures described are the only ones which exist. SynQuest shall not be held liable or any damage resulting from handling or from contact with the above product.*