1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Heptane
Product Number: 246654
Brand: Sigma-Aldrich
Supplier: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Flammable liquid, Irritant

Target Organs
Central nervous system, Heart, Lungs, ears

GHS Classification
Flammable liquids (Category 2)
Skin irritation (Category 2)
Specific target organ toxicity - single exposure (Category 3)
Aspiration hazard (Category 1)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P331 Do NOT induce vomiting.
Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification
- Health hazard: 2
- Chronic Health Hazard: *
- Flammability: 3
- Physical hazards: 0

NFPA Rating
- Health hazard: 2
- Fire: 3
- Reactivity Hazard: 0

Potential Health Effects
- **Inhalation**: May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.
- **Skin**: May be harmful if absorbed through skin. Causes skin irritation.
- **Eyes**: Causes eye irritation.
- **Ingestion**: May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Formula**: C\(_7\)H\(_{16}\)

**Molecular Weight**: 100.20 g/mol

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heptane</td>
<td>142-82-5</td>
<td>205-563-8</td>
<td>601-008-00-2</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Flush eyes with water as a precaution.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

**Specific hazards arising from the chemical**
Flash back possible over considerable distance.

**Special protective equipment for fire-fighters**
Wear self contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information
In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

Conditions for safe storage
Store under inert gas. Store in cool place. 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heptane</td>
<td>142-82-5</td>
<td>TWA 400 ppm</td>
<td>1,600 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL 500 ppm</td>
<td>2,000 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA 500 ppm</td>
<td>2,000 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
</tbody>
</table>

Remarks
The value in mg/m³ is approximate.

<table>
<thead>
<tr>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA 400 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td>STEL 500 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
</tbody>
</table>

Central Nervous System impairment Upper Respiratory Tract irritation

<table>
<thead>
<tr>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA 85 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td>350 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEL 500 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
</tbody>
</table>
| Central Nervous System impairment Upper Respiratory Tract irritation

<table>
<thead>
<tr>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA 440 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td>1,800 mg/m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Central Nervous System impairment Upper Respiratory Tract irritation

<table>
<thead>
<tr>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 440 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td>1,800 mg/m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand 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.

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

Skin and body protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form liquid
Colour no data available

Safety data
pH no data available
Melting point/freezing point Melting point/range: -91 °C (-132 °F)
Boiling point 98 °C (208 °F)
Flash point -4.0 °C (24.8 °F) - closed cup
Ignition temperature 223 °C (433 °F)
Autoignition temperature 223.0 °C (433.4 °F)
Lower explosion limit 1.1 % (V)
Upper explosion limit 7 % (V)
Vapour pressure 110.7 hPa (83.0 mmHg) at 37.7 °C (99.9 °F)
53.3 hPa (40.0 mmHg) at 20.0 °C (68.0 °F)
Density 0.684 g/mL at 25 °C (77 °F)
Water solubility insoluble
Partition coefficient: n-octanol/water log Pow: > 3.00
Relative vapour density no data available
Odour no data available
Odour Threshold no data available
Evaporation rate no data available
10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
Vapours may form explosive mixture with air.

**Conditions to avoid**
Heat, flames and sparks. Extremes of temperature and direct sunlight.

**Materials to avoid**
Strong oxidizing agents

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Oral LD50**

**Inhalation LC50**

LC50 Inhalation - rat - 4 h - 103,000 mg/m3
Irritating to respiratory system.

**Dermal LD50**
no data available

**Other information on acute toxicity**
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**
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**
no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
May cause drowsiness or dizziness.

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
no data available

**Aspiration hazard**
May be fatal if swallowed and enters airways.

**Potential health effects**

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage.</td>
</tr>
<tr>
<td>Skin</td>
<td>May be harmful if absorbed through skin. Causes skin irritation.</td>
</tr>
<tr>
<td>Eyes</td>
<td>Causes eye irritation.</td>
</tr>
</tbody>
</table>

**Signs and Symptoms of Exposure**
Prolonged or repeated exposure to skin causes defatting and dermatitis. Central nervous system depression, narcosis, Damage to the lungs.

**Synergistic effects**
no data available

**Additional Information**
RTECS: MI7700000

---

### 12. ECOLOGICAL INFORMATION

**Toxicity**

<table>
<thead>
<tr>
<th>Toxicty to fish</th>
<th>LC50 - Carassius auratus (goldfish) - 4 mg/l - 24.0 h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LC50 - Tilapia mossambica - 375 mg/l - 96.0 h</td>
</tr>
</tbody>
</table>

| Toxicity to daphnia and other aquatic invertebrates | EC50 - Daphnia magna (Water flea) - 1.50 mg/l - 48 h |

**Persistence and degradability**

**Bioaccumulative potential**
Indication of bioaccumulation.

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

Do not empty into drains. Avoid release to the environment.

---

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

**Contaminated packaging**
Dispose of as unused product.

---

**14. TRANSPORT INFORMATION**

**DOT (US)**
- UN number: 1206  Class: 3
- Proper shipping name: Heptanes
- Marine pollutant: No
- Poison Inhalation Hazard: No

**IMDG**
- UN number: 1206  Class: 3
- Proper shipping name: HEPTANES
- Marine pollutant: No

**IATA**
- UN number: 1206  Class: 3
- Proper shipping name: Heptanes

---

**15. REGULATORY INFORMATION**

**OSHA Hazards**
Flammable liquid, Irritant

**SARA 302 Components**
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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

**SARA 311/312 Hazards**
Fire Hazard, Acute Health Hazard

**Massachusetts Right To Know Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heptane</td>
<td>142-82-5</td>
<td>2007-03-01</td>
</tr>
</tbody>
</table>

**Pennsylvania Right To Know Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heptane</td>
<td>142-82-5</td>
<td>2007-03-01</td>
</tr>
</tbody>
</table>

**New Jersey Right To Know Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heptane</td>
<td>142-82-5</td>
<td>2007-03-01</td>
</tr>
</tbody>
</table>

**California Prop. 65 Components**
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

---

**16. OTHER INFORMATION**

**Further information**
Copyright 2011 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only. 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 Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.