

# N HEPTANE

## 1. === Product Identification ===

**Synonyms:** n-Heptane; normal heptane; dipropyl methane; heptyl hydride

**CAS No.:** 142-82-5

**Molecular Weight:** 100.20

**Chemical Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>5</sub>CH<sub>3</sub>

## 2. === Composition/Information on Ingredients ===

Ingredient	CAS No	Percent	Hazardous
Heptane	142-82-5	90 - 100%	YES

## 3. === Hazards Identification ===

### Emergency Overview

**DANGER! FLAMMABLE LIQUID AND VAPOR. HARMFUL OR FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM.**

Health Rating: 2 - Moderate

Flammability Rating: 3 - Severe (Flammable)

Reactivity Rating: 0 - None

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

### Potential Health Effects

#### Inhalation:

Inhalation of vapors irritates the respiratory tract. May produce light headedness, dizziness, muscle incoordination, loss of appetite and nausea.

Higher concentrations can produce central nervous system depression, narcosis, and unconsciousness.

**Ingestion:**

May produce abdominal pain, nausea. Aspiration into lungs can produce severe lung damage and is a medical emergency. Other symptoms expected to parallel inhalation.

**Skin Contact:**

May cause mild irritation, redness, pain.

**Eye Contact:**

Vapors may irritate the eyes. Splashes may produce redness, pain.

**Chronic Exposure:**

Repeated or prolonged skin contact may defat the skin and produce irritation and dermatitis.

**Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders or impaired pulmonary function may be more susceptible to the effects of this substance.

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**4. ===First Aid Measures ===**

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:**

Aspiration hazard. Do NOT induce vomiting. Give large amounts of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

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**5. === Fire Fighting Measures ===**

**Fire:**

Flash point: -4C (25F) CC

Autoignition temperature: 204C (399F)

Flammable limits in air % by volume:

lcl: 1.05; uel: 6.7

Flammable Liquid and Vapor!

**Explosion:**

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Sensitive to static discharge.

**Fire Extinguishing Media:**

Dry chemical, foam or carbon dioxide. Water may be ineffective. Water spray may be used to keep fire exposed containers cool.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## **6. === Accidental Release Measures ===**

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.

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## **7. === Handling and Storage ===**

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Do Not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death.

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## 8. === Exposure Controls /Personal Protection ===

### **Airborne Exposure Limits:**

N-Heptane:

- OSHA Permissible Exposure Limit (PEL) -

500 ppm (TWA)

- ACGIH Threshold Limit Value (TLV) -

400 ppm (TWA), 500 ppm (STEL)

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a half-face organic vapor respirator may be worn for up to ten times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece organic vapor respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### **Eye Protection:**

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. === Physical/Chemical Properties ===

### **Appearance:**

Clear, colorless liquid.

### **Odor:**

Mild, gasoline-like.

**Solubility:**

Insoluble in water.

**Specific Gravity:**

0.684 @ 20C/4C

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

100

**Boiling Point:**

98C (208F)

**Melting Point:**

- 91C (-132F)

**Vapor Density (Air=1):**

3.5

**Vapor Pressure (mm Hg):**

40 @ 20C (68F)

**Evaporation Rate (BuAc=1):**

No information found.

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**10. === Stability and Reactivity Data ===**

**Stability:**

Stable under ordinary conditions of use and storage. Heat will contribute to instability.

**Hazardous Decomposition Products:**

Carbon dioxide and carbon monoxide may form when heated to decomposition.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Strong oxidizers.

**Conditions to Avoid:**

Heat, flames, ignition sources and incompatibles.

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**11. === Toxicological Information ===**

For n-Heptane: Inhalation rat LC50: 103 gm/m3/4H

-----\Cancer Lists\-----  
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---NTP Carcinogen---

Ingredient Category	Known	Anticipated	IARC
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Heptane (142-82-5) None	No	No	

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## 12. === Ecological Information ===

### Environmental Fate:

For n-Heptane: When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material is not expected to leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into water, this material may biodegrade to a moderate extent. When released to water, this material is expected to quickly evaporate. This material has an estimated bioconcentration factor (BCF) of greater than 100. This material has a log octanol-water partition coefficient of greater than 3.0. This material may bioaccumulate to some extent. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life between 1 and 10 days.

### Environmental Toxicity:

No information found.

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## 13. === Disposal Considerations ===

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. === MSDS Transport Information ===

### Domestic (Land, D.O.T.)

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**Proper Shipping Name:** HEPTANES

**Hazard Class:** 3

**UN/NA:** UN1206  
**Packing Group:** II  
**Information reported for product/size:** 215L

**International (Water, I.M.O.)**

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**Proper Shipping Name:** HEPTANES  
**Hazard Class:** 3  
**UN/NA:** UN1206  
**Packing Group:** II  
**Information reported for product/size:** 215L

**International (Air, I.C.A.O.)**

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**Proper Shipping Name:** HEPTANES  
**Hazard Class:** 3  
**UN/NA:** UN1206  
**Packing Group:** II  
**Information reported for product/size:** 215L

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**15. === Regulatory Information ===**

-----\Chemical Inventory Status - Part 1\-----  
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Ingredient	TSCA	EC	Japan
Australia			
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Heptane (142-82-5)	Yes	Yes	Yes
Yes			

-----\Chemical Inventory Status - Part 2\-----  
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Ingredient	Korea	--Canada-- DSL	NDSL
Phil.			
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Heptane (142-82-5)	Yes	Yes	No
Yes			

-----\Federal, State & International Regulations - Part 1\-----  
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	-SARA 302-	-SARA
313-----		
Ingredient	RQ	TPQ
Chemical Catg.		List
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Heptane (142-82-5)	No	No	No
No			
-----\Federal, State & International Regulations - Part 2\-----			
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TSCA-		-RCRA-	-
Ingredient	CERCLA	261.33	8(d)
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Heptane (142-82-5)	No	No	Yes

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No  
SARA 311/312: Acute: Yes      Chronic: No      Fire: Yes Pressure: No  
Reactivity: No      (Pure / Liquid)

**Australian Hazchem Code:** 3[Y]E

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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**16. === Other Information ===**

**NFPA Ratings:** Health: **1** Flammability: **3** Reactivity: **0**

**Label Hazard Warning:**

DANGER! FLAMMABLE LIQUID AND VAPOR. HARMFUL OR FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM.

**Label Precautions:**

Keep away from heat, sparks and flame.  
Keep container closed.  
Avoid breathing vapor or mist.  
Use only with adequate ventilation.  
Avoid contact with eyes, skin and clothing.  
Wash thoroughly after handling.

**Label First Aid:**

Aspiration hazard. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If



inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. In all cases call a physician.

**Product Use:**

Laboratory Reagent.