



Safety Data Sheet n-heptane

Section 1: Chemical Product and Company Identification

Product Name: n-heptane

Catalog Codes:251

CAS#: 142-82-5

RTECS: MI7700000

Synonym: Dipropyl methane; Heptyl hydride

Chemical Name: Heptane

Chemical Formula: C7H16

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{n-}heptane	142-82-5	100

Toxicological Data on Ingredients: n-heptane: VAPOR (LC50): Acute: 103000 mg/m 4 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to lungs, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Not available.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

If swallowed, do NOT induce vomiting. Never give anything by mouth to an unconscious person. Aspiration hazard if swallowed- can enter lungs and cause damage. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 203.89°C (399°F) - 223 C (433 F)

Flash Points: CLOSED CUP: -4°C (24.8°F). (TAG) OPEN CUP: -1.1111°C (30°F).

Flammable Limits: LOWER: 1.05% UPPER: 6.7%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

Slightly explosive in presence of heat.

Fire Fighting Media and Instructions:

Flammable liquid, insoluble in water.

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use water spray or fog.

Special Remarks on Fire Hazards:

Flaming occurs when liquid chlorine in n-Heptane is added to added to red phosphorous.

Vapors may form explosive mixtures with air.

Vapor may travel considerable distance to source of ignition and flash back.

Special Remarks on Explosion Hazards: Vapors may form explosive mixtures in air.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Flammable liquid, insoluble in water.

Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the SDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 500 (ppm) from OSHA (PEL) [United States]
TWA: 2000 (mg/m³) from OSHA (PEL) [United States]
TWA: 350 CEIL: 1800 (mg/m³) from NIOSH [United States]
TWA: 85 CEIL: 440 (ppm) from NIOSH [United States]
TWA: 400 STEL: 500 (ppm) from ACGIH (TLV) [United States]
TWA: 500 (ppm) [United Kingdom (UK)]
TWA: 400 STEL: 500 (ppm) [Canada]
TWA: 1640 STEL: 2049 (mg/m³) [Canada]
TWA: 400 STEL: 500 (ppm) [Belgium]
TWA: 200 (ppm) [Norway]
TWA: 300 STEL: 500 (ppm) [Finland]
TWA: 500 (ppm) [Austria] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Hydrocarbon. Gasoline-like

Taste: Not available.

Molecular Weight: 100.21 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 97-98°C

Melting Point: -90.5°C

Critical Temperature: Not available.

Specific Gravity: 0.6838 (Water = 1)

Vapor Pressure: 5.3 kPa (@ 20°C)

Vapor Density: 3.5 (Air = 1)

Volatility: Not available.

Odor Threshold: 150 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; $\log(\text{oil/water}) = 4.7$

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:

Soluble in diethyl ether, acetone.

Insoluble in cold water.

Soluble in alcohol.

Solubility in Chloroform, Petroleum Ether, Ether, Acetone: >10%

Floats on water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks), incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Not considered to be corrosive for metals and glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.

Acute toxicity of the vapor (LC50): 103000 mg/m3 4 hours [Rat].

Chronic Effects on Humans:

May cause damage to the following organs: lungs, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects:

Skin: Causes skin irritation. It can be absorbed through the skin.

Eyes: Contact with liquid may cause eye irritation. Contact with vapors is not expected to cause eye irritation.

Inhalation: Inhalation of vapor or mist causes respiratory tract and mucous membrane irritation. It can affect behavior/central nervous system and cause central nervous system effects (mild excitement followed CNS depression which is characterized by headache, nausea, dizziness, hilarity, hallucinations, lightheadness, distorted perceptions, convulsions, weakness, loss of judgement and coordination, narcosis, semi-consciousness, coma and death at higher doses). It may cause cardiac effects (irregular heartbeat/cardiac arrhythmias, or heart to stop beating), and pulmonary edema. It is readily absorbed by the inhalation route.

Ingestion: Causes gastrointestinal tract irritation with nausea, vomiting, swelling of the abdomen. Aspiration into the lungs can produce chemical pneumonitis. It can also affect behavior/central nervous system with symptoms paralleling those of inhalation.

Chronic Potential Health Effects:

Skin: Prolonged or repeated skin contact can defat the skin and product irritation and dermatitis.

Inhalation: Repeated or prolonged inhalation may affect behavior/central nervous system (symptoms similar to acute inhalation) and may produce minimal peripheral nerve damage (polyneuropathy) with numbness and tingling of the extremities in a stocking-and -glove pattern. Reversible of polyneuropathy as been reversible by a year following removal from exposure. It may also affect the brain, blood (anemia), and hearing (mild change in auditory threshold), and may also cause weight loss,

Ingestion: Prolonged or repeated ingestion may affect the liver, urinary system, blood (changes in blood serum composition).

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Heptane UNNA: 1206 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: n-heptane
Illinois toxic substances disclosure to employee act: n-heptane
Rhode Island RTK hazardous substances: n-heptane
Pennsylvania RTK: n-heptane
Minnesota: n-heptane
Massachusetts RTK: n-heptane
Massachusetts spill list: n-heptane
New Jersey: n-heptane
California Director's List of Hazardous Substances: n-heptane
TSCA 8(b) inventory: n-heptane
TSCA 4(a) proposed test rules: n-heptane
TSCA 8(d) H and S data reporting: n-heptane: Effective date: 1/26/94; Sunset date: 6/30/98

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 3

Reactivity: 0

Personal Protection: g

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Safety glasses.

Section 16: Other Information

References: Not available

Other Special Considerations: Not available

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