

# MATERIAL SAFETY DATA SHEET



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## HEPTANE

MSDS No. M0116

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: n-Heptane 95%, n-Heptane 96%, n-Heptane 99%

Product Catalog Number(s): HA1708, HA1709, HB1707, HH3869, HR0810, HR0811, HR0812, HR0813, HR0832, HR1048, HR1705, HR1706, HR2548, HS1049, HS1711, HS1712

Synonyms: n-Heptane; normal Heptane; Dipropyl Methane; Heptyl Hydride

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

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

### 2. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Heptane	142-82-5	90%-100%	Yes

### 3. HAZARDS IDENTIFICATION

DANGER! BREATHING VAPORS MAY CAUSE DROWSNESS AND DIZZINESS. CAUSES EYE, SKIN, AND RESPIRATORY TRACT IRRITATION. ASPIRATION HAZARD IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. HIGHLY FLAMMABLE LIQUID AND VAPOR. STATIC ELECTRICAL HAZARD. TARGET ORGANS: CENTRAL NERVOUS SYSTEM, EYES, SKIN, AND LUNGS.



#### Acute Exposure Hazards:

Inhalation Hazard: Inhalation of vapors irritates the respiratory tract. High concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness, and coma.

Ingestion Hazard: May produce gastrointestinal irritation with abdominal pain, nausea, vomiting, and diarrhea. Aspiration into lungs may cause chemical pneumonitis, which may be fatal.

Skin Contact Hazard: Causes skin irritation. Defatting or dermatitis may result from prolonged or repeated exposure.

Eye Contact Hazard: Causes eye irritation.

Chronic Exposure Hazards: Repeated or prolonged skin contact may defat the skin and produce irritation and dermatitis.

#### HMIS Rating:

Health – 1\* Flammability – 3 Physical Hazard – 0 PPE – User supplied

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

#### 4. FIRST-AID MEASURES

Inhalation: If inhaled, remove to fresh air. If breathing is labored or with coughing, give 100% supplemental oxygen. If not breathing, begin artificial respiration. Get medical aid.

Ingestion: Aspiration hazard. Get medical aid immediately. Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have person lean forward.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact: Check for and remove contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Notes to Physician: Treat symptomatically and supportively.

#### 5. FIRE FIGHTING MEASURES

Flammability: Highly flammable liquid and vapor (GHS Category 2)

Auto-ignition Temperature: 204° C (399° F)

Flash Point: -4° C (24° F)

Flammable Limits: Lower Limit – 1.05 vol %, Upper Limit – 6.7 vol %

Products of Combustion: Will decompose into highly toxic and irritating gases (carbon monoxide and carbon dioxide) under fire conditions.

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Liquid floats on water and may travel to a source of ignition and spread fire.

Specific Explosion Hazards: None

Fire Fighting Media: For small fires, use dry chemical, carbon dioxide, or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Water may be ineffective. Do not use solid streams of water..

National Fire Protective Association: Health - 1, Flammability - 3, Reactivity - 0

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

#### 6. ACCIDENTAL RELEASE MEASURES

Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Provide ventilation to the affected area and remove all ignition sources. Avoid run-off into storm sewers and ditches that lead to waterways. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Use only non-sparking tools and equipment. A vapor suppressing foam may be used. Always use proper personal protective equipment as described in section 8.

#### 7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Keep in a flammables area away from all sources of ignition and oxidizing materials. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles or appropriate eye protection. Use appropriate protective gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits:

ACGIH – 400 ppm TWA; 500 ppm STEL  
NIOSH – 85 ppm TWA; 350 mg/m<sup>3</sup> TWA; 750 ppm IDLH  
OSHA Final PELs – 500 ppm TWA; 2000 mg/m<sup>3</sup> TWA  
OSHA Vacated PELs – 400 ppm TWA; 1600 mg/m<sup>3</sup> TWA

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.

Odor: mild gasoline-like odor

Odor Threshold: 150 ppm

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

Molecular Weight: 100.21

pH: Not available.

Boiling Point: 98° C @ 760 mm Hg

Freezing/Melting Point: -91° C

Decomposition Temperature: Not available

Specific Gravity: 0.68 g/cm<sup>3</sup> @ 20° C

Vapor Density (Air=1): 3.5

Vapor Pressure: 46 mm Hg @ 20° C.

Evaporation Rate (Butyl acetate=1): 2.8

Viscosity: Not available.

Solubility: Negligible

Conductivity: Nonconductive; Conductivity = 3x10<sup>-2</sup> pS/m; Dielectric Constant = 2.0; Relaxation Time Constant = -100 seconds (dissipation)

## 10. STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Ignition sources, excess heat, and confined spaces.

Incompatibility With Various Substances: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, carbon, dioxide.

Hazardous Polymerization: Has not been reported.

## 11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Animal Toxicity:

Inhalation, rat: LC50 = 103 mg/m<sup>3</sup>/4H;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: No information found.

Teratogenicity: No information found.

Reproductive Effects: No information found.

Mutagenicity: No information found.

Neurotoxicity: No information found.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity:

Fish: Goldfish: LC50 = 4.0 mg/L, 24H, unspecified

Fish: Mosquito fish: LC50 = 4900 mg/L, 24H, unspecified

Fish: LC50 = 4900 mg/L, 24H, unspecified, no data available

Environmental Fate: Photolysis and hydrolysis are not expected to be important in soils. Biodegradation may occur in soils; however, volatilization and adsorption are expected to be far more important. Based on vapor pressure of 45.8 mm Hg at 25° C, heptane is expected to exist entirely in the vapor phase in ambient air. Direct photolysis of heptane is not expected to be important.

## 13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. TRANSPORT INFORMATION

### US DOT

Proper Shipping Name: Heptane

Hazard Class: 3

UN Number: UN1206

Packing Group: II

### Canada TDG

Proper Shipping Name: Heptane

Hazard Class: 3

UN Number: UN1206

Packing Group: II

Additional Information: Flashpoint -4 C

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

Proper Shipping Name: Heptane

Hazard Class: 3

UN Number: UN1206

Packing Group: II

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

Proper Shipping Name: Heptane

Hazard Class: 3

UN Number: UN1206

Packing Group: II

## 15. REGULATORY INFORMATION

### US Federal Regulations:

TSCA: CAS# 142-82-5 is listed on the TSCA Inventory.

Health and Safety Reporting List: CAS# 142-82-5 is not listed.

Chemical Test Rules: CAS# 142-82-5: 40 CFR 799.5000

Section 12b: CAS# 142-82-5: Section 4, 1% de minimis concentration

TSCA Significant New Use Rule: Does not have an SNUR under TSCA.

CERCLA Hazardous Substances: CAS# 142-82-5 Does not have a RQ

SARA Section 302: Does not have a TPQ

SARA Codes: CAS# 142-82-5 – immediate, delayed, fire

Section 313: n-Heptane (CAS# 142-82-5) is not subject to SARA Title III reporting requirements.

Clean Air Act: CAS# 142-82-5 is not listed as a hazardous air pollutant (HAP). It is not a Class 1 Ozone Depleter. It is not a Class 2 Ozone Depleter.

Clean Water Act: CAS# 142-82-5 is not listed as a Hazardous Substance. It is not a Priority Pollutant. It is not a Toxic Pollutant.

OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 142-82-5 is on the following state right-to-know lists: California, New Jersey, Pennsylvania, Minnesota, and Massachusetts

California Prop 65: California No Significant Risk Level: Not listed

Canada:

DSL/NDSL: CAS# 142-82-5 is listed on Canada's DSL list.

WHMIS: This product has a WHMIS classification of B2, D2B. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required by those regulations.

Ingredient Disclosure List: CAS# 142-82-5 is listed on Canada's Ingredient Disclosure List.

DSCL (EEC):

Hazard Symbols: Xn; F; N

Risk Phrases: R11 – Highly Flammable; R38 – Irritating to skin; R50/53 – Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment; R65 – Harmful, may cause lung damage if swallowed; R67 – Vapors may cause drowsiness and dizziness.

Safety Phrases: S16 – Keep away from sources of ignition-no smoking; S29 – Do not empty into drains; S33 – Take precautionary measures against static discharge; S9 – Keep container in well ventilated place; S60 – This material and its container must be disposed of as hazardous waste; S61 – Avoid release to the environment. Refer to special instructions/safety data sheets; S62 – If swallowed, do not induce vomiting, seek medical advice immediately and show this container or label.

WGK (Water Danger/protection): CAS# 142-82-5: 1

## 16. OTHER INFORMATION

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The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.

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