

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	<p>Flammable material; avoid heat and sources of ignition. Irritating to skin, eyes, and the respiratory system. Harmful compound, minimize exposure. Handle and store under nitrogen. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.</p>	   

Section I. Chemical Product and Company Identification

Chemical Name	n-Heptane		
Catalog Number	H0088	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Dipropyl Methane		
Chemical Formula	CH ₃ (CH ₂) ₅ CH ₃		
CAS Number	142-82-5	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
n-Heptane	142-82-5	Min. 99.0 (GC)	Not available.	Rat LC ₅₀ (inhalation) 103gm/m ³ /4H Mouse LD ₅₀ (intravenous) 222mg/kg

Section III. Hazards Identification

Acute Health Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Section IV. 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.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. SEEK IMMEDIATE MEDICAL ATTENTION in case of ingestion of a radioactive material.

Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	Not available.
Flash Points	-1.11°C (30°F).	Flammable Limits	LOWER: 1.1% UPPER: 7%
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
Fire Hazards	Not available.		
Explosion Hazards	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.		
Fire Fighting Media and Instructions			

Continued on Next Page

Emergency phone number (800) 424-9300

Flammable liquid.
 SMALL FIRE: Use DRY chemical powder.
 LARGE FIRE: Use alcohol foam, water spray or fog.
 Consult with local fire authorities before attempting large scale fire-fighting operations.

Section VI. Accidental Release Measures

Spill Cleanup Instructions Flammable liquid. Harmful material. Irritating material. Handle and store under nitrogen. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information FLAMMABLE. HARMFUL. IRRITANT. HANDLE AND STORE UNDER NITROGEN. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray. Always store away from incompatible compounds such as oxidizing agents.

Section VIII. 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 station and safety shower is proximal to the work-station location.

Personal Protection Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.



Exposure Limits Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, colorless.)	Solubility	Insoluble in water. Soluble in alcohol, chloroform, ether.
Specific Gravity	0.684(water=1)		
Molecular Weight	100.2	Partition Coefficient	Not available.
Boiling Point	98°C (208.4°F)	Vapor Pressure	5.3 kPa (@ 20°C)
Melting Point	-91°C (-131.8°F)	Vapor Density	3.5 (Air = 1)
Refractive Index	1.3855 @ 25°C	Volatility	Not available.
Critical Temperature	Not available.	Odor	Gasoline-like
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability This material is stable if stored under proper conditions. (See Section VII for instructions)

Conditions of Instability Avoid excessive heat and light.

Incompatibilities Reactive with strong oxidizing agents.

Section XI. Toxicological Information

RTECS Number MI7700000

Routes of Exposure Eye Contact. Ingestion. inhalation.

Toxicity Data Rat LC₅₀ (inhalation) 103gm/m³/4H
 Mouse LD₅₀ (intravenous) 222mg/kg

Chronic Toxic Effects **CARCINOGENIC EFFECTS** : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY Not available.
 Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Acute Toxic Effects Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
 Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Environmental Fate n-Heptane is a highly volatile constituent in the paraffin fraction of crude oil and natural gas. n-Heptane is released to the environment via the manufacture, use and disposal of many products associated with the petroleum and gasoline industries. Extensive data show release of n-heptane into the environment from printing pastes, paints, varnishes, adhesives and other coatings; landfills and waste incinerators; vulcanization and extrusion operations during rubber and synthetic production; and the combustion of gasoline fueled engines. Photolysis or hydrolysis of n-heptane is not expected to be important environmental fate processes. Biodegradation of n-heptane may occur in soil and water; however, volatilization and adsorption are expected to be far more important fate processes. A high Koc indicates n-heptane will be slightly mobile to immobile in soil. In aquatic systems n-heptane may partition from the water column to organic matter in sediments and suspended solids. The bioconcentration of n-heptane may be important in aquatic environments. A Henry's Law constant of 2.06 atm-cu m/mole at 25 deg C suggests rapid volatilization of n-heptane from environmental waters. The volatilization half-lives from a model river and a model pond, the latter considers the effect of adsorption, have been estimated to be 2.9 hr and 13 days, respectively. n-Heptane is expected to exist entirely in the vapor phase in ambient air. Reactions with photochemically produced hydroxyl radicals in the atmosphere have been shown to be important (estimated half-life of 2.4 days). Data also suggests that night time reactions with nitrate radicals may contribute to the atmospheric transformation of n-heptane, especially in urban environments. The most probable route of human exposure to n-heptane is by inhalation. Extensive monitoring data indicates n-heptane is a widely occurring atmospheric pollutant.

Section XIII. Disposal Considerations

Waste Disposal Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification CLASS 3: Flammable liquid.

PIN Number UN1206

Proper Shipping Name Heptanes

Packing Group (PG) II

DOT Pictograms

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA) This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list. This product is subject to SARA section 313 reporting requirements (8a PAIR/8d).

WHMIS Classification (Canada) CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).

EINECS Number (EEC) 205-563-8

EEC Risk Statements
 R10- Flammable.
 R18- In use, may form flammable/explosive vapor-air mixture.
 R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
 R36/37/38- Irritating to eyes, respiratory system and skin.
 R50- Very toxic to aquatic organisms.
 R53- May cause long-term adverse effects in the aquatic environment.

Japanese Regulatory Data Not available.

Section XVI. Other Information

Version 1.0
Validated on 6/7/2002.
Printed 2/24/2005.

Notice to Reader

TCl laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.