# SAFETY DATA SHEET

**Creation Date** 14-Sep-2009 **Revision Date** 29-Mar-2024 **Revision Number** 4

## 1. Identification

**Product Name** **n-Heptane**

**Cat No. :** **A19894**

**CAS No** 142-82-5
**Synonyms** Normal heptane.; Heptane

**Recommended Use** Laboratory chemicals.
**Uses advised against** Food, drug, pesticide or biocidal product use.

**Details of the supplier of the safety data sheet**

**Company**
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757

**Emergency Telephone Number**
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
**CHEMTREC** Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

## 2. Hazard(s) identification

**Classification**
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|---|---|
| Flammable liquids | Category 2 |
| Skin Corrosion/Irritation | Category 2 |
| Serious Eye Damage/Eye Irritation | Category 2 |
| Specific target organ toxicity (single exposure) Target Organs - Central nervous system (CNS). | Category 3 |
| Specific target organ toxicity - (repeated exposure) Target Organs - Kidney, Liver, Blood. | Category 2 |
| Aspiration Toxicity | Category 1 |

**Label Elements**

**Signal Word**
Danger

**Hazard Statements**

Highly flammable liquid and vapor
May cause drowsiness or dizziness
May be fatal if swallowed and enters airways
Causes skin irritation
Causes serious eye irritation
May cause damage to organs through prolonged or repeated exposure

**Precautionary Statements**
**Prevention**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Take precautionary measures against static discharge
Keep cool
**Response**
Get medical attention/advice if you feel unwell
**Inhalation**
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
**Skin**
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
If skin irritation occurs: Get medical advice/attention
Wash contaminated clothing before reuse
**Eyes**
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
**Ingestion**
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting
**Fire**
In case of fire: Use CO2, dry chemical, or foam for extinction
**Storage**
Store locked up
Store in a well-ventilated place. Keep container tightly closed
**Disposal**
Dispose of contents/container to an approved waste disposal plant
**Hazards not otherwise classified (HNOC)**
Very toxic to aquatic life with long lasting effects

## 3. Composition/Information on Ingredients

| Component | CAS No | Weight % |
|---|---|---|
| n-Heptane | 142-82-5 | >95 |

## 4. First-aid measures

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

**Inhalation** Remove to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention. Risk of serious damage to the lungs (by aspiration). If not breathing, give artificial respiration.

**Ingestion** Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

**Most important symptoms and effects** Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**Notes to Physician** Treat symptomatically

## 5. Fire-fighting measures

**Suitable Extinguishing Media** $CO_2$, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

**Unsuitable Extinguishing Media** Water may be ineffective

**Flash Point** -4 °C / 24.8 °F

**Method -** No information available

**Autoignition Temperature** 215 °C / 419 °F

**Explosion Limits**

| | |
|---|---|
| **Upper** | 6.7 vol % |
| **Lower** | 1.05 vol % |
| **Sensitivity to Mechanical Impact** | No information available |
| **Sensitivity to Static Discharge** | No information available |

**Specific Hazards Arising from the Chemical**
Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Do not allow run-off from fire-fighting to enter drains or water courses.

**Hazardous Combustion Products**
Carbon monoxide (CO). Carbon dioxide ($CO_2$).
**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**NFPA**

| Health | Flammability | Instability | Physical hazards |
|---|---|---|---|
| 3 | 3 | 0 | N/A |

## 6. Accidental release measures

**Personal Precautions** Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation.

**Environmental Precautions** Do not flush into surface water or sanitary sewer system. Do not allow material to

contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

**Methods for Containment and Clean Up** Remove all sources of ignition. Soak up with inert absorbent material. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Keep in suitable, closed containers for disposal.

## 7. Handling and storage

**Handling** Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Wash hands before breaks and immediately after handling the product. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

**Storage.** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area. Incompatible Materials. Strong oxidizing agents.

## 8. Exposure controls / personal protection

**Exposure Guidelines**

| Component | ACGIH TLV | OSHA PEL | NIOSH | Mexico OEL (TWA) |
|---|---|---|---|---|
| n-Heptane | TWA: 400 ppm<br>STEL: 500 ppm | (Vacated) TWA: 400 ppm<br>(Vacated) TWA: 1600 mg/m³<br>(Vacated) STEL: 500 ppm<br>(Vacated) STEL: 2000 mg/m³<br>TWA: 500 ppm<br>TWA: 2000 mg/m³ | IDLH: 750 ppm<br>TWA: 85 ppm<br>TWA: 350 mg/m³<br>Ceiling: 440 ppm<br>Ceiling: 1800 mg/m³ | TWA: 400 ppm<br>STEL: 500 ppm |

*Legend*

*ACGIH - American Conference of Governmental Industrial Hygienists*
*OSHA - Occupational Safety and Health Administration*
*NIOSH: NIOSH - National Institute for Occupational Safety and Health*

**Engineering Measures** Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

**Personal Protective Equipment**

**Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection** No protective equipment is needed under normal use conditions.

**Recommended Filter type:** Organic gases and vapours filter. Type A. Brown. conforming to EN14387.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

**Physical State** Liquid

| | |
|---|---|
| **Appearance** | Colorless |
| **Odor** | Petroleum distillates |
| **Odor Threshold** | No information available |
| **pH** | No information available |
| **Melting Point/Range** | -91 °C / -131.8 °F |
| **Boiling Point/Range** | 98 °C / 208.4 °F |
| **Flash Point** | -4 °C / 24.8 °F |
| **Evaporation Rate** | 2.8 (Butyl Acetate = 1.0) |
| **Flammability (solid,gas)** | Not applicable |
| **Flammability or explosive limits** | |
| **Upper** | 6.7 vol % |
| **Lower** | 1.05 vol % |
| **Vapor Pressure** | 48 mbar @ 20 °C |
| **Vapor Density** | 3.5 |
| **Specific Gravity** | 0.683 |
| **Solubility** | Insoluble in water |
| **Partition coefficient; n-octanol/water** | No data available |
| **Autoignition Temperature** | 215 °C / 419 °F |
| **Decomposition Temperature** | No information available |
| **Viscosity** | 0.4 mPa s at 20 °C |
| **Molecular Formula** | C7 H16 |
| **Molecular Weight** | 100.20 |

## 10. Stability and reactivity

**Reactive Hazard** None known, based on information available

**Stability** Stable under normal conditions.

**Conditions to Avoid** Incompatible products. Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition.

**Incompatible Materials** Strong oxidizing agents

**Hazardous Decomposition Products** Carbon monoxide (CO), Carbon dioxide ($CO_2$)

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions** None under normal processing.

## 11. Toxicological information

**Acute Toxicity**

**Product Information**

**Component Information**

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| n-Heptane | >2000 mg/kg (rat) | LD50 = 3000 mg/kg ( Rabbit ) | LC50 > 73.5 mg/L ( Rat ) 4 h |

**Toxicologically Synergistic Products** No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation** Irritating to eyes and skin

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component | CAS No | IARC | NTP | ACGIH | OSHA | Mexico |
|---|---|---|---|---|---|---|
| n-Heptane | 142-82-5 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Central nervous system (CNS)
**STOT - repeated exposure** Kidney Liver Blood

**Aspiration hazard** Aspiration hazard

**Symptoms / effects,both acute and delayed** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

**Ecotoxicity**

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|---|---|---|---|---|
| n-Heptane | Not listed | LC50: = 375.0 mg/L, 96h (Cichlid fish) | Not listed | EC50: >10 mg/L/24h |

**Persistence and Degradability** Persistence is unlikely

**Bioaccumulation/ Accumulation** No information available.

**Mobility** The product is insoluble and floats on water. Is not likely mobile in the environment due its low water solubility.

| Component | log Pow |
|---|---|
| n-Heptane | 4.66 |

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

**DOT**

**UN-No** UN1206
**Proper Shipping Name** HEPTANES
**Hazard Class** 3
**Packing Group** II

**TDG**

**UN-No** UN1206
**Proper Shipping Name** HEPTANES
**Hazard Class** 3
**Packing Group** II

**IATA**

**UN-No** UN1206
**Proper Shipping Name** Heptanes
**Hazard Class** 3

**Packing Group** II

**IMDG/IMO**

**UN-No** UN1206
**Proper Shipping Name** Heptanes
**Hazard Class** 3
**Packing Group** II

## 15. Regulatory information

**United States of America Inventory**

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|---|---|---|---|---|
| n-Heptane | 142-82-5 | X | ACTIVE | - |

**Legend:**
**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

**TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)** Not applicable

**TSCA 12(b)** - Notices of Export Not applicable

**International Inventories**
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No | DSL | NDSL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|---|---|---|---|---|---|---|---|---|---|---|
| n-Heptane | 142-82-5 | X | - | 205-563-8 | X | X | X | X | X | KE-18271 |

**KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

**U.S. Federal Regulations**

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

**SARA 311/312 Hazard Categories**
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA** - Occupational Safety and Health Administration Not applicable

**CERCLA**
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

**California Proposition 65** This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---|---|---|---|---|---|
| n-Heptane | X | X | X | - | X |

**U.S. Department of Transportation**

Reportable Quantity (RQ): N
DOT Marine Pollutant Y
DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security** This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade** Serious risk, Grade 3

**Authorisation/Restrictions according to EU REACH**

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|---|---|---|---|---|
| n-Heptane | 142-82-5 | - | Use restricted. See item 75. (see link for restriction details) | - |

**REACH links**
*https://echa.europa.eu/substances-restricted-under-reach*

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

| Component | CAS No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|---|---|---|---|---|---|
| n-Heptane | 142-82-5 | Listed | Not applicable | Not applicable | Not applicable |

**Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?**
Not applicable

**Other International Regulations**

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|---|---|---|---|---|---|
| n-Heptane | 142-82-5 | Not applicable | Not applicable | Not applicable | Not applicable |

## 16. Other information

**Prepared By** Health, Safety and Environmental Department
Email: chem.techinfo@thermofisher.com

www.thermofisher.com

| | |
|---|---|
| **Creation Date** | 14-Sep-2009 |
| **Revision Date** | 29-Mar-2024 |
| **Print Date** | 29-Mar-2024 |
| **Revision Summary** | New emergency telephone response service provider. |

**Disclaimer**

**The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text**

## End of SDS