

## SAFETY DATA SHEET

Creation Date 26-Jan-2010

Revision Date 24-Dec-2021

Revision Number 6

### 1. Identification

<b>Product Name</b>	Heptane
<b>Cat No. :</b>	H20-20; H20-200; H340-4; H350-1; H350-4; H350-4LC; H350N2-19; H350RS-19; H350RS-200; H350SK-1; H350SK-4; H360-1; H360-4; O3008-1; O3008-4; O3008FB-19; O3008FB-50; O3008FB-115; O3008FB-200; O3008RB-200; O3008RS-19; O3008RS-50; O3008RS-115; O3008RS-200; O3008SS-28; O3008SS-50; O3008SS-115; O3008SS-200; O3387-4; H350SS-200
<b>Synonyms</b>	n-Heptane; Normal Heptane; Ligroine; Petroleum Ether (Sequencing/Technical/Spectranalyzed/HPLC/Certified/Laboratory/Optima/Peroxide Free)
<b>Recommended Use</b>	Laboratory chemicals.
<b>Uses advised against</b>	Food, drug, pesticide or biocidal product use.

#### Details of the supplier of the safety data sheet

##### Company

Fisher Scientific Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

<b>Emergency Telephone Number</b>	CHEMTREC®, Inside the USA: 800-424-9300 CHEMTREC®, Outside the USA: 001-703-527-3887
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### 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
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Aspiration Toxicity	Category 1

#### Label Elements

**Signal Word**

Danger

#### Hazard Statements

Highly flammable liquid and vapor  
 May be fatal if swallowed and enters airways  
 Causes skin irritation  
 May cause drowsiness or dizziness



#### Precautionary Statements

##### Prevention

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  
 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  
 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 skin irritation occurs: Get medical advice/attention  
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
 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 CO<sub>2</sub>, 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 %
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n-Heptane	142-82-5	>99
Methylcyclohexane	108-87-2	0 - 0.2
Isooctane	26635-64-3	0 - 0.1
Dimethylcyclopentane	28729-52-4	0 - 0.1

#### 4. First-aid measures

<b>General Advice</b>	If symptoms persist, call a physician.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.
<b>Inhalation</b>	Remove to fresh air. Get medical attention. Aspiration into lungs can produce severe lung damage. If not breathing, give artificial respiration. Risk of serious damage to the lungs (by aspiration).
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.
<b>Most important symptoms and effects</b>	Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
<b>Notes to Physician</b>	Treat symptomatically

#### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Water spray, carbon dioxide (CO <sub>2</sub> ), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.
<b>Unsuitable Extinguishing Media</b>	Water may be ineffective
<b>Flash Point</b>	-4 °C / 24.8 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	215 °C / 419 °F
<b>Explosion Limits</b>	
<b>Upper</b>	6.7 vol %
<b>Lower</b>	1.05 vol %
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	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<sub>2</sub>).

#### 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.

#### NFPA

<b>Health</b>	<b>Flammability</b>	<b>Instability</b>	<b>Physical hazards</b>
3	3	0	N/A

## 6. Accidental release measures

<b>Personal Precautions</b>	Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
<b>Environmental Precautions</b>	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.
<b>Methods for Containment and Clean Up</b>	Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

## 7. Handling and storage

<b>Handling</b>	Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment.
<b>Storage.</b>	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 IDLH	Mexico OEL (TWA)
n-Heptane	TWA: 400 ppm STEL: 500 ppm	(Vacated) TWA: 400 ppm (Vacated) TWA: 1600 mg/m <sup>3</sup> (Vacated) STEL: 500 ppm (Vacated) STEL: 2000 mg/m <sup>3</sup> TWA: 500 ppm TWA: 2000 mg/m <sup>3</sup>	IDLH: 750 ppm TWA: 85 ppm TWA: 350 mg/m <sup>3</sup> Ceiling: 440 ppm Ceiling: 1800 mg/m <sup>3</sup>	TWA: 400 ppm STEL: 500 ppm
Methylcyclohexane	TWA: 400 ppm	(Vacated) TWA: 400 ppm (Vacated) TWA: 1600 mg/m <sup>3</sup> TWA: 500 ppm TWA: 2000 mg/m <sup>3</sup>	IDLH: 1200 ppm TWA: 400 ppm TWA: 1600 mg/m <sup>3</sup>	TWA: 400 ppm
Isooctane	TWA: 300 ppm			TWA: 300 ppm

### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

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

<b>Eye/face Protection</b>	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. Tight sealing safety goggles. Face protection shield.
<b>Skin and body protection</b>	Wear appropriate protective gloves and clothing to prevent skin exposure.
<b>Respiratory Protection</b>	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard

EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

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

## 10. Stability and reactivity

<b>Reactive Hazard</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.
<b>Incompatible Materials</b>	Strong oxidizing agents
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> )
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	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
Methylcyclohexane	LD50 > 3200 mg/kg ( Rat )	LD50 > 86700 mg/kg ( Rabbit )	Not listed

**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
Methylcyclohexane	108-87-2	Not listed	Not listed	Not listed	Not listed	Not listed
Isooctane	26635-64-3	Not listed	Not listed	Not listed	Not listed	Not listed
Dimethylcyclopentane	28729-52-4	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** None known**Aspiration hazard** No information available**Symptoms / effects, both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: 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
Methylcyclohexane	Not listed	LC50: = 2.07 mg/L, 96h semi-static ( <i>Oryzias latipes</i> )	Not listed	Not listed

**Persistence and Degradability** May persist**Bioaccumulation/ Accumulation** No information available.**Mobility** 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	-
Methylcyclohexane	108-87-2	X	ACTIVE	-
Isooctane	26635-64-3	X	ACTIVE	-
Dimethylcyclopentane	28729-52-4	-	-	-

**Legend:**

**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**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
Methylcyclohexane	108-87-2	X	-	203-624-3	X	X	X	X	X	KE-23691
Isooctane	26635-64-3	-	X	247-861-0	X	X	X	-	X	KE-21552
Dimethylcyclopentane	28729-52-4	-	-	249-193-5	-	-	-	-	X	-

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

**U.S. Federal Regulations**

**SARA 313** Not applicable

**SARA 311/312 Hazard Categories** See section 2 for more information

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

**Clean Air Act** Not applicable

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

**CERCLA** Not applicable

**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
Methylcyclohexane	X	X	X	-	X
Isooctane	-	-	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	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	-	Use restricted. See item 75. (see link for restriction details)	-
Methylcyclohexane	-	Use restricted. See item 75. (see link for restriction details)	-
Isooctane	-	Use restricted. See item 75. (see link for restriction details)	-

<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
Methylcyclohexane	108-87-2	Listed	Not applicable	Not applicable	Not applicable
Isooctane	26635-64-3	Listed	Not applicable	Not applicable	Not applicable
Dimethylcyclopentane	28729-52-4	Not applicable	Not applicable	Not applicable	Not applicable

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
Methylcyclohexane	108-87-2	Not applicable	Not applicable	Not applicable	Not applicable



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Isooctane	26635-64-3	Not applicable	Not applicable	Not applicable	Not applicable
Dimethylcyclopentane	28729-52-4	Not applicable	Not applicable	Not applicable	Not applicable

## 16. Other information

<b>Prepared By</b>	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
<b>Creation Date</b>	26-Jan-2010
<b>Revision Date</b>	24-Dec-2021
<b>Print Date</b>	24-Dec-2021
<b>Revision Summary</b>	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

### 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**