Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name
Hexane

Cat No.

Synonyms
n-Hexane with < 5% various methyl pentanes; Ligroine; Naphtha Solvent (Anhydrous/Certified ACS/Pesticide/HPLC/OPTIMA/GC Resolv/Spectranalyzed/Technical/Laboratory)

Recommended Use
Laboratory chemicals

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

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 703-527-3887

2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview
Extremely flammable liquid and vapor. Inhalation may cause central nervous system effects. Irritating to eyes and skin. May cause irritation of respiratory tract. Aspiration hazard if swallowed - can enter lungs and cause damage. Danger of serious damage to health by prolonged exposure. Possible risk of impaired fertility. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Appearance Colorless
Physical State Liquid
odor Petroleum distillates

Target Organs
Skin, Respiratory system, Eyes, Central nervous system (CNS), Heart, Blood, Liver, Reproductive System
Potential Health Effects

Acute Effects

Principle Routes of Exposure

- **Eyes**: Irritating to eyes.
- **Skin**: Irritating to skin. May be harmful in contact with skin.
- **Inhalation**: Inhalation may cause central nervous system effects. May cause irritation of respiratory tract. May be harmful if inhaled.
- **Ingestion**: Aspiration hazard. May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects

- Tumorigenic effects have been reported in experimental animals. Experiments have shown reproductive toxicity effects on laboratory animals. Possible risk of impaired fertility. Danger of serious damage to health by prolonged exposure. May cause adverse liver effects.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions

Central nervous system disorders. Preexisting eye disorders. Skin disorders.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Haz/Non-haz</th>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hexane</td>
<td>110-54-3</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

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

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

**Inhalation**
Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention.

**Ingestion**
Do not induce vomiting. Call a physician or Poison Control Center immediately.

**Notes to Physician**
Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Flash Point**
-22°C / -7.6°F

**Method**
No information available.

**Autoignition Temperature**
223°C / 433.4°F

**Explosion Limits**
- Upper: 7.5 vol %
- Lower: 1.1 vol %

**Suitable Extinguishing Media**
CO₂, dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.
Unsuitable Extinguishing Media
Water may be ineffective. This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained.

Hazardous Combustion Products
No information available.

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.

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 1  Flammability 3  Instability 0  Physical hazards N/A

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions
Should not be released into the environment.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Keep in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. HANDLING AND STORAGE

Handling
Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures

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

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>TWA: 50 ppm</td>
<td>(Vacated) TWA: 180 mg/m³</td>
<td>IDLH: 1100 ppm</td>
</tr>
<tr>
<td></td>
<td>Skin</td>
<td>(Vacated) TWA: 50 ppm</td>
<td>TWA: 180 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 50 ppm</td>
<td>TWA: 50 ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>TWA: 176 mg/m³</td>
<td>TWA: 176 mg/m³</td>
<td>TWA: 176 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA: 50 ppm</td>
<td>TWA: 50 ppm</td>
<td>TWA: 50 ppm</td>
</tr>
</tbody>
</table>

**NIOSH IDLH:** Immediately Dangerous to Life or Health

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**
  - 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

- **Physical State:** Liquid
- **Appearance:** Colorless
- **odor:** Petroleum distillates
- **Odor Threshold:** No information available.
- **pH:** No information available.
- **Vapor Pressure:** 160 mbar @ 20 °C
- **Vapor Density:** 2.97 (Air = 1.0)
- **Viscosity:** 0.31 mPa s at 20 °C
- **Boiling Point/Range:** 69°C / 156.2°F @ 760 mmHg
- **Melting Point/Range:** -95°C / -139°F
- **Decomposition temperature:** No information available.
- **Flash Point:** -22°C / -7.6°F
- **Evaporation Rate:** No information available.
- **Specific Gravity:** 0.659
- **Solubility:** Insoluble in water
- **log Pow:** No data available
- **Molecular Weight:** 86.18
- **Molecular Formula:** C6 H14

10. STABILITY AND REACTIVITY

- **Stability:** Stable under normal conditions.
- **Conditions to Avoid:** Incompatible products. Heat, flames and sparks. Exposure to light.
Incompatible Materials  | Strong oxidizing agents, Halogens
---|---
Hazardous Decomposition Products  | Carbon monoxide (CO), Carbon dioxide (CO₂)
Hazardous Polymerization  | Hazardous polymerization does not occur
Hazardous Reactions  | None under normal processing.

### 11. TOXICOLOGICAL INFORMATION

#### Acute Toxicity

**Component Information**

<table>
<thead>
<tr>
<th>Component</th>
<th>LD₅₀ Oral Oral</th>
<th>LD₅₀ Dermal Dermal</th>
<th>LC₅₀ Inhalation Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>25 g/kg ( Rat )</td>
<td>3000 mg/kg ( Rabbit )</td>
<td>48000 ppm ( Rat ) 4 h</td>
</tr>
</tbody>
</table>

**Irritation**  | Irritating to eyes and skin

**Toxicologically Synergistic Products**  | No information available.

#### Chronic Toxicity

**Carcinogenicity**  | There are no known carcinogenic chemicals in this product

**Sensitization**  | No information available.

**Mutagenic Effects**  | Mutagenic effects have occurred in experimental animals.

**Reproductive Effects**  | Experiments have shown reproductive toxicity effects on laboratory animals.

**Developmental Effects**  | Developmental effects have occurred in experimental animals.

**Teratogenicity**  | Teratogenic effects have occurred in experimental animals.

**Other Adverse Effects**  | Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information.

**Endocrine Disruptor Information**  | No information available

### 12. ECOLOGICAL INFORMATION

**Ecotoxicity**  | Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>EC₅₀: 3.87 mg/L/48h</td>
</tr>
</tbody>
</table>
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 UN1208
Proper Shipping Name Hexanes
Hazard Class 3
Packing Group II

TDG
UN-No UN1208
Proper Shipping Name HEXANES
Hazard Class 3
Packing Group II

IATA
UN-No UN1208
Proper Shipping Name Hexanes
Hazard Class 3
Packing Group II

IMDG/IMO
UN-No UN1208
Proper Shipping Name Hexanes
Hazard Class 3
Packing Group II

15. REGULATORY INFORMATION
15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>CHINA</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>203-777-6</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-18626</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)  Not applicable

SARA 313

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>110-54-3</td>
<td>&gt;95</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazardous Categorization
- Acute Health Hazard: No
- Chronic Health Hazard: No
- Fire Hazard: Yes
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No

Clean Water Act
Not applicable

Clean Air Act

<table>
<thead>
<tr>
<th>Component</th>
<th>HAPS Data</th>
<th>Class 1 Ozone Depleters</th>
<th>Class 2 Ozone Depleters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OSHA
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)
California Proposition 65
This product does not contain any Proposition 65 chemicals.

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
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

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
B2 Flammable liquid
D2A Very toxic materials
D2B Toxic materials

16. OTHER INFORMATION

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Tel: (412) 490-8929

Creation Date
26-Oct-2009

Print Date
26-Oct-2009
Revision Summary

"****", and red text indicates revision

Disclaimer
The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of MSDS