

REV: 7/21/1995

DATE: 03/19/96 ACCT: 580773008
 INDE: V60780702 CAT NO: 0338620 PO NBR: 3-18-96

17866

**** MATERIAL SAFETY DATA SHEET ****

Ligroine (O3386)
45480

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Ligroine (O3386)

Catalog Numbers:
O3386 20

Synonyms:
Ligroin

Company Identification: Fisher Scientific
1 Reagent Lane
Fairtown, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	Einecs#
110-54-3	Hexane	55	203-777-6
110-82-7	Cyclohexane	3	203-806-2
64742-49-0	Naphtha (petroleum), hydrotreated light	1	unlisted

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: Clear, colorless liquid. Flash Point: -7 F.
Target Organs: Nervous system.

Potential Health Effects

- Eye:** Contact produces irritation, tearing, and burning pain.
- Skin:** Causes skin irritation. May be absorbed through the skin in harmful amounts.
- Ingestion:** Aspiration hazard. Aspiration can cause asphyxia, brain damage, and cardiac arrest. Exposure may cause cardiac sensitization.
- Inhalation:** Exposure produces central nervous system depression. Exposure may cause vertigo, hallucinations, fatigue, muscle weakness, visual disturbances, and nervous system disturbances.
- Chronic:** Chronic exposure to organic solvents has been associated with various neurotoxic effects including permanent brain and nervous system damage. Prolonged or repeated skin contact may cause defatting and dermatitis. Prolonged or repeated exposure may cause adverse reproductive effects. Repeated exposure may cause nervous system abnormalities with muscle weakness and damage, motor incoordination, and sensation disturbances. Visual abnormalities have also been reported.

**** SECTION 4 - FIRST AID MEASURES ****

- Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed.
- Skin:** Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.
- Ingestion:** Do NOT induce vomiting. Possible aspiration hazard. Get medical aid immediately. Call a poison control center.
- Inhalation:** Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
- Notes to Physician:** Treat symptomatically and supportively. No specific antidote exists.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

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General Information:

Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors can travel to a source of ignition and flash back. Extremely flammable. Material will readily ignite at room temperature. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water.

Extinguishing Media:

For small fires, use water spray, dry chemical, carbon dioxide or chemical foam. 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.

Autoignition Temperature: 437 F (225.00 C)

Flash Point: -7 F (-21.67 C)

Explosion Limits, Lower: 1.1

Upper: 7.5

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Avoid runoff into storm sewers and ditches which lead to waterways. Wear a self contained breathing apparatus and appropriate Personal protection. (See Exposure Controls, Personal Protection section). Scoop up with a nonsparking tool, then place

**** SECTION 7 - HANDLING and STORAGE ****

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Ground and bond containers when transferring material. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, sparks or open flames. Do not get on skin or in eyes. Do not ingest or inhale. Prevent build up of vapors to explosive concentration.

Storage:

Keep away from heat, sparks, and flame. Keep away from sources of ignition. Do not store in direct sunlight. Store in a cool, dry, well-ventilated area away from incompatible substances.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:

Use explosion-proof ventilation equipment. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Chemical Name	Exposure Limits		
	ACGIH	NIOSH	OSHA - Final PELs
Hexane	50 ppm ; 176 mg/m3	50 ppm TWA; 180 mg/m3 TWA	500 ppm TWA; 1800 mg/m3 TWA
Cyclohexane	300 ppm ; 1030 mg/m3	300 ppm TWA; 1050 mg/m3 TWA	300 ppm TWA; 1050 mg/m3 TWA
Naphtha (petroleum), hydrotreated light	none listed	none listed	none listed

OSHA Vacated PELs:

Hexane:
50 ppm TWA; 180 mg/m3 TWA
Cyclohexane:
300 ppm TWA; 1050 mg/m3 TWA
Naphtha (petroleum), hydrotreated light:
No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical

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safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133.

Skin: Wear impervious gloves.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29CFR 1010.134. Always use a NIOSH-approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: Clear, colorless liquid.
Odor: Slight odor.
pH: Not available.
Vapor Pressure: 124 mm Hg
Vapor Density: 3.0 (air=1)
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 58 C
Freezing/Melting Point: -95 C
Decomposition Temperature: Not available.
Solubility: Insoluble in water.
Specific Gravity/Density: 0.7 (Water=1)
Molecular Formula: Mixture of C6 compounds
Molecular Weight: Not available.

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to Avoid: Light, ignition sources.
Incompatibilities with Other Materials: Strong oxidizers.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Will not occur.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 110-54-3: MN9275000
CAS# 110-82-7: GU6300000
CAS# 64742-49-0 unlisted.
LD50/LC50:
CAS# 110-82-7: Oral, mouse: LD50 = 813 mg/kg; Oral, rat: LD50 = 12705 mg/kg.
CAS# 64742-49-0.
CAS# 110-82-7: Oral, mouse: LD50 = 813 mg/kg; Oral, rat: LD50 = 12705 mg/kg.
Carcinogenicity:
Hexane
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Cyclohexane
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Naphtha (petroleum), hydrotreated light
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No information available.
Teratogenicity:
N-Hexane: Effects on Newborn, reduced weight gain, inhalation, rat TCLo=1000 ppm/6H; Embryo or Fetus, stunted fetus, Inhalation, rat TCLo=5000 ppm/20H.
Reproductive Effects:
N-Hexane: Paternal Effects, testes/sperm duct/epididymis, Inhalation, rat TCLo=1 pph/6H.
Neurotoxicity:
No information available.
Mutagenicity:
No information available.
Other Studies:
None.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity: No information available.
Environmental Fate:
N-Hexane readily volatilizes when released on soil or to water (with slight absorption to soil or sediment). The potential for aquatic bioconcentration is low. In air, n-hexane is predicted to exist primarily in vapor phase and will react with photochemically produced hydroxyl radicals.
Physical/Chemical:

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No information available.
Physical/Chemical:
None.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants: Not listed.
RCRA D-Series Chronic Toxicity Reference Levels: Not listed.
RCRA F-Series: Not listed.
RCRA P-Series: Not listed.
RCRA U-Series: Not listed.
Not listed as a material banned from land disposal according to RCRA.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
No information available
IMO
No information available.
IATA
No information available.
RID/ADR
No information available.
Canadian TDG
No information available.

**** SECTION 15 - REGULATORY INFORMATION ****

A. Federal
TSCA

CAS# 110-54-3 is listed on the TSCA inventory.
CAS# 110-82-7 is listed on the TSCA inventory.
CAS# 64742-49-0 is listed on the TSCA inventory.
Health & Safety Reporting List
CAS# 110-82-7: Effective Date: December 19, 1985
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA/SARA
Section 302 (RQ)
None of the chemicals in this material have an RQ.
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
Section 313
This material contains Cyclohexane (CAS# 110-82-7, 55%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
CAS# 110-54-3 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depleters.
This material does not contain any Class 2 Ozone depleters.
Clean Water Act:
CAS# 110-82-7 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.

B. State

Hexane can be found on the following state right to know lists: New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Cyclohexane can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.

C. International

Canada

CAS# 110-54-3 is listed on Canada's DSL/NDSL List.
CAS# 110-82-7 is listed on Canada's DSL/NDSL List.
CAS# 64742-49-0 is listed on Canada's DSL/NDSL List.
CAS# 110-54-3 is listed on Canada's Ingredient Disclosure List.
CAS# 110-82-7 is listed on Canada's Ingredient Disclosure List.
CAS# 64742-49-0 is not listed on Canada's Ingredient Disclosure List.

European Labeling in Accordance with EC Directives

Hazard Symbols: Not available.

Risk Phrases:

Safety Phrases:

Exposure Limits:

OEL-AUSTRALIA:TWA 300 ppm (1050 mg/m3). OEL-AUSTRIA:TWA 300 ppm (1050 mg/m3). OEL-BELGIUM:TWA 300 ppm (1030 mg/m3). OEL-DENMARK:TWA 300 ppm

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(1050 mg/m3). OEL-FINLAND:TWA 300 ppm (1050 mg/m3);STEL 375 ppm (1315 mg/m3). OEL-FRANCE:TWA 300 ppm (1050 mg/m3);STEL 375 ppm (1500 mg/m3). OEL-GERMANY:TWA 300 ppm (1050 mg/m3). OEL-HUNGARY:TWA 500 mg/m3;STEL 1000 mg/m3. OEL-JAPAN:TWA 150 ppm (520 mg/m3). OEL-THE NETHERLANDS:TWA 300 ppm (1050 mg/m3) JAN9. OEL-THE PHILIPPINES:TWA 300 ppm (1050 mg/m3) JAN9. OEL-POLAND:TWA 80 mg/m3. OEL-RUSSIA:TWA 150 ppm;STEL 80 mg/m3. OEL-SWEDEN:TWA 300 ppm (1000 mg/m3);STEL 370 ppm (1300 mg/m3). OEL-SWITZERLAND:TWA 300 ppm (1050 mg/m3);STEL 600 ppm. OEL-TURKEY:TWA 300 ppm (1050 mg/m3). OEL-UNITED KINGDOM:TWA 300 ppm (1050 mg/m3);STEL 375 ppm. OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV. OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

Additional Information:

No additional information available.

MSDS Creation Date: July 21, 1995

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.
