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

Hexane (certified ACS grade)
10951

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

MSDS Name: Hexane (certified ACS grade)
Catalog Numbers:
AC2924, S80032, S80032-1, BPH292RS-115, BPH292RS-200, BPH292RS-28, BPH292RS-50, BPH292RS115, BPH292RS200, BPH292RS28, H291RS50, H292 1, H292 20, H292 200, H292 4 H292 500, H2921, H29220, H292200, H29220LC, H2924, H292500, H292500LC, H292FB115, H292FB19, H292FB200, H292FB50, H292J4, H292RB115, H292RB19, H292RB200, H292RB50, H292SK 4, H292SK4, H292SS 115, H292SS115, H292SS200, H292SS28, H292SS50, S800321, S800322MF
Synonyms:
Dipropyl; Hexyl hydride; n-Hexane; normal-Hexane
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

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

CAS#	Chemical Name	%	EINECS#
0-00-0	Various Methylpentanes	4.2	unlisted
96-37-7	Methylcyclopentane	9.7	202-503-2
110-54-3	Hexane	86.1	203-777-6

Hazard Symbols: XN F
Risk Phrases: 11 48/20

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

EMERGENCY OVERVIEW
Appearance: clear, colorless. Flash Point: -26 deg C.
Danger! Extremely flammable liquid. Causes respiratory tract irritation. Mutagen. May cause central nervous system depression. Aspiration hazard. May cause fetal effects based upon animal studies. Causes eye and skin irritation. May cause digestive tract irritation with nausea, vomiting, and diarrhea.
Target Organs: Kidneys, central nervous system, respiratory system, skin, peripheral nervous system.

Potential Health Effects
Eye:
Causes mild eye irritation. Causes redness and pain. May cause blurred vision, tearing, and conjunctivitis.
Skin:
Causes irritation with burning pain, itching, and redness. May cause blistering of the skin. Absorbed through the skin.
Ingestion:
Aspiration hazard. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. May cause central nervous system effects. Aspiration can cause asphyxia, brain damage, and cardiac arrest. May cause cardiac sensitization.
Inhalation:
Causes respiratory tract irritation. Exposure produces central nervous system depression. Aspiration may cause respiratory swelling and pneumonitis. Vapors may cause dizziness or suffocation. Inhalation of high concentrations may cause narcotic effects. Exposure may cause vertigo, hallucinations, fatigue, muscle weakness, visual disturbances, nervous system disturbances, coughing, chest pains, difficulty in breathing, lung irritation, gastrointestinal disturbances, and edema which may be fatal.
Chronic:
Prolonged or repeated skin contact may cause defatting and dermatitis. Prolonged or repeated exposure may cause adverse reproductive effects. May cause fetal effects. Chronic exposure may cause visual disturbances. Laboratory experiments have resulted in mutagenic effects. Repeated exposure may cause nervous system abnormalities with muscle weakness and damage, motor incoordination, and sensation disturbances. Chronic exposure produces peripheral neuropathy.

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

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin:
Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Remove contaminated clothing and shoes.
Ingestion:
Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Possible aspiration hazard. Get medical aid immediately.
Inhalation:
Get medical aid immediately. Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.
Notes to Physician:
For ingestion, the stomach sould be intubated, aspirated, and lavaged with a slurry of activated charcoal--protect the airway from aspiration of gastric contents. Monitor arterial blood gases in cases of severe aspiration. Treat symptomatically and supportively.

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

General Information:
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. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Extremely flammable liquid. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Will be easily ignited by heat, sparks or flame. Vapors may form an explosive mixture with air. Containers may explode if exposed to fire.
Extinguishing Media:
Water may be ineffective. Water may spread fire. If water is the only media available, use in flooding amounts. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water. For small fires, use carbon dioxide, dry chemical, dry sand, or alcohol-resistant foam. Contact professional fire-fighters immediately. Cool containers with flooding quantities of water until well after fire is out.

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

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Scoop up with a nonsparking tool, then place into a suitable container for disposal. Remove all sources of ignition. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

**** 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. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Do not breathe dust, vapor, mist, or gas. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Take precautionary measures against static discharges. Avoid contact with heat, sparks and flame. Do not ingest or inhale. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage:
Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

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

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local explosion-proof ventilation to keep airborne levels to acceptable levels.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Various Methylpentanes	none listed	none listed	none listed
Methylcyclopentane	none listed	none listed	none listed
Hexane	50 ppm; skin - potential for cutaneous absorption	50 ppm TWA; 180 mg/m3 TWA 1100 ppm IDLH (10 percent lower explosive limit)	500 ppm TWA; 1800 mg/m3 TWA

OSHA Vacated PELs:
Various Methylpentanes:
No OSHA Vacated PELs are listed for this chemical.
Methylcyclopentane:
No OSHA Vacated PELs are listed for this chemical.
Hexane:
50 ppm TWA; 180 mg/m3 TWA

Personal Protective Equipment

Eyes:
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:
Wear appropriate protective gloves to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to prevent skin exposure.
Respirators:
A respiratory protection program that meets OSHA's 29 CFR :1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

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

Physical State:	Liquid
Appearance:	clear, colorless
Odor:	gasoline-like
pH:	Not available.
Vapor Pressure:	150 mm Hg @ 24.8 C
Vapor Density:	2.97 (Air = 1)
Evaporation Rate:	Not available.
Viscosity:	0.31 mPas 20 C
Boiling Point:	69 deg C
Freezing/Melting Point:	-95 deg C
Autoignition Temperature:	225 deg C (437.00 deg F)
Flash Point:	-26 deg C (-14.80 deg F)
NFPA Rating:	Not published.
Explosion Limits, Lower:	1.2 vol %
Upper:	7.7 vol %
Decomposition Temperature:	
Solubility:	Insoluble.
Specific Gravity/Density:	0.6600
Molecular Formula:	C6H14
Molecular Weight:	86.098

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

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
Incompatible materials, ignition sources, excess heat, electrical sparks, oxidizers.
Incompatibilities with Other Materials:
Strong oxidizing agents, strong acids, dichromates, fluorine, halogens, liquid chlorine, peroxides, oxygen, caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), dinitrogen tetraoxide, magnesium perchlorate.
Hazardous Decomposition Products:
Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization: Will not occur.

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

RTECS#:
CAS# 0-00-0 unlisted.
CAS# 96-37-7: GY4640000
CAS# 110-54-3: MN9275000
LD50/LC50:
Not available.

Not available.
CAS# 110-54-3: Oral, rat: LD50 = 28710 mg/kg.
Carcinogenicity:
Various Methylpentanes -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Methylcyclopentane -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Hexane -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No data available.
Teratogenicity:
Effects on Newborn - behavioral: Inhaltion, rat: TCLo = 10000 ppm/7H (female 15 days pre-mating and female 1-18 days after conception).; Effects on Embryo or Fetus - fetotoxicity: Inhalation, rat: TCLo = 5000 ppm/20 H (female 6-19 days after conception).
Reproductive Effects:
No data available.
Neurotoxicity:
No data available.
Mutagenicity:
Sex Chromosome Loss and Nondisjunction: Saccharomyces cerevisiae = 132 mmol/L.; Cytogenetic Anaylsis: Hamster fibroblast = 500 mg/L.
Other Studies:
No data available.

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

Ecotoxicity:
Cas# 110-54-3:
LC50(96Hr.) Rainbow Trout = 4.14 mg/L; Flow-through Bioassay
LC50(96Hr.)Fathead Minnow=5.10 mg/L
LC50(96Hr.)Bluegill = 4.12 mg/L
LC50 (48Hr.) Water Flea = 3.87 mg/L

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

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

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

US DOT
Shipping Name: HEXANES
Hazard Class: 3
UN Number: UN1208
Packing Group: II
Canadian TDG
Shipping Name: HEXANES
Hazard Class: 3
UN Number: UN1208
Other Information: FLASHPOINT -22C

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

US FEDERAL
TSCA
CAS# 0-00-0 is not listed on the TSCA inventory.
It is for research and development use only.
CAS# 96-37-7 is listed on the TSCA inventory.
CAS# 110-54-3 is listed on the TSCA inventory.
Health & Safety Reporting List
CAS# 96-37-7: Effective Date: June 20, 1985; Sunset Date: November 9, 1993
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
CAS# 96-37-7: 4/12b
CAS# 110-54-3: 4/12B/12b
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
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.
SARA Codes
CAS # 96-37-7: flammable.
CAS # 110-54-3: acute, chronic, flammable, sudden release of pressure.
Section 313
This material contains Hexane (CAS# 110-54-3, 86 1%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
Clean Air Act:
CAS# 110-54-3 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.

DATE: 08/11/00 ACCT: 888235001
INDEX: D0223576Z CAT No: H29220 PO NBR: 81000

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.

STATE

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

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN F
Risk Phrases:
R 11 Highly flammable.
R 48/20 Harmful : danger of serious damage to health by prolonged exposure through inhalation.
Safety Phrases:
S 9 Keep container in a well-ventilated place.
S 16 Keep away from sources of ignition - No smoking.
S 24/25 Avoid contact with skin and eyes.
S 29 Do not empty into drains.
S 51 Use only in well ventilated areas.

WGK (Water Danger/Protection)

CAS# 0-00-0: No information available.
CAS# 96-37-7: 1
CAS# 110-54-3: 1

United Kingdom Occupational Exposure Limits

CAS# 110-54-3: OES-United Kingdom, TWA 20 ppm TWA; 72 mg/m3 TWA

Canada

CAS# 96-37-7 is listed on Canada's DSL/NDSL List.
CAS# 110-54-3 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of B2, D2A.
CAS# 0-00-0 is not listed on Canada's Ingredient Disclosure List.
CAS# 96-37-7 is not listed on Canada's Ingredient Disclosure List.
CAS# 110-54-3 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 110-54-3: OEL-AUSTRALIA:TWA 50 ppm (180 mg/m3)
OEL-BELGIUM:TWA 50 ppm (176 mg/m3)
OEL-DENMARK:TWA 50 ppm (180 mg/m3)
OEL-FINLAND:TWA 50 ppm (180 mg/m3);STEL 150 ppm (530 mg/m3)
OEL-FRANCE:TWA 50 ppm (170 mg/m3)
OEL-GERMANY:TWA 50 ppm (180 mg/m3)
OEL-HUNGARY:TWA 100 mg/m3;STEL 200 mg/m3;Skin
OEL-JAPAN:TWA 40 ppm (140 mg/m3);Skin
OEL-THE NETHERLANDS:TWA 100 ppm (360 mg/m3)
OEL-THE PHILIPPINES:TWA 500 ppm (1800 mg/m3) JAN9
OEL-POLAND:TWA 400 mg/m3
OEL-RUSSIA:TWA 40 ppm;STEL 300 mg/m3
OEL-SWEDEN:TWA 25 ppm (90 mg/m3);STEL 50 ppm (180 mg/m3)
OEL-SWITZERLAND:TWA 50 ppm (180 mg/m3);STEL 100 ppm (360 mg/m3)
OEL-TURKEY:TWA 500 ppm (1800 mg/m3)
OEL-UNITED KINGDOM:TWA 100 ppm (360 mg/m3);STEL 125 ppm
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

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

MSDS Creation Date: 6/03/1999 Revision #1 Date: 4/30/2000

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. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.