MATERIAL SAFETY DATA SHEETS

HEMO-DE MSDS DATE:12/2006

TERPENE HYDROCARBONS, n.o.s. (d-LIMONENE)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Hemo-De
SYNONYMS: Terpene Hydrocarbons, n.o.s. (d-LIMONENE)
PRODUCT CODES: HD-150A, HD-150B, HD-150D

MANUFACTURER: Scientific Safety Solvents
ADDRESS: 2000-K Whitley Road, Keller, Texas 76248

EMERGENCY PHONE: 703-527-3887 International (Collect Calls accepted)
CHEMTREC PHONE: 800-424-9300 24 hours Domestic North America

CHEMICAL NAME: d-LIMONENE
CHEMICAL FAMILY: Terpene Hydrocarbons

PRODUCT USE: Replacement for xylene, carbol-xylene, ethyl acetate.
PREPARED BY: Shannon Sloan

SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

CAS #	CHEMICAL NAME
5989-27-5	D-Limonene
25013-16-5	Butylated hydroxyanisole (BHA)

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Flammable liquid. This product can cause eye and skin irritation. May cause allergic skin reaction. Harmful if swallowed. Inhalation and ingestion may cause nausea. May cause digestive tract irritation.

ROUTS OF ENTRY: Mouth, Eye and skin

POTENTIAL HEALTH EFFECTS

EYES: May cause eye irritation.

SKIN: May cause skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure o this material. May cause irritation and dermatitis.

INGESTION: May cause digestive tract disturbances.

INHALATION: May cause respiratory tract irritation and nausea.

ACUTE HEALTH HAZARDS: None known

CHRONIC HEALTH HAZARDS: None known

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: None known

CARCINOGENICTY: OSHA: No ACGIH: No NTP: No IRAC: No

SECTION 4: FIRST AID MEASURES

EYES: Remove contact lenses. Flush eyes with plenty of water for at 20-30 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

SKIN: Remove contaminated clothing and shoes. Wash skin with soap and water for 15 minutes. Get medical aid if irritation develops or persists. Wash clothing before reuse.

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. Get medical aid.

INHALATION: Seek fresh air if breathing is difficult. See physician.

NOTES TO PHYSICIAN OR FIRST AID PROVIDERS: Treat symptomatically

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. Containers may explode in the heat of a fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. This liquid floats on water and may travel to a source of ignition and spread fire.

FLAMMABLE LIMITS IN AIR: 302°F, UPPER: 6.1%
(% BY VOLUME) LOWER: 0.7%

FLASH POINT:
F: 121°F
C: 49.4°C
METHOD USED: TCC

AUTOIGNITION TEMPERATURE: N/A
F: 491.00 deg F
C: 255 deg C

NFPA HAZARD CLASSIFICATION
HEALTH HAZARD: 1 (Slightly Hazardous) FIRE HAZARD: 2 (Below 200 F) REACTIVITY HAZARD: 0 (Stable)
SPECIFIC HAZARD: none

EXTINGUISHING MEDIA: Dry powder, Foam, Carbon Dioxide

SPECIAL FIRE FIGHTING PROCEDURES: SCBA recommended; smother, exclude air, do not use water; handle as an oil fire

UNUSUAL FIRE AND EXPLOSION HAZARDS: New HM-181 Ruling: Flammable Liquid, Class 3. Conforms with UN – specifications. Keep away from heat, sparks and open flames.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide or carbon monoxide on combustion.

SECTION 5 NOTES: Do NOT mix with bleach. May cross react with Turpentine. Avoid strong oxidizing agents.

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. vermiculite, sand or earth), then place in suitable container. Forms smooth, slippery surfaces on floors, posing an accident risk. Remove all sources of ignition. Provide ventilation.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: Usual precautions for “Flammable Liquids”: Avoid contact with eyes, skin, and clothing. Store away from heat, sparks and open flames. Store in a cool, dry, well-ventilated area away from incompatible substances.

OTHER PRECAUTIONS: None, other than those required by your company policy.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Facilities storing should have adequate ventilation to keep airborne concentrations low.

Personal Protective Equipment
Eyes: Wear chemical splash goggles.
Skin: Wear appropriate protective gloves to prevent skin exposure.

RESPIRATORY PROTECTION: Not normally required. If concentration is high due to heat, use a NIOSH approved organic vapor respirator.

WORK HYGIENIC PRACTICES: None, other than those required by your company policy.

OSHA Vacated PELs: d-Limonene: No OSHA Vacated PELs are listed for this chemical.

EXPOSURE GUIDELINES: ACGIH, NIOSH, OSHA-Final PELs - None Listed

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear almost colorless

ODOR: Slight Citrus Odor

PHYSICAL STATE: Liquid

pH: Not available

BOILING POINT: @ 760 mm Hg
F: 349°
C: 176°

FREEZING POINT: -74 deg C

VAPOR PRESSURE (mmHg): 4.7mm @ 25°C

VAPOR DENSITY (AIR = 1): 4.69

SPECIFIC GRAVITY (H2O = 1): 8400 g/ml
C: 20°C/20°C
Viscosity: Not available.
Decomposition Temperature: Not available.
Solubility: Insoluble.

EVAPORATION RATE: 1% Maximum

SECTION 10: STABILITY AND REACTIVITY

STABLE	UNSTABLE
Yes	No

Chemical Stability: Stable under normal temperatures and pressures. Oxidizes to a film in air, oxidation behavior similar to that of rubber or drying oils.

CONDITIONS TO AVOID (STABILITY): Ignition sources, excess heat, prolonged exposure to air.

INCOMPATIBILITY (MATERIAL TO AVOID): Strong oxidizing agents: Bleach, Turpentine

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Carbon dioxide or Carbon monoxide on combustion.

HAZARDOUS POLYMERIZATION: Has not been reported.

CONDITIONS TO AVOID (POLYMERIZATION): N/A

SECTION 11: TOXICOLOGICAL INFORMATION

RTECS#:
CAS# 5989-27-5: GW6360000
LD50/LC50:
CAS# 5989-27-5:

Carcinogenicity:
CAS# 5989-27-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.
Teratogenicity: Not known to be teratogenic.

Reproductive Effects: See actual entry in RTECS for complete information.
Mutagenicity: d-Limonene was not mutagenic in 4 strains of S. typhimurium, did not significantly increase the number of Tft-resistant cells in the mouse L5178Y/TK+/- assay, and did not induce chromosomal aberrations or SCEs in cultured CHO cells. Neurotoxicity: No information available.
Other Studies:
TOXICOLOGICAL INFORMATION: d-Limonene is not considered a Carcinogen by: NTP and IARC

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: No data available. No information available.
Environmental: May bioconcentrate in aquatic organisms and fish. Has low mobility in soil and may rapidly volatilize in the atmosphere. Limonene can be readily degraded in soil.
Physical: No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

Taking into consideration local authority regulations, waste may be incinerated or handled through EPA spill control plan via landfill or dilution. Large amounts may be recycled.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

SECTION 14: TRANSPORTATION INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME: Terpene Hydrocarbons, n.o.s.
HAZARD CLASS: 3
ID NUMBER: 04858003
PACKING GROUP: III
LABEL STATEMENT: Flammable Liquid
National Motor Freight Classification (NMFC): 04858003 Class: 55

WATER TRANSPORTATION

PROPER SHIPPING NAME: Terpene Hydrocarbons, n.o.s.
HAZARD CLASS: 3
ID NUMBER: 04858003
PACKING GROUP: III
LABEL STATEMENT: Flammable Liquid
EmS Code: F-E, S-D

AIR TRANSPORTATION

PROPER SHIPPING NAME: Terpene Hydrocarbons, n.o.s.
HAZARD CLASS: 3
ID NUMBER: 04858003
PACKING GROUP: III
LABEL STATEMENT: Flammable Liquid

SECTION 14 NOTES: CLASS 3 (FLAMMABLE LIQUID) ALLOWED ON BOTH PASSENGER AND CARGO AIRCRAFT up to 60L. More than 60L must be on cargo aircraft only.

SECTION 15: REGULATORY INFORMATION

TSCA
CAS# 5989-27-5 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
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 Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes

CAS # 5989-27-5: immediate, fire.
Section 313 No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
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.
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
CAS# 5989-27-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

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:
XI N
Risk Phrases:
R 10 Flammable.
R 38 Irritating to skin.
R 43 May cause sensitization by skin contact.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:
S 24 Avoid contact with skin.
S 37 Wear suitable gloves.
S 60 This material and its container must be disposed of as hazardous waste.
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)
CAS# 5989-27-5: No information available.
Canada - DSL/NDSL
CAS# 5989-27-5 is listed on Canada's DSL List.
Canada - WHMIS
This product has a WHMIS classification of B3, D2B.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.
Canadian Ingredient Disclosure List: CAS# 5989-27-5 is listed on the Canadian Ingredient Disclosure List.

SECTION 16: OTHER INFORMATION

PREPARATION REVISION DATE: December 7, 2006

DISCLAIMER: The information in this MSDS was obtained from reputable sources. However, the data is provided without warranty, express or implied, regarding its correctness or accuracy. It is the user's responsibility to determine safe conditions for use of this product and to assume liability for loss, injury, or expense resulting from improper use of this product.