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Section I - Product Identification

Product: d-Limonene is a terpene type hydrocarbon.

Intended Uses: Intended to be used as a xylene substitute clearing agent.

Uses advised against: Not for food or drug use. For laboratory use only.

Country of origin: United States.

Manufacturer Identification

Medical Chemical Corp.
19430 Van Ness Ave.
Torrance, CA 90501

Customer Service: Phone (310)787-6800
Email: Customerservice@med-chem.com
FAX (310)787-4464

Emergency Telephone Number

CHEMTREC Emergency Response Telephone Number: (800)424-9300. Note: The CHEMTREC phone number is only for emergencies involving spills, leaks, fire, exposure or accident. Please direct all other inquiries to our customer service phone number.



Section II - Hazard Identification

This item is considered hazardous by 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). May be harmful if swallowed. May cause skin irritation.

Serious eye damage/eye irritation: Category 2B (H320). Causes eye irritation.

Flammable liquid: Category 3 (H226): Flammable liquid and vapor.

Aspiration hazard: Category 1 (H304): May be fatal if swallowed and enters airways.

Skin corrosion/irritation: Category 2 (H315): Causes skin irritation.

Sensitization, Skin: Category 1 (H317): May cause an allergic skin reaction.

Serious eye damage/eye Irritation: Category 2B (H320). Causes eye irritation.

Hazardous to the aquatic environment, acute hazard: Category 2 (H400). Very toxic to aquatic life.

Hazardous to the aquatic environment, long-term hazard: Category 2 (H412). Very toxic to aquatic life with long lasting effects.

Signal word: Danger

Hazard statements

This compound is a skin irritant and sensitizer. It is also an eye irritant. It may be harmful by ingestion, inhalation or skin absorption.

Precautionary statements

P210: Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground/bond container and receiving equipment.

P241: Use explosion-proof equipment.

P242: Use only non-sparking tools.

P243: Take precautionary measures against static discharge.

P261: Avoid breathing dust/fume/gas/mist/vapors/spray.

P264: Wash hands thoroughly after handling.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection.

P301+P316: IF SWALLOWED: Get emergency medical help immediately.

P302+P352: IF ON SKIN: wash with plenty of water/...

P303+P361+P353: IF ON SKIN. Take off Immediately all contaminated clothing. Rinse with water.

P331: Do NOT induce vomiting.

P332+P317: If skin irritation occurs: Get medical help.

P333+P317: If skin irritation or rash occurs: Get medical help.

P362+P364: Take off contaminated clothing and wash it before reuse.

P403+P235: Store in a well-ventilated place. Keep cool

Safety Ratings

Health: Hazardous *Flammability:* Flammable *Reactivity:* None *Contact:* Slight
Recommended safety equipment: safety goggles, lab coat and proper gloves

NFPA Ratings

Health = 2. Can cause temporary incapacitation or residual injury.
Flammability = 2. Must be heated to high ambient temperature to burn.
Reactivity = 0. Stable.

Potential Health Effects

Symptoms of exposure to this compound may include irritation and sensitization of the skin. It may also cause eye irritation and damage. Ingestion of large doses may lead to albuminuria and hematuria. This type of compound irritates all tissues intensely and may cause circulatory collapse. Ingestion of this type of compound may cause abdominal burning, nausea, vomiting, diarrhea, dysuria, hematuria, unconsciousness, shallow respiration, and convulsions. Inhalation of this type of compound may cause dizziness, rapid and shallow breathing, tachycardia, bronchial irritation, unconsciousness and convulsions. Anuria, pulmonary edema and bronchial pneumonia may complicate recovery after either type of exposure.

Inhalation: May be Irritating to respiratory tract.

Ingestion: While the toxicity of this compound is low, large doses may cause nausea, vomiting, diarrhea, etc

Skin contact: Causes skin irritation or aggravation of existing dermatitis.

Eye contact: Causes serious eye irritation.

Chronic Exposure: Unknown.

Aggravation of preexisting conditions: Unknown.

Section III - Composition/Information on Components

Ingredient	CAS#	EC/List No.	% w/w
d-Limonene	5989-24-5	227-813-5	90 - 100%

Section IV - First Aid Measures

Inhalation: Remove from source of exposure and take deep breaths of air. get medical attention for any breathing difficulty and prepare to transport the victim to a hospital.

Ingestion: Rinse mouth with water but do not induce vomiting. If the victim is conscious give one or two glasses of water to dilute the chemical. Never give anything by mouth to an unconscious person. Get medical advice and be prepared to immediately transport the victim to a hospital.

Skin Contact: Wash affected area with soap and water. Get medical advice if irritation develops.

Eye Contact: Check for contact lenses and remove if easily done. Flush with water or normal saline for 20 minutes while getting medical advice. Do not use any oils or ointments without specific instructions. Transport the victim after flushing eyes to a hospital even if no symptoms develop.

Section V - Fire Fighting Measures

Fire: Product is flammable at elevated temperatures.

Explosion: Not normally an explosion hazard.

Fire Extinguishing Media: Alcohol foam, carbon dioxide or dry chemical. Water is ineffective but may be used to cool adjacent containers.

Special information: Use self contained breathing apparatus and protective equipment.

Section VI - Accidental Release Measures

Absorb with a suitable absorbent and store in a suitable container for disposal.

Section VII - Handling and Storage

P403+P233+P102; Store in a well-ventilated place. Keep container tightly closed. Keep out of reach of children.

Section VIII - Exposure Control/Personal Protection

Component	ACGIH TLV	OSHA PEL	NIOSH	NIOSH IDLH
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d-Limonene	Not Regulated	Not Regulated	Not Regulated	Not Regulated
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Legend

ACGIH: American Conference of Governmental Industrial Hygienists.

OSHA: Occupational Safety and Health Administration.

NIOSH: National Institute for Occupational Safety and Health.

IDLH: Immediately dangerous to life or health.

Ventilation System: Usually not required. When required, Refer to the ACGIH document, "Industrial Ventilation, a Manual of Recommended Practices" for details about ventilation.

Personal Respirator: Usually not required. In case of emergency, or when exposure levels are unknown, use a positive pressure, full face piece, air supplied respirator.

Skin protection: Protective gloves are required as part of good laboratory practice.

Eye Protection: Laboratory safety goggles or similar products are required.

Section IX - Physical and Chemical Properties

Appearance and Odor: A clear, lightly yellow liquid.. It has a pleasant citrus odor.

Flash point: 115 °F

Flammable Limits: UEL 6.1% v/v @ 302 °F, LEL 0.7% v/v @ 302 °F.

Auto ignition temperature: 232 °C

Boiling point range: No data

Decomposition temperature: No data

Melting point: -40 °F

pH: Not applicable

Vapor pressure Hg): 0.19 kPa @ 20 °C

Viscosity: No data

Boiling Point: 352 °F

Density: 0.842 g/ml @ 22 °C

Evaporation Rate (water = 1): 1

Partition coefficient (n-Octanol/Water) log Pow: 4.2

Solubility: < 1 mg/l @20 °C

Vapor Density (air = 1): 4.7

Volatile organic carbon (VOC): Not applicable

Section X - Stability and Reactivity

Stability: Stable under normal conditions.

Hazardous Decomposition Products: Carbon dioxide and carbon monoxide.

Hazardous polymerization: Will not occur.

Incompatibilities: Sensitive to exposure to light. Atmospheric oxidation can occur. This chemical is incompatible with strong oxidizing agents.

Conditions to avoid: Excessive cold and heat

Section XI - Toxicological Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
d-Limonene	5,200 mg/kg (Rat)	5,000 mg/kg (Rabbit)	No data

Cancer lists

Ingredient	Known Carcinogenicity?	NTP?	Anticipated?	IARC Category
d-Limonene	No	No	No	3

Section XII - Ecological Information

This product can bioaccumulate in fish. The product does not contain endocrine disrupters, persistent organic pollutants or ozone depleters.

Soil Mobility: Unknown

Environmental Fate: Biodegradable

Hazardous to the aquatic environment, long-term hazard: Category 3 (H412). Harmful to aquatic life with long lasting effects.

Toxicity to freshwater fish (fathead minnow): LC50 = 0.70 mg/l, 96 h

Toxicity to invertebrates (water flea): EC50 = 0.36 mg/l, 48 h

Toxicity to freshwater algae (Chlorella vulgaris): EC50 = 150 mg/l, 72 h

Section XIII - Disposal Considerations

Usually not restricted but local ordinances vary. Insure compliance with all government regulations

Section XIV - Transportation Information

d-Limonene is classified as a combustible liquid and normally does not need to be declared as a hazardous chemical if shipped in non-bulk quantities.

DOT Proper shipping name: Dipentene, UN number 2052, Class: 3, packaging Group: III

Section XV - Regulatory Information**Chemical Inventory Status**

<i>Ingredient</i>	<i>TSCA</i>	<i>EC</i>
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d-Limonene	Yes	Yes
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Federal, State and International Regulations

<i>Ingredient</i>	<i>SARA 302</i>		<i>SARA 313</i>		<i>RCRA</i>	<i>TSCA</i>	<i>Ca. Prop 65</i>
	<i>RQ</i>	<i>TPQ</i>	<i>List</i>	<i>Category</i>	<i>261.33</i>	<i>8(D)</i>	

d-Limonene	No	No	No	No	No	No	No
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Chemical Weapons Convention: No TSCA 12(b): No CDTA: No

SARA 311/312

Acute: Yes

Chronic: Yes

Fire: Yes

Pressure: No

Section XVI - Other Information

This information is believed to be correct at the time of publication but is not guaranteed as such, nor does it purport to be all inclusive. Medical Chemical Corp. assumes no liability for the accuracy or completeness of the information. The user assumes all responsibility for compliance with federal, state and local laws.

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