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**1. PRODUCT AND COMPANY IDENTIFICATION**
**1.1 Product identifiers**

Product name : d-Limonene

Product Number : 40505

CAS-No. : 8008-57-9; Alt. 8028-48-6 Alt 68647-72-3

EC-No. : 232-433-8

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Flavoring

**1.3 Details of the supplier of the safety data sheet**

Company : Cvista  
4333 Garden Vista Drive  
Riverview, FL 33578  
USA

Telephone : +1 813-405-3000

**1.4 Emergency telephone number**

Emergency Phone No. : 1-800-255-3924 USA; +1 813-248-0585 International

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**2. HAZARD IDENTIFICATION**
**2.1 Classification of the substance or mixture**

Flam. Liq. – Cat 3 (H226)  
Asp Haz – Cat 1 (H304)  
Skin Irr – Cat 2 (H315)  
Skin Sens – Cat 1 (H317)  
Env Haz – Cat 1 (H400 & H410)

GHS Classification in accordance with EU Regulation EC No 1272/2008

**2.2 GHS Label Elements**

Pictogram(s):



Signal word : Danger

Hazard statement(s) : H226 Flammable liquid and vapor  
: H304 May be fatal if swallowed and enters airways  
: H315 Causes skin irritation  
: H317 May cause allergic skin reaction  
: H400 Very toxic to aquatic life  
: H410 Very toxic to aquatic life with long lasting effects

**Precautionary  
Statement(s)**

: P210: Keep away from heat, hot surface, sparks, open flames and other ignition sources. - No smoking.  
: P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor  
: P303+P361+P353: IF ON SKIN (or hair): Take off Immediately all contaminated clothing. Rinse SKIN with water or shower.  
: P331: Do NOT induce vomiting.  
: P264: Wash hands thoroughly after handling.  
: P280: Wear protective gloves/protective clothing/eye protection/face protection.  
: P302+P352: IF ON SKIN: wash with plenty of water.  
: P321: IF ON SKIN: wash with plenty of water.  
: P333+P313: IF SKIN irritation or rash occurs: Get medical advice/attention.  
: P261: Avoid breathing dust/fume/gas/mist/vapors/spray.  
: P273: Avoid release to the environment.

**2.3 Hazards not otherwise classified- None known.**
**3. COMPOSITION/INFORMATION ON INGREDIENTS**
**3.1 Substances**

CAS No	EC-No	Name	Synonyms	Classification on CLP	Concentration
8028-48-6 Alt 8008-57-9	232-433-8 Alt 616-926-9, 600-006-9	Orange, sweet, ext.	Orange, sweet, ext.—distillate, CITRUS AURANTIUM DULCIS OIL, Oils, orange, sweet	Flam Liq- Cat 3, H226 Skin Irr – Cat 2; H315 Asp Haz – Cat 1, H304 Skin Sens – Cat 1, H317 Env Haz – Cat 2, H400 & H410	100%

**3.2 Hazardous Constituents**

CAS No	EC-No	Name	Synonyms	Classification on CLP	Concentration
5989-27-5	227-813-5	d-limonene.	(R)-p-mentha-1,8-diene, Cyclohexene, 1-methyl-4-(1-methylethenyl)-, (4R)-, (+)-Limonene	Flam Liq- Cat 3; H226 Skin Irr – Cat 2; H315 Asp Haz – Cat 1, H304 Skin Sens – Cat 1B, H317 Env Haz – Cat 1, H400 & H410	94-95%

**4. FIRST AID MEASURES**
**4.1 Description of first aid measures**
**4.1.1 General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area

**4.1.2 If inhaled**

Move person into fresh air. If not breathing, give artificial respiration by trained personnel. Seek medical treatment as necessary. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

**4.1.3 In case of skin contact**

Remove any contaminated clothing (P362). Contaminated work clothing should not be allowed out of the workplace (P272). Wash with plenty of soap and water. Seek medical treatment as necessary.

**4.1.4 In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes, occasionally lifting upper and lower eyelids. Check for and remove any contact lenses. Seek medical treatment as necessary.

**4.1.5 If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**4.1.6 Self Protection of First Aider**

Do not take action that would cause personal risk or if not properly trained to respond. It may be dangerous to provide aid by mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

**4.2 Most serious symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed**

Treat symptomatically. Contact poison treatment specialist if large quantities have been ingested or inhaled.

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**5. FIREFIGHTING MEASURES****5.1 Extinguishing media****Suitable extinguishing media**

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

**5.2 Special hazards arising from the substance or mixture**

Decomposition products may include the following materials; Carbon oxides

**5.3 Advice for firefighters**

Wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. High temperatures can lead to high pressure inside closed containers.

**5.4 Further information**

Use water spray to cool unopened containers. Isolate scene and remove persons from area of the incident if there is a fire.

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**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures****6.1.1 Non-Emergency Personnel**

Do not take action that would cause personal risk or if not properly trained to respond. Evacuate surrounding area. Keep unnecessary and unprotected personnel from entering area. Do not touch or walk through spilled material. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Put on appropriate personal protective equipment; see section 8.

**6.1.2 Emergency Personnel**

Take note of any information in section 8 for appropriate clothing to deal with spillage. See information in "6.1.1 For Non-Emergency Personnel".

**6.2 Environmental precautions**

Avoid release to environment (P273). Collect spillage (P391). Prevent further leakage or spillage if safe to do so. Do not let product enter drains, soil, waterways, or sewer.

**6.3 Methods and materials for containment and clean up**

Stop leak if possible. Move containers from spill area. Contain spillage. If water soluble; dilute with water and mop/clean up. If water insoluble absorb with inert dry material and place in appropriate waste disposal container. Dispose of according to local regulations (see section 13).

**6.4 Reference to other sections**

For personal protective equipment see section 8 and for disposal see section 13.

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**7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Do not ingest. Avoid inhalation of vapor or mist. Do not reuse containers. Ground/bond container and receiving equipment (P240). Use explosion-proof electrical/ventilating/lighting equipment (P241). Use only non-sparking tools (P242). Take precautionary measures against static discharge (P243). Eliminate all ignition sources. Eating, drinking, and smoking should be prohibited in areas where material is handled, stored, and processed. Workers should wash hands before eating, drinking, or smoking.

**7.2 Conditions for safe storage, including any incompatibilities**

Keep container tightly closed (P233) and sealed until ready for use. Store in a well-ventilated place. Keep cool (P403+P235) Store locked up. See section 10 for incompatible materials before handling and use.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters****Components with workplace control parameters**

Contains no substances with occupational exposure limits.

**8.2 Exposure controls****8.2.1 Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practices. Wash hands before breaks and at the end of workday.

**8.2.2 Personal protective equipment****8.2.2.1 Eye/face protection**

Safety eyewear complying with an approved standard should be worn when a risk assessment indicates necessary to avoid liquid splashes. If assessment indicates higher degree of risk then chemical splash goggles should be worn.

**8.2.2.2 Skin protection**

Handle with chemical resistant, impervious gloves if risk assessment indicates need. Gloves must be inspected prior to use and during use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Impervious clothing and appropriate footwear should be determined based on the task being performed and identified risks.

### 8.2.2.3 Respiratory protection

Based on identified hazard and potential for exposure select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fit, training, and use.

### 8.2.3 Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Physical State	Liquid
Color	Clear Colorless
Odor	light citrus terpenic notes
Odor Threshold	Not available
pH	Not available
Melting Point	Not available
Freezing Point	Not available
Boiling Point	Not available
Flash Point	46°C (115°F) Closed cup
Evaporation Point	Not available
Flammability (solid, gas)	Not available
Lower and upper Flammability or Explosive limit	Lower: Not available Upper: Not available
Vapor Pressure	Not available
Vapor Density	Not available
Specific Gravity @ 25C	0,840
Solubility	Not available
Solubility in water	Insoluble
Partition Coefficient n-octanol/water	Not available
Auto-ignition Temperature	Not available
Decomposition Temperature	Not available
Viscosity	Not available

### 9.2 Other Information- Not available

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No specific test data related to reactivity available for this product

**10.2 Chemical stability**

Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

Under normal conditions of storage and use, hazardous reactions will not occur.

**10.4 Conditions to avoid**

Heat, flames and sparks.

**10.5 Incompatible materials**

Strong oxidizing materials.

**10.6 Hazardous decomposition products**

Under normal condition of storage and use, hazard decomposition products should not be produced.  
In the event of fire: see section 5

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**11. TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects****Acute toxicity**

Data lacking

**Skin corrosion/irritation**

Causes skin irritation.

**Serious eye damage/eye irritation**

Data lacking

**Respiratory or skin sensitization**

May cause allergic skin reaction

**Germ cell mutagenicity**

Data lacking

**Carcinogenicity**

IARH: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC

**Reproductive toxicity**

Data lacking

**Specific target organ toxicity - single exposure**

Data lacking

**Specific target organ toxicity - repeated exposure**

Data lacking

**Aspiration hazard**

May be fatal if swallowed and enters airways.

**Information on the likely routes of exposure**

Skin contact.

**Additional Information**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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**12. ECOLOGICAL INFORMATION****12.1 Toxicity**

No data available

**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

Avoid exposure to marine environments and waterways.

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**13. DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods****13.1.1 Product and Packaging Disposal**

Waste and used containers must be disposed of in accordance with federal, state and local environmental control regulations. Do not reuse containers.

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**14. TRANSPORT INFORMATION****14.1 UN Number**

International Carriage of Dangerous Goods by Road (ADR/RID): 2319

Air Transport (ICAO/IATA): 2319

Sea Transport (IMDG): 2319

**14.2 UN Proper Shipping Name**

International Carriage of Dangerous Goods by Road (ADR/RID): Terpene Hydrocarbons, n.o.s. (d-Limonene)

Air Transport (ICAO/IATA): Terpene Hydrocarbons, n.o.s. (d-Limonene)

Sea Transport (IMDG): Terpene Hydrocarbons, n.o.s. (d-Limonene)

**14.3 Transport Hazard Class**

International Carriage of Dangerous Goods by Road (ADR/RID): 3

Air Transport (ICAO/IATA): 3

Sea Transport (IMDG): 3





## SAFETY DATA SHEET

Product: d-Limonene

Version: 004

Revision Date: 06/07/2023

### 14.4 Packaging Group

International Carriage of Dangerous Goods by Road (ADR/RID): III

Air Transport (ICAO/IATA): III

Sea Transport (IMDG): III

### 14.5 Environmental Hazards

International Carriage of Dangerous Goods by Road (ADR/RID): Yes

Air Transport (ICAO/IATA): n/a

Sea Transport (IMDG): Yes

### 14.6 Special precautions for user

None known.

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## 15. REGULATORY INFORMATION

FDA No: 21CFR182.20

FEMA No: 2825

CAS-No: 8008-57-9 Alt 8028-48-6 Alt 68647-72-3

EC No: 232-433-8, Alt 616-926-9, 600-006-9

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## 16. OTHER INFORMATION

Date of Issue/Date of Revision: 06/07/2023

Date of Previous Issue: 02/14/2022

Version: 004

Prepared By: Amy Conradi, Quality & Regulatory, Cvista

Version changes: 003; 02/14/2022; version history and version # added to format. Updated template to comply with EU regulations. Carried over information from prior version. 004; 06/07/2023; Added section 3.2 to reflect composition.

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