

# SAFETY DATA SHEET

## 1. Identification

**Other means of identification****CAS number**

5989-27-5

**Recommended use**

ALL PROPER AND LEGAL PURPOSES

**Recommended restrictions**

None known.

**Other means of identification**

None known.

**Product identifier****D'LIMONENE ORANGE****Manufacturer/Importer/Supplier/Distributor information****Manufacturer****Company name**

Dustronics Inc.

**Address**10 Bramhurst Ave. Unit 18  
Brampton, ON  
L6T 5H1  
Canada**Telephone**

416-880-6772

**Website**

www.dustronics.com

**E-mail**

service@dustronics.com

**Emergency phone number**

416-880-6772

## 2. Hazard identification

**Physical hazards**

Flammable liquids Category 3

**Health hazards**

Skin corrosion/irritation Category 2

Sensitization, skin Category 1

Aspiration hazard Category 1

**Environmental hazards**

Hazardous to the aquatic environment, acute hazard Category 1

Hazardous to the aquatic environment, long-term hazard Category 1

**Label elements****Signal word**

Danger

**Hazard statements**

Flammable liquid and vapour. May be fatal if swallowed and enters airways. Causes skin irritation. May cause an allergic skin reaction. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

**Precautionary statement****Prevention**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

**Response**

IF SWALLOWED: Immediately call a POISON CENTRE/doctor. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish. Collect spillage.

**Storage**

Store in a well-ventilated place. Keep cool. Store locked up.

<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Other hazards</b>	None known.
<b>Supplemental information</b>	100% of the substance consists of component(s) of unknown acute dermal toxicity. 100% of the substance consists of component(s) of unknown acute inhalation toxicity.

### 3. Composition/information on ingredients

#### Substances

Chemical name	Common name and synonyms	CAS number	%
D-LIMONENE		5989-27-5	100

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### 4. First-aid measures

<b>Inhalation</b>	Move to fresh air. Call a physician if symptoms develop or persist.
<b>Skin contact</b>	Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Call a physician or poison control centre immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
<b>Most important symptoms/effects, acute and delayed</b>	Aspiration may cause pulmonary oedema and pneumonitis. Direct contact with eyes may cause temporary irritation. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.
<b>General information</b>	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	Vapours may form explosive mixtures with air. Vapours may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	Flammable liquid and vapour.

### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist/vapours. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
--	---

**Methods and materials for containment and cleaning up**

Use water spray to reduce vapours or divert vapour cloud drift. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. Prevent product from entering drains.

**Large Spills:** Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

**Small Spills:** Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

**Environmental precautions**

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

**7. Handling and storage****Precautions for safe handling**

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist/vapours. Avoid contact with eyes, skin, and clothing. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

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

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

**8. Exposure controls/personal protection**

Recommendations listed in this section indicate the type of equipment which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

**Occupational exposure limits** No exposure limits noted for ingredient(s).

Consult provincial or territorial exposure values, as may apply.

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls** Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

**Individual protection measures, such as personal protective equipment**

The following are recommendations only for the use of PPE. These recommendations cannot anticipate the variety of workplaces where the product will be used, nor how the product will be used in a variety of applications and processes. In determining appropriate PPE and engineering controls, it is the duty of the employer / user to evaluate their use of this product in accordance with the requirements of the local jurisdiction, and, if necessary, in conjunction with a professional industrial hygienist.

**Eye/face protection** Wear safety glasses with side shields (or goggles). Face shield is recommended.

**Skin protection**

**Hand protection** Wear protective gloves.

**Other** Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

**Respiratory protection** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations**

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

**9. Physical and chemical properties****Appearance**

Physical state	Liquid.
Form	Liquid.
Colour	COLOURLESS TO SLIGHTLY YELLOW

**Odour** CHARACTERISTIC CITRUS

**Odour threshold** Not available.

**pE** Not available.

**Melting point/freezing point** -73.89 °C (-101 °F)

**Initial boiling point and boiling range** 175.5 - 176 °C (347.9 - 348.8 °F) 101.725 kPa

**Flash point** 47.8 °C (118.0 °F)

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not applicable.

**Upper/lower flammability or explosive limits**

**Flammability limit - lower (%)** Not available.

**Flammability limit - upper (%)** Not available.

**Explosive limit - lower (%)** Not available.

**Explosive limit – upper (%)** Not available.

**Vapour pressure** Not available.

**Vapour density** Not available.

**Relative density** Not available.

**Solubility(ies)**

**Solubility (water)** Not available.

**Partition coefficient (n-octanol/water)** 4.232

**Auto-ignition temperature** Not available.

**Decomposition temperature** Not available.

**Viscosity** Not available.

**Other information**

**Density** 7.03 lbs/gal  
0.84 g/ml

**Explosive properties** Not explosive.

**Flammability class** Combustible II estimated

**Heat of combustion (NFPA 30B)** 39.8 kJ/g

**Molecular formula** C10-H16

**Molecular weight** 136.23 g/mol

**Oxidizing properties** Not oxidizing.

**Specific gravity** 0.84

**10. Stability and reactivity**

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	Hazardous polymerisation does not occur.
<b>Conditions to avoid</b>	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	No adverse effects due to inhalation are expected.
<b>Skin contact</b>	Causes skin irritation. May cause an allergic skin reaction.
<b>Eye contact</b>	Direct contact with eyes may cause temporary irritation.
<b>Ingestion</b>	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.

**Symptoms related to the physical, chemical and toxicological characteristics**  
Aspiration may cause pulmonary oedema and pneumonitis. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

### Information on toxicological effects

**Acute toxicity** May be fatal if swallowed and enters airways.

Product	Species	Test Results
D-LIMONENE (CAS 5989-27-5)		
<b>Acute</b>		
<b>Oral</b>		
LD50	Mouse	5600 - 6600 mg/kg

**Skin corrosion/irritation** Causes skin irritation.

**Serious eye damage/eye irritation** Due to partial or complete lack of data the classification is not possible.

### Respiratory or skin sensitization

**Respiratory sensitization** Due to partial or complete lack of data the classification is not possible.

**Skin sensitization** May cause an allergic skin reaction.

**Germ cell mutagenicity** Due to partial or complete lack of data the classification is not possible.

**Carcinogenicity** Due to partial or complete lack of data the classification is not possible.

### IARC Monographs. Overall Evaluation of Carcinogenicity

D-LIMONENE (CAS 5989-27-5) 3 Not classifiable as to carcinogenicity to humans.

**Reproductive toxicity** Due to partial or complete lack of data the classification is not possible.

**Specific target organ toxicity - single exposure** Due to partial or complete lack of data the classification is not possible.

**Specific target organ toxicity - repeated exposure** Due to partial or complete lack of data the classification is not possible.

**Aspiration hazard** May be fatal if swallowed and enters airways.

## 12. Ecological information

**Ecotoxicity** Very toxic to aquatic life with long lasting effects.

Product	Species	Test Results
D-LIMONENE (CAS 5989-27-5)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea (Daphnia pulex) 69.6 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas) 0.619 - 0.796 mg/l, 96 hours

**Persistence and degradability** No data is available on the degradability of this substance.

**Bioaccumulative potential**

**Partition coefficient n-octanol / water (log Kow)**

4.232

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

**Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

### 14. Transport information

Regulated in means of containment >450L only. Not regulated in small means of containment (<450L).

Transportation information on packaging may be different from that listed.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

**TDG**



**TDG**

**UN number** UN2319  
**UN proper shipping name** TERPENE HYDROCARBONS, NOS (D-LIMONENE)

**Transport hazard class(es)**

**Class** 3

**Subsidiary risk** -

**Packing group** III

**Environmental hazards** Not available.

**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

### 15. Regulatory information

**Canadian regulations** This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

**Canada DSL Inventory: Registration Status**

Cyclohexene, 1-methyl-4-(1-methylethenyl)-, (4R)- Listed  
(CAS 5989-27-5)

**Controlled Drugs and Substances Act**

Not regulated.

**Export Control List (CEPA 1999, Schedule 3)**

Not listed.

**Greenhouse Gases**

Not listed.

**Precursor Control Regulations**

Not regulated.

**Other federal regulations**

**Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number**

Not listed.

**Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))**

Not regulated.

**DEA Exempt Chemical Mixtures Code Number**

Not regulated.

**US state regulations**

**US. California Proposition 65**

Not listed.

**International regulations**

**Stockholm Convention**

Not applicable.

**Rotterdam Convention**

Not applicable.

**Kyoto Protocol**

Not applicable.

**Montreal Protocol**

Not applicable.

**Basel Convention**

Not applicable.

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Not listed.



**SARA 304 Emergency release notification**

Not regulated.

**OSEA Specifically Regulated Substances (29 CFR 1910.1001-1053)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)****SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical** Yes**Classified hazard categories** Flammable (gases, aerosols, liquids, or solids)  
Skin corrosion or irritation  
Respiratory or skin sensitization  
Aspiration hazard**SARA 313 (TRI reporting)**

Not regulated.

**16. Other information****Issue date** 05-May-2023**Revision date****Version No.** 01**Disclaimer** While Dustronics Inc. believes the information contained herein to be accurate, Dustronics Inc. makes no representation or warranty, express or implied, regarding, and assumes no liability for, the accuracy or completeness of the information. The Buyer assumes all responsibility for handling, using and/or reselling the Product in accordance with applicable federal, state, and local law. This SDS shall not in any way limit or preclude the operation and effect of any of the provisions of Dustronics Inc. 's terms and conditions of sale.**Revision information** This document has undergone significant changes and should be reviewed in its entirety.