

D-LIMONENE—PURE GRADE

433-LIQUID

# Safety Data Sheet

## Section 1: Identification

### Product Identifier and Other Means of Identification

**Product Name:** D-Limonene—Pure Grade**SDS Code:** 433-Liquid**Related Part #** 433-1L, 433-4L

### Recommended Use and Restriction on Use

**Use:** Solvent**Uses Advised Against:** Not applicable

### Details of Manufacturer or Importer

#### Manufacturer

MG Chemicals  
1210 Corporate Drive  
Burlington, Ontario L7L 5R6  
CANADAMG Chemicals (Head Office)  
9347-193 Street  
Surrey, British Columbia V4N 4E7  
CANADA**TEL** +1-800-340-0772**TEL** +1-905-331-1396**FAX** +1-800-340-0773**FAX** +1-905-331-2682**E-MAIL** [support@mgchemicals.com](mailto:support@mgchemicals.com)**E-MAIL** [info@mgchemicals.com](mailto:info@mgchemicals.com)**WEB** [www.mgchemicals.com](http://www.mgchemicals.com)**E-MAIL** (Competent Person): [sds@mgchemicals.com](mailto:sds@mgchemicals.com)

### Emergency Phone Number





**For hazardous material incidents ONLY** (leaks, spills, fires, exposures or accidents)  
USA or CANADA—Call Verisk 3E at **+1-866-519-4752** or **+1-760-476-3962**  
(Service access code: 335388)**For emergencies involving the transport of dangerous goods;** 24/7 service  
CANADA—Call CANUTEC collect at **+1-613-996-6666** or **\*666** on cellular phones

**D-LIMONENE—PURE GRADE**
**433-LIQUID**
**Section 2: Hazard(s) Identification**
**Classification of Hazardous Chemical**
**GHS Categories**

Criteria		Category	Signal Word	Pictograms
Flammable Liquid		3	Danger	Flame
Aspiration Hazard		1	Danger	Health
Sensitization	Skin	1	Warning	Exclamation
Skin Irritation		2	Warning	Exclamation
Hazardous to the Aquatic Environment	Chronic	1	Warning	Environment

*Note:* The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity). Severity categories rankings do not allow comparisons between classes.

**Label Elements**

<b>Signal Word</b>	<b>DANGER</b>
<b>Pictograms</b>	<b>Hazard Statements</b>
	H304: May be fatal if swallowed and enters airways
	H226: Flammable liquid and vapor
	H315: Causes skin irritation H317: May cause an allergic skin reaction
	H410: Very toxic to aquatic life with long lasting effects

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*Continued...*

<b>Prevention</b>	<b>Precautionary Statements</b>
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof equipment.
P243	Take action to prevent static discharges.
P261	Avoid breathing vapors/mist/spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection.
P273	Avoid release to the environment.
<b>Response</b>	<b>Precautionary Statements</b>
P370 + P378	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P331	Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P361	Collect spillage.
<b>Storage</b>	<b>Precautionary Statements</b>
P403 + P235	Store in well-ventilated place. Keep cool.
P405	Store locked up.
<b>Disposal</b>	<b>Precautionary Statements</b>
P501	Dispose of contents/container in accordance to local/regional/international regulations.

**Hazards Not Otherwise Classified**

<b>Other Criteria</b>	<b>Hazard Statements/Precautionary Statement</b>	<b>Signal Word</b>	<b>Pictograms</b>
None	None	None	None

**D-LIMONENE—PURE GRADE**
**433-LIQUID**
**Section 3: Composition/Information on Ingredients**

CAS #	Chemical Name	%(weight)
8028-48-6	Orange, sweet, extract <sup>a)</sup>	100%

a) d-Limonene is the primary component of orange sweet

**Section 4: First-Aid Measures**

*Exposure Condition*

*GHS Code: Precautionary Statement*

**IF ON SKIN (or hair)** P303 + P361 + P353, P333 + P313, P362 + P364

**Immediate Symptoms** *irritation, redness*

**Response** Take off immediately all contaminated clothing. Rinse skin with water or shower.  
 If skin irritation or rash occurs: Get medical advice/attention.  
 Take off contaminated clothing and wash it before reuse.

**IF SWALLOWED** P301 + P310, P331

**Immediate Symptoms** *irritation*

**Response** Immediately call a POISON CENTER/doctor.  
 Do NOT induce vomiting.

**IF INHALED** P304 + P340

**Immediate Symptoms** *irritation of the nose, throat, lungs*

**Response** Remove person to fresh air and keep comfortable for breathing.

**IF IN EYES** P305 + P351 + P338

**Immediate Symptoms** *irritation*

**Response** Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**D-LIMONENE—PURE GRADE****433-LIQUID****Section 5: Fire-Fighting Measures**

<b>Extinguishing Media</b>	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.  Use water spray to cool containers.
<b>Specific Hazards</b>	The vapors are heavier than air and may accumulate in low-lying areas. Vapors may travel long distances and ignite at an ignition source, which can cause a flashback or an explosion.
<b>Combustion Products</b>	Produces carbon oxides (CO, CO <sub>2</sub> ).
<b>Fire-Fighter</b>	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

**Section 6: Accidental Release Measures**

<b>Personal Protection</b>	See personal protection equipment in Section 8.
<b>Precautions for Response</b>	Avoid breathing the mist/spray/vapors. Remove or keep away all sources of ignition or extreme heat.
<b>Environmental Precautions</b>	Prevent spill from entering drains and waterways.
<b>Containment</b>	Contain with inert absorbent (such as soil, sand, vermiculite).
<b>Cleaning</b>	Collect the liquid in a sealable, chemical-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Use soap and water to remove the last traces of residue.  <b>RECOMMENDATION:</b> Use a grounded stainless steel or carbon steel container.
<b>Disposal Methods</b>	Dispose of spill waste according to Section 13.

**D-LIMONENE—PURE GRADE**
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**Section 7: Handling and Storage**

<b>Prevention</b>	Keep out of reach of children.  Keep away from heat/sparks/open flames/hot surfaces. No smoking.  Ground and bond container and receiving equipment. Take action to prevent static discharges. Use explosion-proof equipment.  Keep container tightly closed.  Avoid breathing vapors/mist/spray.  Contaminated work clothing should not be allowed out of the workplace.  Avoid release to the environment.
<b>Handling</b>	Wear protective gloves/protective clothing/eye protection.  Wash hands thoroughly after handling.  Collect spillage.
<b>Storage</b>	Store in a well-ventilated area. Keep cool.  Store locked up.

**Section 8: Exposure Controls/Personal Protection**
**Substances with Occupational Exposure Limit Values**

Chemical Name	Country	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
d-limonene	ACGIH	Not established	Not established
	U.S.A. OSHA PEL	Not established	Not established
	U.S.A WEEL	30 ppm	Not established
	Canada AB	Not established	Not established
	Canada BC	Not established	Not established
	Canada ON	Not established	Not established
	Canada QC	Not established	Not established

*Note:* The ACGIH<sup>1</sup>, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from RTECS<sup>2</sup> database and data from suppliers' SDS were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

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**D-LIMONENE—PURE GRADE****433-LIQUID****Engineering Controls**

**Ventilation** Keep airborne concentrations below the occupational exposure limits (OEL).

**Personal Protective Equipment**

**Eye protection** Wear appropriate protective eyeglasses or chemical safety goggles.

**RECOMMENDATION:** Use safety glasses with lateral protection (side shields).

**Skin Protection** For likely contacts, use of protective butyl rubber, fluorinated rubber, or other chemically resistant gloves.

For incidental contacts, use neoprene, natural latex rubber, or other chemically resistant gloves.

**Respiratory Protection** For over-exposures up to 10 x OEL of mist/vapors/spray, wear respirator such as a half-mask respirator with organic vapor cartridges.

Above 10 x OEL, use a positive-pressure, air-supplied respirator or a self-contained breathing apparatus.

**RECOMMENDATION:** Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. The respirator should be fitted to the employee by a professional. Ensure vapor cartridges are stored in sealed plastic bags when not being used.

**General Hygiene Considerations**

Wash hands thoroughly with water and soap after handling.

**D-LIMONENE—PURE GRADE**
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**Section 9: Physical and Chemical Properties**

<b>Physical State</b>	Liquid	<b>Lower Flammability Limit</b>	0.7%
<b>Appearance</b>	Colorless	<b>Upper Flammability Limit</b>	6.1%
<b>Odor</b>	Citrus	<b>Vapor Pressure @20 °C</b>	2.7 hPa [2 mmHg]
<b>Odor Threshold</b>	Not available	<b>Vapor Density</b>	4.7 (Air =1)
<b>pH</b>	Not available	<b>Relative Density @25 °C</b>	0.840 ±0.003
<b>Freezing/Melting Point</b>	-96 °C [-140 °F]	<b>Solubility in Water</b>	Slightly soluble
<b>Initial Boiling Point</b>	176 °C [349 °F]	<b>Partition Coefficient<sup>b)</sup> n-octanol/water</b>	4.23
<b>Flash Point<sup>a)</sup></b>	43 °C [110 °F]	<b>Auto-ignition Temperature</b>	237 °C [458 °F]
<b>Evaporation Rate</b>	Not available	<b>Decomposition Temperature</b>	Not available
<b>Flammability</b>	Flammable	<b>Viscosity @40 °C</b>	<20.5 mm <sup>2</sup> /s

a) Closed cup value

b) Value for d-limonene

**Section 10: Stability and Reactivity**

<b>Reactivity</b>	d-Limonene can oxidize slowly in contact with air.
<b>Chemical Stability</b>	Chemically stable at normal temperatures and pressures.
<b>Conditions to Avoid</b>	Avoid flames, sparks, other ignition sources and incompatible substances.
<b>Incompatibilities</b>	Strong oxidizing agents
<b>Polymerization</b>	Will not occur
<b>Decomposition</b>	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.



**D-LIMONENE—PURE GRADE**
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**Section 11: Toxicological Information**
**Summary of Effects by Symptoms and Routes of Exposure**

<b>Eyes</b>	May cause irritation.
<b>Skin</b>	Causes irritation and redness.
<b>Inhalation</b>	May cause irritation of the nose, throat, and lungs.
<b>Ingestion</b>	May cause irritation.
<b>Chronic</b>	Long term exposure may lead to allergic skin reaction in some individuals.

**Acute Toxicity (Lethal Exposure Concentrations)**

<b>Chemical Name</b>	<b>LD50 oral</b>	<b>LD50 dermal</b>	<b>LC50 inhalation</b>
d-limonene	4 400 mg/kg Rat	>5 000 mg/kg Rabbit	Not available

*Note:* Toxicity data from the RTECS<sup>2</sup> and ECHA were consulted. The data from supplier (M)SDS were also consulted.

**Other Toxicological Effects**

<b>Skin corrosion/irritation</b>	Moderate skin irritant.
<b>Serious eye damage/irritation</b>	Based on available data, the classification criteria are not met.
<b>Sensitization</b> (allergic reactions)	In its pure form, d-Limonene is not a sensitizer, but its oxidized form is a known skin sensitizer. People already sensitized to turpentine or terpenes may also be allergic to d-limonene.
<b>Carcinogenicity</b> (risk of cancer)	Based on available data, the classification criteria are not met.
<b>Mutagenicity</b> (risk of heritable genetic effects)	Based on available data, the classification criteria are not met.
<b>Reproductive Toxicity</b> (risk to sex functions)	Based on available data, the classification criteria are not met.

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<b>Teratogenicity</b> (risk of fetus malformation)	Based on available data, the classification criteria are not met.
<b>STOT-single exposure</b>	Based on available data, the classification criteria are not met.
<b>STOT-repeated exposure</b>	Based on available data, the classification criteria are not met.
<b>Aspiration hazard</b>	The liquid content is classified as Cat 1 aspiration hazards. There are >10% category 1 components and the kinematic viscosity of the mixture is <20.5 mm <sup>2</sup> /s at 40 °C.

**Section 12: Ecological Information**

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (<http://echa.europa.eu>), and other reliable sources.

The d-limonene component is an acute category 1 environmental toxicant (with minimal LC50 of 0.702 mg/L 96 h for *Pimephales promelas* (fathead minnow); EC50 69.6 mg/L 48 h *Daphnia pulex* (water flea)).

**Acute Ecotoxicity**

Category 1

Very toxic to aquatic life

**Chronic Ecotoxicity**

Category 1

Very toxic to aquatic life with long lasting effects

Avoid release to the environment. Collect spillage.

**Biodegradability**

Not available

**Other Effects**

Volatile Organic Compound (VOC) content = 100% [841 g/L]

**D-LIMONENE—PURE GRADE**

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**Section 13: Disposal Information**

Dispose of contents in accordance with all local, regional, national, and international regulations.

**Section 14: Transport Information**

**Ground**

**Refer to TDG regulations** (Canadian Transportation of Dangerous Goods regulations);  
**USA DOT 49 CFR** (Parts 100 to 185) **Regulations.**

Sizes 5 liter and under  
**Limited Quantity**



Sizes greater than 5 liter

**UN number:** UN2319

**Shipping Name:**

TERPENE HYDROCARBONS, N.O.S.  
 (orange oil)

**Class:** 3

**Packing Group:** III

**Marine Pollutant:** Yes



**Air**

**Refer to ICAO-IATA Dangerous Goods Regulations.**

Sizes up to 60 L (passenger), 220 L (cargo)

**UN number:** UN2319

**Shipping Name:**

TERPENE HYDROCARBONS, N.O.S.  
 (orange oil)

**Class:** 3

**Packing Group:** III

**Marine Pollutant:** Yes



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**D-LIMONENE—PURE GRADE**

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**Sea**

**Refer to IMDG Regulations.**

Sizes 5 liter and under  
**Limited Quantity**



Sizes greater than 5 liter

**UN number:** UN2319

**Shipping Name:**

TERPENE HYDROCARBONS, N.O.S.  
(orange oil)

**Class:** 3

**Packing Group:** III

Marine Pollutant: Yes



**Note: Shipper must be appropriately trained and certified before involvement with the transport of dangerous goods.**

**Section 15: Regulatory Information**

**Canada**

**Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)**

All hazardous ingredients are listed on the DSL.

**Hazardous Products Act (R.S.C., 1985, c. H-3)**

The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.

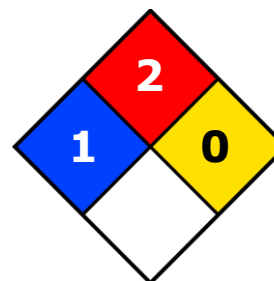
**USA**

**Other Classifications**

**HMIS® RATING**

<b>HEALTH:</b>	<b>*</b>	<b>1</b>
<b>FLAMMABILITY:</b>		<b>2</b>
<b>PHYSICAL HAZARD:</b>		<b>0</b>
<b>PERSONAL PROTECTION:</b>		

**NFPA® 704 CODES**



*Approximate HMIS and NFPA Risk Ratings Legend:*

0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

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Date: 12 March 2020 / Ver. 2.02

**D-LIMONENE—PURE GRADE****433-LIQUID****CAA** (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

This product does not contain substances that are listed as hazardous air pollutants.

**EPCRA** (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product does not contain substances that are subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

**TSCA** (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

**California Proposition 65** (Chemicals known to cause cancer or reproductive toxicity, USA).

This product does not contain any substances known to be listed in California.

**Europe****RoHS** (Restriction of Hazardous Substances Directive)

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, PBDE's, DEHP, BBP, DBP, or DIBP and complies with European RoHS regulations.

**WEEE** (Waste Electrical and Electronic Equipment Directive)

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

**Section 16: Other Information**

<b>SDS Prepared by</b>	MG Chemical's Regulatory Department
<b>Date of Revision</b>	12 March 2020
<b>Supersedes</b>	19 April 2017
<b>Reason for Changes:</b>	Update to the emergency phone number information.

**Reference**

- 1) ACGIH 2017 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2017).
- 2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

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**D-LIMONENE—PURE GRADE****433-LIQUID****Abbreviations**

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
ECHA	European Chemicals Agency
EU	European Union
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
IARC	International Agency for Research on Cancer
NOELR	No observable effect loading ratio
NTP	National Toxicology Program
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
SDS	Safety Data Sheet
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content

**Technical Queries** Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at [www.mgchemicals.com](http://www.mgchemicals.com).

Email: [support@mgchemicals.com](mailto:support@mgchemicals.com)

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