

433

D-LIMONENE—PURE GRADE

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 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
CANADA

MG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA

☎ +1-800-340-0772**FAX** +1-800-340-0773**E-MAIL** support@mgchemicals.com**WEB** www.mgchemicals.com**☎** +1-905-331-1396**FAX** +1-905-331-2682**E-MAIL** info@mgchemicals.com**E-MAIL** (Competent Person): 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

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

| Criteria | | Category | Signal Word | Pictograms |
|--------------------------------------|---------|----------|-------------|-------------|
| Aspiration Hazard | | 1 | Danger | Health |
| Flammable Liquid | | 3 | Danger | Flame |
| 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

| | |
|---|---|
| Signal Word | DANGER |
| Pictograms | Hazard Statements |
|  | 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 |

Section continued on the next page

433
D-LIMONENE—PURE GRADE
Continued...

| Prevention | Precautionary Statements |
|--------------------|--|
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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 mist, vapors, 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, and eye protection. |
| P273 | Avoid release to the environment. |
| Response | Precautionary Statements |
| 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 or 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 or attention. |
| P362 + P364 | Take off contaminated clothing and wash it before reuse. |
| P361 | Collect spillage. |
| Storage | Precautionary Statements |
| P403 + P235 | Store in well-ventilated place. Keep cool. |
| P405 | Store locked up. |
| Disposal | Precautionary Statements |
| P501 | Dispose of contents in accordance to local, regional, national, and international regulations. |

Continued on the next page

433
D-LIMONENE—PURE GRADE
Hazards Not Otherwise Classified

| Other Criteria | Hazard Statements/Precautionary Statement | Signal Word | Pictograms |
|----------------|---|-------------|------------|
| None | None | None | None |

Section 3: Composition/Information on Ingredients

| CAS # | Chemical Name | %(weight) |
|-----------|--------------------------------------|-----------|
| 8028-48-6 | Orange, sweet, extract ^{a)} | 100% |

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

Section 4: First-Aid Measures

| <i>Exposure Condition</i> | <i>GHS Code: Precautionary Statement</i> |
|-----------------------------|---|
| IF SWALLOWED | P301 + P310, P331 |
| Immediate Symptoms | <i>Irritation</i> |
| Response | Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. |
| IF ON SKIN (or hair) | P303 + P361 + P353, P333 + P313, P362 + P364 |
| Immediate Symptoms | <i>irritation, redness</i> |
| Response | Take off immediately all contaminated clothing. Rinse skin with water or shower. If skin irritation or rash occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. |
| IF INHALED | P304 + P340 |
| Immediate Symptoms | <i>irritation of the nose, throat, lungs</i> |
| Response | Remove person to fresh air and keep comfortable for breathing. |
| IF IN EYES | P305 + P351 + P338 |
| Immediate Symptoms | <i>irritation</i> |
| Response | Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |

433

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

| | |
|----------------------------|--|
| Extinguishing Media | In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. Use water spray to cool containers. |
| Specific Hazards | 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. |
| Combustion Products | Produces carbon oxides (CO, CO ₂). |
| Fire-Fighter | Wear self-contained breathing apparatus and full fire-fighting turn-out gear. |

Section 6: Accidental Release Measures

| | |
|----------------------------------|---|
| Personal Protection | See personal protection equipment in Section 8. |
| Precautions for Response | Avoid breathing the mist, spray, or vapors. Remove or keep away all sources of ignition or extreme heat. |
| Environmental Precautions | Prevent spill from entering drains and waterways. |
| Containment | Contain with inert absorbent (such as soil, sand, vermiculite). |
| Cleaning | 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. RECOMMENDATION: Use a grounded stainless steel or carbon steel container. |
| Disposal Methods | Dispose of spill waste according to Section 13. |

Section 7: Handling and Storage
Prevention

Keep out of reach of children.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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, or spray.

Contaminated work clothing should not be allowed out of the workplace.

Avoid release to the environment.

Handling

Wear protective gloves, protective clothing, and eye protection.

Wash hands thoroughly after handling.

Collect spillage.

Storage

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 |

Section continued on the next page

433
D-LIMONENE—PURE GRADE
Continued...

| Chemical Name | Country | Long Term Exposure Limits (PEL) | Short Term Exposure Limits (STEL) |
|---|-----------------|--|--|
| turpentine and selected monoterpenes (CAS# 127-91-3 and 80-56-8) | ACGIH | 20 ppm (TWA) | Not established |
| | U.S.A. OSHA PEL | Not established | Not established |
| | U.S.A. WEEL | Not established | Not established |
| | Canada AB | 20 ppm | Not established |
| | Canada BC | Not established | Not established |
| | Canada ON | Not established | Not established |
| | Canada QC | Not established | Not established |

Note: The ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from RTECS² 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.

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, or 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.

433
D-LIMONENE—PURE GRADE
General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

Section 9: Physical and Chemical Properties

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

a) Closed cup value

b) Value for d-limonene

Section 10: Stability and Reactivity

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

433

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

| | |
|-------------------|--|
| Eyes | May cause irritation. |
| Skin | Causes irritation and redness. Overexposure may cause a burning sensation and swelling, erythema and itching. |
| Inhalation | May cause irritation of the nose, throat, and lungs. |
| Ingestion | May cause irritation. |
| Chronic | Long-term exposure by inhalation or skin contact may cause an allergic skin and respiratory reaction in some people. |

Acute Toxicity (Lethal Exposure Concentrations)

| Chemical Name | LD50 oral | LD50 dermal | LC50 inhalation |
|------------------------|--------------------|------------------------|------------------------|
| d-limonene | 4 400 mg/kg Rat | >5 000 mg/kg Rabbit | Not available |
| Orange, sweet, extract | | | |

Note: Toxicity data from the RTECS² and ECHA were consulted. The data from supplier (M)SDS were also consulted.

Other Toxicological Effects

| | |
|--|---|
| Skin corrosion/irritation | Moderate skin irritant. |
| Serious eye damage/irritation | Based on available data, the classification criteria are not met. |
| Sensitization (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. |
| Carcinogenicity (risk of cancer) | Based on available data, the classification criteria are not met. |
| Mutagenicity (risk of heritable genetic effects) | Based on available data, the classification criteria are not met. |
| Reproductive Toxicity (risk to sex functions) | Based on available data, the classification criteria are not met. |

Section continued on the next page

433**D-LIMONENE—PURE GRADE**

| | |
|---|---|
| Teratogenicity (risk of fetus malformation) | Based on available data, the classification criteria are not met. |
| STOT-single exposure | Based on available data, the classification criteria are not met. |
| STOT-repeated exposure | Based on available data, the classification criteria are not met. |
| Aspiration hazard | The liquid content is classified as Cat 1 aspiration hazards. |

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]

433

D-LIMONENE—PURE GRADE

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 L and under
433-1L, 433-4L
Limited Quantity



Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 5 L and under
433-1L, 433-4L
Limited Quantity



Total net per
Package = 10 L

Sizes up to 60 L (passenger), 220 L (cargo)
FOR REFERENCE ONLY
UN number: UN2319
Shipping Name:
TERPENE HYDROCARBONS, N.O.S. (orange oil)
Class: 3
Packing Group: III
Marine Pollutant: Yes

Section continued on the next page

433

D-LIMONENE—PURE GRADE

Sea

Refer to IMDG Regulations.

Sizes 5 L and under
433-1L, 433-4L
Limited Quantity



Sizes greater than 5 L

FOR REFERENCE ONLY

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.

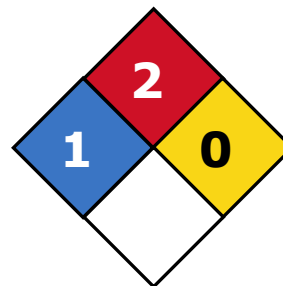
USA

Other Classifications

HMIS® RATING

| | | |
|-----------------------------|----------|----------|
| HEALTH: | * | 1 |
| FLAMMABILITY: | | 2 |
| PHYSICAL HAZARD: | | 0 |
| PERSONAL PROTECTION: | | |

NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:

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

Section continued on the next page

433**D-LIMONENE—PURE GRADE****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

| | |
|----------------------------|---|
| Prepared by the | Regulatory Affairs Department |
| Date of Revision | 12 March 2020 |
| Supersedes | 19 April 2017 |
| Reason for Changes: | 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®)

Section continued on the next page

433

D-LIMONENE—PURE GRADE**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.

Email: support@mgchemicals.com

Phone: +1-905-331-1396

Mailing Addresses *Manufacturing & Support*
1210 Corporate Drive
Burlington, Ontario, Canada
L7L 5R6

Head Office
9347-193rd Street
Surrey, British Columbia, Canada
V4N 4E7

Disclaimer

This safety data sheet is provided as an information resource only. *M.G. Chemicals, Ltd.* believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to query and verify any information seeming suspect where doubt on the validity may exist. The buyer assumes all responsibility of using and handling the product in accordance with local, regional, national, and international regulations.