

SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard (29 CFR 1910.1200)

Revision date 15-May-2025 Revision Number 1

1. Identification

Product identifier

Product Name D-Limonene, Technical

Other means of identification

Product Code(s) 1799

UN number or ID number UN2052

Synonyms (+)-Dipentene; (R)-(+)-Limonene; p-Menth-1,8-diene.

Recommended use of the chemical and restrictions on use

Recommended use Industrial use

Laboratory use

Industrial Manufacturing (all)

Restrictions on use No information available

Details of the supplier of the safety data sheet

Supplier Address

Columbus Chemical Industries, Inc. N4335 Temkin Rd. Columbus, WI 53925 USA Phone: (920) 623-2140

Fax: (920) 623-2577 www.columbuschemical.com

Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC: 1-800-424-9300 for US / 703-527-3887 outside US

Emergency Telephone 911

2. Hazard(s) identification

Classification

Skin corrosion/irritation	Category 2
Skin sensitization	Category 1
Aspiration hazard	Category 1
Flammable liquids	Category 3

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Danger

Hazard statements

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H226 - Flammable liquid and vapor.



Precautionary Statements - Prevention

P264 - Wash face, hands and any exposed skin thoroughly after handling

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P272 - Contaminated work clothing should not be allowed out of the workplace

P210 - Keep away from heat, hot surfaces, 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 electrical/ ventilating/ lighting/ equipment

P242 - Use only non-sparking tools

P243 - Take action to prevent static discharges

P280 - Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response

P321 - Specific treatment (see First-Aid Measures on SDS)

P333 + P313 - If skin irritation occurs or rash occurs: Get medical advice/attention

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower

P363 - Wash contaminated clothing before reuse

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

P331 - Do NOT induce vomiting

P370 + P378 - In case of fire: Use CO2, dry chemical, or foam to extinguish

Precautionary Statements - Storage

P405 - Store locked up

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

Precautionary Statements - Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Other information

May be harmful if swallowed. Harmful to aquatic life with long lasting effects. Very toxic to aquatic life.

3. Composition/information on ingredients

Substance

Synonyms (+)-Dipentene; (R)-(+)-Limonene; p-Menth-1,8-diene.

Chemical name	CAS No	Weight-%	Formula	Molecular Weight
D-Limonene	5989-27-5	>99	C10H16	136.24 g/mol

4. First-aid measures

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is

required.

Inhalation Aspiration into lungs can produce severe lung damage. If breathing has stopped, give

artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If breathing is difficult, (trained personnel should) give oxygen. Get immediate medical attention. Delayed

pulmonary edema may occur.

Eye contactRinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep

eye wide open while rinsing. Do not rub affected area.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated

clothes and shoes. May cause an allergic skin reaction. In the case of skin irritation or

allergic reactions see a physician.

Ingestion ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE.

Do NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Rinse mouth. Never give anything by mouth to an unconscious person.

Get immediate medical attention.

Self-protection of the first aider Remove all sources of ignition. Ensure that medical personnel are aware of the material(s)

involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Avoid contact with skin,

eyes or clothing.

Most important symptoms and effects, both acute and delayed

Symptoms Itching. Rashes. Hives. Difficulty in breathing. Coughing and/ or wheezing. Dizziness.

Indication of any immediate medical attention and special treatment needed

Note to physicians May cause sensitization in susceptible persons. Treat symptomatically. Because of the

danger of aspiration, emesis or gastric lavage should not be employed unless the risk is

justified by the presence of additional toxic substances.

5. Fire-fighting measures

Suitable Extinguishing Media

Large Fire

Dry chemical. Carbon dioxide (CO2). Water spray. Alcohol resistant foam.

CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing mediaDo not scatter spilled material with high pressure water streams.

Specific hazards arising from the

chemical

Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire

extinguishing water must be disposed of in accordance with local regulations. Product is or

contains a sensitizer. May cause sensitization by skin contact.

Hazardous combustion products Carbon oxides.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Yes.

Special protective equipment and precautions for fire-fighters

Personal precautions

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the

product must be grounded. Do not touch or walk through spilled material.

Other information Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapor

suppressing foam may be used to reduce vapors. Dike far ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other

non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Take precautionary measures against static discharges. Dam up. Soak up with inert

absorbent material. Pick up and transfer to properly labeled containers.

7. Handling and storage

Precautions for safe handling

Advice on safe handling

Use personal protection equipment. Avoid breathing vapors or mists. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Use with local exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Store locked up. Keep out of the reach of children. Store away from other materials.

8. Exposure controls/personal protection

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational

exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers

> Eyewash stations Ventilation systems.

Individual protection measures, such as personal protective equipment

Tight sealing safety goggles. Eye/face protection

Hand protection Wear suitable gloves. Impervious gloves.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

Antistatic boots.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are

exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Do not eat, drink or smoke when using this product. Contaminated work clothing should not

> be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

Wear suitable gloves and eye/face protection.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state Liquid **Appearance** Clear Color Water white Odor Slight orange

Odor threshold No information available

Property Values Remarks • Method

No data available None known Hq pH (as aqueous solution) No data available None known Melting point / freezing point No data available None known Initial boiling point and boiling No data available None known range

Flash point 50 °C / 122.0 °F

None known **Evaporation rate** No data available None known **Flammability** No data available None known Flammability Limit in Air None known

Upper flammability or explosive No data available

limits

Lower flammability or explosive No data available

limits

Vapor pressure No data available None known Relative vapor density No data available None known Relative density 0.835 - 0.845 None known Water solubility Immiscible in water None known Solubility(ies) Organic solvents None known **Partition coefficient** No data available None known **Autoignition temperature** No data available None known **Decomposition temperature** None known

Kinematic viscosity No data available None known No data available **Dynamic viscosity** None known

Other information

No information available **Explosive properties** No information available Oxidizing properties

Softening point No information available

Molecular weight 136.24 g/mol

VOC content
Liquid Density
No information available
No information available
No information available

10. Stability and reactivity

Reactivity No information available.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions None under normal processing.

Conditions to avoid Heat, flames and sparks.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products Carbon oxides.

11. Toxicological information

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available. Aspiration into lungs can

produce severe lung damage. May cause pulmonary edema. Pulmonary edema can be

fatal. May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. May cause irritation.

Skin contact May cause sensitization by skin contact. Specific test data for the substance or mixture is

not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). Repeated exposure may cause skin dryness

or cracking. Causes skin irritation.

Ingestion Specific test data for the substance or mixture is not available. Potential for aspiration if

swallowed. May cause lung damage if swallowed. Aspiration may cause pulmonary edema and pneumonitis. May be fatal if swallowed and enters airways. Ingestion may cause

gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Itching. Rashes. Hives. Difficulty in breathing. Coughing and/ or wheezing. Dizziness.

Redness. May cause redness and tearing of the eyes.

Acute toxicity

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

 ATEmix (oral)
 4,536.10 mg/kg

 ATEmix (dermal)
 5,154.60 mg/kg

 ATEmix (inhalation-gas)
 99,999.00 ppm

 ATEmix (inhalation-vapor)
 99,999.00 mg/l

 ATEmix (inhalation-dust/mist)
 99,999.00 mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
D-Limonene	>2000 mg/kg (Rat)	>5000 mg/kg (Rabbit)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritationClassification based on data available for ingredients. Causes skin irritation.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity No information available.

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
D-Limonene	-	Group 3	-	_

Legend

IARC (International Agency for Research on Cancer)

Group 3 - Not Classifiable as to Carcinogenicity in Humans

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposureNo information available.

Aspiration hazard May be fatal if swallowed and enters airways.

Other adverse effects No information available.

Interactive effects No information available.

12. Ecological information

Ecotoxicity

Very toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
D-Limonene	-	LC50: 0.72mg/L (96h, Pimephales promelas) LC50: =35mg/L (96h, Oncorhynchus mykiss)	-	-

Persistence and degradability No information available.

Bioaccumulation

Component Information

Component morniation			
Chemical name	Partition coefficient		
D-Limonene	4.38		

Other adverse effects No information available.

13. Disposal considerations

Disposal methods

Waste from residues/unused

products

Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging

Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld

containers.

US EPA Waste Number D001.

14. Transport information

DOT Regulated
UN number or ID number UN2052
Proper shipping name Dipentene

Transport hazard class(es) 3
Packing group III
DOT Marine Pollutant No

TDG Regulated
UN number or ID number UN2052
UN proper shipping name Dipentene

Transport hazard class(es) 3
Packing group III

ICAO (air)RegulatedUN number or ID numberUN2052UN proper shipping nameDipentene

Transport hazard class(es) 3
Packing group III

UN number or ID number UN2052
UN proper shipping name Dipentene

Transport hazard class(es) 3
Packing group III

IMDGRegulatedUN number or ID numberUN2052UN proper shipping nameDipentene

Transport hazard class(es) 3
Packing group III

15. Regulatory information

International Inventories

TSCA Complies. DSL/NDSL Complies.

EINECS/ELINCS
Contact supplier for inventory compliance status.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPAHealth hazards2Flammability2Instability0Special hazards-HMISHealth hazards2Flammability2Physical hazards0Personal protectionX

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average) STEL STEL (Short Term Exposure Limit)

Ceiling Maximum limit value * Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

EPA (Environmental Protection Agency)

Acute Exposure Guideline Level(s) (AEGL(s))

U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act

U.S. Environmental Protection Agency High Production Volume Chemicals

Food Research Journal

Hazardous Substance Database

International Uniform Chemical Information Database (IUCLID)

National Institute of Technology and Evaluation (NITE)

Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)

NIOSH (National Institute for Occupational Safety and Health)

National Library of Medicine's ChemID Plus (NLM CIP)

National Library of Medicine's PubMed database (NLM PUBMED)

National Toxicology Program (NTP)

New Zealand's Chemical Classification and Information Database (CCID)

Organization for Economic Co-operation and Development Environment, Health, and Safety Publications

Organization for Economic Co-operation and Development High Production Volume Chemicals Program

Organization for Economic Co-operation and Development Screening Information Data Set

World Health Organization

Revision date 15-May-2025

Revision NoteNo information available.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

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