



SAFETY DATA SHEET

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Section 1: Identification

Product and Company Identification

Product Name: Limonene

Chemical Name/Synonyms: C10H16

CAS NO.: 5989-27-5

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

Identified uses : Laboratory chemicals, Synthesis of substances

Details of Supplier of Safety Data Sheet

Company: Terp Science Labs.

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In emergency call 911.

For information about this SDS, use this department contact phone#: 1 (323) 625-0228

Section 2: Hazard(s) Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226

Skin irritation (Category 2), H315

Skin sensitisation (Category 1), H317

Aspiration hazard (Category 1), H304

Acute aquatic toxicity (Category 1), H400

Chronic aquatic toxicity (Category 1), H410

Signal Word(s): Danger

Hazard Statements:

H226 Flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation. H317 May cause an allergic skin reaction.

H410 Very toxic to aquatic life with long lasting effects.

Pictograms:



Precautionary Statements:

- P210 Keep away from heat/sparks/open flames/hot surfaces. 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 precautionary measures against static discharge.
- P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
- P264 Wash skin thoroughly after handling.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ eye protection/ face protection.
- P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
- P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P331 Do NOT induce vomiting.
- P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
- P362 Take off contaminated clothing and wash before reuse.
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
- P391 Collect spillage.
- P403 + P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/ container to an approved waste disposal plant.

Description of other hazards: None

Section 3: Composition/ Information on Ingredients

Substances

Formula : C10H16

Molecular weight : 136.23 g/mol

CAS-No. : 5989-27-5

EC-No. : 227-813-5

Chemical Name	Classification	Concentration	
Limonene	Flam. Liq. 3; Skin Irrit. 2; Skin Sens. 1; Aquatic Acute 1; Aquatic Chronic 1; H226, H315, H317, H410	<= 100 %	

Section 4: First-Aid Measures

General advice

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

After skin contact:

Wash off with soap and plenty of water. Consult a physician

After eye contact:

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

After inhalation:

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

After swallowing:

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

Section 5: Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

Carbon oxides

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

Use water spray to cool unopened containers

Section 6: Accidental Release Measures

Personal precautions:

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Measures for environmental protection:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Measures for cleaning/collecting:

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

Section 7: Handling and Storage

Handling:

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Storage:

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature -20 °C.

Storage class (TRGS 510): 3: Flammable liquids

Specific end use(s):

No other specific uses are stipulated

Section 8: Exposure Controls/Personal Protection

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Hazardous components without workplace control parameters

Exposure controls

Appropriate engineering controls

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

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to 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.

Body Protection

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Section 9: Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance

Form: clear, liquid

Colour: colorless

Odour

characteristic

Odour Threshold

No data available

pH

No data available

Melting point/freezing point

Melting point/range: -74.29 °C (-101.72 °F)

Initial boiling point and boiling range

176 °C (349 °F) at 1.013 hPa

Flash point

50 °C (122 °F)

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Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 6.1 %(V) Lower explosion limit: 0.7 %(V)
Vapour pressure	50 hPa at ca.50 °C (ca.122 °F)
Vapour density	4.70 - (Air = 1.0)
Relative density	0.843 g/cm ³
Water solubility	immiscible
Partition coefficient: noctanol/water	log Pow: 4.2
Auto-ignition temperature	245 °C (473 °F) at 995 hPa
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Other safety information	Relative vapour density 4.70 - (Air = 1.0)

Section 10: Stability and Reactivity

Reactivity: No data available

Chemical stability: Stable under recommended storage conditions

Possibility of hazardous reactions: No data available

Conditions to avoid: Heat, flames and sparks

Incompatible materials: Strong oxidizing agents

Hazardous decomposition products:

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

Section 11: Toxicological Information

Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 4,400 mg/kg

Remarks: Behavioral: Change in motor activity (specific assay). Respiratory disorder Skin and

Appendages: Other: Hair.

LD50 Dermal - Rabbit - > 5,000 mg/kg

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation (OECD Test Guideline 405)

Respiratory or skin sensitisation

- Mouse

Result: May cause sensitisation by skin contact. (OECD Test Guideline 429)

Germ cell mutagenicity

Mouse

lymphocyte

Result: negative

Rat - male

Result: negative

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

May be fatal if swallowed and enters airways.

Additional Information

Repeated dose toxicity - Mouse - male and female - No observed adverse effect level - 1,650 mg/kg -

Lowest observed adverse effect level - 3,300 mg/kg

RTECS: GW6360000

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

Liver - Irregularities - Based on Human Evidence

Section 12: Ecological Information (non-mandatory)

Toxicity

Toxicity to fish

flow-through test LC50 - Pimephales promelas (fathead minnow) - 0.72 mg/l - 96 h (Limonene)
(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates

Immobilization EC50 - Daphnia magna (Water flea) - 0.36 mg/l - 48 h (Limonene) (OECD Test Guideline 202)

Toxicity to bacteria

EC50 - Sludge Treatment - 3

Persistence and degradability

Biodegradability Result: 71 % - Readily biodegradable. (OECD Test Guideline 301B)

Bioaccumulative potential

No data available

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Mobility in soil

No data available

Results of PBT and vPvB assessment

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

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

Section 13: Disposal Considerations (non-mandatory)

Waste treatment methods

Product

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

Section 14: Transport Information (non-mandatory)

DOT (US)

UN-Number: 2052 Class: 3 Packing group: III
Proper shipping name: Dipentene
Poison Inhalation Hazard: No

IMDG

UN-Number: 2052 Class: 3 Packing group: III EMS-No: F-E, S-E
Proper shipping name: Dipentene
Marine pollutant : yes

IATA

UN-Number: 2052 Class: 3 Packing group: III
Proper shipping name: Dipentene

Section 15: Regulatory Information (non-mandatory)

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Limonene CAS-No. 5989-27-5

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New Jersey Right To Know Components

Limonene

CAS-No. 5989-27-5

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Other Information

Employers should only use this information only as a supplement to other information gathered by them , and should make judgement suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet , or in any combination with any other product or process, is the responsibility of the user.

Preparation Information Terp Science Labs

SDS date of preparation/update: 9/1/2019