



Product Code: ISO-LNE

Product Name: Limonene

Issue date 26-Mar-2015

Revision date 01-Jan-2020

Version 3

1. Identification of the substance | preparation | company | undertaking

Product identifier

Product name Limonene

Other means of identification

Product code ISO-LNE

UN/ID no N/A

Synonyms N/A

Registration number(s) CAS: 8028-48-6

Recommended use of the chemical and restrictions on use

Recommended Use Industry Use.

Uses advised against No information available

Details of the supplier of the safety data sheet

324 Airport Industrial Dr. Ypsilanti, MI 48198

Emergency telephone number

Company Phone Number Use CHEMTREC instead of Emergency Phone Number

24 Hour Emergency Phone Number (800) 424-9300

Emergency telephone

2. Hazard Identification

Classification

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Skin sensitization	Category 1B
Aspiration toxicity	Category 1
Flammable liquids	Category 3

Label Elements

EMERGENCY OVERVIEW

DANGER

Hazard Statements:

Causes skin irritation

Causes serious eye irritation

May cause an allergic skin reaction

May be fatal if swallowed and enters airways

Flammable liquid and vapor

**Appearance** Clear**Physical state** Liquid**Odor** Characteristic Odor**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling. Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing must not be allowed out of the workplace. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/./? /equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves/eye protection/face protection.

Precautionary Statements - Response

Specific treatment (see ./? on this label).

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

If skin irritation or rash occurs: Get medical advice/attention. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. Wash contaminated clothing before reuse.

IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.

In case of fire: Use CO₂, dry chemical, or foam to extinguish.

Precautionary Statements - Storage

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

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC)**Other Information**

- Toxic to aquatic life

- Toxic to aquatic life with long lasting effects

97.975 % of the mixture consists of ingredient(s) of unknown toxicity

3. Composition/information on Ingredients

Synonyms

INCI: Citrus aurantium var. dulcis.

Chemical Family

Essential oil.

Chemical Name	CAS No.	Weight-%
Orange Terpenes	8028-48-6	100

4. First Aid Measures

Description of first aid measures**Eye Contact**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Skin contact

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

Inhalation

Remove to fresh air. If breathing is difficult, give oxygen. Move to fresh air in case of accidental inhalation of vapors. If not breathing, give artificial respiration.

Ingestion IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. Fire-Fighting Measures

Suitable Extinguishing Media

Use CO₂, dry chemical, or foam.

Unsuitable extinguishing media .

Specific hazards arising from the chemical

FLAMMABLE. Will be easily ignited by heat, sparks or flames.

Hazardous combustion products Irritating or toxic substances may be emitted upon burning, combustion, or decomposition.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge May be ignited by heat, sparks or flames.

Special protective actions for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Remove all sources of ignition. Take precautionary measures against static discharges. Stop leak if you can do it without risk. Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13).

Methods for cleaning up Cover liquid spill with sand, earth or other non-combustible absorbent material. Sweep up and shovel into suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling

Advice on safe handling Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapors/spray. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Remove all sources of ignition.

Conditions for safe storage, including any incompatibilities

Storage Conditions Protect from direct sunlight. 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).

Incompatible materials None known based on information supplied.

8. Exposure Controls/Personal Protection

Control parameters

Exposure guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
alpha-Pinene 80-56-8	TWA: 20 ppm	-	-
delta-3-Carene 13466-78-9	TWA: 20 ppm	-	-
beta-Pinene 127-91-3	TWA: 20 ppm	-	-

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Avoid contact with eyes. Wear safety glasses with side shields (or goggles).

Skin and Body Protection Avoid contact with skin. Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations. Ensure adequate ventilation, especially in confined areas.

General hygiene considerations Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state	Liquid	Odor	Characteristic Odor
Appearance	Clear	Odor threshold	Not applicable
Color	Colorless to almost colorless		
Property	Values	Remarks • Method	
pH	Not applicable		
Melting point / freezing point	Not applicable		
Boiling point / boiling range	176 °C		
Flash Point	48 °C / 118 °F		
Evaporation Rate	Not applicable		
Flammability (solid, gas)	Not applicable		
Flammability Limit in Air			
Upper flammability limit:	Not applicable		
Lower flammability limit:	Not applicable		
Vapor pressure	0.06kPa	(20°C)	
Vapor Density	Not applicable		
Specific gravity	0.843	(25°C)	
Water solubility	Not applicable		

Solubility in other solvents	Not applicable
Partition coefficient	Not applicable
Autoignition Temperature	Not applicable
Decomposition temperature	Not applicable
Kinematic viscosity	No data available
Dynamic viscosity	Not applicable
Explosive properties	Not applicable
Oxidizing properties	Not applicable

Other Information

Softening point	not applicable
Molecular weight	Not applicable
VOC content (%)	Not applicable
Density	Not applicable
Bulk Density	Not applicable

10. Stability and Reactivity

No data available

Chemical stability

Fire Hazard. Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Extremes of temperature and direct sunlight. Heat, flames and sparks.

Incompatible materials

None known based on information supplied.

Hazardous Decomposition Products

None known based on information supplied.

11. Toxicological Information**Information on likely routes of exposure****Product Information**

Inhalation	Avoid breathing vapors or mists.
Eye Contact	Avoid contact with eyes.
Skin contact	Avoid contact with skin. Irritating to skin. May cause an allergic skin reaction.
Ingestion	May be fatal if swallowed and enters airways.

Information on toxicological effects

Symptoms	No information available.
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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Irritating to skin.
Sensitization	May cause sensitization by skin contact.
Germ cell mutagenicity	Not classified.

Carcinogenicity

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

Chemical Name	ACGIH	IARC	NTP	OSHA
d-Limonene 5989-27-5		Group 2A Group 3		X

*IARC (International Agency for Research on Cancer)**Group 2A - Probably Carcinogenic to Humans**OSHA (Occupational Safety and Health Administration of the US Department of Labor)**X - Present***Reproductive toxicity**

This product does not contain any known or suspected reproductive hazards above the threshold value.

STOT - single exposure

Not classified.

STOT - repeated exposure

Not classified.

Aspiration hazard

May be fatal if swallowed and enters airways.

Numerical measures of toxicity - Product Information**Unknown acute toxicity**

97.975 % of the mixture consists of ingredient(s) of unknown toxicity

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

12. Ecological Information

This product contains a chemical which is listed as a marine pollutant according to DOT.

Ecotoxicity

Toxic to aquatic life with long lasting effects

0.431 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Other adverse effects

No information available

13. Disposal Considerations**Waste treatment methods****Disposal of wastes**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging

Do not reuse container.

14. Transport Information**DOT****UN/ID no**

2319

Proper Shipping Name

Terpenes, Hydrocarbons, n.o.s.

Hazard Class

3

Packing group

III

Marine pollutant

This product contains a chemical which is listed as a marine pollutant according to DOT.

Description

(Orange Terpenes)

ICAO (air)

UN/ID no	2319
Proper Shipping Name	Terpenes, Hydrocarbons, n.o.s.
Hazard Class	3
Packing group	III
Description	(Orange Terpenes)

IATA

UN/ID no	2319
Proper Shipping Name	Terpenes, Hydrocarbons, n.o.s.
Hazard Class	3
Packing group	III
Description	(Orange Terpenes)

IMDG

UN/ID no	2319
Proper Shipping Name	Terpenes, Hydrocarbons, n.o.s.
Hazard Class	3
Packing group	III
EmS-No	F-E, S-D
Marine pollutant	This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO
Description	(Orange Terpenes)

RID

UN/ID no	2319
Proper Shipping Name	Terpenes, Hydrocarbons, n.o.s.
Hazard Class	3
Packing group	III
Description	(Orange Terpenes)

ADR

UN/ID no	2319
Proper Shipping Name	Terpenes, Hydrocarbons, n.o.s.
Hazard Class	3
Packing group	III
Classification code	B1, IB3
Tunnel restriction code	T2, TP1
Description	(Orange Terpenes)

15. Regulatory Information

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

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden release of pressure hazard	No
Reactive Hazard	No

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**U.S. State Right-to-Know Regulations**

This product contains substance(s) regulated by state right-to-know regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island
alpha-Pinene 80-56-8	X	X	X	
Terpinolene 586-62-9	X			
para-Cymene 99-87-6		X	X	

U.S. EPA Label information

EPA Pesticide registration number Not applicable

16. Other Information

Issue date 26-Mar-2015

Revision date 01-Jan-2020

Revision note

Labeling for environment based on test data

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. Classification and labeling according to the IFRA/IOFI Labeling Manual 2017.

End of Safety Data Sheet