

# SAFETY DATA SHEET

Issued: December 4, 2014

Revised: March 14, 2022

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## Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

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Product Name: **ORANGE TERPENES**  
Substance Name (EINECS): **Orange, sweet, ext.**  
Common Names: **d-Limonene, FGOT**  
Product Code: **FGOT**  
Classification: **Substance**  
Product Uses: **Adhesive resins, flavors, fragrances, solvents and degreasing agents**

Distributor Details: **Florida Laboratories Inc.**  
**6245 Powerline Road, Suite 103**  
**Fort Lauderdale, FL 33309**  
**Telephone: (954) 543-6384**

**For emergencies in U.S. call Chemtrec anytime at 1-800-424-9300**

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## Section 2: HAZARDS IDENTIFICATION

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### Classification of the substance or mixture

*In accordance with CLP Regulation (EC) No. 1272 / 2008 and OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200)*

### Per Regulation 1272/2008

#### Classification

2.6 – Flam. Liq. 3  
3.10 – Asp. Tox. 1  
3.2 – Skin Irrit. 2  
3.4.S – Skin Sens. 1  
4.1.C – Aqu. Chron. 1

### Label elements

In accordance with CLP Regulation (EC) No. 1272 / 2008

### Signal Word

Danger!

### Graphical indication of hazards

### Hazard statements

H226 – Flammable liquid and vapor  
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



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### Precautionary Statements

P210 – Keep away from heat/sparks/open flames/hot surfaces. — No smoking  
P273 – Avoid release to the environment  
P280 – Wear protective gloves/protective clothing/eye protection/face protection  
P301 + P310 – IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
P302 + P352 – IF ON SKIN: Wash with plenty of soap and water  
P331 – Do NOT induce vomiting  
P332 + P313 – If skin irritation occurs: Get medical advice/attention  
P501 – Dispose of contents/containers in accordance with local/regional/national/international regulations

### OSHA Regulatory Status:

This material is combustible, which is defined as having a flash point of 37.8°C - 93.3°C (100°F- 200°F). Combustible materials are hazardous according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)

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## Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

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<u>Component</u>	<u>CAS #</u>	<u>EC #</u>	<u>% by Wt.</u>
Limonene	68647-72-3	227-813-5	100.0

d-Limonene is the primary component of Orange, sweet, ext. in Orange Terpene  
ECHA Registration #: 01-2119529223-47-0006

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## Section 4: FIRST AID MEASURES

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Eye Contact: Remove any contact lenses at once. Flush eyes with water for at least 15 minutes. If irritation persists, seek medical attention.

Skin Contact: Wash affected area with copious amounts of soap and water. If irritation develops, seek medical attention.

Inhalation: If symptoms of overexposure are experienced, move to fresh air.

Ingestion: Seek medical attention immediately. DO NOT induce vomiting. Rinse mouth with water. DO NOT offer water or anything to drink that might cause vomiting. DO NOT administer anything by mouth to an unconscious person. DO NOT leave victim unattended.

General: As with any chemical, employees should thoroughly wash hands with soap and water after handling this material.

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## Section 5: FIRE FIGHTING MEASURES

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Suitable Extinguishing Media: Carbon dioxide, foam or dry chemical. Caution: Carbon dioxide will displace air in confined spaces and may create an oxygen deficient atmosphere.

Unsuitable Extinguishing Media: Water.

Products of Combustion: Forms acrid fumes, carbon monoxide and carbon dioxide.

Protection of Firefighters: Vapors may be irritating to eyes, skin and respiratory tract. Firefighters should wear self-contained breathing apparatus (SCBA) and full fire-fighting turnout gear.

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## Section 6: ACCIDENTAL RELEASE MEASURES

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Personal Precautions: Use personal protection recommended in Section 8. Product is slippery when spilled. Isolate the hazard area. Deny entry to unnecessary and unprotected personnel.

Environmental Precautions: Prevent further leakage or spillage. Keep away from drains, surface- and ground-water and soil.

Methods for Containment: Dike spill area and cap leaking containers as necessary to prevent further spreading of spilled material. Absorb spilled liquid with suitable material such as dirt or sand.

Methods for Clean Up: Eliminate all ignition sources. Use equipment rated for use around combustible materials. Place in appropriate disposal container. Oil soaked rags may spontaneously combust; place in appropriate disposal container.

Other Information: There are no special reporting requirements for spills of this material.

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## Section 7: HANDLING AND STORAGE

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### Handling

Keep away from heat, sparks and flame. Open container slowly to release pressure caused by temperature variations. Do not allow this material to come in contact with eyes. Avoid prolonged contact with skin. Use in

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well-ventilated areas. Do not breathe vapors. Drum lining may occasionally chip and fall to the bottom of container; product should be filtered or strained before blending or repackaging. As with any chemical, employees should thoroughly wash hands with soap and water after handling this material.

### Storage

Product may be packaged in phenolic-lined steel containers or fluorinated plastic containers. Store in a well ventilated area with proper sprinkler/fire deterrent system. Storage temperature should not exceed the flash point for extended periods of time. Keep container closed when not in use. Air should be excluded from partially filled containers by displacing with nitrogen or carbon dioxide. Do not cut, drill, grind or weld on or near this container; residual vapors may ignite.

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## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Exposure Guidelines

d-Limonene 8h TWA=30 ppm (AIHA Standard)

Engineering Controls: Normal room ventilation is usually adequate. Provide exhaust ventilation or other engineering controls to keep the airborne concentration below any regulated limits. Keep away from sparks and flames.

Eye/Face Protection: Wear safety glasses or goggles.

Skin Protection: Nitrile gloves are recommended. Boots, apron, or bodysuit should be worn as necessary.

Respiratory Protection: Not normally required. If adequate ventilation is unavailable, use NIOSH approved air-purifying respirator with organic vapor cartridge or canister.

General Hygiene Considerations: Wash hands thoroughly after handling. Have eyewash and emergency shower facilities immediately available. Launder contaminated clothing before reuse.

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## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

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Appearance: Clear liquid

Color: Colorless to pale yellow

Odor: Strong orange aroma

Physical State: Liquid

pH: None

Boiling Point: 176°C (349°F)

Melting Point: -96°C (-140°F), thickens at -78°C (-108°F)

Specific Gravity: 0.838 to 0.843 at 25°C (77°F)

Refractive Index: 1.471 to 1.474 at 20°C (68°F)

Optical Rotation: +96° to +104° at 25°C (77°F)

Vapor Pressure: <2mmHg at 20°C (68°F)

Flash Point (Closed cup) : >43°C (>110°F)

Flammable Limits: LEL approx. 0.7%, UEL approx. 6.1%

Auto ignition Temperature: 237°C (459°F)

Solubility in Water: Insoluble

Evaporation Rate: 0.2 (BuAc=1)

Partition coefficient (n-octanol/water): Kow = 4.23 (d-limonene)

Volatile Organic Compound (VOC) Content: >95% by volume

*Note: These properties represent a typical sample of the product, but actual values may vary. Certificates of Analysis and Specification Sheets are available upon request.*

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## Section 10: STABILITY AND REACTIVITY

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Stability: Stable.

Conditions to Avoid: Keep away from heat, sparks and flames.

Incompatible Materials to Avoid: Strong oxidizing agents and strong acids, including acidic clays, peroxides, halogens, vinyl chloride, and iodine pentafluoride.

Hazardous Decomposition Products: Oxides of d-limonene, which can result from improper storage and handling, are known to cause skin sensitization. No decomposition if stored properly.

Possibility of Hazardous Reactions: BHT, an antioxidant, can be added to prevent oxidation. Avoid long-term exposure to air. If storing partially-filled containers, fill headspace with an inert gas such as nitrogen or carbon dioxide.

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## Section 11: TOXICOLOGICAL INFORMATION

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### Acute Effects

d-Limonene has been shown to have low oral toxicity (LD<sub>50</sub>>5 g/kg) and low dermal toxicity (LD<sub>50</sub>> 5g/kg) when tested on rabbits. d-Limonene has also shown low toxicity by inhalation (RD<sub>50</sub>>1 g/kg) when tested on mice. Product may be a skin and eye irritant. Inhalation may cause irritation of the nose, throat, and respiratory tract. LC<sub>50</sub>: Not established.

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### Chronic Effects

This product is not classified as a carcinogen by IARC or U.S. ACGIH, NTP or OSHA. This product has not been shown to produce genetic changes when tested on bacterial or animal cells. This product does not contain known reproductive or developmental toxins.

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## Section 12: ECOLOGICAL INFORMATION

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Ecotoxicity: This product may be very toxic to aquatic life. However due to the physical properties of the product (density and volatility) it will not remain in the environment for an extended period of time.

Persistence/Degradability: Product is readily biodegradable.

Bioaccumulation/Accumulation: The octanol-water partition coefficient (Kow) for d-limonene is 4.23. The potential for bioaccumulation in the environment is possible. However, the metabolism of citrus extractives into non-accumulating metabolites greatly reduces the risk of bioaccumulation.

Mobility in Environment: Citrus extractives volatilize rapidly. Citrus extractives are expected to volatilize from soil or water to the air and oxidize to carbon dioxide in the presence of sunlight.

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## Section 13: DISPOSAL CONSIDERATIONS

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Disposal: Incinerate or dispose of in accordance with local regulations. Oil soaked rags or contaminated packaging should be disposed of properly to prevent spontaneous combustion.

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## Section 14: TRANSPORT INFORMATION

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The listed transportation classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptions.



### Road – ADR/DOT (ground); RID (rail)

Proper Shipping Name: TERPENE HYDROCARBONS, N.O.S.

Hazard Class: 3

UN Number: UN2319

Packing Group: III

Label/Placard: 3 Flammable Liquid

Label/Placard: exception §173.150(f) applies (DOT only)

### Sea – IMDG (sea)

Proper Shipping Name: TERPENE HYDROCARBONS, N.O.S.

Hazard Class: 3

UN Number: UN2319

Packing Group: III

Marine Pollutant: Yes

Label/Placard: 3 Flammable Liquid

### Air – IATA / ICAO (air)

Proper Shipping Name: TERPENE HYDROCARBONS, N.O.S.

Hazard Class: 3

UN Number: UN2319

Packing Group: III

Label/Placard: 3 Flammable Liquid

**Special precautions for user** none listed

**EMS Number:** F-E, S-E

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## Section 15: REGULATORY INFORMATION

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### Global Inventories

This product is included in the following inventories:

USA (TSCA)<sub>1,2</sub>

Canada (DSL)<sub>1,2</sub>

Europe (EINECS/ELINCS/Polymer/NLP)<sub>3</sub>

Australia (AICS)<sub>3</sub>

Korea (KECL)<sub>3</sub>

Philippines (PICCS)

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Japan (ENCS)<sub>2</sub>  
China (IECSC)  
New Zealand (HSNO)

Applicable CAS numbers:

8028-48-6 Orange, sweet, extract  
5989-27-5 d-limonene, (R)-p-mentha-1,8-diene  
94266-47-4 Citrus terpenes, citrus ext  
68647-72-3 Terpenes and terpenoids, sweet orange oil  
68608-34-4 Terpenes and terpenoids, citrus oil

The U.S. FDA lists d-Limonene as GRAS in 21 CFR sections 182.20 and 182.60

### United States Regulations

#### **Proposition 65: California Safe Drinking Water and Toxic Enforcement Act of 1986**

This product is not known to contain any chemicals currently listed as carcinogens or reproductive toxins under California Proposition 65 at levels which would be subject to the proposition.

#### **SARA Title III (Section 313)**

This substance contains no materials subject to the reporting requirements of SARA Title III (Section 313).

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## Section 16: OTHER INFORMATION

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### **NFPA 704: National fire Protection Association**

Health – 1 (slight hazard)

Fire – 2 (moderate hazard)

Reactivity – 0 (minimal hazard)

This product was produced with Good Manufacturing Practices. It is a by-product of citrus, entirely of natural origin, and to the best of our knowledge contains no artificial flavors, sulfites, nitrites, or pesticide residue exceeding tolerances established by the U.S. FDA. It has not been adulterated or misbranded. It does NOT contain lead, cadmium, mercury, or hexavalent chromium or come in contact with these chemicals since it is a citrus derived essential oil produced by steam/vacuum distillation. Further, it is packaged in food grade containers with inert liners that do NOT contain lead, cadmium, mercury, or hexavalent chromium. It does NOT contain and is NOT manufactured with any of the Class I or II ozone-depleting substances listed under the United States Clean Air Act of 1990.

### **Legend**

ACIGH – American Conference of Governmental Industrial Hygienists

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road

AIHA – American Industrial Hygiene Association

BHT – Butylated Hydroxytoluene

CAS # - Chemical Abstracts Service

CFR – United States Code of Federal Regulations

DOT – United States Department of Transportation

EC# - European Commission (aka EINECS, European Inventory of Existing Commercial chemical Substances)

ECHA - European Chemicals Agency

FDA – United States Food and Drug Administration

GHS - Globally Harmonized System of Classification and Labelling of Chemicals

GRAS – Generally Recognized as Safe

IARC – International Agency for Research on Cancer

IATA – International Air Transport Association

ICAO – International Civil Aviation Organization

IMDG – International Maritime Code for Dangerous Goods

NFPA – National Fire Protection Association

NIOSH – United States National Institute for Occupational Safety and Health

NTP – United States National Toxicology Program

OSHA – United States Occupational Health and Safety Administration

RID – Regulations Concerning the International Transport of Dangerous Goods by Rail

TWA – Time Weighted Average

Caution: The user should conduct his/her own experiments and establish proper procedures and control before attempting use on critical parts.

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The information contained herein is based on current knowledge and experience: no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information obtained by the user. No warranty is expressed or implied regarding the accuracy of this data, the results to be obtained from the use thereof, or that any such use will not infringe any patent. Users should make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials, the safety and health of employees and customers, and the protection of the environment. This information is furnished upon the condition the person receiving it shall determine the suitability for the particular purpose. This SDS is to be used as a guideline for safe work practices and emergency response