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MATERIAL SAFETY DATA SHEET

EMERGENCY OVERVIEW

Physical State: Liquid **Color:** Colorless **Flammability:** Class 3 flammable liquid

Caution: Eye contact, skin absorption, inhalation or swallowing is harmful. If skin contact, remove with soap. If inhaled, move person to fresh air. If in eyes, rinse with water. If swallowed, contact a physician or poison control center.

For Chemical Emergency, Spill, Leak or Fire call CHEMTREC (800)424-9300
For Medical Emergency or Adverse Event call PROSAR (800) 983-4711

Hazard Rankings

	HMIS	NFPA
Health Hazard	2	2
Fire Hazard	2	2
Reactivity	0	0

Protective Equipment

Safety glasses or goggles
Boots, apron or bodysuit.
See Section 8 for details

DATE PREPARED: April 24, 2009. To be revised on or before 4/24/2012.
PREPARED BY: Eric Revere

SECTION 1: PRODUCT IDENTIFICATION

Product Name: XT-2000 Orange Oil Plus®

Product Description: Proprietary EPA registered commercial pesticide for drywood termites, wood boring beetles and carpenter ants

Generic Description: Citrus terpenes, Orange Terpenes, Terpene hydrocarbons

EPA Registration Number: 71986-2

Proper Shipping Name: (49CFR 172.101): Consumer Commodity
D.O.T. HAZARD CLASS (49CFR 172.101): ORM-D

SECTION 2: HAZARDOUS INGREDIENTS

Emergency Overview

Appearance/Odor: Colorless liquid with citrus aroma.

Harmful if absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing vapors. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

Skin: May cause slight redness. Prolonged or repeated exposure may cause drying of the skin.

Inhalation: May cause nose, throat, and respiratory tract irritation, coughing, headache.

Ingestion: Not likely to be toxic, but may cause vomiting, headache, or other medical problems.

Medical Conditions Aggravated By Exposure: May irritate the skin of people with pre-existing skin conditions.

Slip Hazard: Slippery when spilled. Clean up spills immediately. See Section 6 and Section 7 for spill cleanup and handling methods.

This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC, ACGIH or NTP.

OSHA Regulatory Status

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS #	% by Wt.
d-Limonene	8028-48-6	min. 95
Citrus Terpenes (Orange)	none assigned	5

SECTION 4: FIRST AID MEASURES

Have the product container or label with you when calling a poison control center or doctor or going for treatment. [You may also contact 1-800-424-9300 for emergency medical treatment information.]

- If on Skin** • Take off contaminated clothing.
- Or** • Immediately rinse skin with plenty of water for 15-20 minutes.
- Clothing** • Call a poison control center or doctor for treatment advice.
- If Inhaled** • Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
- Call a poison control center or doctor for treatment advice.
- If in Eyes** • Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.
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SECTION 5: FIRE FIGHTING MEASURES

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 or 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.

SECTION 6: ACCIDENTAL RELEASE, SPILL, LEAK MEASURES

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your state water board or regional office of the EPA.

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.

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. Oil soaked rags may spontaneously combust; place in appropriate disposal container.

This product contains no CERCLA listed chemical.

SECTION 7: HANDLING AND STORAGE

Handling

Wear rubber gloves. Wear OSHA-approved safety glasses, goggles or face shield. Mechanical ventilation should be used when handling this product. 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 well ventilated areas. Do not breathe vapors. As with any chemical, employees should thoroughly wash hands with soap and water after handling this material. Do not contaminate water, feed or food by storage, handling or disposal. Read and observe all precautions and instructions on the label.

Storage

Product is packaged in fluorinated plastic containers. Store containers upright and closed. Store in areas that are cool, dry and well ventilated. Keep away from heat, ignition source and strong oxidizers. Emptied containers may retain product residues. Do not cut, drill, grind or weld on or near this container; residual vapors may ignite.

Other Precautions

Read and follow directions on product label.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective Equipment/Exposure Guidelines

Orange Terpenes 8h TWA=30 ppm (AIHA Standard)

TWA – Time Weighted Average

Eye/Face Protection: Use proper protection – Wear safety glasses or goggles.

Skin: Wear rubber gloves [Nitrile gloves are recommended] and protective clothing. Boots, apron, or bodysuit should be worn as necessary. Wash hands after handling material.*

Inhalation: No respiratory protection required when used according to label directions, but if vapor concentration is high, use NIOSH approved air-purifying respirator with organic vapor cartridge or canister.

Ventilation: If ventilation is inadequate, mechanical ventilation should be used when handling this product in enclosed spaces. Local exhaust ventilation may be necessary.

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

Comments: Use only at normal room temperatures.

*Good hygiene practices require amounts of any chemical be removed from the skin after exposure, especially before eating or smoking.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Color: Colorless.

Odor: Citrus aroma.

Physical State: Liquid.

Boiling Point: 349°F (176°C)

Melting Point: -140°F (-96°C), thickens at -180°F (-78°C)

Specific Gravity: 0.840 to 0.850 @ 77°F (25°C)

Refractive Index: 1.471 to 1.474

Optical Rotation: +96° to +104°

Vapor Pressure: <2mmHg @ 68°F (20°C)

Flash Point (CCCFP) : >110°F (43°C)

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

Autoignition Temperature: 458°F (237°C)

Solubility in Water: Insoluble

Evaporation Rate: 0.2 (BuAc=1)

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

SECTION 10: REGULATORY INFORMATION

Regulatory Requirements

The United States FDA lists d-Limonene as GRAS in 21 CFR Section 182.20 and 182.60.

EPA Hazard Categories Section 311 and 312

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Section 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Immediate Health	Delayed health
Fire hazard	Reactivity

SARA Title III (Section 313)

This product contains no materials subject to the reporting requirements of SARA Title III (Section 313). Reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: CHEMICAL NAME CAS NUMBER % BY WEIGHT

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.

This product was produced with Good Manufacturing Practices. This product is a by-product of citrus and entirely of natural origin. This product has not been adulterated or misbranded.

Global Inventories

The components of this product are included in the following inventories

USA (TSCA)	Canada (DSL)	Europe (EINECS/ELINCS/Polymer/NLP)
Australia (AICS)	Korea (KECL)	Philippines (PICCS)
Japan (ENCS)		

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Effects

Orange terpenes have been shown to have low oral toxicity ($LD_{50} > 5$ g/kg) and low dermal toxicity ($LD_{50} > 5$ g/kg) when tested on rabbits. Orange terpenes also showed low toxicity by inhalation ($RD_{50} > 1$ g/kg) when tested on mice. The skin irritancy of limonene in guinea pigs and rabbits is considered moderate and low, respectively. Inhalation may cause irritation of the nose, throat, and respiratory tract.

Chronic Effects

This product is not classified as a carcinogen by OSHA, IARC, ACGIH or NTP. 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. Prolonged or repeated exposure can cause drying or dermatitis of skin. Improper storage and handling may lead to the formation of a possible skin sensitizer.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

There is no information available at this time for this product. However, a spill may produce significant toxicity to aquatic organisms and ecosystems. Some studies have shown that certain bacteria and fungus have the ability to degrade terpenes, decreasing their toxicity to fish. When spilled, this product may act as an oil, causing a film, sheen, emulsion or sludge at or beneath the surface of a body of water.

Persistence/Degradability: Product is expected to be readily biodegradable.

Bioaccumulation/Accumulation: No appreciable bioconcentration is expected in the environment.

Mobility in Environment: Orange terpenes volatilize rapidly.

SECTION 13: DISPOSAL CONSIDERATIONS

Do not contaminate water, food or feed by storage or disposal.

Storage: Store container in a cool, dry place. Do not use or store near heat or open flame.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste facility.

Container Disposal: {Plastic container:} Triple rinse (or equivalent), then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by state and local authorities, by burning; if burned stay out of smoke.

Oil soaked rags should be disposed of properly to prevent spontaneous combustion.

SECTION 14: TRANSPORT INFORMATION

US DOT Shipping Classification

PROPER SHIPPING NAME (49CFR 172.101): Consumer Commodity

D.O.T. HAZARD CLASS (49CFR 172.101): ORM-D

E.P.A. REGISTRATION NUMBER: 71986-2

GENERIC DESCRIPTION: Citrus Terpenes, Orange Terpenes (TERPENE HYDROCARBONS, N.O.S.)

IDENTIFICATION NO: UN2319

PACKAGING GROUP: III

LABEL/PLACARD: exception §173.150(f) applies.

TDG Status: Hazardous

IMO Status: Hazardous

IATA Status: Hazardous

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

SECTION 15: STABILITY AND REACTIVITY

Stability: Stable.

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

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

Hazardous Decomposition Products: Oxides of orange terpenes, which can result from improper storage and handling, are known to cause skin sensitization.

Possibility of Hazardous Reactions: To prevent oxidation, avoid long-term exposure to air. If storing partially filled container, fill headspace with an inert gas such as nitrogen or carbon dioxide.

SECTION 16: OTHER INFORMATION

NFPA 704: National Fire Protection Association

Health – 1 (slight hazard)

Fire – 2 (moderate hazard)

Reactivity – 0 (minimal hazard)

EINECS Number: 232-433-8

d-Limonene is the major component of orange terpenes. It is a by-product of citrus fruit and entirely of natural origin. It does NOT contain lead, cadmium, mercury or hexavalent chromium or come in contact with these chemicals as it is a citrus-derived essential oil produced by steam/vacuum distillation. d-Limonene is packaged in containers with inert liners that do NOT contain lead, cadmium, mercury, or hexavalent chromium. d-Limonene 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.

PACKAGING

d-Limonene is packaged in fluorinated polyethylene 1 gallon containers.

Disclaimer of Liability

The information contained herein is based on current knowledge and experience and obtained from sources we believe to be reliable. These data are offered in good faith as typical values and not as product specifications. No warranty, either express or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. This product should be used, transported and stored following precautions declared on the product labeling. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. All materials may present unknown health hazards when accidentally or intentionally combined with other substances. This MSDS is to be used only for this product and as a guideline for safe work practices and emergency response. Upon shipment of this product from our warehouse utilizing transport not owned or operated by us, the conditions of handling, storage, use and disposal of this product are beyond our control and may be beyond our knowledge. For this and other reasons, we assume no responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with handling, storage, use or disposal of the product.

Legend

ACIGH – American Conference of Governmental Industrial hygienists

AIHA – American Industrial Hygiene Association

BHT – Butylated Hydroxytoluene

EPA – United States Environmental Protection Agency

FDA – United States Food and Drug Administration

GRAS – General Regarded As Safe

HMIS – Hazardous Materials Information System

IARC – International Agency for Research on Cancer

NIOSH – National Institute for Occupational Safety and Health

NFPA – National Fire Protection Association

NTP – National Toxicology Program

OSHA – United States Occupational Health and Safety Administration