

# Product Information Bulletin

## MATERIAL SAFETY DATA SHEET

**TRADE NAME:** VertecBio Citrus I20

D-LIMONENE BLEND

**MANUFACTURER'S NAME**

NANOPLAS, INC

**ADDRESS**

2140 TOUHY AVE  
ELK GROVE, IL 60007

**CHEMICAL NAME**

Citrus Terpenes / Ethyl Hydroxy Propionate / Isobutyl Alcohol

**DOT CLASSIFICATION**

*Combustible Liquid*

**CHEMICAL OR COMMON NAME PERCENT CAS NO.**

Ethyl lactate 20-80 97-64-3

**SECTION 1**

**EMERGENCY TELEPHONE NO.**

847-228-6050

**COMMON NAME**

d-Limonene/ Ethyl Lactate / Isobutanol

**FORMULA**

Blend

**APPLICABLE PEL-OSHA EXPOSURE LIMITS TLV-ACGIH**

None established

None established

### SECTION 2 HAZARDOUS INGREDIENTS

CHEMICAL OR COMMON NAME	PERCENT	CAS NO.	APPLICABLE PEL-OSHA	EXPOSURE LIMITS TWA
d-Limonene	20-80	8028-48-6	None established	AIHA 8 hour TWA = 30ppm
Isobutanol	1-50	78-83-1	100 ppm	ACGIH 8 hour TWA = 50 ppm

### CARCINOGENIC INGREDIENTS

CHEMICAL OR COMMON NAME	%	REFERENCE IARC	SOURCE NTP	OSHA	OTHER
	-	-	-	-	-

*None identified*

### SECTION 3 HEALTH HAZARD DATA

**ACUTE HEALTH EFFECTS**

Eyes Irritant.

Skin Contact May be irritating to skin. Contains a potential skin sensitizer.

Ingestion Product is harmful if swallowed.

Inhalation Prolonged exposure may cause irritation of mucous membranes.

**CHRONIC HEALTH EFFECTS**

None known, not listed as a carcinogen.

**ROUTES OF ENTRY**

Most common, skin and inhalation.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

Mist may cause eye/respiratory irritation with coughing.

### SECTION 4 FIRST AID MEASURES

**EYES** Immediately flush with water for at least 15 minutes. See a medical doctor immediately.

**SKIN** Wash affected area with soap and water.

**INHALATION** Remove person to fresh air. If discomfort occurs and persists, obtain medical attention.

**INGESTION** See a medical doctor immediately. Do not induce vomiting.

### SECTION 5 FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA** Water fog, carbon dioxide (CO<sub>2</sub>), dry chemical.

**SPECIAL FIREFIGHTING PROCEDURES** Wear a self-contained breathing apparatus.

**DEGREE OF FIRE AND EXPLOSION HAZARD** Moderate. Rags soaked with any solvent can present a fire hazard and should be stored in UL listed or Factory Mutual approved, covered containers. Not an explosion hazard.

**HAZARDOUS DECOMPOSITION PROCEDURES** None required when completely combusted; decomposes to water and CO<sub>2</sub>. However, during a fire, incomplete combustion can result in the production of CO along with an acrid and irritating smoke.

## SECTION 6 ACCIDENTAL RELEASE / SPILL MEASURES

**PROCEDURE FOR RELEASE OR SPILL** Cover with large quantity of absorbent material (e.g. kitty litter) and collect in drums for disposal. Clean contaminated area with soap and water.

## SECTION 7 CHEMICAL AND PHYSICAL DATA

<b>MELTING POINT (°C)</b>	<i>Not applicable</i>	<b>SPECIFIC GRAVITY (H<sub>2</sub>O=1)</b>	0.894
<b>BOILING POINT</b>	236° F	<b>PERCENT VOLATILE BY VOLUME (%)</b>	97+
<b>VAPOR PRESSURE (mmHg)</b>	~7 @ 68°F	<b>EVAPORATION RATE (butyl acetate=1)</b>	0.31
<b>VAPOR DENSITY (AIR=1)</b>	~3	<b>pH OF WATER DISPERSION</b>	ND
<b>SOLUBILITY</b>	Partially	<b>APPEARANCE AND ODOR</b>	Clear, colorless to slightly yellow liquid, with a mild orange aroma.
<b>FLASH POINT</b>	101° F, ASTM D93	<b>Lel</b>	<b>Uel</b>
		<i>FLAMMABLE LIMITS</i>	

**EXTINGUISHING MEDIA** – Water fog, foam, CO<sub>2</sub>

**SPECIAL FIRE FIGHTING PROCEDURES**

None required

**INCOMPATIBILITY (materials to avoid)**

*Strong oxidizing agents, strong acids, halogens, peroxides, vinyl chloride, iodine pentafluoride, alkali metals aluminum and lead.*

**HAZARDOUS DECOMPOSITION PRODUCTS**

Incomplete combustion can result in the production of CO.

**ODOR THRESHOLD** No data

**BULK DENSITY (G/ML)**

**PARTITION COEFFICIENT**

(n-octanol/water) No data **AUTOIGNITION TEMPERATURE** No data

**EXPLOSIVE PROPERTIES** Not applicable

**OXIDIZING PROPERTIES** Not applicable

## SECTION 8 STABILITY AND REACTIVITY DATA

<b>STABILITY</b>	Stable
<b>HAZARDOUS POLYMERIZATION</b>	None known
<b>CONDITIONS TO AVOID</b>	<i>None known</i>
<b>MATERIALS TO AVOID</b>	<i>Strong oxidizing agents, strong acids, halogens, peroxides, vinyl chloride, iodine pentafluoride, alkali metals, aluminum and lead.</i>
<b>CONTAMINANTS THAT CONTRIBUTE TO INSTABILITY</b>	<i>None known</i>
<b>INCOMPATIBILITY</b>	None known
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b>	Incomplete combustion can result in the production of CO.
<b>SENSITIVITY TO MECHANICAL IMPACT</b>	<i>None known</i>
<b>SENSITIVITY TO STATIC DISCHARGE</b>	None known

## SECTION 9 TOXICOLOGICAL INFORMATION

<b>EYE CONTACT</b>	Irritant
<b>SKIN CONTACT</b>	No data available
<b>SKIN ABSORPTION</b>	<i>No data available</i>
<b>INHALATION</b>	No data available
<b>INGESTION</b>	No data available
<b>ACUTE EFFECTS FROM OVEREXPOSURE</b>	May cause irritation of the eyes.
<b>CHRONIC EFFECTS FROM OVEREXPOSURE</b> (effects considered include: sensitivities, carcinogenicity, teratogenicity, mutagenicity, synergistic products, and any medical conditions generally recognized as being aggravated by exposure)	None identified

## SECTION 10 ECOLOGICAL INFORMATION

<b>ENVIRONMENTAL FATE</b>	100% Biodegradable
<b>ENVIRONMENTAL EFFECTS</b>	No adverse effects known or suspected. Not listed as a toxic chemical under SARA Title III 302, 304 or 313.

## SECTION 11 HANDLING AND STORAGE

<b>HANDLING</b>	Keep container tightly closed. Minimize exposure to air. Store in a cool, dry, well-ventilated, liquid storage area.
<b>VENTILATION</b>	Use adequate general or local exhaust ventilation to keep vapor and mist levels as low as possible.
<b>STORAGE</b>	Store in a cool dry area, away from oxidizers and acids.

## SECTION 12 EXPOSURE CONTROL / PERSONAL PROTECTION

<b>VENTILATION</b>	
<b>Local Exhaust</b>	Recommended
<b>Mechanical (general)</b>	In most cases adequate ventilation can be achieved by use of an industrial floor or pedestal fan, combined with sizable inlet and outlet openings to the workspace, such as doors and/or windows.
<b>EYE PROTECTION</b>	Use chemical goggles.
<b>GLOVES</b>	Use impervious gloves to prevent skin contact.
<b>SPECIAL CLOTHING AND EQUIPMENT</b>	Aprons recommended. If clothing becomes contaminated, remove and launder before reuse.
<b>OTHER PROTECTIVE EQUIPMENT</b>	None identified
<b>FOOT PROTECTION</b>	Industrial safety shoes are recommended in all industrial settings.
<b>OTHER ENGINEERING CONTROLS</b>	None identified
<b>WORK PRACTICES</b>	Do not smoke in areas of storage or use. Avoid all contact with skin and eyes.
<b>CONTROL MEASURES</b>	Minimize eye and skin contact by using appropriate protective equipment. Use local or general room ventilation to control vapors or mist that may be generated into the work environment.

## SECTION 13 SPECIAL PRECAUTIONS DATA

### RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

**RESPIRATORY** None required where adequate ventilation conditions exist.

### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid all contact with eyes or skin. Wear the appropriate protective equipment. Protect containers from physical damage.

### MAINTENANCE PERSONNEL

Wash down vessels. Check the oxygen and combustible vapor content of the vessel atmosphere. Use the appropriate protective equipment.

## SECTION 14 DISPOSAL PROCEDURES

**WASTE DISPOSAL METHOD** Take up with sand or other non-combustible absorbent material and place into container for later disposal. Wash area with soap and water. Dispose in accordance with all applicable Federal, State, and local environmental regulations. Spent product may be offered for fuel blending incineration.

## SECTION 15 TRANSPORT INFORMATION

### DOT PROPER SHIPPING NAME

*VertecBio Citrus I20 (under 119 gallons)*

<b>IATA</b>	UN1993, Flammable liquids, n.o.s. (Isobutanol), 3, PG III
<b>IMDG</b>	UN1993, Flammable liquids, n.o.s. (Isobutanol), 3, PG III
<b>DOT CLASSIFICATION</b>	Combustible liquid
<b>DOT LABELS</b>	None required, under 119 gallons.
<b>DOT MARKING</b>	Not applicable
<b>DOT PLACARD</b>	Bulk: Combustible Liquid, 1993
<b>IDENTIFICATION NUMBER</b>	NA 1993
<b>PACKAGING GROUP</b>	III
<b>HAZARDOUS SUBSTANCE/RQ</b>	None
<b>49 STCC NUMBER</b>	Not applicable
<b>PRECAUTIONS TO BE TAKEN IN TRANSPORTATION</b>	None needed
<b>OTHER SHIPPING INFORMATION</b>	None

## SECTION 16 REGULATORY INFORMATION

### OSHA EXPOSURE LIMITS SUBSTANCE(S)

*d-Limonene, Ethyl Lactate, Isobutanol*

<b>OSHA PEL-TWA</b>	Isobutanol, PEL = 100 ppm
<b>STEL</b>	None established
<b>CEILING</b>	None established
<b>SKIN DESIGNATION</b>	None established
<b>ACGIH TLV-TWA</b>	Isobutanol, TWA = 50 ppm
<b>STEL</b>	None established
<b>CEILING</b>	None established
<b>SKIN DESIGNATION</b>	None established
<b>TARGET ORGAN EFFECTS</b>	Eye
<b>CARCINOGENIC POTENTIAL</b>	None
<b>REGULATED BY OSHA</b>	No
<b>LISTED ON NTP REPORT</b>	No
<b>IARC GROUP 1, 2A, 2D</b>	No
<b>US EPA REQUIREMENTS RELEASE REPORTING CERCLA (40 CFR 302)</b>	
<b>LISTED SUBSTANCE(S)</b>	Not listed
<b>RQ</b>	Not applicable
<b>Category</b>	Not applicable
<b>RCRA waste number</b>	Not applicable

<b>UNLISTED SUBSTANCE(S)</b>	d-limonene, Ethyl Lactate, Isobutanol
<b>RQ</b>	Isobutanol = 5000 pounds
<b>Characteristic</b>	Ignitability
<b>RCRA waste number</b>	D001
<b>SARA TITLE III SEC 313 (40 CFR 372)</b>	
<b>LISTED TOXIC CHEMICAL</b>	Not listed
<b>INVENTORY REPORTING SARA TITLE III SEC 311/312 (40 CFR 370)</b>	
<b>Substance(s)</b>	Not listed
<b>Hazard category</b>	Not applicable
<b>Planning threshold</b>	Not applicable
<b>Emergency planning</b>	Not applicable
<b>SARA TITLE III SEC 302-303 (40 CFR 355)</b>	
<b>Listed substance(s)</b>	Not listed
<b>RQ</b>	Not applicable
<b>Planning threshold</b>	Not applicable
<b>US TSCA STATUS</b>	Listed
<b>CANADA INGREDIENT DISCLOSURE LIST SUBSTANCE(S)</b>	
<b>CONTROLLED PRODUCT</b>	d-Limonene, Isobutanol
<b>HAZARD SYMBOLS</b>	
<b>CLASS AND DIVISION</b>	Class B, Division 3
<b>PRODUCT IDENTIFICATION NO.</b>	
<b>DOMESTIC SUBSTANCE LIST</b>	Listed
<b>CEPA PRIORITY LIST</b>	Not listed

**SECTION 17 ADDITIONAL INFORMATION**

No additional information available at this time.

**SECTION 18 HMIS LABEL**

HEALTH	FLAMMABILITY	REACTIVITY	PERSONAL PROTECTION	
1	2	0		<b>B</b>