1. Identification

Product identifier: GERANYL LINALOOL

Other means of identification:
- BRI Product Code: 419

Synonyms: (* Alt. CAS #) CAS: 1113-21-9; Geranyl linalool * 1,6,10,14-Hexadecatetraen-3-ol, 3,7,11,15-tetramethyl-

Recommended use: fragrance

Recommended restrictions: Not for use in Tobacco or Nicotine delivery device applications and/or products.

Manufacturer/Importer/Supplier/Distributor information:
- Company name: Bedoukian Research
- Address: 21 Finance Drive, Danbury, CT 06810, United States
- Telephone: 1-203-830-4000
- Website: www.bedoukian.com
- E-mail: customerservice@bedoukian.com
- Contact person: Joseph Bania
- Emergency phone number: Chemtrec (North America) 1-800-424-9300, Chemtrec (International) 1-703-527-3887

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards:
- Skin corrosion/irritation: Category 2

Environmental hazards: Not classified.

OSHA defined hazards: Not classified.

Label elements

Signal word: Warning

Hazard statement: Causes skin irritation.

Precautionary statement
- Prevention: Wash thoroughly after handling. Wear protective gloves.
- Response: If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.
- Storage: Store away from incompatible materials.
- Disposal: Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC): None known.

Supplemental information: None.

3. Composition/information on ingredients

Substances:

Material name: GERANYL LINALOOL

419  Version #: 01  Issue date: 05-30-2015
### Chemical name, Common name and synonyms, CAS number, %

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERANYL LINALOOL</td>
<td>(*Alt. CAS #) CAS: 1113-21-9; Geranyl linalool 1,6,10,14-Hexadecatetraen-3-ol, 3,7,11,15-tetramethyl-</td>
<td>68931-30-6</td>
<td>100</td>
</tr>
</tbody>
</table>

### Stabilizers

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>synthetic alpha tocopherol</td>
<td>10191-41-0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

### Composition comments

Occupational Exposure Limits for stabilizers are listed in Section 8.

### 4. First-aid measures

#### Inhalation

Move to fresh air. Call a physician if symptoms develop or persist.

#### Skin contact

Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

#### Eye contact

Rinse with water. Get medical attention if irritation develops and persists.

#### Ingestion

Rinse mouth. Get medical attention if symptoms occur.

#### Most important symptoms/effects, acute and delayed

Skin irritation. May cause redness and pain.

#### Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

#### General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

### 5. Fire-fighting measures

#### Suitable extinguishing media

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

#### Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

#### Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed.

#### Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

#### Fire fighting equipment/instructions

Move containers from fire area if you can do so without risk.

#### Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

#### General fire hazards

No unusual fire or explosion hazards noted.

### 6. Accidental release measures

#### Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

#### Methods and materials for containment and cleaning up

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

#### Environmental precautions

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

#### 7. Handling and storage

Precautions for safe handling

Avoid contact with eyes, skin, and clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Recommended Packaging: Glass, Plastic or Phenolic Lined Steel. Store tightly sealed under inert gas in a cool, well-ventilated area.

8. Exposure controls/personal protection

Occupational exposure limits

No exposure limits noted for ingredient(s).

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Face shield is recommended. Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other

Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state

Liquid.

Color

colorless to slightly yellow

Odor

low intensity rosy/floral aroma

Odor threshold

Not available.

pH

Not available.

Melting point/freezing point

Not available.

Initial boiling point and boiling range


Flash point

230 °F (110 °C) Pensky-Martens or Grabner Miniflash

Evaporation rate

Not available.

Flammability (solid, gas)

Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)

Not available.

Flammability limit - upper (%)

Not available.

Explosive limit - lower (%)

Not available.

Explosive limit - upper (%)

Not available.

Vapor pressure

0.00000069 mmHg at 20°C; US EPA. 2014. Estimation Programs Interface Suite™ for Microsoft® Windows, v 4.11. US EPA, Washington, DC, USA.

Vapor density

10 Relative to air; air = 1

Relative density

Not available.

Solubility(ies)

Solubility (water)

Not available.

Partition coefficient (n-octanol/water)


Auto-ignition temperature

Not available.

Decomposition temperature

Not available.
Viscosity

Not available.

Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>0.873 - 0.883 g/cm³</td>
</tr>
<tr>
<td>Flammability class</td>
<td>Combustible IIIB estimated</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>C20H34O</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>290.48</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>0.873 - 0.883 at 25°C</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability
Material is stable under normal conditions.

Possibility of hazardous reactions
No dangerous reaction known under conditions of normal use.

Conditions to avoid
Contact with incompatible materials.

Incompatible materials
Strong oxidizing agents.

Hazardous decomposition products
No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

<table>
<thead>
<tr>
<th>Route</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>No adverse effects due to inhalation are expected.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Direct contact with eyes may cause temporary irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Expected to be a low ingestion hazard.</td>
</tr>
</tbody>
</table>

Symptoms related to the physical, chemical and toxicological characteristics
Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERANYL LINALOOL (CAS 68931-30-6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal Liquid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 Rabbit</td>
<td></td>
<td>&gt; 5000 mg/kg</td>
</tr>
<tr>
<td>Oral Liquid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 Rat</td>
<td></td>
<td>&gt; 5000 mg/kg</td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation
Causes skin irritation.

Serious eye damage/eye irritation
Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

<table>
<thead>
<tr>
<th>Sensitization Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory</td>
<td>Not a respiratory sensitizer.</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>This product is not expected to cause skin sensitization.</td>
</tr>
</tbody>
</table>

Germ cell mutagenicity
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity
This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

Reproductive toxicity
This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure  Not classified.
Specific target organ toxicity - repeated exposure  Not classified.
Aspiration hazard  Not an aspiration hazard.

12. Ecological information
Ecotoxicity  The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability  No data is available on the degradability of this product.
Bioaccumulative potential  Partition coefficient n-octanol / water (log Kow)  
Mobility in soil  No data available.
Other adverse effects  No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations
Disposal instructions  Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations  Dispose in accordance with all applicable regulations.
Hazardous waste code  The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products  Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging  Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information
DOT  Not regulated as dangerous goods.
IATA  Not regulated as dangerous goods.
IMDG  Not regulated as dangerous goods.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code  Not established.

15. Regulatory information
US federal regulations  This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)  Not regulated.
CERCLA Hazardous Substance List (40 CFR 302.4)  Not listed.
SARA 304 Emergency release notification  Not regulated.
Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard categories**
- Immediate Hazard - Yes
- Delayed Hazard - No
- Fire Hazard - No
- Pressure Hazard - No
- Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**
Not listed.

**SARA 311/312 Hazardous chemical**
Yes

**SARA 313 (TRI reporting)**
Not regulated.

**Other federal regulations**
- **Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**
  Not regulated.
- **Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**
  Not regulated.
- **Safe Drinking Water Act (SDWA)**
  Not regulated.

**US state regulations**
- **US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)**
  Not listed.
- **US. Massachusetts RTK - Substance List**
  Not regulated.
- **US. New Jersey Worker and Community Right-to-Know Act**
  Not listed.
- **US. Pennsylvania Worker and Community Right-to-Know Law**
  Not listed.
- **US. Rhode Island RTK**
  Not regulated.
- **US. California Proposition 65**
  California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

**International Inventories**

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>No</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision**

**Issue date**
05-30-2015

**Version #**
01
Disclaimer

BRI cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.