

## SAFETY DATA SHEET

507689 BIRCH LEAF GIVCO 166/2

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### 1. IDENTIFICATION

**Product Description:** BIRCH LEAF GIVCO 166/2

**CAS #** MIXTURE

**Other means of identification**

**Vigon Item #** 507689

**Recommended use** Concentrated aromatic ingredient which may be used fragrance compounds according to legal and IFRA guidelines.

**Recommended restrictions** For Manufacturing Use Only

Company

Vigon International, Inc.  
127 Airport Road  
E. Stroudsburg, PA 18301  
For information call: 570-476-6300  
Web Site: www.vigon.com

24 Hour Emergency Response Information

INFOTRAC (ACCT# 78928);  
1-800-535-5053 WITHIN THE U.S.A.  
1-352-323-3500 OUTSIDE THE U.S.A.

**Manufacturer/Importer/Supplier/Distributor information**

**Manufacturer**

**Company name** Vigon International, Inc.  
**Address** 127 Airport Road  
E. Stroudsburg, PA 18301  
United States  
**Telephone** For information call: 570-476-6300  
**Website** www.vigon.com  
**E-mail** Not available.

**Emergency phone number** INFOTRAC (ACCT# 78928);  
1-800-535-5053 WITHIN THE U.S.A.  
1-352-323-3500 OUTSIDE THE U.S.A.

### 2. HAZARD(S) IDENTIFICATION

|                              |  |            |
|------------------------------|--|------------|
| <b>Physical hazards</b>      | Flammable liquids                                      | Category 4 |
| <b>Health hazards</b>        | Skin corrosion/irritation                              | Category 2 |
|                              | Serious eye damage/eye irritation                      | Category 1 |
|                              | Sensitization, skin                                    | Category 1 |
| <b>Environmental hazards</b> | Hazardous to the aquatic environment, acute hazard     | Category 3 |
|                              | Hazardous to the aquatic environment, long-term hazard | Category 3 |

**Label elements**



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|  |  |
|--|--|
| <b>Signal word</b>                               | Danger   |
| <b>Hazard statement</b>                          | Combustible liquid. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Harmful to aquatic life with long lasting effects.   |
| <b>Precautionary statement</b>                   |  |
| <b>Prevention</b>                                | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing mist or vapor. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.  |
| <b>Response</b>                                  | IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish. |
| <b>Storage</b>                                   | Store in a well-ventilated place.  |
| <b>Disposal</b>                                  | Dispose of contents/container in accordance with local/regional/national/international regulations.  |
| <b>Hazard(s) not otherwise classified (HNOC)</b> | None known.  |
| <b>Supplemental information</b>                  | 34.5% of the mixture consists of component(s) of unknown acute inhalation toxicity. 9.25% of the mixture consists of component(s) of unknown acute dermal toxicity.  |

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Mixtures

| Chemical name | Common name and synonyms   | CAS number | %        |
|---------------|--|------------|----------|
| EUGENOL       | 5-ALLYL-2-HYDROXY-ANISOL<br>2-METHOXY-4-(2-PROPENYL)-PHENOL<br>1-HYDROXY-2-METHOXY-4-ALLYLBENZENE<br>2-METHOXY-4-ALLYLPHENOL     | 97-53-0    | 5 - < 10 |
| GERANIOL      | 3,7-DIMETHYL-2,6-OCTADIEN-1-OL<br>(2E)-3,7- dimethylocta-2,6-dien-1-ol<br>LEMONOL<br>GERANYL ALCOHOL                             | 106-24-1   | 5 - < 10 |
| CITRONELLOL   | 3,7-DIMETHYL-6-OCTEN-1-OL<br>6-Octen-1-ol, 3,7-dimethyl-<br>2,6- dimethyl-2-octen-8-ol   | 106-22-9   | 3 - < 5  |
| HEXENOL CIS-3 | (Z)-3-Hexen-1-ol<br>CIS-3-HEXENOL<br>3-HEXENOL-CIS   | 928-96-1   | 3 - < 5  |
| CITRAL        | 2,6- OCTADIENAL, 3,7-DIMETHYL-<br>2,6- dimethyl octadien-2,6-al-8<br>3,7-DIMETHYL-2,6-OCTADIENAL<br>3,7- dimethylocta-2,6-dienal | 5392-40-5  | 1 - < 3  |

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| Chemical name                             | Common name and synonyms   | CAS number | %         |
|---|--|------------|-----------|
| LINALOOL                                  | 2,6-DIMETHYL-2,7-OCTADIENE-6-OL<br>1,6-Octadien-3-ol, 3,7-dimethyl-<br>3,7-Dimethylocta-1,6-dien-3-ol<br>LINALYL ALCOHOL   | 78-70-6    | 1 - < 3   |
| NEROL                                     | (2Z)-3,7- dimethylocta-2,6-dien-1-ol   | 106-25-2   | 1 - < 3   |
| PHENYL ETHYL ALCOHOL                      | BENZYL CARBINOL<br>2-Phenylethanol   | 60-12-8    | 1 - < 3   |
| CARVENE                                   | DIPENTENE<br>(+)-P-MENTHA-1,8-DIENE<br>(R)-(+)-Limonene<br>(R)-4-Isopropenyl-1-methyl-1-cyclohexene<br>1- methyl-4-prop-1-en-2-ylcyclohexene   | 5989-27-5  | 1 - < 2.5 |
| UNDECAVERTOL                              | (E)-4- methyldec-3-en-5-ol<br>3-Decen-5-ol, 4-methyl-<br>4-Methyl-3-decen-5-ol   | 81782-77-6 | 1 - < 2.5 |
| IONONE BETA                               | beta-cyclocitrylidene acetone<br>(E)-4-(2,6,6- trimethyl-1-cyclohexenyl)but-3-<br>en-2-one<br>4-(2,6,6-Trimethylcyclohex-1-ene-1-yl)-but-<br>3-ene-2-one<br>3-Buten-2-one, 4-(2,6,6-trimethyl-1-<br>cyclohexen-1-yl)-<br>BETA-IONONE | 14901-07-6 | 0.25< 1   |
| PINENE ALPHA                              | dextro,laevo-pin-2(3)-ene<br>2,6,6 - trimethyl bicyclo-3,1,1-2-heptene<br>4,7,7- trimethylbicyclo[3.1.1]hept-3-ene   | 80-56-8    | 0.25< 1   |
| CITRONELLAL                               | 3,7-dimethyloct-6-enal<br>2,3- dihydrocitrinal<br>6-Octenal, 3,7-dimethyl-<br>RHODINAL   | 106-23-0   | 0.1< 1    |
| EUCALYPTOL                                | 4,7,7- trimethyl-8-oxabicyclo[2.2.2]octane<br>1,8-cineole<br>1,3,3-trimethyl oxabicyclo(2.2.2)octane<br>1,8-oxi-do-para-menthane   | 470-82-6   | 0.1< 1    |
| 2,4-DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE | 4-formyl-1,3-dimethylcyclohex-1-ene<br>2,4-DIMETHYL-3-CYCLOHEXEN-1-<br>CARBOXALDEHYDE<br>3-Cyclohexene-1-carboxaldehyde, 2,4-<br>dimethyl-<br>DIMETHYLCYCLOHEX-3-ENE-1-<br>CARBALDEHYDE (MIXED ISOMERS)                              | 68039-49-6 | 0.1< 0.25 |
| BUTYLATED HYDROXYTOLUENE                  | 2,6- ditert-butyl-4-methylphenol<br>Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl<br>BUTYLHYDROXYTOLUENE<br>VIANOL   | 128-37-0   | 0.1< 0.25 |



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| Chemical name                            | Common name and synonyms  | CAS number | %          |
|--|---|------------|------------|
| DIMETHYL BENZYL CARBINYL BUTYRATE        | ALPHA,ALPHA-DIMETHYLPHENETHYL BUTYRATE<br>Butanoic acid, 1,1-dimethyl-2-phenylethyl ester<br>(1- cyclohexyl-2-methylpropan-2-yl) butanoate<br>e 1,1 dimethyl-2-phenyl ethyl butanoate | 10094-34-5 | 0.1 < 0.25 |
| CEDARWOOD OIL TERPENES AND TERPENOIDS    |   | 11028-42-5 | 0 < 0.02   |
| Other components below reportable levels |   |            | 60 - < 70  |

### 4. FIRST-AID MEASURES

|   |  |
|---|--|
| <b>Inhalation</b>   | If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.   |
| <b>Skin contact</b>   | Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.   |
| <b>Eye contact</b>  | Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.   |
| <b>Ingestion</b>  | Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.            |
| <b>Most important symptoms/effects, acute and delayed</b>                     | Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. |
| <b>Indication of immediate medical attention and special treatment needed</b> | Not available.   |
| <b>General information</b>  | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.  |

### 5. FIRE-FIGHTING MEASURES

|  |  |
|--|--|
| <b>Suitable extinguishing media</b>                                  | Water spray, fog, CO <sub>2</sub> , dry chemical, or alcohol resistant foam.   |
| <b>Unsuitable extinguishing media</b>                                | Do not use a solid water stream as it may scatter and spread fire.   |
| <b>Specific hazards arising from the chemical</b>                    | Fire may produce irritating, corrosive and/or toxic gases.   |
| <b>Special protective equipment and precautions for firefighters</b> | Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.    |
| <b>Fire fighting equipment/instructions</b>                          | In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control. |
| <b>Specific methods</b>  | Use water spray to cool unopened containers.   |



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**General fire hazards** Static charges generated by emptying package in or near flammable vapor may cause flash fire.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures** Keep unnecessary personnel away. Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.

**Methods and materials for containment and cleaning up** Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps.

The product is immiscible with water and will spread on the water surface.

**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. Prevent product from entering drains. Absorb in vermiculite, dry sand or earth and place into containers.

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

Never return spills in original containers for re-use. This material and its container must be disposed of as hazardous waste. Collect and dispose of spillage as indicated in section 13 of the SDS.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid release to the environment. Retain and dispose of contaminated wash water. Contact local authorities in case of spillage to drain/aquatic environment.

### 7. HANDLING AND STORAGE

**Precautions for safe handling** Do not handle or store near an open flame, heat or other sources of ignition. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling.

**Conditions for safe storage, including any incompatibilities** Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Occupational exposure limits

##### US. ACGIH Threshold Limit Values

| Components                              | Type | Value               | Form                          |
|---|------|---------------------|-------------------------------|
| BUTYLATED HYDROXYTOLUENE (CAS 128-37-0) | TWA  | 2 mg/m <sup>3</sup> | Inhalable fraction and vapor. |
| CITRAL (CAS 5392-40-5)                  | TWA  | 5 ppm               | Inhalable fraction and vapor. |
| PINENE ALPHA (CAS 80-56-8)              | TWA  | 20 ppm              |                               |

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#### US. NIOSH: Pocket Guide to Chemical Hazards

| Components                                    | Type | Value                |
|---|------|----------------------|
| BUTYLATED<br>HYDROXYTOLUENE (CAS<br>128-37-0) | REL  | 10 mg/m <sup>3</sup> |
|   | TWA  | 10 mg/m <sup>3</sup> |

#### US. Workplace Environmental Exposure Level (WEEL) Guides

| Components                 | Type | Value                   |
|----------------------------|------|-------------------------|
| CARVENE (CAS<br>5989-27-5) | TWA  | 165.5 mg/m <sup>3</sup> |
|                            |      | 30 ppm                  |

**Biological limit values** No biological exposure limits noted for the ingredient(s).

#### Exposure guidelines

##### US ACGIH Threshold Limit Values: Skin designation

CITRAL (CAS 5392-40-5) Can be absorbed through the skin.

**Appropriate engineering controls** Use explosion-proof ventilation equipment to stay below exposure limits. 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.

#### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear safety glasses with side shields (or goggles). Face shield is recommended.

#### Skin protection

**Hand protection** Chemical resistant gloves.

**Other** Use of an impervious apron is recommended.

**Respiratory protection** Respiratory protection not required. If ventilation is insufficient, suitable respiratory protection must be provided.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations** When using do not smoke. 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. Contaminated work clothing should not be allowed out of the workplace.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance** Refer to Spec Sheet

**Physical state** Liquid.

**Form** Liquid.

**Color** Refer to Spec Sheet

**Odor** Characteristic.

**Odor threshold** Not available.

**pH** Not available.

**Melting point/freezing point** Not available.

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|   |                                   |
|---|-----------------------------------|
| <b>Initial boiling point and boiling range</b>      | Not available.                    |
| <b>Flash point</b>                                  | 180.0 °F (82.2 °C) Closed Cup     |
| <b>Evaporation rate</b>                             | Not available.                    |
| <b>Flammability (solid, gas)</b>                    | Not applicable.                   |
| <b>Upper/lower flammability or explosive limits</b> |                                   |
| <b>Flammability limit - lower (%)</b>               | Not available.                    |
| <b>Flammability limit - upper (%)</b>               | Not available.                    |
| <b>Explosive limit - lower (%)</b>                  | Not available.                    |
| <b>Explosive limit - upper (%)</b>                  | Not available.                    |
| <b>Vapor pressure</b>                               | Not available.                    |
| <b>Vapor density</b>                                | Not available.                    |
| <b>Relative density</b>                             | Not available.                    |
| <b>Solubility(ies)</b>                              |                                   |
| <b>Solubility (water)</b>                           | Insoluble                         |
| <b>Partition coefficient (n-octanol/water)</b>      | Not available.                    |
| <b>Auto-ignition temperature</b>                    | Not available.                    |
| <b>Decomposition temperature</b>                    | Not available.                    |
| <b>Viscosity</b>                                    | Not available.                    |
| <b>Other information</b>                            |                                   |
| <b>Density</b>                                      | 969.97 kg/m <sup>3</sup> at 20 °C |
| <b>Explosive properties</b>                         | Not explosive.                    |
| <b>Molecular formula</b>                            | Not applicable                    |
| <b>Oxidizing properties</b>                         | Not oxidizing.                    |

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### 10. STABILITY AND REACTIVITY

|   |  |
|---|--|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport.  |
| <b>Chemical stability</b>                 | Material is stable under normal conditions.  |
| <b>Possibility of hazardous reactions</b> | No dangerous reaction known under conditions of normal use.  |
| <b>Conditions to avoid</b>                | Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials. |
| <b>Incompatible materials</b>             | Alkaline metals.   |
| <b>Hazardous decomposition products</b>   | No hazardous decomposition products if stored and handled as indicated.  |

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### 11. TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

|                   |                                      |
|-------------------|--------------------------------------|
| <b>Inhalation</b> | Prolonged inhalation may be harmful. |
|-------------------|--------------------------------------|

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**Skin contact** Causes skin irritation. May cause an allergic skin reaction.

**Eye contact** Causes serious eye damage.

**Ingestion** Expected to be a low ingestion hazard.

**Symptoms related to the physical, chemical and toxicological characteristics** Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

**Information on toxicological effects**

**Acute toxicity** Not known.

| Product                | Species | Test Results |
|------------------------|---------|--------------|
| BIRCH LEAF GIVCO 166/2 |         |              |
| <b>Acute</b>           |         |              |
| <i>Oral</i>            |         |              |
| LD50                   |         | > 2000 mg/kg |

| Components   | Species | Test Results |
|--|---------|--------------|
| 2,4-DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE (CAS 68039-49-6) |         |              |
| <b>Acute</b>   |         |              |
| <i>Dermal</i>  |         |              |
| LD50   | Rabbit  | 2500 mg/kg   |
| <i>Oral</i>  |         |              |
| LD50   | Rat     | 2500 mg/kg   |

|   |            |             |
|---|------------|-------------|
| BUTYLATED HYDROXYTOLUENE (CAS 128-37-0) |            |             |
| <b>Acute</b>                            |            |             |
| <i>Oral</i>                             |            |             |
| LD50                                    | Guinea pig | 10700 mg/kg |
|   | Mouse      | 1040 mg/kg  |
|   | Rat        | 890 mg/kg   |

|                         |        |            |
|-------------------------|--------|------------|
| CARVENE (CAS 5989-27-5) |        |            |
| <b>Acute</b>            |        |            |
| <i>Dermal</i>           |        |            |
| LD50                    | Rabbit | 5 g/kg     |
| <i>Oral</i>             |        |            |
| LD50                    | Rat    | 4400 mg/kg |

|                        |        |            |
|------------------------|--------|------------|
| CITRAL (CAS 5392-40-5) |        |            |
| <b>Acute</b>           |        |            |
| <i>Dermal</i>          |        |            |
| LD50                   | Rabbit | 2250 mg/kg |
| <i>Oral</i>            |        |            |
| LD50                   | Rat    | 4950 mg/kg |



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| Components   | Species | Test Results  |
|--|---------|---|
| CITRONELLAL (CAS 106-23-0)                         |         |   |
| <b>Acute</b>                                       |         |   |
| <i>Dermal</i>                                      |         |   |
| LD50   | Rabbit  | > 2500 mg/kg  |
| <i>Oral</i>  |         |   |
| LD50   | Rat     | 2420 mg/kg  |
| CITRONELLOL (CAS 106-22-9)                         |         |   |
| <b>Acute</b>                                       |         |   |
| <i>Dermal</i>                                      |         |   |
| LD50   | Rabbit  | 2650 mg/kg  |
| <i>Oral</i>  |         |   |
| LD50   | Rat     | 3450 mg/kg  |
| DIMETHYL BENZYL CARBINYL BUTYRATE (CAS 10094-34-5) |         |   |
| <b>Acute</b>                                       |         |   |
| <i>Dermal</i>                                      |         |   |
| LD50   | Rabbit  | > 5000 mg/kg  |
| <i>Oral</i>  |         |   |
| LD50   | Rat     | > 5000 mg/kg  |
| EUCALYPTOL (CAS 470-82-6)                          |         |   |
| <b>Acute</b>                                       |         |   |
| <i>Dermal</i>                                      |         |   |
| LD50   | Rabbit  | > 5000 mg/kg  |
| <i>Oral</i>  |         |   |
| LD50   | Rat     | 2480 mg/kg Remarks:<br>Behavioral:Somnolence (general depressed activity). Behavioral:Coma. |
| EUGENOL (CAS 97-53-0)                              |         |   |
| <b>Acute</b>                                       |         |   |
| <i>Dermal</i>                                      |         |   |
| LCL0   | Rat     | 5000 mg/kg subcutaneous   |
| <i>Inhalation</i>                                  |         |   |
| LC50   | Rat     | 2580 mg/m <sup>3</sup> , 4 hours ARTODN<br>62,381,1988                                      |
| <i>Oral</i>  |         |   |
| LD50   | Rat     | 1930 mg/kg  |

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| Components                         | Species | Test Results   |
|------------------------------------|---------|--|
| GERANIOL (CAS 106-24-1)            |         |  |
| <b>Acute</b>                       |         |  |
| <i>Dermal</i>                      |         |  |
| LD50                               | Rabbit  | > 5000 mg/kg   |
| <i>Oral</i>                        |         |  |
| LD50                               | Rat     | 3600 mg/kg   |
| HEXENOL CIS-3 (CAS 928-96-1)       |         |  |
| <b>Acute</b>                       |         |  |
| <i>Dermal</i>                      |         |  |
| LD50                               | Rabbit  | > 5000 mg/kg   |
| <i>Oral</i>                        |         |  |
| LD50                               | Rat     | 4700 mg/kg   |
| IONONE BETA (CAS 14901-07-6)       |         |  |
| <b>Acute</b>                       |         |  |
| <i>Dermal</i>                      |         |  |
| LD50                               | Rabbit  | > 2000 mg/kg The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. |
| <i>Oral</i>                        |         |  |
| LD50                               | Mouse   | > 5300 mg/kg   |
|                                    | Rat     | > 4000 mg/kg   |
| LINALOOL (CAS 78-70-6)             |         |  |
| <b>Acute</b>                       |         |  |
| <i>Dermal</i>                      |         |  |
| LD50                               | Rabbit  | 2000 mg/kg   |
| <i>Oral</i>                        |         |  |
| LD50                               | Rat     | 2790 mg/kg   |
| NEROL (CAS 106-25-2)               |         |  |
| <b>Acute</b>                       |         |  |
| <i>Dermal</i>                      |         |  |
| LD50                               | Rabbit  | > 5000 mg/kg   |
| <i>Oral</i>                        |         |  |
| LD50                               | Rat     | 4500 mg/kg   |
| PHENYL ETHYL ALCOHOL (CAS 60-12-8) |         |  |
| <b>Acute</b>                       |         |  |
| <i>Dermal</i>                      |         |  |
| LD50                               | Rabbit  | 2500 mg/kg   |

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| Components                    | Species | Test Results  |
|-------------------------------|---------|---|
| <i>Oral</i><br>LD50           | Rat     | 1610 mg/kg  |
| PINENE ALPHA (CAS 80-56-8)    |         |   |
| <b>Acute</b>                  |         |   |
| <i>Dermal</i><br>LD50         | Rabbit  | > 5000 mg/kg  |
| <i>Oral</i><br>LD50           | Rat     | 3700 mg/kg<br>Remarks: Brain and Coverings: Recordings from specific areas of CNS. Behavioral: Somnolence (general depressed activity). Lungs, Thorax, or Respiration: Other changes. |
| UNDECAVERTOL (CAS 81782-77-6) |         |   |
| <b>Acute</b>                  |         |   |
| <i>Oral</i><br>LD50           | Rat     | > 8000 mg/kg OECD Test Guideline 104  |

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

|  |  |
|--|--|
| <b>Skin corrosion/irritation</b>         | Causes skin irritation.  |
| <b>Serious eye damage/eye irritation</b> | Causes serious eye damage.   |
| <b>Respiratory or skin sensitization</b> |  |
| <b>Respiratory sensitization</b>         | Not a respiratory sensitizer.  |
| <b>Skin sensitization</b>                | May cause an allergic skin reaction.   |
| <b>Germ cell mutagenicity</b>            | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. |

#### Carcinogenicity

##### ACGIH Carcinogens

|   |  |
|---|--|
| BUTYLATED HYDROXYTOLUENE (CAS 128-37-0) | A4 Not classifiable as a human carcinogen. |
| CITRAL (CAS 5392-40-5)                  | A4 Not classifiable as a human carcinogen. |
| PINENE ALPHA (CAS 80-56-8)              | A4 Not classifiable as a human carcinogen. |

##### IARC Monographs. Overall Evaluation of Carcinogenicity

|   |   |
|---|---|
| BUTYLATED HYDROXYTOLUENE (CAS 128-37-0) | 3 Not classifiable as to carcinogenicity to humans. |
| CARVENE (CAS 5989-27-5)                 | 3 Not classifiable as to carcinogenicity to humans. |
| EUGENOL (CAS 97-53-0)                   | 3 Not classifiable as to carcinogenicity to humans. |

##### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

##### US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

##### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not available.

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|   |  |
|---|--|
| <b>Reproductive toxicity</b>                              | This product is not expected to cause reproductive or developmental effects. |
| <b>Specific target organ toxicity - single exposure</b>   | Not classified.  |
| <b>Specific target organ toxicity - repeated exposure</b> | Not classified.  |
| <b>Aspiration hazard</b>                                  | Not an aspiration hazard.  |
| <b>Chronic effects</b>                                    | Prolonged inhalation may be harmful.   |

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** Harmful to aquatic life with long lasting effects.

| Components  | Species | Test Results  |
|---|---------|---|
| <b>2,4-DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE (CAS 68039-49-6)</b> |         |   |
| <b>Aquatic</b>  |         |   |
| <i>Acute</i>  |         |   |
| Algae   | EC50    | Green algae (Desmodesmus subspicatus)                                       |
| Crustacea   | EC50    | Daphnia magna   |
| Fish  | LC50    | Oncorhynchus mykiss (reported as Salmo gairdneri)                           |
|   |         | 31 mg/l, 72 hours (based on growth rate - nominal concentration - OECD 201) |
|   |         | 22.4 mg/l, 48 hours (measured concentration - similar to OECD 202)          |
|   |         | 7.5 mg/l, 96 hours (measured concentration - OECD 203)                      |
| <b>BUTYLATED HYDROXYTOLUENE (CAS 128-37-0)</b>                    |         |   |
| <b>Aquatic</b>  |         |   |
| Crustacea   | EC50    | Water flea (Daphnia pulex)  |
|   |         | 1.44 mg/l, 48 hours   |
| <b>CARVENE (CAS 5989-27-5)</b>                                    |         |   |
| <b>Aquatic</b>  |         |   |
| Crustacea   | EC50    | Water flea (Daphnia pulex)  |
| Fish  | LC50    | Fathead minnow (Pimephales promelas)  |
|   |         | Rainbow trout, donaldson trout (Oncorhynchus mykiss)                        |
|   |         | 35 mg/l, 4 days   |
| Other   | EC50    | Activated Sludge  |
|   |         | 3.94 mg/l   |
| <b>CITRAL (CAS 5392-40-5)</b>                                     |         |   |
| <i>Acute</i>  |         |   |
| Other   | EC20    | Activated sludge of a predominantly domestic sewage                         |
|   |         | 68 mg/l, 0.5 hours OECD Guideline 209 aquatic                               |

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| Components                 |      |  | Species  | Test Results   |
|----------------------------|------|--|--|--|
| <b>Aquatic</b>             |      |  |  |  |
| Other                      | EC50 |  | Bacterium  | 2100 mg/l, 0.5 hours DIN 38412 Part 27 (draft) aquatic - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration. |
| <i>Acute</i>               |      |  |  |  |
| Algae                      | EC50 |  | Green algae ( <i>Chlamydomonas variabilis</i> )      | 103.8 mg/l, 72 hours DIN 38412 Part 9 static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.           |
| Crustacea                  | EC50 |  | <i>Daphnia magna</i>                                 | 7 mg/l, 48 hours Directive 79/831/EEC static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.           |
| Fish                       | LC50 |  | Ide, silver or golden orfe ( <i>Leuciscus idus</i> ) | > 4.6 - < 10 mg/l, 96 hours DIN 38415 Part 15 static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.   |
| CITRONELLOL (CAS 106-22-9) |      |  |  |  |
| <b>Aquatic</b>             |      |  |  |  |
| <i>Acute</i>               |      |  |  |  |
| Algae                      | EC50 |  | Algae  | 2.4 mg/l, 72 hours   |
| Crustacea                  | EC50 |  | <i>Daphnia</i>                                       | 17 mg/l, 48 hours  |
| Fish                       | LC50 |  | <i>Leuciscus idus</i> (Golden orfe)                  | > 10 - < 22 mg/l, 96 hours   |
| EUCALYPTOL (CAS 470-82-6)  |      |  |  |  |
| <b>Aquatic</b>             |      |  |  |  |
| Fish                       | LC50 |  | Fathead minnow ( <i>Pimephales promelas</i> )        | > 95.4 - < 109 mg/l, 96 hours  |
| EUGENOL (CAS 97-53-0)      |      |  |  |  |
| Other                      | LD50 |  | Bird   | > 316 mg/kg Schafer, 1983  |
| <b>Aquatic</b>             |      |  |  |  |
| Crustacea                  | EC50 |  | <i>Daphnia magna</i>                                 | 1.13 mg/l, 48 hours  |
|                            | LD50 |  | Invertebrates (Invertebrates)                        | 0.012 mg/kg Lee, 1997  |

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| Components                          |      | Species   | Test Results   |
|-------------------------------------|------|---|--|
| Fish                                | LC50 | Danio rerio   | 13 mg/l, 96 hours  |
|                                     |      | Oncorhynchus mykiss                                 | 60.8 mg/l, 96 hours  |
| <b>GERANIOL (CAS 106-24-1)</b>      |      |   |  |
| Other                               | EC50 | Activated sludge of a predominantly domestic sewage | 70 mg/l, 0.5 hours   |
| <b>Aquatic</b>                      |      |   |  |
| Algae                               | EC50 | Green algae (Desmodesmus subspicatus)               | 13.1 mg/l, 72 hours  |
| Crustacea                           | EC50 | Daphnia magna                                       | 10.8 mg/l, 48 hours  |
| Fish                                | LC50 | Danio rerio   | 22 mg/l, 96 hours  |
|                                     |      | Fathead minnow (Pimephales promelas)                | > 2.7 - < 3.8 mg/l, 96 hours   |
| <b>HEXENOL CIS-3 (CAS 928-96-1)</b> |      |   |  |
| <b>Aquatic</b>                      |      |   |  |
| Fish                                | LC50 | Fathead minnow (Pimephales promelas)                | > 352 - < 412 mg/l, 96 hours   |
| <b>IONONE BETA (CAS 14901-07-6)</b> |      |   |  |
| Other                               | EC50 | Activated sludge of a predominantly domestic sewage | 1000 mg/l, 0.5 hours DIN EN ISO 8192-OECD 209-88/302/EEC,P C aerobic   |
| <b>Aquatic</b>                      |      |   |  |
| Algae                               | EC50 | Green algae (Chlamydomonas variabilis)              | 22.15 mg/l, 72 hours DIN 38412 Part 9 static The detail of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested.          |
| Crustacea                           | EC50 | Daphnia magna                                       | 4.03 mg/l, 48 hours OECD Guideline 202, part 1 static The detail of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. |
| Fish                                | LC50 | Pimephales promelas                                 | 5.09 mg/l, 96 hours EPA 72-1 Flow through The detail of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested.             |
| <b>LINALOOL (CAS 78-70-6)</b>       |      |   |  |
| Other                               | EC10 | Activated sludge of a predominantly domestic sewage | > 100 mg/l, 3 hours  |

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| Components                 |        | Species  | Test Results   |
|----------------------------|--------|--|--|
| <b>Aquatic</b>             |        |  |  |
| Algae                      | EC50   | Green algae ( <i>Chlamydomonas variabilis</i> )        | 88.3 mg/l, 96 hours DIN 38412 Part 9 static. The details of the toxic effect related to the nominal concentration.         |
| Crustacea                  | EC50   | Daphnia magna  | 20 mg/l, 48 hours DIN 38412 Part 11 static. The details of the toxic effect related to the nominal concentration.          |
| Fish                       | LC50   | Ide, silver or golden orfe ( <i>Leuciscus idus</i> )   | > 22 - < 46 mg/l, 96 hours DIN 38412 Part 15 static. The details of the toxic effect related to the nominal concentration. |
|                            | LC50-R | Fish   | 27.8 mg/l, 96 hours  |
| NEROL (CAS 106-25-2)       |        |  |  |
| <i>Acute</i>               |        |  |  |
| Algae                      | EC50   | Green algae ( <i>Pseudokirchneriella subcapitata</i> ) | 9.54 mg/l, 72 hours<br>2.16 mg/l, 72 hours   |
| <b>Aquatic</b>             |        |  |  |
| <i>Acute</i>               |        |  |  |
| Crustacea                  | EC50   | Daphnia magna  | 32.4 mg/l, 48 hours  |
| Fish                       | LC50   | Danio rerio  | 20.3 mg/l, 96 hours  |
| PINENE ALPHA (CAS 80-56-8) |        |  |  |
| <b>Aquatic</b>             |        |  |  |
| Crustacea                  | LC50   | Daphnia magna  | 41 mg/l, 48 hours  |
| Fish                       | LC50   | Fathead minnow ( <i>Pimephales promelas</i> )          | 0.28 mg/l, 96 hours  |

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

#### Persistence and degradability

##### Biodegradability

##### Percent degradation (Aerobic biodegradation)

GERANIOL

> 90 % OECD 301A (new version)(aerobic), activated sludge, domestic DOC reduction, Readily biodegradable (according to OECD criteria)

##### Percent degradation (Aerobic biodegradation-ready)

LINALOOL

> 60 - < 70 %, Readily biodegradable (according to OECD criteria).

Result: OECD 301D; EEC 92/69, C4-E (aerobic)

Test Duration: 28 days

#### Bioaccumulative potential

##### Partition coefficient n-octanol / water (log Kow)

CARVENE

4.232

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**Partition coefficient n-octanol / water (log Kow)**

|                      |                            |
|----------------------|----------------------------|
| EUCALYPTOL           | 2.74                       |
| EUGENOL              | 2.27                       |
| LINALOOL             | 2.97, (OECD Guideline 107) |
| PHENYL ETHYL ALCOHOL | 1.36                       |
| PINENE ALPHA         | 4.83                       |

**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** Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. 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** Not established.

**Waste from residues / unused products** 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

**ADN**

Not regulated as dangerous goods.

**ADR**

Not regulated as dangerous goods.

**RID**

Not regulated as dangerous goods.

**DOT**

**BULK**

|                              |  |
|------------------------------|--|
| <b>UN number</b>             | 1993                                   |
| <b>Proper shipping name</b>  | COMBUSTIBLE LIQUID, N.O.S. (3-Hexenol) |
| <b>Hazard class</b>          | Combustible Liquid                     |
| <b>Environmental hazards</b> |  |
| <b>Marine pollutant</b>      | No                                     |
| <b>Labels required</b>       | none                                   |

**DOT**

**NON-BULK**

Not regulated as dangerous goods.

**IATA**

Not regulated as dangerous goods.





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### IMDG

Not regulated as dangerous goods.

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## 15. REGULATORY INFORMATION

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Not listed.

**SARA 304 Emergency release notification**

Not regulated.

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not available.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not regulated.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

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

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical** No

**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 - Minnesota Haz Subs: Hazardous substance**

BUTYLATED HYDROXYTOLUENE (CAS 128-37-0) Hazardous substance.

**US. Massachusetts RTK - Substance List**

BUTYLATED HYDROXYTOLUENE (CAS 128-37-0)  
PINENE ALPHA (CAS 80-56-8)



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### US. New Jersey Worker and Community Right-to-Know Act

BUTYLATED HYDROXYTOLUENE (CAS 128-37-0)

CARVENE (CAS 5989-27-5)

PINENE ALPHA (CAS 80-56-8)

### US. Pennsylvania Worker and Community Right-to-Know Law

BUTYLATED HYDROXYTOLUENE (CAS 128-37-0)

HEXENOL CIS-3 (CAS 928-96-1)

PINENE ALPHA (CAS 80-56-8)

### International Inventories

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

\*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    | 12-08-2016   |
| Revision date | 12-08-2016   |
| Version #     | 01   |
| HMIS® ratings | Health: 3<br>Flammability: 2<br>Physical hazard: 0 |



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