1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>d-Limonene (Citrus Terpene)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS #</td>
<td>8028-48-6</td>
</tr>
<tr>
<td>Country of Origin</td>
<td>Brazil</td>
</tr>
<tr>
<td>Product use</td>
<td>Domestic and Industrial</td>
</tr>
<tr>
<td>Supplier</td>
<td>New Directions Aromatics Inc.</td>
</tr>
<tr>
<td>Address</td>
<td>6781 Columbus Road, Mississauga, Ontario, CANADA L5T 2G9</td>
</tr>
<tr>
<td>Fax</td>
<td>905-362-1926</td>
</tr>
<tr>
<td>Telephone number</td>
<td>905-362-1915</td>
</tr>
<tr>
<td>Emergency phone number</td>
<td>(613)-996-6666 CANUTEC 24 HOUR EMERGENCY</td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

Emergency Overview

GHS Classification
Flammable Liquid, Category - 3
Skin Corrosion/Irritation - Category 2
Aspiration Hazard - Category 1
Hazard to the aquatic environment - Short term - Category 1
Hazard to the aquatic environment - Long term - Category 1

GHS Label elements, including precautionary statements

Signal: Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
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.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P280 Wear protective gloves, clothing and eye or face protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P303+P361+P353 IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P331 Do NOT induce vomiting.
P405 Store locked up.
P501 Dispose of contents/container to local/state/federal regulations.

3. COMPOSITION / INFORMATION INGREDIENTS

<table>
<thead>
<tr>
<th>Product Name</th>
<th>CAS NO</th>
<th>EC NO</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citrus Terpenes</td>
<td>8028-48-6</td>
<td>-</td>
<td>100 %</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

**Eye contact**
Immediately flush eyes with plenty of cool water for at least 15 minutes. Get medical attention if irritation occurs.

**Skin contact**
Remove contaminated clothing. Wash area with soap and water. If irritation occurs, get medical attention.

**Inhalation**
If inhaled, removed to fresh air. Get medical attention if symptoms appear.

**Ingestion**
Seek medical attention or contact local poison control center.

5. FIRE FIGHTING MEASURES

**Suitable extinguishing media**
Sand, earth, dry powder, carbon dioxide.

**Unsuitable extinguishing media**
Water spray, water jet.

**Special protective equipment and precautions for fire-fighters**
Wear proper protective equipment. Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers.

**Special hazards arising from the substance or its combustible products**
Hazardous decomposition products may be formed at extreme heat or if burned.

**Resulting gases**
Carbon oxides.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures.**
Equip clean crew with proper protection. Respiratory protection equipment may be necessary.

**Environmental precautions**
Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

**Methods and materials for containment and cleaning up**
Clean up any spills as soon as possible, using an absorbent material to collect it. Use suitable disposal containers.

7. HANDLING AND STORAGE
Precautions for safe handling
No direct lighting. No smoking. Ensure prompt removal from eyes, skin and clothing. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Handle in accordance with good industrial hygiene and safety procedures.

Conditions for safe storage, including any incompatibilities
Provide local exhaust or general room ventilation to minimize dust and/or vapour concentrations. Keep container closed when not in use.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Eyes
Use of approved face shields or safety glasses.

Skin
If skin contact or contamination of clothing is likely, protective clothing should be worn. Use solvent resistant gloves.

Respiratory
In case of insufficient ventilation, wear suitable respiratory equipment.

Exposure limit values
Citrus Terpene – 8 h TWA = 30 ppm (AIHA Standart)
TWA = Time Weighted Average.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear.</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic odor.</td>
</tr>
<tr>
<td>Melting Point/Freezing Point</td>
<td>-74 ºC to -96.9 ºC</td>
</tr>
<tr>
<td>Initial b.p and boiling range</td>
<td>175.5 to 178 ºC @ 763 mmHg</td>
</tr>
<tr>
<td>Flash point</td>
<td>43 to 49 ºC. Closed cup.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>At 14ºC: 1 mmHg; At 20ºC: about 1.4 mmHg.</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.838 to 0.850 gr./ml at 20 to 25ºC</td>
</tr>
<tr>
<td>Solubility (ies)</td>
<td>Miscible with alcohol, insoluble in water.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>237 ºC</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.471 to 1.474 @ 25 ºC</td>
</tr>
<tr>
<td>Optical rotation</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
This material presents no significant reactivity hazard.

Chemical stability
Chemically stable.

Possibility of hazardous reactions
Hazardous polymerization will not occur.

Conditions to avoid
Avoid sparks, flame and other heat sources.

Incompatible materials
Strong oxidizing agents, clays and mineral acids. Highly exothermic reaction noted when blended approx 50/50 with Alkylbenzene Sulphonic Acid with possible boil over danger. Similar reaction not noted at lower
levels.

Hazardous decomposition products
Carbon Oxides.

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral: 50-150 mg/kg (mouse): psycholeptic effect [RIFM, TDS]; 3500 mg/kg (mouse): maximum no effect level [RIFMU, SLR].
Dermal: Moderate irritation [RIFM]. Full strength, 24 hr, under occlusion (rabbit) [RIFM]. Irritant effects [RIFMU]. Full strength to conjuctival sac (rabbit) [TDS].

Carcinogenicity
Oral: TDlo = 67 g/kg, 39 wk., intermittent administration (mouse): equivocal tumorigenic agent by RTECs criteria [RTEC].

Reproductive toxicity
Oral: TDlo = 3546 - 14178 mg/kg, administered days 7-12 of gestation (pregnant mouse). At dose of 3546 mg/kg, developmental abnormalities of the musculoskeletal system and physical effects on newborns; at dose of 14178 mg/kg, change in growth statistics (e.g. reduced weight gain) [RTEC].

12. ECOLOGICAL INFORMATION

Ecotoxicity
Fish: LC50 - between 0.1 and 1 mg/L; Daphnia: EC50 - between 0.1 and 1 mg/L; Algae: EC50 - between 0.1 and 1 mg/L.

Persistence and degradability
Citrus Terpene is a biodegradable solvent occurring in nature as the main component of citrus peel oil.

Bio-accumulative potential
Not available.

Mobility in soil
Not available.

Other adverse effects
Chemical Oxygen Demand: 2,850 gO2/l or 3,280 gO2/kg. Atmospheric half life = c.a. 0.884 to 0.64 hrs.

13. DISPOSAL CONSIDERATION

Dispose of product in accordance with local, state or provincial and federal regulations. Check with local municipal authority to ensure compliance.

14. TRANSPORT INFORMATION

UN Number
2319

UN proper shipping name
Terpene Hydrocarbons, N.O.S.

Transport hazard class
3

Packing group
III

US DOT Shipping Description (Land)
Proper shipping name
Terpene Hydrocarbons, N.O.S.
Class
3
Packaging group
III
IMO-IMDG Shipping Description (Sea)
Proper shipping name
Terpene Hydrocarbons, N.O.S.
Class
3
Packaging group
III
IMO-IMDG code
2319
IMDG-Marine pollution
Yes.
IATA Shipping Description (Air)
Proper shipping name
Terpene Hydrocarbons, N.O.S.
Class
3
Packaging group
III
Emergency action in case of accident
Notify police and fire department immediately

15. REGULATORY INFORMATION

DSL / NDSL
Included in the DSL inventory.

TSCA
Included in the TSCA inventory.

California Proposition 65
Contains substance identified in the revised list of the California Safe Cosmetic program SB 484 (included in Proposition 65 revised list): -Contains MYRCENE.

GHS Hazard Statements
See section 2.

GHS Precautionary Statements
See section 2.

16. OTHER INFORMATION
Disclaimer & Caution

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