1. Identification of the Substance/Mixture and of the Company/Undertaking

Product Code: 10007829
Product Name: Prostaglandin E2 Luminex® Standard

Manufacturer Information

Company Name: Cayman Chemical Company
Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300
Alternate Emergency Contact: CHEMTREC Outside USA and Canada: +1 (703)527-3887
Information: Cayman Chemical Company +1 (734)971-3335
Web site address: www.caymanchem.com

2. Hazards Identification

Emergency Overview: Highly Flammable.
Toxic.
Avoid contact and inhalation.
Target Organ(s): blood, central nervous system, digestive system, endocrine system, eyes, liver, reproductive system, respiratory system, skin.

Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection

Potential Health Effects (Acute and Chronic): Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation, ingestion, or skin absorption.
May cause adverse reproductive effects in males and/or females.
May cause eye, skin, or respiratory system irritation.
May cause gastrointestinal disturbances.
May stimulate contraction of intestinal and reproductive smooth muscle.
This chemical has the potential to induce premature labor or abortion.
The toxicological properties of this product have not been fully evaluated.

LD 50 / LC 50: Please refer to Section 11.

Signs and Symptoms Of Exposure: Exposure can cause: Nausea, diarrhea, headache, vomiting, flushing, shivering, hypotension, and dizziness.
Irritating to eyes, skin, nose; may cause headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough; liver damage; anemia; reproductive, teratogenic effects.

Medical Conditions Generally Aggravated By Exposure: No data available.

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Hazardous Components (Chemical Name)</th>
<th>CAS #</th>
<th>Concentration</th>
<th>EC#</th>
<th>Risk Phrases</th>
<th>RTECS #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prostaglandin E2</td>
<td>363-24-6</td>
<td>&lt; 0.001 %</td>
<td>206-656-6</td>
<td>R22</td>
<td>UK8000000</td>
</tr>
<tr>
<td>2. Ethyl alcohol</td>
<td>64-17-5</td>
<td>&gt;99.999 %</td>
<td>200-578-6</td>
<td>R11</td>
<td>KQ6300000</td>
</tr>
</tbody>
</table>

4. First Aid Measures

Emergency and First Aid Procedures: If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
In case of skin contact, immediately wash skin with soap and plenty of water for at least 20
5. Fire Fighting Measures

Flash Pt: 14.00 C  Method Used: Closed Cup

Explosive Limits:
LEL: 3.3% at 25.0 C  UEL: 19% at 25.0 C

Autoignition Pt: 363.00 C

Fire Fighting Instructions:
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
Note: Flammable as diluted in ethanol.

Flammable Properties and Hazards:
Can release vapors that form explosive mixtures at temperatures at or above the flashpoint.
Container explosion may occur under fire conditions.
Emits toxic fumes under fire conditions.
Sensitive to static discharge.
Vapors can travel to a source of ignition and flash back.

Hazardous Combustion Products: No data available.

Suitable Extinguishing Media:
Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Use water spray to cool fire-exposed containers.

Unsuitable Extinguishing Media:
A solid water stream may be inefficient.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled:
Avoid release into the environment.
Avoid breathing vapors and provide adequate ventilation.
Remove all sources of ignition.
As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

7. Handling and Storage

Hazard Label Information:
Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
Wash thoroughly after handling.

Precautions To Be Taken in Handling:
Avoid breathing (dust, vapor, mist, gas).
Avoid prolonged or repeated exposure.
Keep away from sources of ignition.
Prevent the build up of electrostatic charge.

Precautions To Be Taken in Storing:
Keep away from heat, sparks, and flame.
Keep tightly closed.
Store at correct temperature.

Other Precautions:
Hygroscopic.
Light sensitive.

8. Exposure Controls/Personal Protection

<table>
<thead>
<tr>
<th>Hazardous Components (Chemical Name)</th>
<th>CAS #</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>Other Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prostaglandin E2</td>
<td>363-24-6</td>
<td>No data.</td>
<td>No data.</td>
<td>No data.</td>
</tr>
<tr>
<td>2. Ethyl alcohol</td>
<td>64-17-5</td>
<td>1000 ppm</td>
<td>1000 ppm</td>
<td>No data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Protective Equipment Summary - Hazard Label Information:</th>
<th>Compatible chemical-resistant gloves</th>
<th>Eye wash station in work area</th>
<th>Lab coat</th>
<th>Safety glasses</th>
<th>Safety shower in work area</th>
<th>Vent Hood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Equipment (Specify Type):</td>
<td>NIOSH approved respirator, as conditions warrant.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Eye Protection: Safety glasses
Protective Gloves: Compatible chemical-resistant gloves
Other Protective Clothing: Lab coat
Engineering Controls (Ventilation etc.): Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
Work/Hygiene/Maintenance Practices: Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Wash thoroughly after handling.

9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical States:</th>
<th>[ ] Gas</th>
<th>[ X ] Liquid</th>
<th>[ ] Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting Point:</td>
<td>No data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>No data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autoignition Pt:</td>
<td>363.00 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash Pt:</td>
<td>14.00 C Method Used: Closed Cup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosive Limits:</td>
<td>LEL: 3.3% at 25.0 C UEL: 19% at 25.0 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Gravity (Water = 1):</td>
<td>No data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure (vs. Air or mm Hg):</td>
<td>43 MM_HG at 20.0 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor Density (vs. Air = 1):</td>
<td>No data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate (vs Butyl Acetate=1):</td>
<td>No data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solubility in Water:</td>
<td>No data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent Volatile:</td>
<td>No data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance and Odor:</td>
<td>No data</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Stability and Reactivity

| Stability: | Unstable [ ] Stable [ X ] |
| Conditions To Avoid - Instability: | heat, flames and sparks |
| Incompatibility - Materials To Avoid: | acids |
| | alkali metals |
| | ammonia |
| | bases |
| | peroxides |
| | strong oxidizing agents |
| Hazardous Decomposition Or Byproducts: | carbon dioxide |
| | carbon monoxide |
| | nitrogen oxides |
| Possibility of Hazardous Reactions: | Will occur [ ] Will not occur [ X ] |
| Conditions To Avoid - Hazardous Reactions: | No data available |

11. Toxicological Information

The toxicological effects of this product have not been thoroughly studied.

Ethanol - Toxicity Data: Oral LD50 (rat): 7,060 mg/kg; Inhalation LC50 (rat): 20,000 ppm (10h); Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit) 20mg (24h) moderate;

Prostaglandin E2 - Toxicity Data: Oral LD50 (rat): 500 mg/kg; Oral LD50 (mouse): 750 mg/kg; Subcutaneous LD50 (rat): 31.6 mg/kg; Subcutaneous LD50 (mouse): 19.7 mg/kg; Intravenous LD50 (rat): 59.5 mg/kg; Intravenous LD50 (mouse): 23.2 mg/kg; Intraperitoneal LD50 (hamster): 1 mg/kg;
Chronic Toxicological Effects:
Prostaglandin E2 - Investigated as a mutagen and teratogen. Presumed human reproductive toxicant. May cause reproductive disorders.

Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.

Ethanol RTECS Number: KQ6300000
Prostaglandin E2 RTECS Number: UK8000000

Carcinogenicity/Other Information:
No data available.

12. Ecological Information
Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations
Dispose in accordance with local, state, and federal regulations.

14. Transport Information

LAND TRANSPORT (US DOT)
DOT Proper Shipping Name: Ethyl Alcohol Solution
DOT Hazard Class: 3
DOT Hazard Label: FLAMMABLE LIQUID
UN/NA Number: 1170
Packing Group: II

LAND TRANSPORT (European ADR/RID)
ADR/RID Shipping Name: Ethyl Alcohol Solution
UN Number: 1170
Hazard Class: 3 - FLAMMABLE LIQUID
Packing Group: II

AIR TRANSPORT (ICAO/IATA)
ICAO/IATA Shipping Name: Ethyl Alcohol Solution
UN Number: 1170
Hazard Class: 3 - FLAMMABLE LIQUID
Packing Group: II
IATA Classification: 3

Additional Transport Information: Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

European Community Hazard Symbol codes: F: Highly Flammable; T: Toxic; Xn: Harmful

European Community Risk and Safety Phrases
- R11 - Highly flammable.
- R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed.
- R60 - May impair fertility.
- R61 - May cause harm to the unborn child.
- S7 - Keep container tightly closed.
- S16 - Keep away from sources of ignition.
- S24/25 - Avoid contact with skin and eyes.
- S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.
### 16. Other Information

**Company Policy or Disclaimer**

For research use only, not for human or veterinary use.

DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required