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

Product Code: 416524
Product Name: 11.beta.-Prostaglandin F2.alpha. EIA Standard
Intended Use: For research use only, not for human or veterinary use.

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

<table>
<thead>
<tr>
<th>GHS Classification</th>
<th>Placard</th>
<th>Key word</th>
<th>GHS Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity: Oral, Category 4</td>
<td>Exclamation point</td>
<td>Warning</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>Toxic To Reproduction, Category 1B</td>
<td>Health hazard</td>
<td>Danger</td>
<td>May damage fertility or the unborn child</td>
</tr>
<tr>
<td>Flammable Liquids, Category 2</td>
<td>Flame</td>
<td>Danger</td>
<td>Highly flammable liquid and vapor</td>
</tr>
</tbody>
</table>

GHS Hazard Phrases:

- H302: Harmful if swallowed.
- H360: May damage fertility or the unborn child.
- H225: Highly flammable liquid and vapor.

GHS Precaution Phrases:

- P264: Wash hands thoroughly after handling.
- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P281: Use personal protective equipment as required.
- P210: Keep away from [heat/sparks/open flames/hot surfaces]. - No smoking.
- P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.

GHS Response Phrases:

- P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P330: Rinse mouth.
- P308+313: IF exposed or concerned: Get medical attention/advice.
- P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

GHS Storage and Disposal Phrases:

Please refer to Section 7 for Storage and Section 13 for Disposal information.

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

Potential Health Effects (Acute and Chronic):

- Causes eye, skin, or respiratory system irritation.
- Harmful if swallowed.
- Material is irritating to the mucous membranes and upper respiratory tract.
- May be harmful by inhalation or skin absorption.
- May cause adverse reproductive effects in males and/or females.
- May cause gastrointestinal disturbances.
- May cause harm to the unborn child.
- May impair fertility.
- May stimulate contraction of intestinal and reproductive smooth muscle.
- This chemical has the potential to induce premature labor or abortion.
SAFETY DATA SHEET
11.beta.-Prostaglandin F2.alpha. EIA Standard

Target Organs: Central nervous system, Blood, Eyes, Reproductive system, Gastrointestinal System, Heart, Smooth muscles, Respiratory system, Liver, Endocrine system, Skin.

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

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

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Medical Conditions Generally Aggravated By: 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>11.beta.-Prostaglandin F2.alpha.</td>
<td>38432-87-0</td>
<td>&lt; 0.01 %</td>
<td>NA</td>
<td>R22-60-61</td>
<td>NA</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>64-17-5</td>
<td>&gt; 99.99 %</td>
<td>200-578-6</td>
<td>R11</td>
<td>KQ6300000</td>
</tr>
</tbody>
</table>

4. First Aid Measures

Emergency and First Aid Procedures:

In Case of Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

In Case of Skin Contact: Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

In Case of Eye Contact: 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 Ingestion: No data available.

Indication of any immediate medical attention and special treatment needed: No data available.

5. Fire Fighting Measures

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.

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.

Flash Pt: 14.00 C
Method Used: Closed Cup

Autoignition Pt: 363.00 C

Explosive Limits: LEL: 3.3% at 25.0 C, UEL: 19.0% at 25.0 C

Hazardous Combustion Products: No data available.

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.
6. Accidental Release Measures

**Protective Precautions, Protective Equipment and Emergency Procedures:**

- Avoid breathing vapors and provide adequate ventilation.
- 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).

**Environmental Precautions:**

- Take steps to avoid release into the environment, if safe to do so.

**Steps To Be Taken In Case Material Is Released Or Spilled:**

- Contain spill and collect, as appropriate.
- Transfer to a chemical waste container for disposal in accordance with local regulations.

7. Handling and Storage

**Precautions To Be Taken in Handling:**

- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Avoid exposure.
- Keep away from sources of ignition.
- Take precautionary measures against static discharge.

**Precautions To Be Taken in Storing:**

- Keep away from heat, sparks, and flame.
- Keep container tightly closed.
- Store in accordance with information listed on the product insert.

**Other Precautions:**

- Hygroscopic.

**Hazard Label Information:**

- Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.

8. Exposure Controls/Personal Protection

**Hazardous Components (Chemical Name) | CAS # | OSHA PEL | ACGIH TLV | Other Limits**
--- | --- | --- | --- | ---
1. 11.beta.-Prostaglandin F2.alpha. | 38432-87-0 | No data. | No data. | No data.
2. Ethyl alcohol | 64-17-5 | 1000 ppm | 1000 ppm | No data.

**Hazardous Components (Chemical Name) | CAS # | France VL | Europe**
--- | --- | --- | ---
1. 11.beta.-Prostaglandin F2.alpha. | 38432-87-0 | No data. | No data.
2. Ethyl alcohol | 64-17-5 | TWA: 1920 mg/m3 (1000 ppm) STEL: () | TWA: 1900 mg/m3 (1000 ppm) STEL: 9500 mg/m3 (5000 ppm) | No data.

**Protective Equipment Summary - Hazard Label Information:**

- Compatible chemical-resistant gloves
- Eye wash station in work area
- Lab coat
- Safety glasses
- Safety shower in work area
- Vent Hood

**Engineering Controls (Ventilation etc.):**

- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**Eye Protection:**

- Safety glasses

**Protective Gloves:**

- Compatible chemical-resistant gloves

**Other Protective Clothing:**

- Lab coat

**Respiratory Equipment (Specify Type):**

- NIOSH approved respirator, as conditions warrant.

**Work/Hygienic/Maintenance Practices:**

- Do not take internally.
- Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.
- Wash thoroughly after handling.

**Environmental Exposure Controls:**

- No data available.

9. Physical and Chemical Properties

**Information on Basic Physical and Chemical Properties**

- **Physical States:**  
  - [ ] Gas
  - [X] Liquid
  - [ ] Solid

- **Appearance and Odor:**
  - Solution

Multi-region format
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting Point</td>
<td>No data</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>No data</td>
</tr>
<tr>
<td>Flash Pt</td>
<td>14.00 °C</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data</td>
</tr>
<tr>
<td>Explosive Limits</td>
<td>LEL: 3.3% at 25.0 °C, UEL: 19.0% at 25.0 °C</td>
</tr>
<tr>
<td>Vapor Pressure (vs. Air or mm Hg)</td>
<td>43 MM_HG at 20.0 °C</td>
</tr>
<tr>
<td>Vapor Density (vs. Air = 1)</td>
<td>No data</td>
</tr>
<tr>
<td>Specific Gravity (Water = 1)</td>
<td>No data</td>
</tr>
<tr>
<td>Autoignition Pt</td>
<td>363.00 °C</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Other Information</td>
<td>No data</td>
</tr>
<tr>
<td>Percent Volatile</td>
<td>No data</td>
</tr>
</tbody>
</table>

### 10. Stability and Reactivity

- **Reactivity:** No data available.
- **Stability:** Unstable [ ] Stable [ X ]
- **Stability Note(s):** Stable if stored in accordance with information listed on the product insert.
- **Conditions To Avoid:** heat, flames and sparks
- **Polymerization:** Will occur [ ] Will not occur [ X ]
- **Incompatibility - Materials To Avoid:** alkali metals, ammonia, peroxides, strong oxidizing agents
- **Hazardous Decomposition Or Byproducts:** carbon dioxide, carbon monoxide

### 11. Toxicological Information

**Toxicological Information:**
The toxicological effects of this compound have not been thoroughly studied.

**Ethanol** - Toxicity Data:
- Oral TDLO (man): 1.14 ml/kg; Oral TDLO (man): 650 mg/kg; Oral LD50 (rat): 7,060 mg/kg; Oral LD50 (mouse): 3,450 mg/kg; Oral LD50 (rabbit): 6,300 mg/kg; Inhalation LC50 (rat): 20,000 ppm (10h); Inhalation TLC0 (human): 1,800 ppm (30m); Inhalation TLC0 (human): 2,500 mg/m3 (20m); Inhalation LC50 (rat): 5,900 mg/m3 (6h); Inhalation LC50 (mouse): 29,300 ppm (7h);
- Ethanol - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 20 mg (24h) moderate;

**Prostaglandin F2.alpha.** - Toxicity Data:
- Oral LD50 (rat): 1,170 mg/kg; Oral LD50 (mouse): 1,300 mg/kg; Subcutaneous LD50 (rat): 95 mg/kg; Subcutaneous LD50 (mouse): 212 mg/kg; Intravenous LD50 (rat): 106 mg/kg; Intravenous LD50 (mouse): 56 mg/kg; Intravascular TLDO (woman): 200 µg/kg (14W PREG);

**Chronic Toxicological Effects:**
- Ethanol - Investigated as a mutagen, reproductive effector, and tumorigen.
- Prostaglandin F2.alpha. - 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 F2.alpha. RTECS Number:** UK80200000
Hazardous Components (Chemical Name) | CAS # | NTP | IARC | ACGIH | OSHA
---|---|---|---|---|---
1. 11.beta.-Prostaglandin F2.alpha. | 38432-87-0 | n.a. | n.a. | n.a. | n.a.
2. Ethyl alcohol | 64-17-5 | n.a. | 1 | A4 | n.a.

12. Ecological Information

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

13. Disposal Considerations

Waste Disposal Method: Dispose in accordance with local, state, and federal regulations.

14. Transport Information

Globally Harmonized System of Classification and Labelling

- Acute Toxicity: Oral, Category 4 - Warning! Harmful if swallowed
- Toxic To Reproduction, Category 1B - Danger! May damage fertility or the unborn child
- Flammable Liquids, Category 2 - Danger! Highly flammable liquid and vapor

**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; Reproductive Hazard: 1

**European Community Risk and Safety Phrases**

- R11 - Highly flammable.
- R22 - Harmful 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.
- S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S33 - Take precautionary measures against static discharges.
- S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.
- S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)
SAFETY DATA SHEET
11.beta.-Prostaglandin F2.alpha. EIA Standard

S53 - Avoid exposure - obtain special instructions before use.

US EPA SARA Title III

<table>
<thead>
<tr>
<th>Hazardous Components (Chemical Name)</th>
<th>CAS #</th>
<th>Sec.302 (EHS)</th>
<th>Sec.304 RQ</th>
<th>Sec.313 (TRI)</th>
<th>Sec.110</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 11.beta.-Prostaglandin F2.alpha.</td>
<td>38432-87-0</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>2. Ethyl alcohol</td>
<td>64-17-5</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Other US EPA or State Lists

<table>
<thead>
<tr>
<th>Hazardous Components (Chemical Name)</th>
<th>CAS #</th>
<th>CAA HAP,ODC</th>
<th>CWA NPDES</th>
<th>TSCA</th>
<th>CA PROP.65</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 11.beta.-Prostaglandin F2.alpha.</td>
<td>38432-87-0</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>2. Ethyl alcohol</td>
<td>64-17-5</td>
<td>No</td>
<td>No</td>
<td>Inventory</td>
<td>No</td>
</tr>
</tbody>
</table>


16. Other Information

Revision Date: 12/05/2012

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