1 Identification

· Product identifier
  · Trade name: Prostaglandin E1 ethyl ester
  · Article number: 9001730
· Application of the substance / the mixture
  This product is for research use - Not for human or veterinary diagnostic or therapeutic use.

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier:
    Cayman Chemical Co.
    1180 E. Ellsworth Rd.
    Ann Arbor, MI 48108
    USA
  · Information department: Product safety department
  · Emergency telephone number:
    During normal opening times: +1 (734) 971-3335
    US/CANADA: 800-424-9300
    Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

· Classification of the substance or mixture
  - GHS02 Flame
    Flammable Liquids 2  H225 Highly flammable liquid and vapor.
  - GHS08 Health hazard
    Toxic to Reproduction 1B  H360 May damage fertility or the unborn child.
  - GHS07
    Eye Irritation 2A  H319 Causes serious eye irritation.
    Specific Target Organ Toxicity - Single Exposure 3  H336 May cause drowsiness or dizziness.

· Label elements
  · GHS label elements
    The product is classified and labeled according to the Globally Harmonized System (GHS).
Trade name: Prostaglandin E1 ethyl ester

· Hazard pictograms

GHS02  GHS07  GHS08

· Signal word Danger

· Hazard-determining components of labeling:
  Methyl acetate
  Prostaglandin E1 ethyl ester

· Hazard statements
  H225 Highly flammable liquid and vapor.
  H319 Causes serious eye irritation.
  H360 May damage fertility or the unborn child.
  H336 May cause drowsiness or dizziness.

· Precautionary statements
  P201 Obtain special instructions before use.
  P202 Do not handle until all safety precautions have been read and understood.
  P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  P240 Ground/bond container and receiving equipment.
  P241 Use explosion-proof electrical/ventilating/lighting/equipment.
  P242 Use only non-sparking tools.
  P243 Take precautionary measures against static discharge.
  P261 Avoid breathing dust/fume/gas/mist/vapors/spray
  P264 Wash thoroughly after handling.
  P271 Use only outdoors or in a well-ventilated area.
  P280 Wear protective gloves/protective clothing/eye protection/face protection.
  P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P308+P313 IF exposed or concerned: Get medical advice/attention.
  P312 Call a poison center/doctor if you feel unwell.
  P337+P313 If eye irritation persists: Get medical advice/attention.
  P370+P378 In case of fire: Use CO2, powder or water spray to extinguish.
  P403+P233 Store in a well-ventilated place. Keep container tightly closed.
  P403+P235 Store in a well-ventilated place. Keep cool.
  P405 Store locked up.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Classification system:

· NFPA ratings (scale 0 - 4)

Health = 2  Fire = 3  Reactivity = 0

· HMIS-ratings (scale 0 - 4)

Health = 2  Fire = 3  Reactivity = 0

(Contd. from page 1)
Trade name: Prostaglandin E1 ethyl ester

- Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS: 79-20-9</th>
<th>RTECS: AI9100000</th>
<th>Methyl acetate</th>
<th>99.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostaglandin E1 ethyl ester</td>
<td>CAS: 35900-16-4</td>
<td>0.5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4 First-aid measures

- Description of first aid measures
  - General information: Immediately remove any clothing soiled by the product.
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Immediately rinse with water.
  - After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - After swallowing: If symptoms persist consult doctor.

- Information for doctor:
  - Most important symptoms and effects, both acute and delayed
    No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed
    No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents:
    CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - For safety reasons unsuitable extinguishing agents: Water with full jet

- Special hazards arising from the substance or mixture
  No further relevant information available.

- Advice for firefighters
- Protective equipment: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Wear protective equipment. Keep unprotected persons away.

- Environmental precautions: Do not allow to enter sewers/surface or ground water.

- Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
Trade name: Prostaglandin E1 ethyl ester

- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

- Protective Action Criteria for Chemicals

  - PAC-1:
    79-20-9 Methyl acetate 250 ppm
  
  - PAC-2:
    79-20-9 Methyl acetate 1,700 ppm

  - PAC-3:
    79-20-9 Methyl acetate 10000* ppm

7 Handling and storage

- Handling:
  - Precautions for safe handling
    Ensure good ventilation/exhaustion at the workplace.
    Open and handle receptacle with care.
    Prevent formation of aerosols.
  
  - Information about protection against explosions and fires:
    Keep ignition sources away - Do not smoke.
    Protect against electrostatic charges.
    Keep respirator protective device available.

- Conditions for safe storage, including any incompatibilities
  - Storage: Store in accordance with information listed on the product insert.
  
  - Requirements to be met by storerooms and receptacles: Store in a cool location.
  
  - Information about storage in one common storage facility: Not required.

- Further information about storage conditions:
  Keep receptacle tightly sealed.
  Store in cool, dry conditions in well sealed receptacles.

- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.

- Control parameters

  - Components with limit values that require monitoring at the workplace:
    The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
    At this time, the remaining constituent has no known exposure limits.

  79-20-9 Methyl acetate

<table>
<thead>
<tr>
<th></th>
<th>Long-term</th>
<th>Short-term</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
<td>610 mg/m³</td>
<td>200 ppm</td>
</tr>
<tr>
<td>REL</td>
<td>760 mg/m³</td>
<td>250 ppm</td>
</tr>
<tr>
<td>TLV</td>
<td>610 mg/m³</td>
<td>200 ppm</td>
</tr>
<tr>
<td></td>
<td>250 ppm</td>
<td>200 ppm</td>
</tr>
</tbody>
</table>

- Additional information: The lists that were valid during the creation were used as basis.
Trade name: Prostaglandin E1 ethyl ester

· Exposure controls
  · Personal protective equipment:
  · General protective and hygienic measures:
    Keep away from foodstuffs, beverages and feed.
    Immediately remove all soiled and contaminated clothing.
    Wash hands before breaks and at the end of work.
    Store protective clothing separately.
    Avoid contact with the eyes.
    Avoid contact with the eyes and skin.
  · Breathing equipment:
    In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
  · Protection of hands:
    Protective gloves
    The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
    Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
  · Material of gloves
    The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
  · Penetration time of glove material
    The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
  · Eye protection:
    Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties
  · General Information
    · Appearance:
      · Form: Liquid
      · Color: According to product specification
      · Odor: Pleasant
      · Structural Formula: C22H38O5
      · Molecular Weight: 382.5 g/mol
    · Odor threshold: Not determined.
    · Formulation: A solution in methyl acetate
  · pH-value: Not determined.
### 6. Change in condition

- **Melting point/Melting range:** -98.05 °C (-144.5 °F)
- **Boiling point/Boiling range:** 57 °C (134.6 °F)

### 7. Flash point:

- -13 °C (8.6 °F)

### 8. Flammability (solid, gaseous):

- Highly flammable.

### 9. Auto igniting:

- 455 °C (851 °F)

### 10. Decomposition temperature:

- Not determined.

### 11. Ignition temperature:

- Product is not selfigniting.

### 12. Danger of explosion:

- Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

### 13. Explosion limits:

- Lower: 3.1 Vol %
- Upper: 16 Vol %

### 14. Vapor pressure at 20 °C (68 °F):

- 220 hPa (165 mm Hg)

### 15. Density at 20 °C (68 °F):

- 0.93 g/cm³ (7.76085 lbs/gal)

### 16. Bulk density:

- 1 kg/m³

### 17. Relative density

- Not determined.

### 18. Vapor density

- Not determined.

### 19. Evaporation rate

- Not determined.

### 20. Solubility in / Miscibility with Water at 20 °C (68 °F):

- 330 g/l

### 21. Partition coefficient (n-octanol/water):

- Not determined.

### 22. Viscosity:

- Dynamic: Not determined.
- Kinematic: Not determined.

### 23. SOLUBILITY

- DMF: 50 mg/ml; DMSO: 50 mg/ml; Ethanol: 30 mg/ml; PBS (pH 7.2): 0.25 mg/ml

### 24. Solvent content:

- Organic solvents: 99.5 %
- VOC content: 0.00 %
- 0.0 g/l / 0.00 lb/gal

### 25. Solids content:

- 0.5 %

### 26. Other information

- No further relevant information available.

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### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** strong oxidizing agents

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(Contd. on page 7)
Trade name: Prostaglandin E1 ethyl ester

· Hazardous decomposition products: carbon dioxide, carbon monoxide, phosphorous oxides

11 Toxicological information

· Information on toxicological effects
· Acute toxicity:

· LD/LC50 values that are relevant for classification:

**ATE (Acute Toxicity Estimate)**

<table>
<thead>
<tr>
<th>Route</th>
<th>LD/LC50</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD50</td>
<td>20,000 mg/kg (rabbit)</td>
</tr>
</tbody>
</table>

**79-20-9 Methyl acetate**

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD50</td>
<td>&gt;5,000 mg/kg (rat)</td>
</tr>
<tr>
<td></td>
<td>Dermal</td>
<td>3,705 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>TCLO</td>
<td>15,000 mg/m³ (hmn)</td>
</tr>
<tr>
<td>Irritation of skin</td>
<td>Irritation</td>
<td>500 mg/24h (rabbit)</td>
</tr>
<tr>
<td>Irritation of eyes</td>
<td>Irritation</td>
<td>40 mg/kg/24h (rabbit)</td>
</tr>
<tr>
<td>Intraperitoneal LD50</td>
<td></td>
<td>100 mg/24h (rabbit)</td>
</tr>
</tbody>
</table>

· Primary irritant effect:
· on the skin: No irritant effect.
· on the eye: Irritating effect.
· Sensitization: No sensitizing effects known.
· Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations:
  Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)
  None of the ingredients is listed.

· NTP (National Toxicology Program)
  None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)
  None of the ingredients is listed.

12 Ecological information

· Toxicity
· Aquatic toxicity: No further relevant information available.
· Persistence and degradability No further relevant information available.

· Behavior in environmental systems:
· Bioaccumulative potential No further relevant information available.
· Mobility in soil No further relevant information available.
· Additional ecological information:
· General notes:
  Water hazard class 1 (Self-assessment): slightly hazardous for water

(Contd. on page 8)
Trade name: Prostaglandin E1 ethyl ester

(Contd. from page 7)

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· Results of PBT and vPvB assessment
  · PBT: Not applicable.
  · vPvB: Not applicable.

· Other adverse effects No further relevant information available.

13 Disposal considerations

· Waste treatment methods
  · Recommendation:
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· Uncleaned packagings:
  · Recommendation: Disposal must be made according to official regulations.

14 Transport information

· UN-Number
  DOT, IMDG, IATA
  UN1993

· UN proper shipping name
  DOT
  Flammable liquids, n.o.s. (Methyl acetate)
  IMDG
  FLAMMABLE LIQUID, N.O.S. (Methyl acetate)
  IATA
  Flammable liquid, n.o.s. (Methyl acetate)

· Transport hazard class(es)
  DOT

  · Class
    3 Flammable liquids
  · Label
    3

  IMDG, IATA

  · Class
    3 Flammable liquids
  · Label
    3

· Packing group
  DOT, IMDG, IATA
  II

· Environmental hazards:
  Not applicable.

· Special precautions for user
  · Warning: Flammable liquids

· Hazard identification number (Kemler code): 33

· EMS Number:
  F-E,S-E

(Contd. on page 9)
### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  No further relevant information available.

- **Sara**
  - **Section 355 (extremely hazardous substances):**
    None of the ingredients is listed.
  - **Section 313 (Specific toxic chemical listings):**
    None of the ingredients is listed.

- **TSCA (Toxic Substances Control Act):**
  - 79-20-9 Methyl acetate
    - ACTIVE

- **Hazardous Air Pollutants**
  None of the ingredients is listed.

- **Proposition 65**
  - **Chemicals known to cause cancer:**
    None of the ingredients is listed.
  - **Chemicals known to cause reproductive toxicity for females:**
    None of the ingredients is listed.
  - **Chemicals known to cause reproductive toxicity for males:**
    None of the ingredients is listed.
  - **Chemicals known to cause developmental toxicity:**
    None of the ingredients is listed.
Trade name: Prostaglandin E1 ethyl ester

- Carcinogenic categories
  - EPA (Environmental Protection Agency)
    None of the ingredients is listed.
  - TLV (Threshold Limit Value)
    None of the ingredients is listed.
  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients is listed.
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

- Department issuing SDS: Environment protection department.
- Contact: -
- Date of preparation / last revision 03/10/2023
- Abbreviations and acronyms:
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
  - Flammable Liquids 2: Flammable liquids – Category 2
  - Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A
  - Toxic to Reproduction 1B: Reproductive toxicity – Category 1B
  - Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3