

# MATERIAL SAFETY DATA SHEET

## H-PGDS FP Fluorescent Probe - Green

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Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

Printed: 02/25/2009  
Revision: 02/24/2009

Date Created: 02/24/2009

### 1. Product and Company Identification

**Product Code:** 600025  
**Product Name:** H-PGDS FP Fluorescent Probe - Green  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Synonyms:** Prostaglandin D Synthase (hematopoietic-type) Fluorescence Polarization Fluorescent Probe - Green

### 2. Composition/Information on Ingredients

| Hazardous Components (Chemical Name)   | CAS #     | Concentration | OSHA PEL                        | ACGIH TLV  | Other Limits |
|----------------------------------------|-----------|---------------|---------------------------------|------------|--------------|
| 1. H-PGDS FP Fluorescent Probe - Green | NA        | 0.0 -15.0 %   | No data.                        | No data.   | No data.     |
| 2. Ethyl alcohol                       | 64-17-5   | 85.0 -100.0 % | 8H TWA:1000 ppm<br>(1900 mg/m3) | 1000 ppm   | No data.     |
| Hazardous Components (Chemical Name)   | RTECS #   | OSHA STEL     | OSHA CEIL                       | ACGIH STEL | ACGIH CEIL   |
| 1. H-PGDS FP Fluorescent Probe - Green | NA        | No data.      | No data.                        | No data.   | No data.     |
| 2. Ethyl alcohol                       | KQ6300000 | No data.      | No data.                        | No data.   | No data.     |

### 3. Hazards Identification

**Emergency Overview:** No data available.  
**Route(s) of Entry:** Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection  
**Potential Health Effects (Acute and Chronic):** The hazards identified with this product are those associated with the solvent(s).  
Long term repeated oral exposure to ethanol may result in the development of progressive liver injury with fibrosis.  
Material is irritating to the mucous membranes and upper respiratory tract.  
May be harmful by inhalation, ingestion, or skin absorption.  
May cause eye, skin, or respiratory system irritation.  
Repeated exposure may cause skin dryness or cracking.  
Repeated ingestion of ethanol by pregnant mothers has been shown to adversely affect the CNS system of the fetus, producing a collection of effects which together constitute fetal alcohol syndrome. These include mental and physical retardation, disturbances of learning, motor and language deficiencies, behavioral disorders and small size head.  
The toxicological properties of this compound have not been fully evaluated.  
**Signs and Symptoms Of Exposure:** Exposure may cause: Dizziness, drowsiness, headache, nausea, and vomiting.  
**Medical Conditions Generally Aggravated By Exposure:** Repeated exposure to ethanol may aggravate liver injury produced from other causes.

### 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. After initial flushings, remove any contact lenses and continue flushing 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. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

|                                          |                                                                                                                                                                                                                                                                                   |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flash Pt:</b>                         | 14.00 C Method Used: TAG Closed Cup                                                                                                                                                                                                                                               |
| <b>Explosive Limits:</b>                 | LEL: 3.3% at 25.0 C UEL: 19% at 25.0 C                                                                                                                                                                                                                                            |
| <b>Fire Fighting Instructions:</b>       | As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.<br>Note: Flammable as diluted in ethanol.                                                            |
| <b>Flammable Properties and Hazards:</b> | Can release vapors that form explosive mixtures at temperatures at or above the flashpoint.<br>Container explosion may occur under fire conditions.<br>Emits toxic fumes under fire conditions.<br>Flammable liquid.<br>Vapors can travel to a source of ignition and flash back. |
| <b>Hazardous Combustion Products:</b>    | carbon dioxide<br>carbon monoxide                                                                                                                                                                                                                                                 |
| <b>Extinguishing Media:</b>              | Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material.                                                                                                                                                             |
| <b>Unsuitable Extinguishing Media:</b>   | No data available.                                                                                                                                                                                                                                                                |

### 6. Accidental Release Measures

|                                                                   |                                                                                                                                                                                     |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Steps To Be Taken In Case Material Is Released Or Spilled:</b> | Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.<br>After removal, ventilate contaminated area and flush thoroughly with water. |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 7. Handling and Storage

|                                             |                                                                                                                                                                                                                                                                                |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hazard Label Information:</b>            | Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.<br>Wash thoroughly after handling.                                                                                                                                               |
| <b>Precautions To Be Taken in Handling:</b> | Avoid breathing (dust, vapor, mist, gas).<br>Avoid contact with eyes, skin, and clothing.<br>Avoid prolonged or repeated exposure.<br>Do not reuse this container.<br>Keep away from sources of ignition.<br>Use with adequate ventilation.<br>Wash thoroughly after handling. |
| <b>Precautions To Be Taken in Storing:</b>  | Store at correct temperature.                                                                                                                                                                                                                                                  |

### 8. Exposure Controls/Personal Protection

|                                                                 |                                                                                                                                                                              |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Protective Equipment Summary - Hazard Label Information:</b> | Eye wash station in work area Lab coat Latex disposable gloves Safety glasses Safety shower in work area Vent Hood                                                           |
| <b>Respiratory Equipment (Specify Type):</b>                    | No data available.                                                                                                                                                           |
| <b>Eye Protection:</b>                                          | Safety glasses                                                                                                                                                               |
| <b>Protective Gloves:</b>                                       | Compatible chemical-resistant gloves                                                                                                                                         |
| <b>Other Protective Clothing:</b>                               | Lab coat                                                                                                                                                                     |
| <b>Engineering Controls (Ventilation etc.):</b>                 | Good general ventilation should be sufficient to control airborne levels.                                                                                                    |
| <b>Work/Hygienic/Maintenance Practices:</b>                     | Do not take internally.<br>Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.<br>Wash thoroughly after handling. |

### 9. Physical and Chemical Properties

|                         |                                     |
|-------------------------|-------------------------------------|
| <b>Physical States:</b> | [ ] Gas [ X ] Liquid [ ] Solid      |
| <b>Melting Point:</b>   | No data.                            |
| <b>Boiling Point:</b>   | No data.                            |
| <b>Autoignition Pt:</b> | No data.                            |
| <b>Flash Pt:</b>        | 14.00 C Method Used: TAG Closed Cup |

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|                                               |                                        |
|-----------------------------------------------|----------------------------------------|
| <b>Explosive Limits:</b>                      | LEL: 3.3% at 25.0 C UEL: 19% at 25.0 C |
| <b>Specific Gravity (Water = 1):</b>          | No data.                               |
| <b>Bulk density:</b>                          | No data.                               |
| <b>Vapor Pressure (vs. Air or mm Hg):</b>     | 44.6 MM_HG at 20.0 C                   |
| <b>Vapor Density (vs. Air = 1):</b>           | No data.                               |
| <b>Evaporation Rate (vs Butyl Acetate=1):</b> | No data.                               |
| <b>Solubility in Water:</b>                   | No data.                               |
| <b>Percent Volatile:</b>                      | No data.                               |
| <b>Heat Value:</b>                            | No data.                               |
| <b>Particle Size:</b>                         | No data.                               |
| <b>Corrosion Rate:</b>                        | No data.                               |
| <b>pH:</b>                                    | No data.                               |
| <b>Appearance and Odor:</b>                   | A clear, colorless solution            |

### 10. Stability and Reactivity

|                                                        |                                                   |
|--------------------------------------------------------|---------------------------------------------------|
| <b>Stability:</b>                                      | Unstable [ ] Stable [ X ]                         |
| <b>Conditions To Avoid - Instability:</b>              | No data available.                                |
| <b>Incompatibility - Materials To Avoid:</b>           | strong inorganic acids<br>strong oxidizing agents |
| <b>Hazardous Decomposition Or Byproducts:</b>          | carbon dioxide<br>carbon monoxide                 |
| <b>Hazardous Polymerization:</b>                       | Will occur [ ] Will not occur [ X ]               |
| <b>Conditions To Avoid - Hazardous Polymerization:</b> | No data available.                                |

### 11. Toxicological Information

|                                           |                                                                              |
|-------------------------------------------|------------------------------------------------------------------------------|
| <b>:</b>                                  | The toxicological effects of this compound have not been thoroughly studied. |
| <b>Carcinogenicity/Other Information:</b> | No data available.                                                           |
| <b>Carcinogenicity:</b>                   | NTP? No IARC Monographs? No OSHA Regulated? No                               |

### 12. Ecological Information

|          |                                                                 |
|----------|-----------------------------------------------------------------|
| <b>:</b> | Runoff from fire control or dilution water may cause pollution. |
|----------|-----------------------------------------------------------------|

### 13. Disposal Considerations

|                               |                                                                  |
|-------------------------------|------------------------------------------------------------------|
| <b>Waste Disposal Method:</b> | Dispose in accordance with local, state and federal regulations. |
|-------------------------------|------------------------------------------------------------------|

### 14. Transport Information

|                                          |                                                                     |
|------------------------------------------|---------------------------------------------------------------------|
| <b>LAND TRANSPORT (US DOT)</b>           |                                                                     |
| <b>DOT Proper Shipping Name</b>          | Ethyl alcohol                                                       |
| <b>DOT Hazard Class:</b>                 | 3                                                                   |
| <b>DOT Hazard Label:</b>                 | FLAMMABLE LIQUID                                                    |
| <b>UN/NA Number:</b>                     | 1170                                                                |
| <b>Packing Group:</b>                    | II                                                                  |
| <b>Additional Transport Information:</b> | Transport in accordance with local, state, and federal regulations. |

### 15. Regulatory Information

#### US EPA SARA Title III

| Hazardous Components (Chemical Name)   | CAS #   | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|----------------------------------------|---------|---------------|------------|---------------|---------|
| 1. H-PGDS FP Fluorescent Probe - Green | NA      | No            | No         | No            |         |
| 2. Ethyl alcohol                       | 64-17-5 | No            | No         | No            | No      |

#### US EPA CAA, CWA, TSCA

| Hazardous Components (Chemical Name)   | CAS # | EPA CAA | EPA CWA NPDES | EPA TSCA | CA PROP 65 |
|----------------------------------------|-------|---------|---------------|----------|------------|
| 1. H-PGDS FP Fluorescent Probe - Green | NA    | No      |               | No       |            |

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## H-PGDS FP Fluorescent Probe - Green

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| Hazardous Components (Chemical Name) | CAS #   | EPA CAA | EPA CWA NPDES | EPA TSCA  | CA PROP 65 |
|--------------------------------------|---------|---------|---------------|-----------|------------|
| 2. Ethyl alcohol                     | 64-17-5 | No      |               | Inventory |            |

### 16. Other Information

#### Company Policy or Disclaimer

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

# MATERIAL SAFETY DATA SHEET

## H-PGDS FP (human recombinant)

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Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

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### 1. Product and Company Identification

**Product Code:** 600026  
**Product Name:** H-PGDS FP (human recombinant)  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Synonyms:** Prostaglandin D Synthase (hematopoietic-type) Fluorescence Polarization Fluorescence Polarization

### 2. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS #     | Concentration | OSHA PEL  | ACGIH TLV  | Other Limits |
|--------------------------------------|-----------|---------------|-----------|------------|--------------|
| 1. H-PGDS (human recombinant)        | NA        | 80.0 %        | No data.  | No data.   | No data.     |
| 2. Glycerol                          | 56-81-5   | 20.0 %        | 10 ppm    | 10 mg/m3   | No data.     |
| Hazardous Components (Chemical Name) | RTECS #   | OSHA STEL     | OSHA CEIL | ACGIH STEL | ACGIH CEIL   |
| 1. H-PGDS (human recombinant)        | NA        | No data.      | No data.  | No data.   | No data.     |
| 2. Glycerol                          | MA8050000 | No data.      | No data.  | No data.   | No data.     |

### 3. Hazards Identification

**Emergency Overview:** No data available.  
**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 eye, skin, or respiratory system irritation.  
The toxicological properties of this compound have not been fully evaluated.  
**LD 50 / LC 50:** Please refer to Section 11  
**Signs and Symptoms Of Exposure:** Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

### 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. After initial flushings, remove any contact lenses and continue flushing 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. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
**Flammable Properties and Hazards:** Slightly flammable in the presence of open flames, sparks, static discharge, heat, and oxidizing materials.



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## H-PGDS FP (human recombinant)

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**Particle Size:** No data.  
**Corrosion Rate:** No data.  
**pH:** No data.  
**Appearance and Odor:** A clear, colorless solution

### 10. Stability and Reactivity

**Stability:** Unstable [ ] Stable [ X ]  
**Conditions To Avoid - Instability:** No data available.  
**Incompatibility - Materials To Avoid:** oxidizing agents  
**Hazardous Decomposition Or Byproducts:** No data available.  
**Hazardous Polymerization:** Will occur [ ] Will not occur [ X ]  
**Conditions To Avoid - Hazardous Polymerization:** No data available.

### 11. Toxicological Information

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

Glycerol  
 Toxicity Data:  
 Oral LD50 (mouse): 4090 mg/kg  
 Irritation Data:  
 Draize Test -eyes (rabbit): 500 mg/24h mild  
 Draize Test -skin (rabbit): 500 mg/24h mild

**Carcinogenicity/Other Information:** No data available.  
**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

### 12. Ecological Information

**:** 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

**LAND TRANSPORT (US DOT)**  
**DOT Proper Shipping Name** No data available.  
**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### 15. Regulatory Information

**US EPA SARA Title III**

| Hazardous Components (Chemical Name) | CAS #   | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|---------|---------------|------------|---------------|---------|
| 1. H-PGDS (human recombinant)        | NA      | No            | No         | No            |         |
| 2. Glycerol                          | 56-81-5 | No            | No         | No            |         |

**US EPA CAA, CWA, TSCA**

| Hazardous Components (Chemical Name) | CAS #   | EPA CAA | EPA CWA NPDES | EPA TSCA  | CA PROP 65 |
|--------------------------------------|---------|---------|---------------|-----------|------------|
| 1. H-PGDS (human recombinant)        | NA      | No      |               | No        |            |
| 2. Glycerol                          | 56-81-5 | No      |               | Inventory |            |

### 16. Other Information

**Company Policy or Disclaimer**

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

# MATERIAL SAFETY DATA SHEET

## HQL-79 FP Positive Control

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Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

Printed: 02/25/2009  
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Date Created: 02/24/2009

### 1. Product and Company Identification

**Product Code:** 600027  
**Product Name:** HQL-79 FP Positive Control  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Synonyms:** HQL-79 Fluorescence Polarization Positive Control

### 2. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS #       | Concentration | OSHA PEL  | ACGIH TLV  | Other Limits |
|--------------------------------------|-------------|---------------|-----------|------------|--------------|
| 1. HQL-79                            | 162641-16-9 | 0.189 %       | No data.  | No data.   | No data.     |
| 2. Dimethyl sulfoxide, anhydrous     | 67-68-5     | 99.811 %      | No data.  | No data.   | No data.     |
| Hazardous Components (Chemical Name) | RTECS #     | OSHA STEL     | OSHA CEIL | ACGIH STEL | ACGIH CEIL   |
| 1. HQL-79                            | NA          | No data.      | No data.  | No data.   | No data.     |
| 2. Dimethyl sulfoxide, anhydrous     | PV6210000   | No data.      | No data.  | No data.   | No data.     |

### 3. Hazards Identification

**Emergency Overview:** No data available.  
**Route(s) of Entry:** Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection  
**Potential Health Effects (Acute and Chronic):** The hazards identified with this product are those associated with the solvent(s). Avoid contact with DMSO solutions containing toxic materials or materials with unknown toxicological properties. Dimethyl sulfoxide is readily absorbed through skin and may carry such materials into the body.  
Irritating to the skin, eyes, nose, throat, and respiratory tract.  
Material may be irritating to the mucous membranes and upper respiratory tract.  
May be harmful by inhalation, ingestion, or skin absorption.  
May cause eye, skin, or respiratory system irritation.  
The toxicological properties of this compound have not been fully evaluated.  
**LD 50 / LC 50:** Please refer to Section 11  
**Signs and Symptoms Of Exposure:** Skin absorption of DMSO may result in a garlic-like breath and body odor, and CNS effects such as headache, nausea, and dizziness.  
Ingestion may cause gastrointestinal irritation with nausea, vomiting, diarrhea, CNS effects, and a garlic smell on the breath and body.

### 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. After initial flushings, remove any contact lenses and continue flushing 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. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flash Pt:</b>                         | 87.80 C Method Used: Closed Cup                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Explosive Limits:</b>                 | LEL: 2.6% at 25.0 C UEL: 42% at 25.0 C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Autoignition Pt:</b>                  | 215.00 C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Fire Fighting Instructions:</b>       | As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.<br>Note: combustible as diluted in dimethyl sulfoxide                                                                                                                                                                                                                                                                                                                               |
| <b>Flammable Properties and Hazards:</b> | Can release vapors that form explosive mixtures at temperatures at or above the flashpoint. Those vapors include formaldehyde, methyl mercaptan, and sulfur dioxide.<br>Combustible liquid and vapor.<br>Container explosion may occur under fire conditions.<br>Emits toxic fumes under fire conditions.<br>On mixing with potassium permanganate it will flash instantaneously.<br>Reacts violently with other acids.<br>Vapors can travel to a source of ignition and flash back.<br>Vapors can spread along the ground and collect in low or confined areas. |
| <b>Extinguishing Media:</b>              | Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material.<br>Use water spray to keep fire-exposed containers cool.                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Unsuitable Extinguishing Media:</b>   | No data available.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### 6. Accidental Release Measures

|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Steps To Be Taken In Case Material Is Released Or Spilled:</b> | Wear a NIOSH/MSHA approved self-contained breathing apparatus and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).<br>Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.<br>After removal, ventilate contaminated area and flush thoroughly with water.<br>Avoid release into the environment - very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 7. Handling and Storage

|                                             |                                                                                                                                                                                                                                                                                                |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hazard Label Information:</b>            | Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.<br>Wash thoroughly after handling.                                                                                                                                                               |
| <b>Precautions To Be Taken in Handling:</b> | Avoid breathing (dust, vapor, mist, gas).<br>Avoid contact with eyes, skin, and clothing.<br>Avoid prolonged or repeated exposure.<br>Do not reuse this container.<br>Hygroscopic.<br>Keep away from sources of ignition.<br>Use with adequate ventilation.<br>Wash thoroughly after handling. |
| <b>Precautions To Be Taken in Storing:</b>  | Keep away from sources of ignition.<br>Keep away from incompatible substances.<br>Keep tightly closed.<br>Protect from moisture.<br>Store at correct temperature.                                                                                                                              |

### 8. Exposure Controls/Personal Protection

|                                                                 |                                                                                                                    |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Protective Equipment Summary - Hazard Label Information:</b> | Eye wash station in work area Lab coat Latex disposable gloves Safety glasses Safety shower in work area Vent Hood |
| <b>Respiratory Equipment (Specify Type):</b>                    | No data available.                                                                                                 |
| <b>Eye Protection:</b>                                          | Safety glasses                                                                                                     |
| <b>Protective Gloves:</b>                                       | Compatible chemical-resistant gloves                                                                               |

|                                                 |                                                                                                                                                                              |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Other Protective Clothing:</b>               | Lab coat                                                                                                                                                                     |
| <b>Engineering Controls (Ventilation etc.):</b> | Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.                               |
| <b>Work/Hygienic/Maintenance Practices:</b>     | Do not take internally.<br>Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.<br>Wash thoroughly after handling. |

## 9. Physical and Chemical Properties

|                                               |                                                                                                        |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Physical States:</b>                       | <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Solid |
| <b>Melting Point:</b>                         | No data.                                                                                               |
| <b>Boiling Point:</b>                         | No data.                                                                                               |
| <b>Autoignition Pt:</b>                       | 215.00 C                                                                                               |
| <b>Flash Pt:</b>                              | 87.80 C Method Used: Closed Cup                                                                        |
| <b>Explosive Limits:</b>                      | LEL: 2.6% at 25.0 C UEL: 42% at 25.0 C                                                                 |
| <b>Specific Gravity (Water = 1):</b>          | No data.                                                                                               |
| <b>Bulk density:</b>                          | No data.                                                                                               |
| <b>Vapor Pressure (vs. Air or mm Hg):</b>     | 0.46 MM_HG at 20.0 C                                                                                   |
| <b>Vapor Density (vs. Air = 1):</b>           | No data.                                                                                               |
| <b>Evaporation Rate (vs Butyl Acetate=1):</b> | No data.                                                                                               |
| <b>Solubility in Water:</b>                   | No data.                                                                                               |
| <b>Percent Volatile:</b>                      | No data.                                                                                               |
| <b>Heat Value:</b>                            | No data.                                                                                               |
| <b>Particle Size:</b>                         | No data.                                                                                               |
| <b>Corrosion Rate:</b>                        | No data.                                                                                               |
| <b>pH:</b>                                    | No data.                                                                                               |
| <b>Appearance and Odor:</b>                   | A clear, colorless solution                                                                            |

## 10. Stability and Reactivity

|                                                        |                                                                                           |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Stability:</b>                                      | Unstable <input type="checkbox"/> Stable <input checked="" type="checkbox"/>              |
| <b>Conditions To Avoid - Instability:</b>              | protect from moisture                                                                     |
| <b>Incompatibility - Materials To Avoid:</b>           | strong oxidizing agents<br>strong acids<br>strong bases<br>acid chlorides                 |
| <b>Hazardous Decomposition Or Byproducts:</b>          | carbon monoxide<br>carbon dioxide<br>oxides of sulfur<br>formaldehyde<br>dimethyl sulfide |
| <b>Hazardous Polymerization:</b>                       | Will occur <input type="checkbox"/> Will not occur <input checked="" type="checkbox"/>    |
| <b>Conditions To Avoid - Hazardous Polymerization:</b> | keep away from ignition sources<br>protect from heat                                      |

## 11. Toxicological Information

|   |                                                                                                                         |
|---|-------------------------------------------------------------------------------------------------------------------------|
| : | The toxicological effects of this compound have not been thoroughly studied.                                            |
|   | DMSO<br>Toxicity Data:<br>Oral (rat) LD50:14,500 mg/kg<br>Skin (rat) LD50:40,000 mg/kg<br>Oral (mouse) LD50:7,920 mg/kg |

# MATERIAL SAFETY DATA SHEET

## HQL-79 FP Positive Control

**Carcinogenicity/Other Information:** No data available.  
**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

### 12. Ecological Information

**:** Avoid release into the environment - very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic 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

**LAND TRANSPORT (US DOT)**

**DOT Proper Shipping Name:** Flammable liquids, n.o.s.  
**DOT Hazard Class:** 3  
**DOT Hazard Label:** FLAMMABLE LIQUID  
**UN/NA Number:** UN1993  
**Packing Group:** I  
**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### 15. Regulatory Information

**US EPA SARA Title III**

| Hazardous Components (Chemical Name) | CAS #       | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|-------------|---------------|------------|---------------|---------|
| 1. HQL-79                            | 162641-16-9 | No            | No         | No            |         |
| 2. Dimethyl sulfoxide, anhydrous     | 67-68-5     | No            | No         | No            |         |

**US EPA CAA, CWA, TSCA**

| Hazardous Components (Chemical Name) | CAS #       | EPA CAA | EPA CWA NPDES | EPA TSCA  | CA PROP 65 |
|--------------------------------------|-------------|---------|---------------|-----------|------------|
| 1. HQL-79                            | 162641-16-9 | No      |               | No        |            |
| 2. Dimethyl sulfoxide, anhydrous     | 67-68-5     | No      |               | Inventory |            |

### 16. Other Information

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# MATERIAL SAFETY DATA SHEET

## H-PGDS FP Buffer Concentrate (4X)

Page: 1

Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

Printed: 02/25/2009  
Revision: 02/24/2009

Date Created: 02/24/2009

### 1. Product and Company Identification

**Product Code:** 600028  
**Product Name:** H-PGDS FP Buffer Concentrate (4X)  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Synonyms:** Prostaglandin D Synthase (hematopoietic-type) Fluorescence Polarization Buffer Concentrate (4X)

### 2. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS # | Concentration | OSHA PEL | ACGIH TLV |
|--------------------------------------|-------|---------------|----------|-----------|
| 1. H-PGDS FP Buffer Concentrate (4X) | NA    | 100.0 %       | No data. | No data.  |

### 3. Hazards Identification

**Emergency Overview:** No data available.  
**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 eye, skin, or respiratory system irritation.  
The toxicological properties of this compound have not been fully evaluated.  
**Signs and Symptoms Of Exposure:** Effects of Overexposure:  
Eye and skin contact may cause irritation, redness, itching, scaling, swelling and pain at any site.  
Chronic ingestion or excessive dosage may cause nausea, vomiting, and diarrhea; large amounts may cause weakness, collapse and coma.

### 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. After initial flushings, remove any contact lenses and continue flushing 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. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
**Flammable Properties and Hazards:** May emit toxic fumes under fire conditions.  
**Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material.  
**Unsuitable Extinguishing Media:** No data available.

# MATERIAL SAFETY DATA SHEET

## H-PGDS FP Buffer Concentrate (4X)

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### 6. Accidental Release Measures

**Steps To Be Taken In Case Material Is Released Or Spilled:** Wear a NIOSH/MSHA approved self-contained breathing apparatus 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.  
After removal, ventilate contaminated area and flush thoroughly with water.

### 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 contact with eyes, skin, and clothing.  
Avoid prolonged or repeated exposure.  
Do not reuse this container.  
Use with adequate ventilation.  
Wash thoroughly after handling.

**Precautions To Be Taken in Storing:** Store at correct temperature.  
Store away from oxidizing agents.

### 8. Exposure Controls/Personal Protection

**Protective Equipment Summary - Hazard Label Information:** Eye wash station in work area Lab coat Latex disposable gloves Safety glasses Safety shower in work area Vent Hood

**Respiratory Equipment (Specify Type):** No data available.

**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/Hygienic/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

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

**Melting Point:** No data.

**Boiling Point:** No data.

**Autoignition Pt:** No data.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Specific Gravity (Water = 1):** No data.

**Bulk density:** No data.

**Vapor Pressure (vs. Air or mm Hg):** No data.

**Vapor Density (vs. Air = 1):** No data.

**Evaporation Rate (vs Butyl Acetate=1):** No data.

**Solubility in Water:** No data.

**Percent Volatile:** No data.

**Heat Value:** No data.

**Particle Size:** No data.

**Corrosion Rate:** No data.

**pH:** No data.

**Appearance and Odor:** A clear, colorless solution

# MATERIAL SAFETY DATA SHEET

## H-PGDS FP Buffer Concentrate (4X)

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Revision: 02/24/2009

### 10. Stability and Reactivity

**Stability:** Unstable [  ] Stable [  ]

**Conditions To Avoid - Instability:** No data available.

**Incompatibility - Materials To Avoid:** oxidizing agents  
reducing agents  
bases  
alkali metals

**Hazardous Decomposition Or Byproducts:** carbon monoxide  
carbon dioxide  
toxic fumes of carbon and nitrogen oxides

**Hazardous Polymerization:** Will occur [  ] Will not occur [  ]

**Conditions To Avoid - Hazardous Polymerization:** No data available.

### 11. Toxicological Information

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

**Carcinogenicity/Other Information:** No data available.

**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

### 12. Ecological Information

**:** 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

**LAND TRANSPORT (US DOT)**

**DOT Proper Shipping Name** No data available.

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

### 15. Regulatory Information

**US EPA SARA Title III**

| Hazardous Components (Chemical Name) | CAS # | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|-------|---------------|------------|---------------|---------|
| 1. H-PGDS FP Buffer Concentrate (4X) | NA    | No            | No         | No            |         |

**US EPA CAA, CWA, TSCA**

| Hazardous Components (Chemical Name) | CAS # | EPA CAA | EPA CWA NPDES | EPA TSCA | CA PROP 65 |
|--------------------------------------|-------|---------|---------------|----------|------------|
| 1. H-PGDS FP Buffer Concentrate (4X) | NA    | No      |               | No       |            |

### 16. Other Information

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# MATERIAL SAFETY DATA SHEET

## H-PGDS FP Glutathione

Page: 1

Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

Printed: 02/25/2009  
Revision: 02/24/2009

Date Created: 02/24/2009

### 1. Product and Company Identification

**Product Code:** 600029  
**Product Name:** H-PGDS FP Glutathione  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Synonyms:** Prostaglandin D Synthase (hematopoietic-type) Fluorescence Polarization GSH

### 2. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS #     | Concentration | OSHA PEL  | ACGIH TLV  | Other Limits |
|--------------------------------------|-----------|---------------|-----------|------------|--------------|
| 1. Glutathione, reduced              | 70-18-8   | 3.073 %       | No data.  | No data.   | No data.     |
| 2. Water                             | 7732-18-5 | 96.927 %      | 10 ppm    | 10 ppm     | No data.     |
| Hazardous Components (Chemical Name) | RTECS #   | OSHA STEL     | OSHA CEIL | ACGIH STEL | ACGIH CEIL   |
| 1. Glutathione, reduced              | MC0556000 | No data.      | No data.  | No data.   | No data.     |
| 2. Water                             | ZC0110000 | No data.      | No data.  | No data.   | No data.     |

### 3. Hazards Identification

**Emergency Overview:** No data available.  
**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 eye, skin, or respiratory system irritation.  
The toxicological properties of this compound have not been fully evaluated.  
**Signs and Symptoms Of Exposure:** No data available.

### 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. After initial flushings, remove any contact lenses and continue flushing 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. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
**Flammable Properties and Hazards:** No data available.  
**Hazardous Combustion Products:** carbon monoxide  
carbon dioxide  
nitrogen oxides  
nitric acid  
sulfur dioxide  
sulfuric acid



# MATERIAL SAFETY DATA SHEET

## H-PGDS FP Glutathione

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|                             |                             |
|-----------------------------|-----------------------------|
| <b>Heat Value:</b>          | No data.                    |
| <b>Particle Size:</b>       | No data.                    |
| <b>Corrosion Rate:</b>      | No data.                    |
| <b>pH:</b>                  | No data.                    |
| <b>Appearance and Odor:</b> | A clear, colorless solution |

### 10. Stability and Reactivity

|                                                        |                                                                                                   |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Stability:</b>                                      | Unstable [ <input type="checkbox"/> ]    Stable [ <input checked="" type="checkbox"/> ]           |
| <b>Conditions To Avoid - Instability:</b>              | No data available.                                                                                |
| <b>Incompatibility - Materials To Avoid:</b>           | strong oxidizing agents                                                                           |
| <b>Hazardous Decomposition Or Byproducts:</b>          | No data available.                                                                                |
| <b>Hazardous Polymerization:</b>                       | Will occur [ <input type="checkbox"/> ]    Will not occur [ <input checked="" type="checkbox"/> ] |
| <b>Conditions To Avoid - Hazardous Polymerization:</b> | No data available.                                                                                |

### 11. Toxicological Information

|                                           |                                                                              |
|-------------------------------------------|------------------------------------------------------------------------------|
| :                                         | The toxicological effects of this compound have not been thoroughly studied. |
| <b>Carcinogenicity/Other Information:</b> | No data available.                                                           |
| <b>Carcinogenicity:</b>                   | NTP? No    IARC Monographs? No    OSHA Regulated? No                         |

### 12. Ecological Information

|   |                                                                 |
|---|-----------------------------------------------------------------|
| : | Runoff from fire control or dilution water may cause pollution. |
|---|-----------------------------------------------------------------|

### 13. Disposal Considerations

|                               |                                                                  |
|-------------------------------|------------------------------------------------------------------|
| <b>Waste Disposal Method:</b> | Dispose in accordance with local, state and federal regulations. |
|-------------------------------|------------------------------------------------------------------|

### 14. Transport Information

|                                          |                                                                     |
|------------------------------------------|---------------------------------------------------------------------|
| <b>LAND TRANSPORT (US DOT)</b>           |                                                                     |
| <b>DOT Proper Shipping Name</b>          | No data available.                                                  |
| <b>Additional Transport Information:</b> | Transport in accordance with local, state, and federal regulations. |

### 15. Regulatory Information

| <b>US EPA SARA Title III</b>         |           |               |               |               |            |
|--------------------------------------|-----------|---------------|---------------|---------------|------------|
| Hazardous Components (Chemical Name) | CAS #     | Sec.302 (EHS) | Sec.304 RQ    | Sec.313 (TRI) | Sec.110    |
| 1. Glutathione, reduced              | 70-18-8   | No            | No            | No            |            |
| 2. Water                             | 7732-18-5 | No            | No            | No            |            |
| <b>US EPA CAA, CWA, TSCA</b>         |           |               |               |               |            |
| Hazardous Components (Chemical Name) | CAS #     | EPA CAA       | EPA CWA NPDES | EPA TSCA      | CA PROP 65 |
| 1. Glutathione, reduced              | 70-18-8   | No            |               | Inventory     |            |
| 2. Water                             | 7732-18-5 | No            |               | Inventory     |            |

### 16. Other Information

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