

# Product Information



## Precoated (Mouse Anti-Rabbit IgG) EIA 96 Well Strip Plates Catalog No. 400004

### COMMENTS

Each plate is coated with the Mouse Anti-Rabbit IgG antibody. This Material Safety Data Sheet (MSDS) is for the antibody only. A MSDS on this material is not required as this substance is a naturally occurring animal product. However, we do recommend the following minimum precautions when using this substance:

- Do NOT get in eyes, on skin, or on clothing.
- Do NOT take internally.
- Wear protective gloves and safety glasses.
- Keep container closed.
- Store at correct temperature.
- Do NOT reuse this container.
- Do NOT release this material to the environment; dispose of by incineration in accordance with federal, state, and local regulations.
- Wash thoroughly after handling.

**WARNING:** This material should be considered hazardous until information to the contrary becomes available. This product is not intended or approved for human or veterinary use. Use of this product for human or animal testing is extremely hazardous and may result in disease, severe injury, or death.

The above information is believed to be correct but should only be used as a guide. Cayman Chemical disclaims any express or implied warranty as to the accuracy of the above information and shall not be held liable for any direct, incidental, or consequential damages resulting from reliance on the above information.

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Revision Date: 6/24/2005

### Cayman Chemical

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# MATERIAL SAFETY DATA SHEET

## Tween 20

Page: 1

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

Printed: 12/01/2005  
Revision: 06/27/2005  
Supersedes Revision: 11/29/2004  
Date Created: 06/27/1996

### 1. Product and Company Identification

**Product Code:** 400035  
**Product Name:** Tween 20  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**CAS Number:** 9005-64-5  
**RTECS #:** TR7400000

### 2. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Percentage	OSHA PEL	ACGIH TLV	Other Limits
1. Polyoxyethylene (20) sorbitan monolaurate (Tween 20)	9005-64-5	100.0 %	No data.	No data.	No data.
Hazardous Components (Chemical Name)	RTECS #	OSHA STEL	OSHA CEIL	ACGIH STEL	ACGIH CEIL
1. Polyoxyethylene (20) sorbitan monolaurate (Tween 20)	TR7400000	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:** 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:** 232.00 C  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Autoignition Pt:** 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:** Emits toxic fumes under fire conditions.

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**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.

### 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.  
Keep away from sources of ignition.  
Use with adequate ventilation.  
Wash thoroughly after handling.

**Precautions To Be Taken in Storing:** Keep tightly closed.  
Store at correct temperature.

### 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:** Latex disposable 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:** 232.00 C Method:

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

**Specific Gravity (Water = 1):** 1.095 at 25.0 C

**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:** N.A.

**Corrosion Rate:** No data.

**Formula:** C58H114O26

**Molecular Weight:** 1227.54

**pH:** No data.  
**Appearance and Odor:** A clear, yellow viscous liquid

**10. Stability and Reactivity**

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

**11. Toxicological Information**

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

Irritation Data:  
Skin (human): 15 mg/3D-I mild

Toxicity Data:  
Oral LD50 (rat):36700 ul/kg  
Intraperitoneal LD50 (rat):3850 mg/kg  
Intravenous LD50 (rat):770 mg/kg  
Oral LD50 (mouse):>33 gm/kg  
Intraperitoneal LD50 (mouse):2640 mg/kg  
Intravenous LD50 (mouse):1420 mg/kg  
Oral LD50 (hamster):18 ml/kg

**Chronic Toxicological Effects:** Target organ data:  
Specific developmental abnormalities (musculoskeletal system)  
Specific developmental abnormalities (other developmental abnormalities)

Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.  
See actual entry in RTECS for complete information.  
Tween RTECS Number: TR7400000

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

**12. Ecological Information**

**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. Polyoxyethylene (20) sorbitan monolaurate (Tween 20)	9005-64-5	No	No	No	No

**US EPA CAA, CWA, TSCA**

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Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	CA PROP 65
1. Polyoxyethylene (20) sorbitan monolaurate (Tween 20)	9005-64-5	No	No	No	No

### 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

## EIA Tracer Dye

Page: 1

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

Printed: 03/09/2006  
Revision: 03/09/2006  
Supersedes Revision: 04/28/2005  
Date Created: 04/04/2003

### 1. Product and Company Identification

**Product Code:** 400040  
**Product Name:** EIA Tracer Dye  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Chemical Family:** EIA - Other

### 2. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Percentage	OSHA PEL	ACGIH TLV	Other Limits
1. EIA Tracer Dye	NA	0.0 -100.0 %	No data.	No data.	No data.
2. Sodium hydroxide	1310-73-2	0.0 -100.0 %	8H TWA:2 mg/m3	No data.	No data.
Hazardous Components (Chemical Name)	RTECS #	OSHA STEL	OSHA CEIL	ACGIH STEL	ACGIH CEIL
1. EIA Tracer Dye	NA	No data.	No data.	No data.	No data.
2. Sodium hydroxide	WB4900000	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):** Corrosive, causes severe burns.  
Harmful if swallowed, inhaled, or absorbed through the skin.  
Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract, eyes, and skin.  
The toxicological properties of this compound have not been fully evaluated.  
Toxic  
**LD 50/LC 50:** Please refer to Section 11.  
**Signs and Symptoms Of Exposure:** Inhalation may result in spasm, inflammation, and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.  
Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

### 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.  
Do not give direct mouth-to-mouth if victim ingested or inhaled this substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.  
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.

# MATERIAL SAFETY DATA SHEET

## EIA Tracer Dye

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Supercedes Revision: 04/28/2005

### 5. Fire Fighting Measures

<b>Flash Pt:</b>	No data.
<b>Explosive Limits:</b>	LEL: No data. UEL: No data.
<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. Exothermic in contact with water.
<b>Flammable Properties and Hazards:</b>	Emits toxic and corrosive fumes under fire conditions.
<b>Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, or dry chemical spray when fighting fires involving this material. Use extinguishing media appropriate to surrounding fire conditions. DO NOT USE WATER.
<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). 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.
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### 7. Handling and Storage

<b>Hazard Label Information:</b>	Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.
<b>Precautions To Be Taken in Handling:</b>	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.
<b>Precautions To Be Taken in Storing:</b>	Keep tightly closed. Store at correct temperature.
<b>Other Precautions:</b>	Contact with aluminum, tin and zinc liberates hydrogen gas. Contact with nitromethane and other similar nitro compounds causes formation of shock-sensitive salts.

### 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>	Government approved respirator as conditions warrant.
<b>Eye Protection:</b>	Safety glasses
<b>Protective Gloves:</b>	Latex disposable 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. 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

<b>Physical States:</b>	[ ] Gas [ X ] Liquid [ ] Solid
<b>Melting Point:</b>	No data.
<b>Boiling Point:</b>	No data.

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## EIA Tracer Dye

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Revision: 03/09/2006

Supercedes Revision: 04/28/2005

<b>Autoignition Pt:</b>	No data.
<b>Flash Pt:</b>	No data. Method:
<b>Explosive Limits:</b>	LEL: No data. UEL: No data.
<b>Specific Gravity (Water = 1):</b>	No data.
<b>Vapor Pressure (vs. Air or mm Hg):</b>	No data.
<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>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>	absorbs carbon dioxide from air
<b>Incompatibility - Materials To Avoid:</b>	chlorinated solvents organic materials strong acids strong oxidizing agents
<b>Hazardous Decomposition Or Byproducts:</b>	No data available.
<b>Hazardous Polymerization:</b>	Will occur [ ] Will not occur [ X ]
<b>Conditions To Avoid - Hazardous Polymerization:</b>	No data available.

### 11. Toxicological Information

<b>Toxicological Information:</b>	The toxicological effects of this compound have not been thoroughly studied.
	NaOH - Irritation Data: Eye (monkey): 1%/24H severe Skin (rabbit): 500 mg/24H severe Eye (rabbit): 400 ug mild Eye (rabbit): 1% severe Eye (rabbit): 50 ug/24H severe Eye (rabbit): 1mg/24H severe Eye (rabbit): 1mg/30S rinse severe
	NaOH - Toxicity Data: Intraperitoneal LD50 (mouse): 40 mg/kg
<b>Chronic Toxicological Effects:</b>	Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. NaOH RTECS Number: WB4900000
<b>Carcinogenicity/Other Information:</b>	No data available.
<b>Carcinogenicity:</b>	NTP? No IARC Monographs? No OSHA Regulated? No

### 12. Ecological Information

<b>Ecological Information:</b>	Runoff from fire control or dilution water may cause pollution.
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### 13. Disposal Considerations

<b>Waste Disposal Method:</b>	Dispose in accordance with local, state and federal regulations.
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# MATERIAL SAFETY DATA SHEET

## EIA Tracer Dye

Page: 4

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Revision: 03/09/2006

Supercedes Revision: 04/28/2005

### 14. Transport Information

**LAND TRANSPORT (US DOT)****DOT Proper Shipping Name:** Sodium hydroxide solution**DOT Hazard Class:** 8**DOT Hazard Label:** CORROSIVE**UN/NA Number:** UN1824**DOT Packing Group:** II**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. EIA Tracer Dye	NA	No	No	No	No
2. Sodium hydroxide	1310-73-2	No	Yes 1000 LB	No	No

**US EPA CAA, CWA, TSCA**

Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	CA PROP 65
1. EIA Tracer Dye	NA	No	No	No	No
2. Sodium hydroxide	1310-73-2	No	No	No	No

### 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

## EIA Antiserum Dye

Page: 1

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

Printed: 03/09/2006  
Revision: 03/09/2006  
Supersedes Revision: 04/28/2005  
Date Created: 04/04/2003

### 1. Product and Company Identification

**Product Code:** 400042  
**Product Name:** EIA Antiserum Dye  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Chemical Family:** EIA - Other

### 2. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Percentage	OSHA PEL	ACGIH TLV	Other Limits
1. EIA Antiserum Dye	NA	0.0 -100.0 %	No data.	No data.	No data.
2. Sodium chloride	7647-14-5	0.0 -100.0 %	No data.	No data.	No data.
Hazardous Components (Chemical Name)	RTECS #	OSHA STEL	OSHA CEIL	ACGIH STEL	ACGIH CEIL
1. EIA Antiserum Dye	NA	No data.	No data.	No data.	No data.
2. Sodium chloride	VZ4725000	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 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.  
**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

## EIA Antiserum Dye

Page: 2

Printed: 03/09/2006

Revision: 03/09/2006

Supersedes Revision: 04/28/2005

### 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.

### 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:** Latex disposable 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. Method:

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

**Specific Gravity (Water = 1):** 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.

**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:** No data available.

# MATERIAL SAFETY DATA SHEET

## EIA Antiserum Dye

**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

**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

**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. EIA Antiserum Dye	NA	No	No	No	No
2. Sodium chloride	7647-14-5	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. EIA Antiserum Dye	NA	No	No	No	No
2. Sodium chloride	7647-14-5	No	No	No	No

### 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

## Ellman's Reagent

Page: 1

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

Printed: 12/01/2005  
Revision: 06/27/2005  
Supersedes Revision: 12/06/2004  
Date Created: 06/27/1996

### 1. Product and Company Identification

**Product Code:** 400050  
**Product Name:** Ellman's Reagent  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335

### 2. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Percentage	OSHA PEL	ACGIH TLV	Other Limits
1. Ellman's Reagent	NA	0.0 -100.0 %	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):** Irritant.  
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.  
The toxicological properties of this compound have not been fully evaluated.  
**Signs and Symptoms Of Exposure:** Ingestion of large amounts causes vomiting and diarrhea.

### 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.  
**Autoignition Pt:** 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:** Emits toxic and corrosive 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.

### 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).  
 Vacuum or sweep up material and place in disposal container.  
 Avoid raising dust.  
 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.  
 Hygroscopic.  
 Use with adequate ventilation.  
 Wash thoroughly after handling.

**Precautions To Be Taken in Storing:** Keep tightly closed.  
 Protect from light.  
 Protect from moisture.  
 Store at correct temperature.

### 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:** Latex disposable 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 [ ] Liquid [ X ] Solid

**Melting Point:** No data.

**Boiling Point:** No data.

**Autoignition Pt:** No data.

**Flash Pt:** No data. Method:

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

**Specific Gravity (Water = 1):** 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.

**Corrosion Rate:** No data.

**pH:** No data.

**Appearance and Odor:** A lyophilized powder

## 10. Stability and Reactivity

<b>Stability:</b>	Unstable [ ] Stable [ X ]
<b>Conditions To Avoid - Instability:</b>	protect from light protect from moisture
<b>Incompatibility - Materials To Avoid:</b>	strong bases strong oxidizing agents
<b>Hazardous Decomposition Or Byproducts:</b>	carbon dioxide carbon monoxide hydrogen chloride gas hydrogen iodide nitrogen oxides sodium/sodium oxides sulfur oxides
<b>Hazardous Polymerization:</b>	Will occur [ ] Will not occur [ X ]
<b>Conditions To Avoid - Hazardous Polymerization:</b>	No data available.

## 11. Toxicological Information

<b>Toxicological Information:</b>	The toxicological effects of this compound have not been thoroughly studied.
<b>Chronic Toxicological Effects:</b>	Sodium Chloride - Target organ data: Behaviorial (change in motor activity) Behaviorial (convulsions or effect on seizure threshold) Behaviorial (muscle contraction or spasticity) Behaviorial (somnia) (somnia) Cardiac (other changes) Effects on embryo (fetal death) Effects on embryo or fetus (fetotoxicity) Effects on fertility (pre-implantation mortality) Effects on fertility (post-implantation mortality) Endocrine (estrogenic) Maternal effects (other effects on female) Maternal effects (ovaries, fallopian tubes) Nutritional and gross metabolic (changes in: NA) Sense organs and special senses (other eye effects) Specific developmental abnormalities (musculoskeletal system)  Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete Information. Sodium Chloride RTECS Number: VZ4725000
<b>Carcinogenicity/Other Information:</b>	No data available.
<b>Carcinogenicity:</b>	NTP? No IARC Monographs? No OSHA Regulated? No

## 12. Ecological Information

<b>Ecological Information:</b>	Runoff from fire control or dilution water may cause pollution.
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## 13. Disposal Considerations

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

# MATERIAL SAFETY DATA SHEET

## Ellman's Reagent

Page: 4

Printed: 12/01/2005

Revision: 06/27/2005

Supercedes Revision: 12/06/2004

### 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. Ellman's Reagent	NA	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. Ellman's Reagent	NA	No	No	No	No

### 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**  
**EIA Buffer Concentrate (10X)**

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

Printed: 03/09/2006  
 Revision: 03/09/2006  
 Supersedes Revision: 04/28/2005  
 Date Created: 06/27/1996

**1. Product and Company Identification**

**Product Code:** 400060  
**Product Name:** EIA Buffer Concentrate (10X)  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Chemical Family:** EIA - Other

**2. Composition/Information on Ingredients**

Hazardous Components (Chemical Name)	CAS #	Percentage	OSHA PEL	ACGIH TLV	Other Limits
1. Potassium phosphate, dibasic	7758-11-4	13.3 %	No data.	No data.	No data.
2. Potassium phosphate	7778-77-0	3.21 %	No data.	No data.	No data.
3. Sodium azide	26628-22-8	0.1 %	No data.	No data.	No data.
4. Sodium chloride	7647-14-5	23.4 %	No data.	No data.	No data.
5. Ethylenediamine Tetraacetic Acid	60-00-4	0.38 %	No data.	No data.	No data.
6. Serum Albumin	9048-46-8	1.0 %	No data.	No data.	No data.
7. Water	7732-18-5	58.61 %	No data.	No data.	No data.
Hazardous Components (Chemical Name)	RTECS #	OSHA STEL	OSHA CEIL	ACGIH STEL	ACGIH CEIL
1. Potassium phosphate, dibasic	NA	No data.	No data.	No data.	No data.
2. Potassium phosphate	TC6615500	No data.	No data.	No data.	No data.
3. Sodium azide	VY8050000	No data.	No data.	No data.	No data.
4. Sodium chloride	VZ4725000	No data.	No data.	No data.	No data.
5. Ethylenediamine Tetraacetic Acid	AH4025000	No data.	No data.	No data.	No data.
6. Serum Albumin	MT6446000	No data.	No data.	No data.	No data.
7. 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):** Irritant.  
 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.  
 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:** Ingestion of large amounts causes vomiting and diarrhea.

**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>	No data.
<b>Explosive Limits:</b>	LEL: No data. UEL: No data.
<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.
<b>Flammable Properties and Hazards:</b>	Emits toxic fumes under fire conditions.
<b>Hazardous Combustion Products:</b>	carbon dioxide carbon monoxide hydrogen chloride gas sodium/sodium oxides
<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>	Wear a government approved respirator and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves). Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. After removal, ventilate contaminated area and flush thoroughly with water.
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**7. Handling and Storage**

<b>Hazard Label Information:</b>	Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.
<b>Precautions To Be Taken in Handling:</b>	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.
<b>Precautions To Be Taken in Storing:</b>	Keep tightly closed. 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>	Government approved respirator as conditions warrant.
<b>Eye Protection:</b>	Safety glasses
<b>Protective Gloves:</b>	Latex disposable 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. 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**

<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>	No data. Method:

**EIA Buffer Concentrate (10X)**

<b>Explosive Limits:</b>	LEL: No data.	UEL: No data.
<b>Specific Gravity (Water = 1):</b>	No data.	
<b>Vapor Pressure (vs. Air or mm Hg):</b>	No data.	
<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>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 oxidizing agents
<b>Hazardous Decomposition Or Byproducts:</b>	carbon dioxide carbon monoxide hydrogen chloride gas sodium/sodium oxides
<b>Hazardous Polymerization:</b>	Will occur [ ]    Will not occur [ X ]
<b>Conditions To Avoid - Hazardous Polymerization:</b>	No data available.

**11. Toxicological Information**

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

NaCl - Irritation data:  
Skin (rabbit): 50 mg/24H mild  
Skin (rabbit): 500 mg/24H mild  
Eye (rabbit): 100 mg mild  
Eye (rabbit): 100mg/24H moderate  
Eye (rabbit): 10 mg moderate

KH2PO4 -Toxicity data:  
Skin LD50 (rabbit): >4640 mg/kg

NaCl -Toxicity data:  
Oral LDLO (man): 1000 mg/kg  
Oral LD50 (rat): 3000 mg/kg  
Inhalation LD50 (rat): >42000 mg/m3/hr  
Oral LD50 (mouse): 4000 mg/kg  
Intraperitoneal LD50 (mouse): 2602 mg/kg  
Subcutaneous LD50 (mouse): 3000 mg/kg  
Intravenous LD50 (mouse): 645 mg/kg  
Skin LD50 (rabbit): >10000mg/kg

**Chronic Toxicological Effects:**            NaCl - Target organ data:  
Behavioral (somnia) (sic)  
Behavioral (convulsions or effect on seizure threshold)  
Behavioral (change in motor activity)  
Behavioral (muscle contraction or spasticity)  
Cardiac (other changes)  
Effects on embryo or fetus (fetal death)  
Effects on embryo or fetus (fetotoxicity)  
Effects on fertility (pre-implantation mortality)  
Effects on fertility (post-implantation mortality)  
Effects on fertility (abortion)

**EIA Buffer Concentrate (10X)**

Endocrine (estrogenic)  
 Maternal effects (ovaries, fallopian tubes)  
 Maternal effects (other effects on female)  
 Nutritional and gross metabolic (changes in: NA)  
 Sense organs and special senses (other eye effects)  
 Specific developmental abnormalities (musculoskeletal system)

Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.  
 See actual entry in RTECS for complete information.  
 KH<sub>2</sub>PO<sub>4</sub> RTECS Number: TC6615500  
 NaCl RTECS Number: VZ4725000

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

**12. Ecological Information**

**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. Potassium phosphate, dibasic	7758-11-4	No	No	No	No
2. Potassium phosphate	7778-77-0	No	No	No	No
3. Sodium azide	26628-22-8	Yes 500 LB	Yes 1000 LB	Yes	No
4. Sodium chloride	7647-14-5	No	No	No	No
5. Ethylenediamine Tetraacetic Acid	60-00-4	No	Yes 5000 LB	No	No
6. Serum Albumin	9048-46-8	No	No	No	No
7. Water	7732-18-5	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. Potassium phosphate, dibasic	7758-11-4	No	No	No	No
2. Potassium phosphate	7778-77-0	No	No	No	No
3. Sodium azide	26628-22-8	No	No	No	No
4. Sodium chloride	7647-14-5	No	No	No	No
5. Ethylenediamine Tetraacetic Acid	60-00-4	No	No	No	No
6. Serum Albumin	9048-46-8	No	No	No	No
7. Water	7732-18-5	No	No	No	No

**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

## Wash Buffer Concentrate (400X)

Page: 1

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

Printed: 12/01/2005  
Revision: 04/28/2005  
Supercedes Revision: 11/29/2004  
Date Created: 06/27/1996

### 1. Product and Company Identification

**Product Code:** 400062  
**Product Name:** Wash Buffer Concentrate (400X)  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Chemical Family:** EIA - Other

### 2. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Percentage	OSHA PEL	ACGIH TLV	Other Limits
1. Potassium phosphate, dibasic	7758-11-4	53.2 %	No data.	No data.	No data.
2. Potassium phosphate	7778-77-0	12.85 %	No data.	No data.	No data.
3. Water	7732-18-5	33.95 %	No data.	No data.	No data.
Hazardous Components (Chemical Name)	RTECS #	OSHA STEL	OSHA CEIL	ACGIH STEL	ACGIH CEIL
1. Potassium phosphate, dibasic	NA	No data.	No data.	No data.	No data.
2. Potassium phosphate	TC6615500	No data.	No data.	No data.	No data.
3. 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 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.  
The toxicological properties of this compound have not been fully evaluated.  
**LD 50/LC 50:** KH<sub>2</sub>PO<sub>4</sub> - Skin LD50 (rabbit): >4640 mg/kg  
**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.  
**Autoignition Pt:** 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.



# MATERIAL SAFETY DATA SHEET

## Wash Buffer Concentrate (400X)

Page: 3

Printed: 12/01/2005

Revision: 04/28/2005

Supercedes Revision: 11/29/2004

**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:** strong oxidizing agents  
**Hazardous Decomposition Or Byproducts:** carbon dioxide  
carbon monoxide  
**Hazardous Polymerization:** Will occur [ ] Will not occur [ X ]  
**Conditions To Avoid - Hazardous Polymerization:** No data available.

### 11. Toxicological Information

**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

**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. Potassium phosphate, dibasic	7758-11-4	No	No	No	No
2. Potassium phosphate	7778-77-0	No	No	No	No
3. Water	7732-18-5	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. Potassium phosphate, dibasic	7758-11-4	No	No	No	No
2. Potassium phosphate	7778-77-0	No	No	No	No
3. Water	7732-18-5	No	No	No	No

### 16. Other Information

#### Company Policy or Disclaimer

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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.

## Estriol AChE Tracer

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

Printed: 11/08/2006  
Revision: 11/08/2006  
Supersedes Revision: 02/28/2002  
Date Created: 06/27/1996

## 1. Product and Company Identification

**Product Code:** 482280  
**Product Name:** Estriol AChE Tracer  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Chemical Family:** EIA - Tracers  
**Synonyms:** 1,3,5(10)-Estratriene-3,16.alpha.,17.beta.-triol; 16.alpha.-hydroxy-17.beta.-estradiol

## 2. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Percentage	OSHA PEL	ACGIH TLV	Other Limits
1. Estradiol AChE Tracer	NA	100.0 %	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  
**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.  
**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.



**Estriol AChE Tracer**

Printed: 11/08/2006

Revision: 11/08/2006

Supercedes Revision: 02/28/2002

**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**

**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**

**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. Estradiol AChE Tracer	NA	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. Estradiol AChE Tracer	NA	No	No	No	No

**16. Other Information**

**Company Policy or Disclaimer**

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 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

## Estriol EIA Antiserum

Page: 1

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

Printed: 11/08/2006  
Revision: 11/08/2006

Date Created: 11/08/2006

### 1. Product and Company Identification

**Product Code:** 482282  
**Product Name:** Estriol EIA Antiserum  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Chemical Family:** EIA - Antisera  
**Synonyms:** 1,3,5(10)-Estratriene-3,16.alpha.,17.beta.-triol; 16.alpha.-hydroxy-17.beta.-estradiol

### 2. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Percentage	OSHA PEL	ACGIH TLV	Other Limits
1. Estriol EIA Antiserum	NA	100.0 %	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.  
**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

## Estriol EIA Antiserum

**Incompatibility - Materials To Avoid:** No data available.  
**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

**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

**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. Estriol EIA Antiserum	NA	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. Estriol EIA Antiserum	NA	No	No	No	No

### 16. Other Information

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# MATERIAL SAFETY DATA SHEET

## Estriol EIA Standard

Page: 1

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

Printed: 11/08/2006  
Revision: 11/08/2006  
Supercedes Revision: 02/28/2002  
Date Created: 06/27/1996

### 1. Product and Company Identification

**Product Code:** 482284  
**Product Name:** Estriol EIA Standard  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335  
**Chemical Family:** EIA - Standard  
**Synonyms:** 1,3,5(10)-Estratriene-3,16.alpha.,17.beta.-triol; 16.alpha.-hydroxy-17.beta.-estradiol

### 2. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Percentage	OSHA PEL	ACGIH TLV	Other Limits
1. .beta.-Estradiol	50-28-2	0.001 %	No data.	No data.	No data.
2. Ethyl alcohol	64-17-5	99.999 %	8H TWA:1000 ppm (1900 mg/m3)	1000 ppm	No data.
Hazardous Components (Chemical Name)	RTECS #	OSHA STEL	OSHA CEIL	ACGIH STEL	ACGIH CEIL
1. .beta.-Estradiol	KG2975000	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: TCC
<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. 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. Container explosion may occur under fire conditions. Emits toxic fumes under fire conditions. Flammable liquid. Vapors can travel to a source of ignition and flash back.
<b>Hazardous Combustion Products:</b>	carbon dioxide 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. After removal, ventilate contaminated area and flush thoroughly with water.
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### 7. Handling and Storage

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

<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: TCC

**Estriol EIA Standard**

**Explosive Limits:** LEL: 3.3% at 25.0 C UEL: 19% at 25.0 C  
**Specific Gravity (Water = 1):** No data.  
**Vapor Pressure (vs. Air or mm Hg):** 44.6 MM\_HG at 20.0 C  
**Vapor Density (vs. Air = 1):** No data.  
**Evaporation Rate (vs Butyl Acetate=1):** No data.  
**Solubility in Water:** No data.  
**Percent Volatile:** N.A.  
**Corrosion Rate:** No data.  
**Formula:** C18H24O3  
**Molecular Weight:** 288.40  
**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:** strong inorganic acids  
 strong oxidizing agents  
**Hazardous Decomposition Or Byproducts:** carbon dioxide  
 carbon monoxide  
**Hazardous Polymerization:** Will occur [ ] Will not occur [ X ]  
**Conditions To Avoid - Hazardous Polymerization:** No data available.

**11. Toxicological Information**

**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**

**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:** Ethyl alcohol  
**DOT Hazard Class:** 3  
**DOT Hazard Label:** FLAMMABLE LIQUID  
**UN/NA Number:** 1170  
**DOT Packing Group:** II  
**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. .beta.-Estradiol	50-28-2	No	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. .beta.-Estradiol	50-28-2	No	No	No	Yes
2. Ethyl alcohol	64-17-5	No	No	No	No

## 16. Other Information

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