



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

Revision: 10/12/2011  
Supersedes Revision: 12/21/2005

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

**Product Code:** 10006519  
**Product Name:** S-Nitrosylation Wash Buffer (10X)  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
**Alternate Emergency Contact:** CHEMTREC Outside USA and Canada: +1 (703)527-3887  
**Information:** Cayman Chemical Company +1 (734)971-3335  
**Web site address:** www.caymanchem.com

## 2. Hazards Identification

**Emergency Overview:** Avoid contact and inhalation.  
**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.  
**Signs and Symptoms Of Exposure:** To the best of our knowledge, the toxicological properties have not been thoroughly investigated.  
**Medical Conditions Generally Aggravated By Exposure:** No data available.

## 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Potassium chloride	7447-40-7	0.0 -1.0 %	231-211-8	No phrases apply.	TS8050000
2. Ethylenediamine Tetraacetic Acid	60-00-4	0.0 -1.0 %	200-449-4	R36/37/38	AH4025000
3. Sodium chloride	7647-14-5	1.0 -15.0 %	231-598-3	No phrases apply.	VZ4725000
4. Potassium phosphate, Monobasic	7778-77-0	0.0 -1.0 %	231-913-4	No phrases apply.	TC6615500
5. Sodium phosphate, Dibasic, heptahydrate	7782-85-6	1.0 -10.0 %	NA	No phrases apply.	WC4600000
6. Water	7732-18-5	72.0 -98.0 %	231-791-2	No phrases apply.	ZC0110000

## 4. First Aid Measures

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

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

**Flammable Properties and Hazards:** No data available.

**Hazardous Combustion Products:** No data available.

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

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

### 6. Accidental Release Measures

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

### 7. Handling and Storage

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

**Precautions To Be Taken in Handling:** Avoid breathing (dust, vapor, mist, gas).  
Avoid prolonged or repeated exposure.

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

### 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Potassium chloride	7447-40-7	No data.	No data.	No data.
2. Ethylenediamine Tetraacetic Acid	60-00-4	No data.	No data.	No data.
3. Sodium chloride	7647-14-5	No data.	No data.	No data.
4. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.
5. Sodium phosphate, Dibasic, heptahydrate	7782-85-6	No data.	No data.	No data.
6. Water	7732-18-5	No data.	No data.	No data.

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

**Respiratory Equipment (Specify Type):** NIOSH approved respirator, as conditions warrant.

**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  Liquid  Solid

**Melting Point:** No data.

**Boiling Point:** No data.

**Autoignition Pt:** No data.

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

**Solubility in Water:** No data.

**Percent Volatile:** No data.

**pH:** 7.2

**Appearance and Odor:** No data available.

### 10. Stability and Reactivity

**Stability:** Unstable  Stable

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

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

**Hazardous Decomposition Or Byproducts:** No data available.

**Possibility of Hazardous Reactions:** Will occur  Will not occur

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

### 11. Toxicological Information

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

**Chronic Toxicological Effects:** No data available.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Potassium chloride	7447-40-7	n.a.	n.a.	n.a.	n.a.
2. Ethylenediamine Tetraacetic Acid	60-00-4	n.a.	n.a.	n.a.	n.a.
3. Sodium chloride	7647-14-5	n.a.	n.a.	n.a.	n.a.
4. Potassium phosphate, Monobasic	7778-77-0	n.a.	n.a.	n.a.	n.a.
5. Sodium phosphate, Dibasic, heptahydrate	7782-85-6	n.a.	n.a.	n.a.	n.a.
6. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

### 12. Ecological Information

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

### 13. Disposal Considerations

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

### 14. Transport Information

**LAND TRANSPORT (US DOT)**

**DOT Proper Shipping Name** Not dangerous goods.

**LAND TRANSPORT (European ADR/RID)**

**ADR/RID Shipping Name** Not dangerous goods.

**AIR TRANSPORT (ICAO/IATA)**

**ICAO/IATA Shipping Name** Not dangerous goods.

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

**15. Regulatory Information**

**European Community Hazard Symbol codes**

No data available.

**European Community Risk and Safety Phrases**

- S24/25 - Avoid contact with skin and eyes.
- S37/39 - Wear suitable gloves and eye/face protection.

**US EPA SARA Title III**

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Potassium chloride	7447-40-7	No	No	No	No
2. Ethylenediamine Tetraacetic Acid	60-00-4	No	Yes 5000 LB	No	No
3. Sodium chloride	7647-14-5	No	No	No	No
4. Potassium phosphate, Monobasic	7778-77-0	No	No	No	No
5. Sodium phosphate, Dibasic, heptahydrate	7782-85-6	No	No	No	No
6. Water	7732-18-5	No	No	No	No

**Other US EPA or State Lists**

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. Potassium chloride	7447-40-7	No	No	Inventory	No
2. Ethylenediamine Tetraacetic Acid	60-00-4	No	No	Inventory	No
3. Sodium chloride	7647-14-5	No	No	Inventory	No
4. Potassium phosphate, Monobasic	7778-77-0	No	No	Inventory	No
5. Sodium phosphate, Dibasic, heptahydrate	7782-85-6	No	No	No	No
6. Water	7732-18-5	No	No	Inventory	No

**Regulatory Information Statement:** This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

**16. Other Information**

**Company Policy or Disclaimer**

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

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

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



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Revision: 10/12/2011  
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## 1. Identification of the Substance/Mixture and of the Company/Undertaking

**Product Code:** 10006520  
**Product Name:** S-Nitrosylation Buffer A  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
**Alternate Emergency Contact:** CHEMTREC Outside USA and Canada: +1 (703)527-3887  
**Information:** Cayman Chemical Company +1 (734)971-3335  
**Web site address:** www.caymanchem.com

## 2. Hazards Identification

**Emergency Overview:** Avoid contact and inhalation.  
**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.  
**Signs and Symptoms Of Exposure:** To the best of our knowledge, the toxicological properties have not been thoroughly investigated.  
**Medical Conditions Generally Aggravated By Exposure:** No data available.

## 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. HEPES, free acid	7365-45-9	0.0 -1.0 %	230-907-9	R43-36/37/38	TL6809000
2. Ethylenediamine Tetraacetic Acid	60-00-4	0.0 -1.0 %	200-449-4	R36/37/38	AH4025000
3. Sodium Dodecyl Sulfate	151-21-3	0.0 -1.0 %	205-788-1	R36/38	WT1050000
4. CHAPS	75621-03-3	0.0 -1.0 %	616-246-2	No phrases apply.	NA
5. Water	7732-18-5	96.0 -100.0 %	231-791-2	No phrases apply.	ZC0110000

## 4. First Aid Measures

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

<b>Autoignition Pt:</b>	No data available.
<b>Fire Fighting Instructions:</b>	As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
<b>Flammable Properties and Hazards:</b>	No data available.
<b>Hazardous Combustion Products:</b>	No data available.
<b>Suitable Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.
<b>Unsuitable Extinguishing Media:</b>	A solid water stream may be inefficient.

### 6. Accidental Release Measures

<b>Steps To Be Taken In Case Material Is Released Or Spilled:</b>	Avoid release into the environment. Avoid breathing vapors and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves). Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.
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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 prolonged or repeated exposure.
<b>Precautions To Be Taken in Storing:</b>	Keep tightly closed. Store at correct temperature.

### 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. HEPES, free acid	7365-45-9	No data.	No data.	No data.
2. Ethylenediamine Tetraacetic Acid	60-00-4	No data.	No data.	No data.
3. Sodium Dodecyl Sulfate	151-21-3	No data.	No data.	No data.
4. CHAPS	75621-03-3	No data.	No data.	No data.
5. Water	7732-18-5	No data.	No data.	No data.

<b>Protective Equipment Summary - Hazard Label Information:</b>	Compatible chemical-resistant gloves Safety glasses Safety shower in work area Vent Hood Eye wash station in work area Lab coat Safety
<b>Respiratory Equipment (Specify Type):</b>	NIOSH approved respirator, as conditions warrant.
<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. 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.

**Autoignition Pt:** No data.  
**Flash Pt:** 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:** No data.  
**Solubility in Water:** No data.  
**Percent Volatile:** No data.  
**pH:** 7.6  
**Appearance and Odor:** No data available.

### 10. Stability and Reactivity

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

### 11. Toxicological Information

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

**Chronic Toxicological Effects:** No data available.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. HEPES, free acid	7365-45-9	n.a.	n.a.	n.a.	n.a.
2. Ethylenediamine Tetraacetic Acid	60-00-4	n.a.	n.a.	n.a.	n.a.
3. Sodium Dodecyl Sulfate	151-21-3	n.a.	n.a.	n.a.	n.a.
4. CHAPS	75621-03-3	n.a.	n.a.	n.a.	n.a.
5. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

### 12. Ecological Information

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

### 13. Disposal Considerations

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

### 14. Transport Information

**LAND TRANSPORT (US DOT)**

**DOT Proper Shipping Name** Not dangerous goods.

**LAND TRANSPORT (European ADR/RID)**

**ADR/RID Shipping Name** Not dangerous goods.

**AIR TRANSPORT (ICAO/IATA)**

**ICAO/IATA Shipping Name** Not dangerous goods.

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

## 15. Regulatory Information

**European Community Hazard Symbol codes**

No data available.

**European Community Risk and Safety Phrases**

S24/25 - Avoid contact with skin and eyes.  
S37/39 - Wear suitable gloves and eye/face protection.

**US EPA SARA Title III**

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. HEPES, free acid	7365-45-9	No	No	No	No
2. Ethylenediamine Tetraacetic Acid	60-00-4	No	Yes 5000 LB	No	No
3. Sodium Dodecyl Sulfate	151-21-3	No	No	No	No
4. CHAPS	75621-03-3	No	No	No	No
5. Water	7732-18-5	No	No	No	No

**Other US EPA or State Lists**

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. HEPES, free acid	7365-45-9	No	No	Inventory	No
2. Ethylenediamine Tetraacetic Acid	60-00-4	No	No	Inventory	No
3. Sodium Dodecyl Sulfate	151-21-3	No	No	Inventory	No
4. CHAPS	75621-03-3	No	No	No	No
5. Water	7732-18-5	No	No	Inventory	No

**Regulatory Information Statement:**

This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

## 16. Other Information

**Company Policy or Disclaimer**

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

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

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

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Revision: 10/12/2011  
Supersedes Revision: 12/21/2005

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

**Product Code:** 10006521

**Product Name:** S-Nitrosylation Buffer B (5X)

**Manufacturer Information**

**Company Name:** Cayman Chemical Company

**Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300

**Alternate Emergency Contact:** CHEMTREC Outside USA and Canada: +1 (703)527-3887

**Information:** Cayman Chemical Company +1 (734)971-3335

**Web site address:** www.caymanchem.com

## 2. Hazards Identification

**Emergency Overview:** Irritant.  
Avoid contact and inhalation.

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

**Potential Health Effects (Acute and Chronic):** Causes eye, skin irritation and respiratory system irritation.  
Material is irritating to the mucous membranes and upper respiratory tract.  
May be harmful by inhalation, ingestion, or skin absorption.

**Signs and Symptoms Of Exposure:** To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

**Medical Conditions Generally Aggravated By Exposure:** No data available.

## 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. HEPES, free acid	7365-45-9	1.0 -10.0 %	230-907-9	R43-36/37/38	TL6809000
2. Ethylenediamine Tetraacetic Acid	60-00-4	0.0 -1.0 %	200-449-4	R36/37/38	AH4025000
3. Sodium Dodecyl Sulfate	151-21-3	1.0 -10.0 %	205-788-1	R36/38	WT1050000
4. Water	7732-18-5	79.0 -98.0 %	231-791-2	No phrases apply.	ZC0110000

## 4. First Aid Measures

**Emergency and First Aid Procedures:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

In case of skin contact, immediately wash skin with soap and plenty of water for at least 20 minutes. 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.

<b>Autoignition Pt:</b>	No data available.
<b>Fire Fighting Instructions:</b>	As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
<b>Flammable Properties and Hazards:</b>	No data available.
<b>Hazardous Combustion Products:</b>	No data available.
<b>Suitable Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.
<b>Unsuitable Extinguishing Media:</b>	A solid water stream may be inefficient.

## 6. Accidental Release Measures

<b>Steps To Be Taken In Case Material Is Released Or Spilled:</b>	Avoid release into the environment. Avoid breathing vapors and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves). Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.
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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 prolonged or repeated exposure.
<b>Precautions To Be Taken in Storing:</b>	Keep tightly closed. Store at correct temperature.

## 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. HEPES, free acid	7365-45-9	No data.	No data.	No data.
2. Ethylenediamine Tetraacetic Acid	60-00-4	No data.	No data.	No data.
3. Sodium Dodecyl Sulfate	151-21-3	No data.	No data.	No data.
4. Water	7732-18-5	No data.	No data.	No data.

<b>Protective Equipment Summary - Hazard Label Information:</b>	Compatible chemical-resistant gloves Safety glasses Eye wash station in work area Safety shower in work area Lab coat Safety Vent Hood
<b>Respiratory Equipment (Specify Type):</b>	NIOSH approved respirator, as conditions warrant.
<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. 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>	<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>	No data.

**Flash Pt:** 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:** No data.  
**Solubility in Water:** No data.  
**Percent Volatile:** No data.  
**pH:** 7.6  
**Appearance and Odor:** No data available.

### 10. Stability and Reactivity

**Stability:** Unstable [  ] Stable [  ]  
**Conditions To Avoid - Instability:** No data available.  
**Incompatibility - Materials To Avoid:** strong oxidizing agents  
**Hazardous Decomposition Or Byproducts:** carbon dioxide  
carbon monoxide  
nitrogen oxides  
sodium oxides  
sulfur oxides  
**Possibility of Hazardous Reactions:** Will occur [  ] Will not occur [  ]  
**Conditions To Avoid - Hazardous Reactions:** No data available.

### 11. Toxicological Information

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

**Chronic Toxicological Effects:** No data available.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. HEPES, free acid	7365-45-9	n.a.	n.a.	n.a.	n.a.
2. Ethylenediamine Tetraacetic Acid	60-00-4	n.a.	n.a.	n.a.	n.a.
3. Sodium Dodecyl Sulfate	151-21-3	n.a.	n.a.	n.a.	n.a.
4. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

### 12. Ecological Information

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

### 13. Disposal Considerations

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

### 14. Transport Information

**LAND TRANSPORT (US DOT)**

**DOT Proper Shipping Name** Not dangerous goods.

**LAND TRANSPORT (European ADR/RID)**

**ADR/RID Shipping Name** Not dangerous goods.

**AIR TRANSPORT (ICAO/IATA)**

**ICAO/IATA Shipping Name** Not dangerous goods.

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

## 15. Regulatory Information

**European Community Hazard Symbol codes** Xi: Irritant

**European Community Risk and Safety Phrases**

- R36/37/38 - Irritating to eyes, respiratory system and skin.
- S24/25 - Avoid contact with skin and eyes.
- S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

**US EPA SARA Title III**

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. HEPES, free acid	7365-45-9	No	No	No	No
2. Ethylenediamine Tetraacetic Acid	60-00-4	No	Yes 5000 LB	No	No
3. Sodium Dodecyl Sulfate	151-21-3	No	No	No	No
4. Water	7732-18-5	No	No	No	No

**Other US EPA or State Lists**

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. HEPES, free acid	7365-45-9	No	No	Inventory	No
2. Ethylenediamine Tetraacetic Acid	60-00-4	No	No	Inventory	No
3. Sodium Dodecyl Sulfate	151-21-3	No	No	Inventory	No
4. Water	7732-18-5	No	No	Inventory	No

**Regulatory Information Statement:** This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

## 16. Other Information

**Company Policy or Disclaimer**

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

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

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



# MATERIAL SAFETY DATA SHEET

## S-Nitrosylation Reducing Reagent

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

Revision: 10/12/2011  
Supersedes Revision: 12/21/2005

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

**Product Code:** 10006522  
**Product Name:** S-Nitrosylation Reducing Reagent  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
**Alternate Emergency Contact:** CHEMTREC Outside USA and Canada: +1 (703)527-3887  
**Information:** Cayman Chemical Company +1 (734)971-3335  
**Web site address:** www.caymanchem.com

### 2. Hazards Identification

**Emergency Overview:** Avoid contact and inhalation.  
**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.  
**Signs and Symptoms Of Exposure:** To the best of our knowledge, the toxicological properties have not been thoroughly investigated.  
**Medical Conditions Generally Aggravated By Exposure:** No data available.

### 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Sodium ascorbate	134-03-2	80.0 -100.0 %	205-126-1	No phrases apply.	CI7671000

### 4. First Aid Measures

**Emergency and First Aid Procedures:**  
If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.  
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.  
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.  
In case of skin contact, immediately wash skin with soap and plenty of water for at least 20 minutes. 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 available.  
**Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
**Flammable Properties and Hazards:** No data available.

<b>Hazardous Combustion Products:</b>	No data available.
<b>Suitable Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.
<b>Unsuitable Extinguishing Media:</b>	A solid water stream may be inefficient.

### 6. Accidental Release Measures

<b>Steps To Be Taken In Case Material Is Released Or Spilled:</b>	Avoid release into the environment. Avoid raising and breathing dust, and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves). Transfer to a chemical waste container for disposal.
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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 prolonged or repeated exposure.
<b>Precautions To Be Taken in Storing:</b>	Keep tightly closed. Store at correct temperature.
<b>Other Precautions:</b>	Light sensitive.

### 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Sodium ascorbate	134-03-2	No data.	No data.	No data.

<b>Protective Equipment Summary - Hazard Label Information:</b>	Compatible chemical-resistant gloves glasses Safety shower in work area Vent Hood	Eye wash station in work area Lab coat Safety
<b>Respiratory Equipment (Specify Type):</b>	NIOSH approved respirator, as conditions warrant.	
<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. 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>	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> 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.
<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:</b>	No data.

**Solubility in Water:** No data.

**Percent Volatile:** No data.

**Appearance and Odor:** A lyophilized powder

### 10. Stability and Reactivity

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

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

**Incompatibility - Materials To Avoid:** strong bases  
strong oxidizing agents

**Hazardous Decomposition Or Byproducts:** carbon dioxide  
carbon monoxide  
sodium oxides

**Possibility of Hazardous Reactions:** Will occur [ ] Will not occur [ X ]

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

### 11. Toxicological Information

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

**Chronic Toxicological Effects:** No data available.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Sodium ascorbate	134-03-2	n.a.	n.a.	n.a.	n.a.

### 12. Ecological Information

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

### 13. Disposal Considerations

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

### 14. Transport Information

**LAND TRANSPORT (US DOT)**

**DOT Proper Shipping Name** Not dangerous goods.

**LAND TRANSPORT (European ADR/RID)**

**ADR/RID Shipping Name** Not dangerous goods.

**AIR TRANSPORT (ICAO/IATA)**

**ICAO/IATA Shipping Name** Not dangerous goods.

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

### 15. Regulatory Information

**European Community Hazard Symbol codes**

No data available.

**European Community Risk and Safety Phrases**

S24/25 - Avoid contact with skin and eyes.  
S37/39 - Wear suitable gloves and eye/face protection.

**US EPA SARA Title III**

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Sodium ascorbate	134-03-2	No	No	No	No

**Other US EPA or State Lists**

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. Sodium ascorbate	134-03-2	No	No	Inventory	No

**Regulatory Information Statement:**

This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

**16. Other Information****Company Policy or Disclaimer**

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

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

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



# MATERIAL SAFETY DATA SHEET

## S-Nitrosylation Labeling Reagent

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

Revision: 10/12/2011  
Supersedes Revision: 12/21/2005

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

**Product Code:** 10006523  
**Product Name:** S-Nitrosylation Labeling Reagent  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
**Alternate Emergency Contact:** CHEMTREC Outside USA and Canada: +1 (703)527-3887  
**Information:** Cayman Chemical Company +1 (734)971-3335  
**Web site address:** www.caymanchem.com

### 2. Hazards Identification

**Emergency Overview:** Avoid contact and inhalation.  
**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.  
**Signs and Symptoms Of Exposure:** To the best of our knowledge, the toxicological properties have not been thoroughly investigated.  
**Medical Conditions Generally Aggravated By Exposure:** No data available.

### 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases
1. 3-(N-Maleimidopropionyl) Biocytin	102849-12-7	80.0 -100.0 %	NA	No phrases apply.

### 4. First Aid Measures

**Emergency and First Aid Procedures:**  
If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.  
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.  
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.  
In case of skin contact, immediately wash skin with soap and plenty of water for at least 20 minutes. 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 available.  
**Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
**Flammable Properties and Hazards:** No data available.

<b>Hazardous Combustion Products:</b>	No data available.
<b>Suitable Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.
<b>Unsuitable Extinguishing Media:</b>	A solid water stream may be inefficient.

### 6. Accidental Release Measures

<b>Steps To Be Taken In Case Material Is Released Or Spilled:</b>	Avoid release into the environment. Avoid raising and breathing dust, and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves). Transfer to a chemical waste container for disposal.
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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 prolonged or repeated exposure.
<b>Precautions To Be Taken in Storing:</b>	Keep tightly closed. Store at correct temperature.

### 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. 3-(N-Maleimidopropionyl) Biocytin	102849-12-7	No data.	No data.	No data.

<b>Protective Equipment Summary - Hazard Label Information:</b>	Compatible chemical-resistant gloves    Eye wash station in work area    Lab coat    Safety glasses    Safety shower in work area    Vent Hood
<b>Respiratory Equipment (Specify Type):</b>	NIOSH approved respirator, as conditions warrant.
<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. 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>	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> 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.
<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:</b>	No data.
<b>Solubility in Water:</b>	No data.

<b>Percent Volatile:</b>	No data.
<b>Appearance and Odor:</b>	A lyophilized powder

### 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>	carbon dioxide carbon monoxide nitrogen oxides sulfur oxides
<b>Possibility of Hazardous Reactions:</b>	Will occur [ <input type="checkbox"/> ]    Will not occur [ <input checked="" type="checkbox"/> ]
<b>Conditions To Avoid - Hazardous Reactions:</b>	No data available.

### 11. Toxicological Information

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

<b>Chronic Toxicological Effects:</b>	No data available.
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Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. 3-(N-Maleimidopropionyl) Biocytin	102849-12-7	n.a.	n.a.	n.a.	n.a.

### 12. Ecological Information

Avoid release into the environment.  
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.
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### 14. Transport Information

<b>LAND TRANSPORT (US DOT)</b>	
DOT Proper Shipping Name	Not dangerous goods.
<b>LAND TRANSPORT (European ADR/RID)</b>	
ADR/RID Shipping Name	Not dangerous goods.
<b>AIR TRANSPORT (ICAO/IATA)</b>	
ICAO/IATA Shipping Name	Not dangerous goods.
<b>Additional Transport Information:</b>	Transport in accordance with local, state, and federal regulations.

### 15. Regulatory Information

<b>European Community Hazard Symbol codes</b>	
No data available.	
<b>European Community Risk and Safety Phrases</b>	
S24/25 - Avoid contact with skin and eyes.	
S37/39 - Wear suitable gloves and eye/face protection.	
<b>US EPA SARA Title III</b>	

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. 3-(N-Maleimidopropionyl) Biocytin	102849-12-7	No	No	No	No

**Other US EPA or State Lists**

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. 3-(N-Maleimidopropionyl) Biocytin	102849-12-7	No	No	No	No

**Regulatory Information Statement:**

This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

**16. Other Information****Company Policy or Disclaimer**

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<b>Flammable Properties and Hazards:</b>	No data available.
<b>Hazardous Combustion Products:</b>	No data available.
<b>Suitable Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.
<b>Unsuitable Extinguishing Media:</b>	A solid water stream may be inefficient.

### 6. Accidental Release Measures

<b>Steps To Be Taken In Case Material Is Released Or Spilled:</b>	Avoid release into the environment. Avoid raising and breathing dust, and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves). Transfer to a chemical waste container for disposal.
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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 prolonged or repeated exposure.
<b>Precautions To Be Taken in Storing:</b>	Keep tightly closed. Store at correct temperature.

### 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. S-Nitrosylation Detection Reagent I (HRP)	NA	No data.	No data.	No data.

<b>Protective Equipment Summary - Hazard Label Information:</b>	Compatible chemical-resistant gloves glasses Safety shower in work area Vent Hood Eye wash station in work area Lab coat Safety
<b>Respiratory Equipment (Specify Type):</b>	NIOSH approved respirator, as conditions warrant.
<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. 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>	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> 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.
<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:</b>	No data.

**Solubility in Water:** No data.

**Percent Volatile:** No data.

**Appearance and Odor:** A lyophilized powder

### 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.

**Possibility of Hazardous Reactions:** Will occur [ ] Will not occur [ X ]

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

### 11. Toxicological Information

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

**Chronic Toxicological Effects:** No data available.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. S-Nitrosylation Detection Reagent I (HRP)	NA	n.a.	n.a.	n.a.	n.a.

### 12. Ecological Information

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

### 13. Disposal Considerations

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

### 14. Transport Information

**LAND TRANSPORT (US DOT)**

**DOT Proper Shipping Name** Not dangerous goods.

**LAND TRANSPORT (European ADR/RID)**

**ADR/RID Shipping Name** Not dangerous goods.

**AIR TRANSPORT (ICAO/IATA)**

**ICAO/IATA Shipping Name** Not dangerous goods.

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

### 15. Regulatory Information

**European Community Hazard Symbol codes**

No data available.

**European Community Risk and Safety Phrases**

R42 - May cause sensitization by inhalation.  
S24/25 - Avoid contact with skin and eyes.  
S37/39 - Wear suitable gloves and eye/face protection.

**US EPA SARA Title III**

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. S-Nitrosylation Detection Reagent I (HRP)	NA	No	No	No	No

**Other US EPA or State Lists**

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. S-Nitrosylation Detection Reagent I (HRP)	NA	No	No	No	No

**Regulatory Information Statement:** This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

## 16. Other Information

### Company Policy or Disclaimer

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**S-Nitrosylation Detection Reagent II (Fluorescein)**

Revision: 10/12/2011

Supercedes Revision: 12/21/2005

<b>Flammable Properties and Hazards:</b>	No data available.
<b>Hazardous Combustion Products:</b>	No data available.
<b>Suitable Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.
<b>Unsuitable Extinguishing Media:</b>	A solid water stream may be inefficient.

**6. Accidental Release Measures**

<b>Steps To Be Taken In Case Material Is Released Or Spilled:</b>	Avoid release into the environment. Avoid raising and breathing dust, and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves). Transfer to a chemical waste container for disposal.
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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 prolonged or repeated exposure.
<b>Precautions To Be Taken in Storing:</b>	Keep tightly closed. Store at correct temperature.

**8. Exposure Controls/Personal Protection**

<b>Hazardous Components (Chemical Name)</b>	<b>CAS #</b>	<b>OSHA PEL</b>	<b>ACGIH TLV</b>	<b>Other Limits</b>
1. S-Nitrosylation Detection Reagent II (Fluorescein)	NA	No data.	No data.	No data.

<b>Protective Equipment Summary - Hazard Label Information:</b>	Compatible chemical-resistant gloves Safety glasses Eye wash station in work area Safety shower in work area Lab coat Safety glasses Vent Hood
<b>Respiratory Equipment (Specify Type):</b>	NIOSH approved respirator, as conditions warrant.
<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. 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>	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> 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.
<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.

**S-Nitrosylation Detection Reagent II (Fluorescein)**

Revision: 10/12/2011

Supercedes Revision: 12/21/2005

**Evaporation Rate:** No data.  
**Solubility in Water:** No data.  
**Percent Volatile:** No data.  
**Appearance and Odor:** A lyophilized powder

**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.  
**Possibility of Hazardous Reactions:** Will occur [ ] Will not occur [ X ]  
**Conditions To Avoid - Hazardous Reactions:** No data available.

**11. Toxicological Information**

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

**Chronic Toxicological Effects:** No data available.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. S-Nitrosylation Detection Reagent II (Fluorescein)	NA	n.a.	n.a.	n.a.	n.a.

**12. Ecological Information**

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

**13. Disposal Considerations**

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

**14. Transport Information**
**LAND TRANSPORT (US DOT)**

**DOT Proper Shipping Name** Not dangerous goods.

**LAND TRANSPORT (European ADR/RID)**

**ADR/RID Shipping Name** Not dangerous goods.

**AIR TRANSPORT (ICAO/IATA)**

**ICAO/IATA Shipping Name** Not dangerous goods.

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

**15. Regulatory Information**
**European Community Hazard Symbol codes**

No data available.

**European Community Risk and Safety Phrases**

S24/25 - Avoid contact with skin and eyes.

S37/39 - Wear suitable gloves and eye/face protection.

**US EPA SARA Title III**

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. S-Nitrosylation Detection Reagent II (Fluorescein)	NA	No	No	No	No

**Other US EPA or State Lists**



# MATERIAL SAFETY DATA SHEET

## S-Nitrosylation Detection Reagent II (Fluorescein)

Page: 4

Revision: 10/12/2011

Supercedes Revision: 12/21/2005

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. S-Nitrosylation Detection Reagent II (Fluorescein)	NA	No	No	No	No

**Regulatory Information Statement:**

This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

### 16. Other Information

**Company Policy or Disclaimer**

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

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

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



# MATERIAL SAFETY DATA SHEET

## S-Nitrosylation Blocking Reagent

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

Revision: 10/12/2011  
Supersedes Revision: 12/21/2005

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

**Product Code:** 10007142  
**Product Name:** S-Nitrosylation Blocking Reagent  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
**Alternate Emergency Contact:** CHEMTREC Outside USA and Canada: +1 (703)527-3887  
**Information:** Cayman Chemical Company +1 (734)971-3335  
**Web site address:** www.caymanchem.com

### 2. Hazards Identification

**Emergency Overview:** Very Toxic.  
Avoid contact and inhalation.

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

**Potential Health Effects (Acute and Chronic):** Causes burns.  
Harmful by inhalation or skin absorption.  
Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.  
Very toxic if swallowed.

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

**Signs and Symptoms Of Exposure:** Exposure may cause sensitization by skin contact.  
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

**Medical Conditions Generally Aggravated By Exposure:** No data available.

### 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. N-Ethylmaleimide	128-53-0	80.0 -100.0 %	204-892-4	R20/21-28-34-43	UX9625000

### 4. First Aid Measures

**Emergency and First Aid Procedures:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

In case of skin contact, immediately wash skin with soap and plenty of water for at least 20 minutes. 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>Autoignition Pt:</b>	No data available.		
<b>Fire Fighting Instructions:</b>	As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.		
<b>Flammable Properties and Hazards:</b>	No data available.		
<b>Hazardous Combustion Products:</b>	No data available.		
<b>Suitable Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.		
<b>Unsuitable Extinguishing Media:</b>	A solid water stream may be inefficient.		

### 6. Accidental Release Measures

<b>Steps To Be Taken In Case Material Is Released Or Spilled:</b>	Avoid release into the environment. Avoid raising and breathing dust, and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves). Transfer to a chemical waste container for disposal.		
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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 prolonged or repeated exposure.		
<b>Precautions To Be Taken in Storing:</b>	Keep tightly closed. Store at correct temperature.		
<b>Other Precautions:</b>	Light sensitive.		

### 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. N-Ethylmaleimide	128-53-0	No data.	No data.	No data.

<b>Protective Equipment Summary - Hazard Label Information:</b>	Compatible chemical-resistant gloves    Eye wash station in work area    Lab coat    Safety glasses    Safety shower in work area    Vent Hood			
<b>Respiratory Equipment (Specify Type):</b>	NIOSH approved respirator, as conditions warrant.			
<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. 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    [ ] Liquid    [ X ] 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.
<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:</b>	No data.
<b>Solubility in Water:</b>	No data.
<b>Percent Volatile:</b>	No data.
<b>Appearance and Odor:</b>	A crystalline solid

### 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 bases strong acids strong oxidizing agents
<b>Hazardous Decomposition Or Byproducts:</b>	carbon dioxide carbon monoxide nitrogen oxides
<b>Possibility of Hazardous Reactions:</b>	Will occur [ <input type="checkbox"/> ]    Will not occur [ <input checked="" type="checkbox"/> ]
<b>Conditions To Avoid - Hazardous Reactions:</b>	No data available.

### 11. Toxicological Information

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

N-Ethylmaleimide - Toxicity Data: Oral LD50 (rat): 25 mg/kg; Oral LD50 (mouse): 25 mg/kg;  
Skin LD50 (guinea pig): 500 mg/kg;

<b>Chronic Toxicological Effects:</b>	Investigated as a mutagen. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. N-Ethylmaleimide RTECS Number: UX9625000
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Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. N-Ethylmaleimide	128-53-0	n.a.	n.a.	n.a.	n.a.

### 12. Ecological Information

Avoid release into the environment.  
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.
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### 14. Transport Information

#### LAND TRANSPORT (US DOT)

<b>DOT Proper Shipping Name</b>	Toxic solid, corrosive, organic, n.o.s. (N-Ethylmaleimide)
<b>DOT Hazard Class:</b>	6.1
<b>DOT Hazard Label:</b>	POISON, CORROSIVE



# MATERIAL SAFETY DATA SHEET

## S-Nitrosylation Blocking Reagent

UN/NA Number: 2928

Packing Group: II

**LAND TRANSPORT (European ADR/RID)**

ADR/RID Shipping Name Toxic solid, corrosive, organic, n.o.s. (N-Ethylmaleimide)

UN Number: 2928

Hazard Class: 6.1 - POISON, CORROSIVE

Packing Group: II

**AIR TRANSPORT (ICAO/IATA)**

ICAO/IATA Shipping Name Toxic solid, corrosive, organic, n.o.s. (N-Ethylmaleimide)

UN Number: 2928

Hazard Class: 6.1 - POISON, CORROSIVE

Packing Group: II

IATA Classification: 6.1 (8)

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

### 15. Regulatory Information

**European Community Hazard Symbol codes** T+: Very Toxic**European Community Risk and Safety Phrases**

- R20/21 - Harmful by inhalation and in contact with skin.
- R28 - Very toxic if swallowed.
- R34 - Causes burns.
- R43 - May cause sensitization by skin contact.
- S22 - Do not breathe dust.
- S24/25 - Avoid contact with skin and eyes.
- S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S28 - After contact with skin, wash immediately with plenty of soap-suds.
- S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.
- S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)

**US EPA SARA Title III**

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. N-Ethylmaleimide	128-53-0	No	No	No	No

**Other US EPA or State Lists**

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. N-Ethylmaleimide	128-53-0	No	No	Inventory	No

**Regulatory Information Statement:** This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

### 16. Other Information

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