

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



Section 1. Identification of the Substance/Mixture and of the

1.1 Product Code: 400035
Product Name: Polysorbate 20
Synonyms: Tween 20™;

1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: For research use only, not for human or veterinary use.

1.3 Details of the Supplier of the Safety Data Sheet
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

Section 2. Hazards Identification

GHS Classification	Placard	Key word	GHS hazard phrase
Serious Eye Damage/Eye Irritation, Category 2A	Exclamation point	Warning	Causes serious eye irritation
Skin Sensitization, Category 1	Exclamation point	Warning	May cause an allergic skin reaction

GHS Hazard Phrases: H319: Causes serious eye irritation.
 H317: May cause an allergic skin reaction.

GHS Precaution Phrases: P264: Wash hands thoroughly after handling.
 P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.
 P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
 P272: Contaminated work clothing should not be allowed out of the workplace.
 P362+364: Take off contaminated clothing and wash it before reuse.

GHS Response Phrases: P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+313: If eye irritation persists, get medical advice/attention.
 P302+352: IF ON SKIN: Wash with plenty of soap and water.
 P333+313: If skin irritation or rash occurs, seek medical advice/attention.

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

2.3 Adverse Human Health Effects and Symptoms: Causes serious eye irritation.
 Material may be irritating to the mucous membranes and upper respiratory tract.
 May be harmful by inhalation, ingestion, or skin absorption.
 May cause an allergic skin reaction.
 May cause respiratory system irritation.
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Target Organs: No data available.

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

Medical Conditions Generally Aggravated By Exposure: No data available.

Section 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	100.0 %	500-018-3	R36-43	TR7400000

Section 4. First Aid Measures

4.1 Description of First Aid Measures:

- 4.1.1 In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- 4.1.2 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.
- 4.1.3 In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
- 4.1.4 In Case of Ingestion:** 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.
- 4.2 Important Symptoms and Effects, Both Acute and Delayed:** No data available.
- 4.3 Indication of any immediate medical attention and special treatment needed:** No data available.

Section 5. Fire Fighting Measures

- 5.1 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.
- 5.2 Flammable Properties and Hazards:** No data available.
- Flash Pt:** No data.
- Autoignition Pt:** No data available.
- Explosive Limits:** LEL: No data. UEL: No data.
- Hazardous Combustion Products:** No data available.
- 5.3 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.

Section 6. Accidental Release Measures

- 6.1 Protective Precautions, Protective Equipment and Emergency Procedures:** 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).
- 6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.
- 6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken in Storing:** Keep container tightly closed. Store in accordance with information listed on the product insert.
- Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.

Section 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	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

8.2.1 Engineering Controls (Ventilation etc.): Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

8.2.2.1 Eye Protection: Safety glasses

8.2.2.2 Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

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

Work/Hygienic/Maintenance Practices: Do not take internally.
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Wash thoroughly after handling.

8.2.3 Environmental Exposure Controls: No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States:	[] Gas [X] Liquid [] Solid
Appearance and Odor:	A clear, yellow viscous liquid
Melting Point:	No data.
Boiling Point:	No data.
Flash Pt:	No data.
Evaporation Rate:	No data.
Vapor Pressure (vs. Air or mm Hg):	No data.
Vapor Density (vs. Air = 1):	No data.
Specific Gravity (Water = 1):	No data.
Solubility in Water:	No data.
Autoignition Pt:	No data.
Explosive Properties:	No data available.
Oxidizing Properties:	No data available.
9.2 Other Information	
Percent Volatile:	N.A.

Section 10. Stability and Reactivity

10.1 Reactivity:	No data available.
10.2 Stability:	Unstable [] Stable [X]
10.3 Stability Note(s):	Stable if stored in accordance with information listed on the product insert.
10.4 Conditions To Avoid:	No data available.

10.3 Polymerization:	Will occur [] Will not occur [X]
10.5 Incompatibility - Materials To Avoid:	strong oxidizing agents
10.6 Hazardous Decomposition Or Byproducts:	carbon dioxide carbon monoxide

Section 11. Toxicological Information

11.1 Information on Toxicological Effects:	The toxicological effects of this product have not been thoroughly studied.
	Polysorbate 20 - Toxicity Data: Oral LD50 (rat): 36.7 ml/kg; Oral LD50 (hamster): 18 ml/kg; Oral LD50 (mouse): >33 g/kg; Irritation Data: Skin (human): 15 mg/3D mild;
Chronic Toxicological Effects:	Polysorbate 20 - Investigated as a tumorigen and reproductive effector. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Polysorbate 20 RTECS Number: TR7400000

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	n.a.	n.a.	n.a.	n.a.

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

Section 12. Ecological Information

12.1 Toxicity:	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
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Section 13. Disposal Considerations

13.1 Waste Disposal Method:	Dispose in accordance with local, state, and federal regulations.
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Section 14. Transport Information

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

Section 15. Regulatory Information

European Community Hazard Symbol codes Xi: Irritant

European Community Risk and Safety Phrases

- R36 - Irritating to eyes.
- R43 - May cause sensitization by skin contact.
- 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.
- 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. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	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. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	No	No	Inventory	No

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200, Regulation (EC) No.1272/2008, and European Directive 67/548/EEC as amended.

Section 16. Other Information

Revision Date: 05/02/2013

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

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



Section 1. Identification of the Substance/Mixture and of the

1.1 Product Code: 400062
Product Name: Wash Buffer Concentrate (400X)

1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: For research use only, not for human or veterinary use.

1.3 Details of the Supplier of the Safety Data Sheet
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

Section 2. Hazards Identification

GHS Classification	Placard	Key word	GHS hazard phrase
Acute Toxicity: Skin, Category 5	none	Warning	May be harmful in contact with skin
Serious Eye Damage/Eye Irritation, Category 1	Corrosive	Danger	Causes serious eye damage

GHS Hazard Phrases:
 H313: May be harmful in contact with skin.
 H318: Causes serious eye damage.

GHS Precaution Phrases:
 P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.

GHS Response Phrases:
 P312: Call a POISON CENTER or doctor/physician if you feel unwell.
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310: Immediately call a POISON CENTER or doctor/physician.

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

2.3 Adverse Human Health Effects and Symptoms:
 Causes serious eye damage.
 Material may be irritating to the mucous membranes and upper respiratory tract.
 May be harmful by inhalation, ingestion, or skin absorption.
 May cause skin or respiratory system irritation.
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Target Organs: No data available.

Medical Conditions Generally Aggravated By Exposure: No data available.

Section 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Potassium phosphate, dibasic	7758-11-4	53.0 %	231-834-5	R41	TC5580000
2. Potassium phosphate, Monobasic	7778-77-0	12.9 %	231-913-4	No phrases apply.	TC6615500
3. Water	7732-18-5	34.1 %	231-791-2	No phrases apply.	ZC0110000

Section 4. First Aid Measures

- 4.1 Description of First Aid Measures:**
- 4.1.1 In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- 4.1.2 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.
- 4.1.3 In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
- 4.1.4 In Case of Ingestion:** 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.
- 4.2 Important Symptoms and Effects, Both Acute and Delayed:** Ingestion of large amounts can cause abdominal pain, lowered blood pressure, nausea, and vomiting.
- 4.3 Indication of any immediate medical attention and special treatment needed:** No data available.

Section 5. Fire Fighting Measures

- 5.1 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.
- 5.2 Flammable Properties and Hazards:** No data available.
- Flash Pt:** No data.
- Autoignition Pt:** No data available.
- Explosive Limits:** LEL: No data. UEL: No data.
- Hazardous Combustion Products:** No data available.
- 5.3 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.

Section 6. Accidental Release Measures

- 6.1 Protective Precautions, Protective Equipment and Emergency Procedures:** Avoid breathing vapors and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.
- 6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken in Storing:** Keep container tightly closed. Store in accordance with information listed on the product insert.
- Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.

Section 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Potassium phosphate, dibasic	7758-11-4	No data.	No data.	No data.



SAFETY DATA SHEET

Wash Buffer Concentrate (400X)

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
2. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.
3. Water	7732-18-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. Potassium phosphate, dibasic	7758-11-4	No data.	No data.	No data.
2. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.
3. 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

8.2.1 Engineering Controls (Ventilation etc.):

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

8.2.2.1 Eye Protection:

Safety glasses

8.2.2.2 Protective Gloves:

Compatible chemical-resistant gloves

Other Protective Clothing:

Lab coat

8.2.2.3 Respiratory Equipment (Specify Type):

NIOSH approved respirator, as conditions warrant.

Work/Hygienic/Maintenance Practices:

Do not take internally.

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Wash thoroughly after handling.

8.2.3 Environmental Exposure Controls:

No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States: Gas Liquid Solid

Appearance and Odor: A clear, colorless solution

pH: 7.4

Melting Point: No data.

Boiling Point: No data.

Flash Pt: No data.

Evaporation Rate: No data.

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

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

Specific Gravity (Water = 1): No data.

Solubility in Water: No data.

Autoignition Pt: No data.

Explosive Properties: No data available.

Oxidizing Properties: No data available.

9.2 Other Information

Percent Volatile: No data.

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable Stable

10.3 Stability Note(s): Stable if stored in accordance with information listed on the product insert.



SAFETY DATA SHEET

Wash Buffer Concentrate (400X)

10.4 Conditions To Avoid:	No data available.
10.3 Polymerization:	Will occur [] Will not occur [X]
10.5 Incompatibility - Materials To Avoid:	strong oxidizing agents
10.6 Hazardous Decomposition Or Byproducts:	phosphorus oxides potassium oxides

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: 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 phosphate, dibasic	7758-11-4	n.a.	n.a.	n.a.	n.a.
2. Potassium phosphate, Monobasic	7778-77-0	n.a.	n.a.	n.a.	n.a.
3. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

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

Section 12. Ecological Information

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

Section 13. Disposal Considerations

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

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Not dangerous goods.

14.1 LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Not dangerous goods.

14.3 AIR TRANSPORT (ICAO/IATA)

ICAO/IATA Shipping Name Not dangerous goods.

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

Section 15. Regulatory Information

European Community Hazard Symbol codes Xi: Irritant

European Community Risk and Safety Phrases

- R41 - Risk of serious damage to the eyes.
- 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.
- 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. Potassium phosphate, dibasic	7758-11-4	No	No	No	No
2. Potassium phosphate, Monobasic	7778-77-0	No	No	No	No
3. 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 phosphate, dibasic	7758-11-4	No	No	Inventory	No
2. Potassium phosphate, Monobasic	7778-77-0	No	No	Inventory	No
3. Water	7732-18-5	No	No	Inventory	No



SAFETY DATA SHEET

Wash Buffer Concentrate (400X)

Page: 5

Revision: 05/02/2013
Supercedes Revision: 09/13/2012

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200, Regulation (EC) No.1272/2008, and European Directive 67/548/EEC as amended.

Section 16. Other Information

Revision Date: 05/02/2013

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

Transcription Factor Nrf2 Positive Control

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



Section 1. Identification of the Substance/Mixture and of the

1.1 Product Code: 600591
Product Name: Transcription Factor Nrf2 Positive Control

1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: For research use only, not for human or veterinary use.

1.3 Details of the Supplier of the Safety Data Sheet

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

Section 2. Hazards Identification

GHS Classification	Placard	Key word	GHS hazard phrase
Flammable Liquids, Category 4	none	Warning	Combustible liquid
Acute Toxicity: Oral, Category 4	Exclamation point	Warning	Harmful if swallowed
Skin Corrosion/Irritation, Category 2	Exclamation point	Warning	Causes skin irritation
Serious Eye Damage/Eye Irritation, Category 2A	Exclamation point	Warning	Causes serious eye irritation
Target Organ Systemic Toxicity (single exposure), Category 3	Exclamation point	Warning	May cause respiratory irritation, or may cause drowsiness and dizziness

GHS Hazard Phrases:
 H227: Combustible liquid.
 H302: Harmful if swallowed.
 H315: Causes skin irritation.
 H319: Causes serious eye irritation.
 H335: May cause respiratory irritation.

GHS Precaution Phrases:
 P280: Wear {protective gloves/protective clothing/eye protection/face protection}.
 P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.
 P264: Wash {hands} thoroughly after handling.
 P362+364: Take off contaminated clothing and wash it before reuse.
 P261: Avoid breathing {dust/fume/gas/mist/vapours/spray}.

GHS Response Phrases:
 P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P330: Rinse mouth.
 P302+352: IF ON SKIN: Wash with plenty of soap and water.
 P332+313: If skin irritation occurs, get medical advice/attention.
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+313: If eye irritation persists, get medical advice/attention.
 P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Transcription Factor Nrf2 Positive Control

GHS Storage and Disposal Phrases:	Please refer to Section 7 for Storage and Section 13 for Disposal information.
2.3 Adverse Human Health Effects and Symptoms:	<p>Causes skin and serious eye irritation.</p> <p>DMSO has the potential to carry toxic materials or materials of unknown toxicity into the body.</p> <p>DMSO is readily absorbed through skin.</p> <p>Harmful if swallowed.</p> <p>Material may be irritating to the mucous membranes and upper respiratory tract.</p> <p>May be harmful by inhalation or skin absorption.</p> <p>May cause respiratory irritation.</p> <p>To the best of our knowledge, the toxicological properties have not been thoroughly investigated.</p>
Target Organs:	Eyes, Reproductive system, Kidneys, Respiratory system, Liver, Skin.
LD 50 / LC 50:	Please refer to Section 11.
Medical Conditions Generally Aggravated By Exposure:	No data available.

Section 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. HEPES, free acid	7365-45-9	0.0 -5.0 %	230-907-9	R43-36/37/38	TL6809000
2. Magnesium chloride, hexahydrate	7791-18-6	0.0 -1.0 %	NA	R36/37/38	OM2975000
3. DL-Dithiothreitol	3483-12-3	0.0 -1.0 %	222-468-7	R22-36/37/38	EK1610000
4. Ethylenediamine Tetraacetic Acid	60-00-4	0.0 -1.0 %	200-449-4	R36-52	AH4025000
5. Glycerol	56-81-5	5.0 -20.0 %	200-289-5	R36	MA8050000
6. Sodium chloride	7647-14-5	1.0 -10.0 %	231-598-3	R36	VZ4725000
7. Dimethyl sulfoxide, anhydrous	67-68-5	0.0 -5.0 %	200-664-3	R36/38	PV6210000
8. Water	7732-18-5	52.0 -94.0 %	231-791-2	No phrases apply.	ZC0110000
9. Transcription Factor Nrf2 Positive Control	NA	0.0 -5.0 %	NA	No phrases apply.	NA

Section 4. First Aid Measures

4.1 Description of First Aid Measures:	
4.1.1 In Case of Inhalation:	Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
4.1.2 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.
4.1.3 In Case of Eye Contact:	Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
4.1.4 In Case of Ingestion:	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.
4.2 Important Symptoms and Effects, Both Acute and Delayed:	<p>Exposure may cause: damage to kidneys.</p> <p>Exposure may cause: hematuria or shortness of breath (dyspnea).</p> <p>Exposure may cause: gastrointestinal irritation with nausea, vomiting, diarrhea, headache, dizziness, and drowsiness.</p> <p>Eye contact may cause blurry vision, burning sensation, redness, tearing, and vasodilation.</p> <p>Prolonged exposure may cause nausea, headache, and vomiting.</p>
4.3 Indication of any immediate medical attention and special treatment needed:	No data available.

Section 5. Fire Fighting Measures

5.1 Suitable Extinguishing Media:	<p>Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.</p> <p>Use water spray to cool fire-exposed containers.</p>
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Transcription Factor Nrf2 Positive Control

Unsuitable Extinguishing Media:	A solid water stream may be inefficient.		
5.2 Flammable Properties and Hazards:	Can release vapors that form explosive mixtures at temperatures at or above the flashpoint. Container explosion may occur under fire conditions. Emits toxic fumes under fire conditions. Sensitive to static discharge. Vapors can travel to a source of ignition and flash back.		
Flash Pt:	No data.		
Autoignition Pt:	No data available.		
Explosive Limits:	LEL: No data.	UEL: No data.	
Hazardous Combustion Products:	No data available.		
5.3 Fire Fighting Instructions:	As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes. Note: Combustible as diluted in dimethyl sulfoxide		

Section 6. Accidental Release Measures

6.1 Protective Precautions, Protective Equipment and Emergency Procedures:	Avoid breathing vapors and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).		
6.2 Environmental Precautions:	Take steps to avoid release into the environment, if safe to do so.		
6.3 Methods and Material For Containment and Cleaning Up:	Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.		

Section 7. Handling and Storage

7.1 Precautions To Be Taken in Handling:	Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure. Keep away from sources of ignition. Take precautionary measures against static discharge.		
7.2 Precautions To Be Taken in Storing:	Keep away from heat, sparks and flame. Keep container tightly closed. Store in accordance with information listed on the product insert.		
Other Precautions:	Hygroscopic.		
Hazard Label Information:	Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.		

Section 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. Magnesium chloride, hexahydrate	7791-18-6	No data.	No data.	No data.
3. DL-Dithiothreitol	3483-12-3	No data.	No data.	No data.
4. Ethylenediamine Tetraacetic Acid	60-00-4	No data.	No data.	No data.
5. Glycerol	56-81-5	15 (dust); 5 (resp.) mg/m3	10 mg/m3	No data.
6. Sodium chloride	7647-14-5	No data.	No data.	No data.
7. Dimethyl sulfoxide, anhydrous	67-68-5	No data.	No data.	No data.
8. Water	7732-18-5	No data.	No data.	No data.
9. Transcription Factor Nrf2 Positive Control	NA	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. HEPES, free acid	7365-45-9	No data.	No data.	No data.
2. Magnesium chloride, hexahydrate	7791-18-6	No data.	No data.	No data.
3. DL-Dithiothreitol	3483-12-3	No data.	No data.	No data.



Transcription Factor Nrf2 Positive Control

Revision: 08/30/2013

Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
4. Ethylenediamine Tetraacetic Acid	60-00-4	No data.	No data.	No data.
5. Glycerol	56-81-5	TWA: 10 mg/m3 (STEL: ()	TWA: 10 mg/m3	No data.
6. Sodium chloride	7647-14-5	No data.	No data.	No data.
7. Dimethyl sulfoxide, anhydrous	67-68-5	No data.	No data.	No data.
8. Water	7732-18-5	No data.	No data.	No data.
9. Transcription Factor Nrf2 Positive Control	NA	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

8.2.1 Engineering Controls (Ventilation etc.):

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

8.2.2.1 Eye Protection:

Safety glasses

8.2.2.2 Protective Gloves:

Compatible chemical-resistant gloves

Other Protective Clothing:

Lab coat

8.2.2.3 Respiratory Equipment (Specify Type):

NIOSH approved respirator, as conditions warrant.

Work/Hygienic/Maintenance Practices:

Do not take internally.

Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.

Wash thoroughly after handling.

8.2.3 Environmental Exposure Controls:

No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties**Physical States:** [] Gas [X] Liquid [] Solid**Appearance and Odor:** No data available.**pH:** 7.9**Melting Point:** No data.**Boiling Point:** No data.**Flash Pt:** No data.**Evaporation Rate:** No data.**Vapor Pressure (vs. Air or mm Hg):** No data.**Vapor Density (vs. Air = 1):** No data.**Specific Gravity (Water = 1):** No data.**Solubility in Water:** No data.**Autoignition Pt:** No data.**Explosive Properties:** No data available.**Oxidizing Properties:** No data available.**9.2 Other Information****Percent Volatile:** No data.

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.**10.2 Stability:** Unstable [] Stable [X]

Transcription Factor Nrf2 Positive Control

10.3 Stability Note(s):	Stable if stored in accordance with information listed on the product insert.
10.4 Conditions To Avoid:	heat, flames and sparks
10.3 Polymerization:	Will occur [] Will not occur [X]
10.5 Incompatibility - Materials To Avoid:	acid chlorides alkali metals phosphorus halides strong acids strong bases strong oxidizing agents strong reducing agents
10.6 Hazardous Decomposition Or Byproducts:	carbon dioxide carbon monoxide sulfur oxides

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: The toxicological effects of this product have not been thoroughly studied.

DMSO - Toxicity Data: Oral LD50 (rat): 14,500 mg/kg; Skin LD50 (rat): 40,000 mg/kg; Oral LD50 (mouse): 7,920 mg/kg; Skin LD50 (mouse): 50,000 mg/kg; Skin TDLO (woman): 1,800 mg/kg; Inhalation LC50 (rat): >1,600 mg/m3 (4h);
DMSO - Irritation Data: Eyes (rabbit): 100 mg mild; Skin (rabbit): 500 mg (24h) mild;

Glycerol - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 500 mg (24h) mild;

Chronic Toxicological Effects: DMSO - Investigated as a mutagen, reproductive effector, and tumorigen.
Glycerol - Investigated as a mutagen, reproductive effector, and tumorigen.
Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.
DMSO RTECS Number: PV6210000
Glycerol RTECS Number: MA8050000

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. Magnesium chloride, hexahydrate	7791-18-6	n.a.	n.a.	n.a.	n.a.
3. DL-Dithiothreitol	3483-12-3	n.a.	n.a.	n.a.	n.a.
4. Ethylenediamine Tetraacetic Acid	60-00-4	n.a.	n.a.	n.a.	n.a.
5. Glycerol	56-81-5	n.a.	n.a.	n.a.	n.a.
6. Sodium chloride	7647-14-5	n.a.	n.a.	n.a.	n.a.
7. Dimethyl sulfoxide, anhydrous	67-68-5	n.a.	n.a.	n.a.	n.a.
8. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.
9. Transcription Factor Nrf2 Positive Control	NA	n.a.	n.a.	n.a.	n.a.

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

Section 12. Ecological Information

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

Section 13. Disposal Considerations

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



Transcription Factor Nrf2 Positive Control

Revision: 08/30/2013

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Not dangerous goods.

14.1 LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Not dangerous goods.

14.3 AIR TRANSPORT (ICAO/IATA)

ICAO/IATA Shipping Name Not dangerous goods.

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

Section 15. Regulatory Information

European Community Hazard Symbol codes Xn: Harmful

European Community Risk and Safety Phrases

- R22 - Harmful if swallowed.
 R36/37/38 - Irritating to eyes, respiratory system and skin.
 R43 - May cause sensitization by skin contact.
 R52 - Harmful to aquatic organisms.
 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.
 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. HEPES, free acid	7365-45-9	No	No	No	No
2. Magnesium chloride, hexahydrate	7791-18-6	No	No	No	No
3. DL-Dithiothreitol	3483-12-3	No	No	No	No
4. Ethylenediamine Tetraacetic Acid	60-00-4	No	Yes 5000 LB	No	No
5. Glycerol	56-81-5	No	No	No	No
6. Sodium chloride	7647-14-5	No	No	No	No
7. Dimethyl sulfoxide, anhydrous	67-68-5	No	No	No	No
8. Water	7732-18-5	No	No	No	No
9. Transcription Factor Nrf2 Positive Control	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. HEPES, free acid	7365-45-9	No	No	Inventory	No
2. Magnesium chloride, hexahydrate	7791-18-6	No	No	No	No
3. DL-Dithiothreitol	3483-12-3	No	No	Inventory	No
4. Ethylenediamine Tetraacetic Acid	60-00-4	No	No	Inventory	No
5. Glycerol	56-81-5	No	No	Inventory	No
6. Sodium chloride	7647-14-5	No	No	Inventory	No
7. Dimethyl sulfoxide, anhydrous	67-68-5	No	No	Inventory	No
8. Water	7732-18-5	No	No	Inventory	No
9. Transcription Factor Nrf2 Positive Control	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.

Section 16. Other Information

Revision Date: 08/30/2013

Company Policy or Disclaimer

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.

Transcription Factor Nrf2 Primary Antibody

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



Section 1. Identification of the Substance/Mixture and of the

- 1.1 Product Code:** 600592
- Product Name:** Transcription Factor Nrf2 Primary Antibody
- Synonyms:** GABPA; HEBP1; NF-E2-related factor 2; Nuclear Factor Erythroid 2-related factor 2;
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
- Relevant identified uses:** For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet**
- 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

Section 2. Hazards Identification

GHS Classification	Placard	Key word	GHS hazard phrase
Acute Toxicity: Oral, Category 4	Exclamation point	Warning	Harmful if swallowed
Skin Corrosion/Irritation, Category 3	none	Warning	Causes mild skin irritation
Serious Eye Damage/Eye Irritation, Category 2A	Exclamation point	Warning	Causes serious eye irritation
Target Organ Systemic Toxicity (single exposure), Category 3	Exclamation point	Warning	May cause respiratory irritation, or may cause drowsiness and dizziness
Aquatic Toxicity (Chronic), Category 3	none		Harmful to aquatic life with long lasting effects

- GHS Hazard Phrases:**
H302: Harmful if swallowed.
H316: Causes mild skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H412: Harmful to aquatic life with long lasting effects.
- GHS Precaution Phrases:**
P264: Wash {hands} thoroughly after handling.
P280: Wear {protective gloves/protective clothing/eye protection/face protection}.
P261: Avoid breathing {dust/fume/gas/mist/vapours/spray}.
P273: Avoid release to the environment.
- GHS Response Phrases:**
P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330: Rinse mouth.
P332+313: If skin irritation occurs, get medical advice/attention.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313: If eye irritation persists, get medical advice/attention.
P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- GHS Storage and Disposal Phrases:**
Please refer to Section 7 for Storage and Section 13 for Disposal information.
- 2.3 Adverse Human Health Effects and Symptoms:**
Causes mild skin irritation.
Causes serious eye irritation.
Harmful if swallowed.
Harmful to aquatic life with long lasting effects.

Transcription Factor Nrf2 Primary Antibody

Material may be irritating to the mucous membranes and upper respiratory tract.
 May be harmful by inhalation, ingestion, or skin absorption.
 May cause respiratory irritation.
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Target Organs: Eyes, Kidneys, Respiratory system, Skin.

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

Medical Conditions Generally Aggravated By Exposure: No data available.

Section 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Transcription Factor Nrf2 Primary Antibody	NA	0.0 -1.0 %	NA	No phrases apply.	NA
2. Glycerol	56-81-5	20.0 -50.0 %	200-289-5	R36	MA8050000
3. Bovine Serum Albumin (BSA)	9048-46-8	0.0 -1.0 %	232-936-2	R22	MT6446000
4. Sodium azide	26628-22-8	0.0 -0.5 %	247-852-1	R28-32-50/53	VY8050000
5. Sodium chloride	7647-14-5	0.0 -5.0 %	231-598-3	R36	VZ4725000
6. Trizma base	77-86-1	0.0 -5.0 %	201-064-4	R36/37/38	TY2900000
7. Water	7732-18-5	37.0 -80.0 %	231-791-2	No phrases apply.	ZC0110000

Section 4. First Aid Measures

4.1 Description of First Aid Measures:

- 4.1.1 In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- 4.1.2 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.
- 4.1.3 In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
- 4.1.4 In Case of Ingestion:** 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.

4.2 Important Symptoms and Effects, Both Acute and Delayed: Exposure may cause: damage to kidneys.
 Prolonged exposure may cause nausea, headache, and vomiting.

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

Section 5. Fire Fighting Measures

- 5.1 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.
- 5.2 Flammable Properties and Hazards:** Emits toxic fumes under fire conditions.
- Flash Pt:** No data.
- Autoignition Pt:** No data available.
- Explosive Limits:** LEL: No data. UEL: No data.
- Hazardous Combustion Products:** No data available.
- 5.3 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.

Transcription Factor Nrf2 Primary Antibody

Section 6. Accidental Release Measures

- 6.1 Protective Precautions, Protective Equipment and Emergency Procedures:** Avoid breathing vapors and provide adequate ventilation.
As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.
- 6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate.
Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken in Storing:** Keep container tightly closed.
Store in accordance with information listed on the product insert.
- Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
Wash thoroughly after handling.

Section 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TWA	Other Limits
1. Transcription Factor Nrf2 Primary Antibody	NA	No data.	No data.	No data.
2. Glycerol	56-81-5	PEL: 15 (dust); 5 (resp.) mg/m3	TLV: 10 mg/m3	No data.
3. Bovine Serum Albumin (BSA)	9048-46-8	No data.	No data.	No data.
4. Sodium azide	26628-22-8	No data.	CEIL: 0.29 mg/m3	No data.
5. Sodium chloride	7647-14-5	No data.	No data.	No data.
6. Trizma base	77-86-1	No data.	No data.	No data.
7. Water	7732-18-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. Transcription Factor Nrf2 Primary Antibody	NA	No data.	No data.	No data.
2. Glycerol	56-81-5	TWA: 10 mg/m3 () STEL: ()	TWA: 10 mg/m3	No data.
3. Bovine Serum Albumin (BSA)	9048-46-8	No data.	No data.	No data.
4. Sodium azide	26628-22-8	TWA: 0.1 mg/m3 () STEL: 0.3 mg/m3 ()	TWA: 0.1 mg/m3 STEL: 0.3 mg/m3	TWA: 0.1 mg/m3 STEL: 0.3 mg/m3
5. Sodium chloride	7647-14-5	No data.	No data.	No data.
6. Trizma base	77-86-1	No data.	No data.	No data.
7. 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
- 8.2.1 Engineering Controls (Ventilation etc.):** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- 8.2.2.1 Eye Protection:** Safety glasses
- 8.2.2.2 Protective Gloves:** Compatible chemical-resistant gloves
- Other Protective Clothing:** Lab coat
- 8.2.2.3 Respiratory Equipment (Specify Type):** NIOSH approved respirator, as conditions warrant.
- Work/Hygienic/Maintenance Practices:** Do not take internally.
Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.
Wash thoroughly after handling.

Transcription Factor Nrf2 Primary Antibody

Revision: 08/30/2013

8.2.3 Environmental Exposure Controls: No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties
Physical States: [] Gas [X] Liquid [] Solid

Appearance and Odor: No data available.

pH: 7.4

Melting Point: No data.

Boiling Point: No data.

Flash Pt: No data.

Evaporation Rate: No data.

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

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

Specific Gravity (Water = 1): No data.

Solubility in Water: No data.

Autoignition Pt: No data.

Explosive Properties: No data available.

Oxidizing Properties: No data available.

9.2 Other Information
Percent Volatile: No data.

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

10.3 Stability Note(s): Stable if stored in accordance with information listed on the product insert.

10.4 Conditions To Avoid: No data available.

10.3 Polymerization: Will occur [] Will not occur [X]

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

10.6 Hazardous Decomposition Or Byproducts: carbon dioxide
carbon monoxide

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: The toxicological effects of this product have not been thoroughly studied.

Chronic Toxicological Effects: Glycerol - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 500 mg (24h) mild;
Glycerol - Investigated as a mutagen, reproductive effector, and tumorigen.
Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.
See actual entry in RTECS for complete information.
Glycerol RTECS Number: MA8050000

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Transcription Factor Nrf2 Primary Antibody	NA	n.a.	n.a.	n.a.	n.a.
2. Glycerol	56-81-5	n.a.	n.a.	n.a.	n.a.
3. Bovine Serum Albumin (BSA)	9048-46-8	n.a.	n.a.	n.a.	n.a.
4. Sodium azide	26628-22-8	n.a.	n.a.	A4	n.a.
5. Sodium chloride	7647-14-5	n.a.	n.a.	n.a.	n.a.



Transcription Factor Nrf2 Primary Antibody

Revision: 08/30/2013

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
6. Trizma base	77-86-1	n.a.	n.a.	n.a.	n.a.
7. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

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

Section 12. Ecological Information

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

Section 13. Disposal Considerations

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

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Not dangerous goods.

14.1 LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Not dangerous goods.

14.3 AIR TRANSPORT (ICAO/IATA)

ICAO/IATA Shipping Name Not dangerous goods.

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

Section 15. Regulatory Information

European Community Hazard Symbol codes Xn: Harmful

European Community Risk and Safety Phrases

- R22 - Harmful if swallowed.
- R36/37/38 - Irritating to eyes, respiratory system and skin.
- 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.
- 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. Transcription Factor Nrf2 Primary Antibody	NA	No	No	No	No
2. Glycerol	56-81-5	No	No	No	No
3. Bovine Serum Albumin (BSA)	9048-46-8	No	No	No	No
4. Sodium azide	26628-22-8	Yes 500 LB	Yes 1000 LB	Yes	No
5. Sodium chloride	7647-14-5	No	No	No	No
6. Trizma base	77-86-1	No	No	Yes-Cat. N106	No
7. 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. Transcription Factor Nrf2 Primary Antibody	NA	No	No	No	No
2. Glycerol	56-81-5	No	No	Inventory	No
3. Bovine Serum Albumin (BSA)	9048-46-8	No	No	Inventory	No
4. Sodium azide	26628-22-8	No	No	Inventory	No
5. Sodium chloride	7647-14-5	No	No	Inventory	No
6. Trizma base	77-86-1	HAP	No	Inventory	No
7. 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.

Section 16. Other Information

Revision Date: 08/30/2013

Company Policy or Disclaimer

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

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



Section 1. Identification of the Substance/Mixture and of the

1.1 Product Code: 600593
Product Name: Transcription Factor Nrf2 Competitor dsDNA

1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: For research use only, not for human or veterinary use.

1.3 Details of the Supplier of the Safety Data Sheet
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

Section 2. Hazards Identification

GHS Classification	Placard	Key word	GHS hazard phrase
Acute Toxicity: Oral, Category 5	none	Warning	May be harmful if swallowed
Serious Eye Damage/Eye Irritation, Category 2A	Exclamation point	Warning	Causes serious eye irritation

GHS Hazard Phrases:
 H303: May be harmful if swallowed.
 H319: Causes serious eye irritation.

GHS Precaution Phrases:
 P264: Wash {hands} thoroughly after handling.
 P280: Wear {protective gloves/protective clothing/eye protection/face protection}.

GHS Response Phrases:
 P312: Call a {POISON CENTER/doctor/...} if you feel unwell.
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+313: If eye irritation persists, get medical advice/attention.

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

2.3 Adverse Human Health Effects and Symptoms:
 Causes serious eye irritation.
 Material may be irritating to the mucous membranes and upper respiratory tract.
 May be harmful if swallowed.
 May be harmful by inhalation or skin absorption.
 May cause skin or respiratory system irritation.
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Target Organs: No data available.
Medical Conditions Generally Aggravated By Exposure: No data available.

Section 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. NRF2 Forward Complement	NA	0.0 -1.0 %	NA	No phrases apply.	NA
2. NRF2 Reverse Complement	NA	0.0 -1.0 %	NA	No phrases apply.	NA
3. Sodium chloride	7647-14-5	0.0 -5.0 %	231-598-3	R36	VZ4725000
4. Sodium citrate	6132-04-3	0.0 -5.0 %	NA	R36	TZ8595800

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
5. Water	7732-18-5	88.0 -100.0 %	231-791-2	No phrases apply.	ZC0110000

Section 4. First Aid Measures

4.1 Description of First Aid Measures:

- 4.1.1 In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- 4.1.2 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.
- 4.1.3 In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
- 4.1.4 In Case of Ingestion:** 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.
- 4.2 Important Symptoms and Effects, Both Acute and Delayed:** No data available.
- 4.3 Indication of any immediate medical attention and special treatment needed:** No data available.

Section 5. Fire Fighting Measures

- 5.1 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.
- 5.2 Flammable Properties and Hazards:** No data available.
- Flash Pt:** No data.
- Autoignition Pt:** No data available.
- Explosive Limits:** LEL: No data. UEL: No data.
- Hazardous Combustion Products:** No data available.
- 5.3 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.

Section 6. Accidental Release Measures

- 6.1 Protective Precautions, Protective Equipment and Emergency Procedures:** Avoid breathing vapors and provide adequate ventilation.
As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.
- 6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate.
Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken in Storing:** Keep container tightly closed.
Store in accordance with information listed on the product insert.
- Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
Wash thoroughly after handling.

Section 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. NRF2 Forward Complement	NA	No data.	No data.	No data.
2. NRF2 Reverse Complement	NA	No data.	No data.	No data.
3. Sodium chloride	7647-14-5	No data.	No data.	No data.
4. Sodium citrate	6132-04-3	No data.	No data.	No data.
5. Water	7732-18-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. NRF2 Forward Complement	NA	No data.	No data.	No data.
2. NRF2 Reverse Complement	NA	No data.	No data.	No data.
3. Sodium chloride	7647-14-5	No data.	No data.	No data.
4. Sodium citrate	6132-04-3	No data.	No data.	No data.
5. 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

8.2.1 Engineering Controls (Ventilation etc.): Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

8.2.2.1 Eye Protection: Safety glasses

8.2.2.2 Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

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

Work/Hygienic/Maintenance Practices: Do not take internally.
Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.
Wash thoroughly after handling.

8.2.3 Environmental Exposure Controls: No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States: Gas Liquid Solid

Appearance and Odor: No data available.

pH: 7.2

Melting Point: No data.

Boiling Point: No data.

Flash Pt: No data.

Evaporation Rate: No data.

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

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

Specific Gravity (Water = 1): No data.

Solubility in Water: No data.

Autoignition Pt: No data.

Explosive Properties: No data available.

Oxidizing Properties: No data available.

9.2 Other Information

Percent Volatile: No data.

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

10.3 Stability Note(s): Stable if stored in accordance with information listed on the product insert.

10.4 Conditions To Avoid: No data available.

10.3 Polymerization: Will occur [] Will not occur [X]

10.5 Incompatibility - Materials To Avoid: No data available.

10.6 Hazardous Decomposition Or Byproducts: No data available.

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: 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. NRF2 Forward Complement	NA	n.a.	n.a.	n.a.	n.a.
2. NRF2 Reverse Complement	NA	n.a.	n.a.	n.a.	n.a.
3. Sodium chloride	7647-14-5	n.a.	n.a.	n.a.	n.a.
4. Sodium citrate	6132-04-3	n.a.	n.a.	n.a.	n.a.
5. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

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

Section 12. Ecological Information

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

Section 13. Disposal Considerations

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

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT)
DOT Proper Shipping Name Not dangerous goods.

14.1 LAND TRANSPORT (European ADR/RID)
ADR/RID Shipping Name Not dangerous goods.

14.3 AIR TRANSPORT (ICAO/IATA)
ICAO/IATA Shipping Name Not dangerous goods.

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

Section 15. Regulatory Information

European Community Hazard Symbol codes Xi: Irritant

European Community Risk and Safety Phrases

R36 - Irritating to eyes.
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.
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. NRF2 Forward Complement	NA	No	No	No	No



Transcription Factor Nrf2 Competitor dsDNA

Revision: 08/30/2013

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
2. NRF2 Reverse Complement	NA	No	No	No	No
3. Sodium chloride	7647-14-5	No	No	No	No
4. Sodium citrate	6132-04-3	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. NRF2 Forward Complement	NA	No	No	No	No
2. NRF2 Reverse Complement	NA	No	No	No	No
3. Sodium chloride	7647-14-5	No	No	Inventory	No
4. Sodium citrate	6132-04-3	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.

Section 16. Other Information

Revision Date: 08/30/2013

Company Policy or Disclaimer

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

Product Information



Transcription Factor Nrf2 96-Well Strip Plate Item No. 600594

COMMENTS:

Each plate is coated with a dsDNA consensus sequence specific for Nrf2. This Safety Data Sheet (SDS) is for the dsDNA only. A SDS 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:

Not for human or animal disease diagnostics or therapeutic drug use.

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.

Copyright Cayman Chemical Company

Revision Date: 08/30/2013

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Transcription Factor Binding Assay Buffer (4X)

Revision: 08/30/2013

Supersedes Revision: 09/13/2012

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



Section 1. Identification of the Substance/Mixture and of the

1.1 Product Code: 10006880
Product Name: Transcription Factor Binding Assay Buffer (4X)

1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: For research use only, not for human or veterinary use.

1.3 Details of the Supplier of the Safety Data Sheet
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

Section 2. Hazards Identification

GHS Classification	Placard	Key word	GHS hazard phrase
Acute Toxicity: Oral, Category 5	none	Warning	May be harmful if swallowed
Skin Corrosion/Irritation, Category 2	Exclamation point	Warning	Causes skin irritation
Serious Eye Damage/Eye Irritation, Category 2	Exclamation point	Warning	Causes serious eye irritation
Target Organ Systemic Toxicity (single exposure), Category 3	Exclamation point	Warning	May cause respiratory irritation, or may cause drowsiness and dizziness

GHS Hazard Phrases:
 H303: May be harmful if swallowed.
 H315: Causes skin irritation.
 H319: Causes serious eye irritation.
 H335: May cause respiratory irritation.

GHS Precaution Phrases:
 P264: Wash {hands} thoroughly after handling.
 P280: Wear {protective gloves/protective clothing/eye protection/face protection}.
 P362+364: Take off contaminated clothing and wash it before reuse.
 P261: Avoid breathing {dust/fume/gas/mist/vapours/spray}.

GHS Response Phrases:
 P312: Call a {POISON CENTER/doctor/...} if you feel unwell.
 P302+352: IF ON SKIN: Wash with plenty of soap and water.
 P332+313: If skin irritation occurs, get medical advice/attention.
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+313: If eye irritation persists, get medical advice/attention.
 P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

2.3 Adverse Human Health Effects and Symptoms:
 Causes serious eye irritation.
 Causes skin irritation.
 Material may be irritating to the mucous membranes and upper respiratory tract.
 May be harmful if swallowed.
 May be harmful by inhalation or skin absorption.
 May cause respiratory irritation.
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Transcription Factor Binding Assay Buffer (4X)

Revision: 08/30/2013

Supersedes Revision: 09/13/2012

Target Organs: Eyes, Kidneys, Respiratory system, Skin.

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

Medical Conditions Generally Aggravated By Exposure: No data available.

Section 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Nonidet P-40	68987-90-6	0.0 -1.0 %	NA	R41	NA
2. HEPES, free acid	7365-45-9	0.0 -5.0 %	230-907-9	R43-36/37/38	TL6809000
3. Magnesium chloride, hexahydrate	7791-18-6	0.0 -5.0 %	NA	R36/37/38	OM2975000
4. Potassium chloride	7447-40-7	0.0 -5.0 %	231-211-8	R52	TS8050000
5. Glycerol	56-81-5	5.0 -20.0 %	200-289-5	R36	MA8050000
6. Water	7732-18-5	64.0 -95.0 %	231-791-2	No phrases apply.	ZC0110000

Section 4. First Aid Measures

4.1 Description of First Aid Measures:

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

4.1.2 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.

4.1.3 In Case of Eye Contact: Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

4.1.4 In Case of Ingestion: 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.

4.2 Important Symptoms and Effects, Both Acute and Delayed: Exposure may cause: damage to kidneys. Prolonged exposure may cause nausea, headache, and vomiting.

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

Section 5. Fire Fighting Measures

5.1 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.

5.2 Flammable Properties and Hazards: Emits toxic fumes under fire conditions.

Flash Pt: No data.

Autoignition Pt: No data available.

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

Hazardous Combustion Products: No data available.

5.3 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.

Section 6. Accidental Release Measures

6.1 Protective Precautions, Protective Equipment and Emergency Procedures: Avoid breathing vapors and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

6.2 Environmental Precautions: Take steps to avoid release into the environment, if safe to do so.

Transcription Factor Binding Assay Buffer (4X)

Revision: 08/30/2013

Supersedes Revision: 09/13/2012

6.3 Methods and Material For Containment and Cleaning Up: Contain spill and collect, as appropriate.
Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

7.1 Precautions To Be Taken in Handling: Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid prolonged or repeated exposure.

7.2 Precautions To Be Taken in Storing: Keep container tightly closed.
Store in accordance with information listed on the product insert.

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

Section 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Nonidet P-40	68987-90-6	No data.	No data.	No data.
2. HEPES, free acid	7365-45-9	No data.	No data.	No data.
3. Magnesium chloride, hexahydrate	7791-18-6	No data.	No data.	No data.
4. Potassium chloride	7447-40-7	No data.	No data.	No data.
5. Glycerol	56-81-5	15 (dust); 5 (resp.) mg/m3	10 mg/m3	No data.
6. Water	7732-18-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. Nonidet P-40	68987-90-6	No data.	No data.	No data.
2. HEPES, free acid	7365-45-9	No data.	No data.	No data.
3. Magnesium chloride, hexahydrate	7791-18-6	No data.	No data.	No data.
4. Potassium chloride	7447-40-7	No data.	No data.	No data.
5. Glycerol	56-81-5	TWA: 10 mg/m3 (STEL: ()	TWA: 10 mg/m3	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

8.2.1 Engineering Controls (Ventilation etc.): Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

8.2.2.1 Eye Protection: Safety glasses

8.2.2.2 Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

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

Work/Hygienic/Maintenance Practices: Do not take internally.
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Wash thoroughly after handling.

8.2.3 Environmental Exposure Controls: No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States: Gas Liquid Solid

Appearance and Odor: No data available.

pH: 7.9

Melting Point: No data.



Transcription Factor Binding Assay Buffer (4X)

Revision: 08/30/2013

Supersedes Revision: 09/13/2012

Boiling Point:	No data.
Flash Pt:	No data.
Evaporation Rate:	No data.
Vapor Pressure (vs. Air or mm Hg):	No data.
Vapor Density (vs. Air = 1):	No data.
Specific Gravity (Water = 1):	No data.
Solubility in Water:	No data.
Autoignition Pt:	No data.
Explosive Properties:	No data available.
Oxidizing Properties:	No data available.
9.2 Other Information	
Percent Volatile:	No data.

Section 10. Stability and Reactivity

10.1 Reactivity:	No data available.
10.2 Stability:	Unstable [] Stable [X]
10.3 Stability Note(s):	Stable if stored in accordance with information listed on the product insert.
10.4 Conditions To Avoid:	No data available.
10.3 Polymerization:	Will occur [] Will not occur [X]
10.5 Incompatibility - Materials To Avoid:	strong bases strong oxidizing agents
10.6 Hazardous Decomposition Or Byproducts:	carbon dioxide carbon monoxide

Section 11. Toxicological Information

11.1 Information on Toxicological Effects:	The toxicological effects of this product have not been thoroughly studied.
Chronic Toxicological Effects:	Glycerol - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 500 mg (24h) mild; Glycerol - Investigated as a mutagen, reproductive effector, and tumorigen. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Glycerol RTECS Number: MA8050000

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Nonidet P-40	68987-90-6	n.a.	n.a.	n.a.	n.a.
2. HEPES, free acid	7365-45-9	n.a.	n.a.	n.a.	n.a.
3. Magnesium chloride, hexahydrate	7791-18-6	n.a.	n.a.	n.a.	n.a.
4. Potassium chloride	7447-40-7	n.a.	n.a.	n.a.	n.a.
5. Glycerol	56-81-5	n.a.	n.a.	n.a.	n.a.
6. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

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

Section 12. Ecological Information

12.1 Toxicity:	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
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**Transcription Factor Binding Assay Buffer (4X)**

Revision: 08/30/2013

Supersedes Revision: 09/13/2012

Section 13. Disposal Considerations**13.1 Waste Disposal Method:** Dispose in accordance with local, state, and federal regulations.**Section 14. Transport Information****14.1 LAND TRANSPORT (US DOT)****DOT Proper Shipping Name** Not dangerous goods.**14.1 LAND TRANSPORT (European ADR/RID)****ADR/RID Shipping Name** Not dangerous goods.**14.3 AIR TRANSPORT (ICAO/IATA)****ICAO/IATA Shipping Name** Not dangerous goods.**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.**Section 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.
- R41 - Risk of serious damage to the eyes.
- R43 - May cause sensitization by skin contact.
- R52 - Harmful to aquatic organisms.
- 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.
- 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. Nonidet P-40	68987-90-6	No	No	No	No
2. HEPES, free acid	7365-45-9	No	No	No	No
3. Magnesium chloride, hexahydrate	7791-18-6	No	No	No	No
4. Potassium chloride	7447-40-7	No	No	No	No
5. Glycerol	56-81-5	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. Nonidet P-40	68987-90-6	No	No	Inventory	No
2. HEPES, free acid	7365-45-9	No	No	Inventory	No
3. Magnesium chloride, hexahydrate	7791-18-6	No	No	No	No
4. Potassium chloride	7447-40-7	No	No	Inventory	No
5. Glycerol	56-81-5	No	No	Inventory	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.**Section 16. Other Information****Revision Date:** 08/30/2013**Company Policy or Disclaimer**

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

Transcription Factor Antibody Binding Buffer

Revision: 06/13/2012

(10X)

Supercedes Revision: 01/13/2011

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



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

Product Code: 10006882
Product Name: Transcription Factor Antibody Binding Buffer (10X)
Intended Use: For research use only, not for human or veterinary use.

Manufacturer Information

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

2. Hazards Identification

GHS Classification	Placard	Key word	GHS Hazard
Skin Corrosion/Irritation, Category 2	Exclamation point	Warning	Causes skin irritation
Serious Eye Damage/Eye Irritation, Category 2A	Exclamation point	Warning	Causes serious eye irritation
Target Organ Systemic Toxicity (single exposure), Category 3	Exclamation point	Warning	May cause respiratory irritation, or may cause drowsiness and dizziness

GHS Hazard Phrases:
H315: Causes skin irritation.
H319: Causes serious eye irritation
H335: May cause respiratory irritation.

GHS Precaution Phrases:
P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

GHS Response Phrases:
P302+352: IF ON SKIN: Wash with plenty of soap and water.
P332+313: If skin irritation occurs, get medical advice/attention.
P362: Take off contaminated clothing and wash before re-use.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313: If eye irritation persists, get medical advice/attention.
P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

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

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

Target Organs:
No data available.

Transcription Factor Antibody Binding Buffer

Revision: 06/13/2012

(10X)

Supersedes Revision: 01/13/2011

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. Trizma base	77-86-1	1.0 -10.0 %	201-064-4	R36/37/38	TY2900000
2. Sodium chloride	7647-14-5	1.0 -15.0 %	231-598-3	No phrases apply.	VZ4725000
3. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	0.0 -5.0 %	500-018-3	No phrases apply.	TR7400000
4. Bovine Serum Albumin (BSA)	9048-46-8	0.0 -5.0 %	232-936-2	No phrases apply.	MT6446000
5. Water	7732-18-5	65.0 -98.0 %	231-791-2	No phrases apply.	ZC0110000

4. First Aid Measures

Emergency and First Aid Procedures:

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

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

In Case of Eye Contact: Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

In Case of Ingestion: 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.

5. Fire Fighting Measures

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

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

Flammable Properties and Hazards: No data available.

Hazardous Combustion Products: No data available.

Flash Pt: No data.

Autoignition Pt: No data available.

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

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.

6. Accidental Release Measures

Protective Precautions, Protective Equipment and Emergency Procedures: Avoid breathing vapors and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

Environmental Precautions: Take steps to avoid release into the environment, if safe to do so.

Steps To Be Taken In Case Material Is Released Or Spilled: Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

7. Handling and Storage

Precautions To Be Taken in Handling: Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure.

Transcription Factor Antibody Binding Buffer

Revision: 06/13/2012

(10X)

Supercedes Revision: 01/13/2011

Precautions To Be Taken in Storing:	Keep container tightly closed. Store in accordance with information listed on the product insert.
Hazard Label Information:	Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Trizma base	77-86-1	No data.	No data.	No data.
2. Sodium chloride	7647-14-5	No data.	No data.	No data.
3. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	No data.	No data.	No data.
4. Bovine Serum Albumin (BSA)	9048-46-8	No data.	No data.	No data.
5. Water	7732-18-5	No data.	No data.	No data.

Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL
1. Trizma base	77-86-1	No data.	No data.
2. Sodium chloride	7647-14-5	No data.	No data.
3. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	No data.	No data.
4. Bovine Serum Albumin (BSA)	9048-46-8	No data.	No data.
5. Water	7732-18-5	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
Engineering Controls (Ventilation etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
Eye Protection:	Safety glasses
Protective Gloves:	Compatible chemical-resistant gloves
Other Protective Clothing:	Lab coat
Respiratory Equipment (Specify Type):	NIOSH approved respirator, as conditions warrant.
Work/Hygienic/Maintenance Practices:	Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Wash thoroughly after handling.

9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties	
Physical States:	<input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Solid
Appearance and Odor:	No data available.
Boiling Point:	No data.
pH:	7.63
Melting 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.

**Transcription Factor Antibody Binding Buffer
(10X)**

Revision: 06/13/2012

Supercedes Revision: 01/13/2011

Other Information
Percent Volatile: No data.

10. Stability and Reactivity
Stability: Unstable [] Stable [X]

Stability Note(s): Stable if stored in accordance with information listed on the product insert.

Conditions To Avoid: No data available.

Polymerization: Will occur [] Will not occur [X]

Incompatibility - Materials To Avoid: strong oxidizing agents

Hazardous Decomposition Or Byproducts: carbon dioxide
carbon monoxide
hydrogen chloride gas
nitrogen oxides
sodium oxides

11. Toxicological Information
Toxicological Information: The toxicological effects of this product have not been thoroughly studied.

Trizma base - Toxicity Data: Oral LDLO (rabbit): 1,000 mg/kg; Oral TDLO (mouse): 3,000 mg/kg; Oral LD50 (rat): >3,000 mg/kg; Oral LD50 (mouse): 5,500 mg/kg; Oral TDLO (rat): 3,000 mg/kg;

Trizma base - Irritation Data: Skin (rabbit): 500 mg severe;

Chronic Toxicological Effects: Trizma base- Investigated as a reproductive effector.
Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.
See actual entry in RTECS for complete information.
Trizma base RTECS Number: TY2900000

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Trizma base	77-86-1	n.a.	n.a.	n.a.	n.a.
2. Sodium chloride	7647-14-5	n.a.	n.a.	n.a.	n.a.
3. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	n.a.	n.a.	n.a.	n.a.
4. Bovine Serum Albumin (BSA)	9048-46-8	n.a.	n.a.	n.a.	n.a.
5. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

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

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

14. Transport Information
Globally Harmonized System of Classification and Labelling

Skin Corrosion/Irritation, Category 2 - Warning! Causes skin irritation

Serious Eye Damage/Eye Irritation, Category 2A - Warning! Causes serious eye irritation

Target Organ Systemic Toxicity (single exposure), Category 3 - Warning! May cause respiratory irritation, or may cause drowsiness and dizziness

LAND TRANSPORT (US DOT)
DOT Proper Shipping Name Not dangerous goods.

LAND TRANSPORT (European ADR/RID)
ADR/RID Shipping Name Not dangerous goods.

**Transcription Factor Antibody Binding Buffer**

Revision: 06/13/2012

(10X)

Supercedes Revision: 01/13/2011

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.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

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. Trizma base	77-86-1	No	No	Yes-Cat. N106	No
2. Sodium chloride	7647-14-5	No	No	No	No
3. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	No	No	No	No
4. Bovine Serum Albumin (BSA)	9048-46-8	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. Trizma base	77-86-1	HAP	No	Inventory	No
2. Sodium chloride	7647-14-5	No	No	Inventory	No
3. Polyoxyethylene (20) sorbitan monolaurate (Tween 20™)	9005-64-5	No	No	Inventory	No
4. Bovine Serum Albumin (BSA)	9048-46-8	No	No	Inventory	No
5. Water	7732-18-5	No	No	Inventory	No

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200, 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

**Transcription Factor Goat Anti-Rabbit HRP
Conjugate**

Revision: 08/30/2013

Supersedes Revision: 09/13/2012

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



Section 1. Identification of the Substance/Mixture and of the

1.1 Product Code: 10006884
Product Name: Transcription Factor Goat Anti-Rabbit HRP Conjugate

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For research use only, not for human or veterinary use.

1.3 Details of the Supplier of the Safety Data Sheet

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

Section 2. Hazards Identification

GHS Classification	Placard	Key word	GHS hazard phrase
Acute Toxicity: Oral, Category 4	Exclamation point	Warning	Harmful if swallowed
Acute Toxicity: Skin, Category 5	none	Warning	May be harmful in contact with skin
Skin Corrosion/Irritation, Category 3	none	Warning	Causes mild skin irritation
Serious Eye Damage/Eye Irritation, Category 2A	Exclamation point	Warning	Causes serious eye irritation
Respiratory Sensitization, Category 1	Health hazard	Danger	May cause allergy or asthma symptoms or breathing difficulties if inhaled
Skin Sensitization, Category 1	Exclamation point	Warning	May cause an allergic skin reaction
Target Organ Systemic Toxicity (single exposure), Category 3	Exclamation point	Warning	May cause respiratory irritation, or may cause drowsiness and dizziness

GHS Hazard Phrases:
H302: Harmful if swallowed.
H313: May be harmful in contact with skin.
H316: Causes mild skin irritation.
H319: Causes serious eye irritation.
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317: May cause an allergic skin reaction.
H335: May cause respiratory irritation.

GHS Precaution Phrases:
P264: Wash {hands} thoroughly after handling.
P280: Wear {protective gloves/protective clothing/eye protection/face protection}.
P261: Avoid breathing {dust/fume/gas/mist/vapours/spray}.
P284: {In case of inadequate ventilation, }wear respiratory protection { }.
P272: Contaminated work clothing should not be allowed out of the workplace.
P362+364: Take off contaminated clothing and wash it before reuse.

GHS Response Phrases:
P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330: Rinse mouth.
P312: Call a {POISON CENTER/doctor/...} if you feel unwell.
P332+313: If skin irritation occurs, get medical advice/attention.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313: If eye irritation persists, get medical advice/attention.
P304+341: IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a

Transcription Factor Goat Anti-Rabbit HRP

Revision: 08/30/2013

Conjugate

Supersedes Revision: 09/13/2012

position comfortable for breathing.
 P342+311: If experiencing respiratory symptoms call a POISON CENTER or doctor/physician.
 P302+352: IF ON SKIN: Wash with plenty of soap and water.
 P333+313: If skin irritation or rash occurs, seek medical advice/attention.
 P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

GHS Storage and Disposal Phrases:

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

2.3 Adverse Human Health Effects and Symptoms:

Causes mild skin irritation.
 Causes serious eye irritation.
 Harmful if swallowed.
 Material may be irritating to the mucous membranes and upper respiratory tract.
 May be harmful by inhalation.
 May be harmful in contact with skin.
 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 May cause an allergic skin reaction.
 May cause respiratory irritation.
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Target Organs:

Eyes, Kidneys, Respiratory system, Skin.

LD 50 / LC 50:

Please refer to Section 11.

Medical Conditions Generally Aggravated By Exposure:

No data available.

Section 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Trizma base	77-86-1	0.0 -5.0 %	201-064-4	R36/37/38	TY2900000
2. Sodium chloride	7647-14-5	0.0 -5.0 %	231-598-3	R36	VZ4725000
3. Bovine Serum Albumin (BSA)	9048-46-8	0.0 -5.0 %	232-936-2	R22	MT6446000
4. Goat Anti-Rabbit HRP Conjugate	NA	0.0 -1.0 %	NA	No data available.	NA
5. Glycerol	56-81-5	20.0 -50.0 %	200-289-5	R36	MA8050000
6. Potassium phosphate, Monobasic	7778-77-0	0.0 -1.0 %	231-913-4	No phrases apply.	TC6615500
7. Gentimicin sulfate	1405-41-0	0.0 -1.0 %	215-778-9	R36/38-42/43-60-61	LY2625000
8. Water	7732-18-5	32.0 -80.0 %	231-791-2	No phrases apply.	ZC0110000

Section 4. First Aid Measures

4.1 Description of First Aid Measures:

4.1.1 In Case of Inhalation:

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

4.1.2 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.

4.1.3 In Case of Eye Contact:

Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

4.1.4 In Case of Ingestion:

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.

4.2 Important Symptoms and Effects, Both Acute and Delayed:

Exposure may cause: damage to kidneys.
 Prolonged exposure may cause nausea, headache, and vomiting.

4.3 Indication of any immediate medical attention and special treatment needed:

No data available.

Transcription Factor Goat Anti-Rabbit HRP

Revision: 08/30/2013

Conjugate

Supersedes Revision: 09/13/2012

Section 5. Fire Fighting Measures

- 5.1 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.
- 5.2 Flammable Properties and Hazards:** Emits toxic fumes under fire conditions.
- Flash Pt:** No data.
- Autoignition Pt:** No data available.
- Explosive Limits:** LEL: No data. UEL: No data.
- Hazardous Combustion Products:** No data available.
- 5.3 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.

Section 6. Accidental Release Measures

- 6.1 Protective Precautions, Protective Equipment and Emergency Procedures:** Avoid breathing vapors and provide adequate ventilation.
As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.
- 6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate.
Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken in Storing:** Keep container tightly closed.
Store in accordance with information listed on the product insert.
- Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
Wash thoroughly after handling.

Section 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Trizma base	77-86-1	No data.	No data.	No data.
2. Sodium chloride	7647-14-5	No data.	No data.	No data.
3. Bovine Serum Albumin (BSA)	9048-46-8	No data.	No data.	No data.
4. Goat Anti-Rabbit HRP Conjugate	NA	No data.	No data.	No data.
5. Glycerol	56-81-5	15 (dust); 5 (resp.) mg/m3	10 mg/m3	No data.
6. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.
7. Gentimicin sulfate	1405-41-0	No data.	No data.	No data.
8. Water	7732-18-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. Trizma base	77-86-1	No data.	No data.	No data.
2. Sodium chloride	7647-14-5	No data.	No data.	No data.
3. Bovine Serum Albumin (BSA)	9048-46-8	No data.	No data.	No data.
4. Goat Anti-Rabbit HRP Conjugate	NA	No data.	No data.	No data.
5. Glycerol	56-81-5	TWA: 10 mg/m3 () STEL: ()	TWA: 10 mg/m3	No data.
6. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.
7. Gentimicin sulfate	1405-41-0	No data.	No data.	No data.
8. Water	7732-18-5	No data.	No data.	No data.

**Transcription Factor Goat Anti-Rabbit HRP**

Revision: 08/30/2013

Conjugate

Supersedes Revision: 09/13/2012

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
8.2.1 Engineering Controls (Ventilation etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
8.2.2.1 Eye Protection:	Safety glasses
8.2.2.2 Protective Gloves:	Compatible chemical-resistant gloves
Other Protective Clothing:	Lab coat
8.2.2.3 Respiratory Equipment (Specify Type):	NIOSH approved respirator, as conditions warrant.
Work/Hygienic/Maintenance Practices:	Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Wash thoroughly after handling.
8.2.3 Environmental Exposure Controls:	No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States:	[] Gas [X] Liquid [] Solid
Appearance and Odor:	No data available.
pH:	7.4
Melting Point:	No data.
Boiling Point:	No data.
Flash Pt:	No data.
Evaporation Rate:	No data.
Vapor Pressure (vs. Air or mm Hg):	No data.
Vapor Density (vs. Air = 1):	No data.
Specific Gravity (Water = 1):	No data.
Solubility in Water:	No data.
Autoignition Pt:	No data.
Explosive Properties:	No data available.
Oxidizing Properties:	No data available.

9.2 Other Information

Percent Volatile:	No data.
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Section 10. Stability and Reactivity

10.1 Reactivity:	No data available.
10.2 Stability:	Unstable [] Stable [X]
10.3 Stability Note(s):	Stable if stored in accordance with information listed on the product insert.
10.4 Conditions To Avoid:	No data available.
10.3 Polymerization:	Will occur [] Will not occur [X]
10.5 Incompatibility - Materials To Avoid:	strong bases strong oxidizing agents
10.6 Hazardous Decomposition Or Byproducts:	carbon dioxide carbon monoxide

Transcription Factor Goat Anti-Rabbit HRP

Revision: 08/30/2013

Conjugate

Supersedes Revision: 09/13/2012

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: The toxicological effects of this product have not been thoroughly studied.

Glycerol - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 500 mg (24h) mild;

Chronic Toxicological Effects:

Glycerol - Investigated as a mutagen, reproductive effector, and tumorigen.

Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.

See actual entry in RTECS for complete information.

Glycerol RTECS Number: MA8050000

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Trizma base	77-86-1	n.a.	n.a.	n.a.	n.a.
2. Sodium chloride	7647-14-5	n.a.	n.a.	n.a.	n.a.
3. Bovine Serum Albumin (BSA)	9048-46-8	n.a.	n.a.	n.a.	n.a.
4. Goat Anti-Rabbit HRP Conjugate	NA	n.a.	n.a.	n.a.	n.a.
5. Glycerol	56-81-5	n.a.	n.a.	n.a.	n.a.
6. Potassium phosphate, Monobasic	7778-77-0	n.a.	n.a.	n.a.	n.a.
7. Gentimicin sulfate	1405-41-0	n.a.	n.a.	n.a.	n.a.
8. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

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

Section 12. Ecological Information

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

Section 13. Disposal Considerations

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

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Not dangerous goods.

14.1 LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Not dangerous goods.

14.3 AIR TRANSPORT (ICAO/IATA)

ICAO/IATA Shipping Name Not dangerous goods.

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

Section 15. Regulatory Information

European Community Hazard Symbol codes Xn: Harmful; Reproductive Hazard: 3

European Community Risk and Safety Phrases

- R22 - Harmful if swallowed.
- R36/37/38 - Irritating to eyes, respiratory system and skin.
- R42/43 - May cause sensitization by inhalation and skin contact.
- R60 - May impair fertility.
- R61 - May cause harm to the unborn child.
- 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.
- 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. Trizma base	77-86-1	No	No	Yes-Cat. N106	No



SAFETY DATA SHEET

Transcription Factor Goat Anti-Rabbit HRP

Revision: 08/30/2013

Conjugate

Supersedes Revision: 09/13/2012

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
2. Sodium chloride	7647-14-5	No	No	No	No
3. Bovine Serum Albumin (BSA)	9048-46-8	No	No	No	No
4. Goat Anti-Rabbit HRP Conjugate	NA	No	No	No	No
5. Glycerol	56-81-5	No	No	No	No
6. Potassium phosphate, Monobasic	7778-77-0	No	No	No	No
7. Gentimicin sulfate	1405-41-0	No	No	No	No
8. 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. Trizma base	77-86-1	HAP	No	Inventory	No
2. Sodium chloride	7647-14-5	No	No	Inventory	No
3. Bovine Serum Albumin (BSA)	9048-46-8	No	No	Inventory	No
4. Goat Anti-Rabbit HRP Conjugate	NA	No	No	No	No
5. Glycerol	56-81-5	No	No	Inventory	No
6. Potassium phosphate, Monobasic	7778-77-0	No	No	Inventory	No
7. Gentimicin sulfate	1405-41-0	No	No	No	No
8. 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.

Section 16. Other Information

Revision Date:

08/30/2013

Company Policy or Disclaimer

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



Transcription Factor Developing Solution

Revision: 08/30/2013

Supersedes Revision: 11/29/2012

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

Section 1. Identification of the Substance/Mixture and of the

- 1.1 Product Code:** 10006888
- Product Name:** Transcription Factor Developing Solution
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
- Relevant identified uses:** For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet**
- 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

Section 2. Hazards Identification

GHS Classification	Placard	Key word	GHS hazard phrase
Skin Corrosion/Irritation, Category 3	none	Warning	Causes mild skin irritation
GHS Hazard Phrases:	H316: Causes mild skin irritation.		
GHS Precaution Phrases:	No data available.		
GHS Response Phrases:	P332+313: If skin irritation occurs, get medical advice/attention.		
GHS Storage and Disposal Phrases:	Please refer to Section 7 for Storage and Section 13 for Disposal information.		
2.3 Adverse Human Health Effects and Symptoms:	Causes mild skin irritation. Material may be irritating to the mucous membranes and upper respiratory tract. May be harmful by inhalation, ingestion, or skin absorption. May cause eye or respiratory system irritation. To the best of our knowledge, the toxicological properties have not been thoroughly investigated.		
Target Organs:	No data available.		
Medical Conditions Generally Aggravated By Exposure:	No data available.		

Section 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. 3,3',5,5'-Tetramethylbenzidine (TMB) solution	NA	>99.0 %	NA	No phrases apply.	NA
2. Hydrogen peroxide	7722-84-1	< 1.0 %	231-765-0	R5-8-20/22-35	MX0899000

Section 4. First Aid Measures

- 4.1 Description of First Aid Measures:**
- 4.1.1 In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- 4.1.2 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.
- 4.1.3 In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

Transcription Factor Developing Solution

Revision: 08/30/2013

Supersedes Revision: 11/29/2012

4.1.4 In Case of Ingestion:	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.
4.2 Important Symptoms and Effects, Both Acute and Delayed:	No data available.
4.3 Indication of any immediate medical attention and special treatment needed:	No data available.

Section 5. Fire Fighting Measures

5.1 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.
5.2 Flammable Properties and Hazards:	No data available.
Flash Pt:	No data.
Autoignition Pt:	No data available.
Explosive Limits:	LEL: No data. UEL: No data.
Hazardous Combustion Products:	No data available.
5.3 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.

Section 6. Accidental Release Measures

6.1 Protective Precautions, Protective Equipment and Emergency Procedures:	Avoid breathing vapors and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
6.2 Environmental Precautions:	Take steps to avoid release into the environment, if safe to do so.
6.3 Methods and Material For Containment and Cleaning Up:	Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

7.1 Precautions To Be Taken in Handling:	Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure.
7.2 Precautions To Be Taken in Storing:	Keep container tightly closed. Store in accordance with information listed on the product insert.
Other Precautions:	Air sensitive. Light sensitive.
Hazard Label Information:	Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.

Section 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. 3,3',5,5'-Tetramethylbenzidine (TMB) solution	NA	No data.	No data.	No data.
2. Hydrogen peroxide	7722-84-1	1 ppm	1 ppm	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. 3,3',5,5'-Tetramethylbenzidine (TMB) solution	NA	No data.	No data.	No data.
2. Hydrogen peroxide	7722-84-1	TWA: 1.4 mg/m3 (1 ppm) STEL: 2.8 mg/m3 (2 ppm)	TWA: 1.5 mg/m3 (1 ppm)	No data.

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

Revision: 08/30/2013

Supersedes Revision: 11/29/2012

8.2.1 Engineering Controls (Ventilation etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
8.2.2.1 Eye Protection:	Safety glasses
8.2.2.2 Protective Gloves:	Compatible chemical-resistant gloves
Other Protective Clothing:	Lab coat
8.2.2.3 Respiratory Equipment (Specify Type):	NIOSH approved respirator, as conditions warrant.
Work/Hygienic/Maintenance Practices:	Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Wash thoroughly after handling.
8.2.3 Environmental Exposure Controls:	No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States:	<input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Solid
Appearance and Odor:	No data available.
Melting Point:	No data.
Boiling Point:	No data.
Flash Pt:	No data.
Evaporation Rate:	No data.
Vapor Pressure (vs. Air or mm Hg):	No data.
Vapor Density (vs. Air = 1):	No data.
Specific Gravity (Water = 1):	No data.
Solubility in Water:	No data.
Autoignition Pt:	No data.
Explosive Properties:	No data available.
Oxidizing Properties:	No data available.

9.2 Other Information

Percent Volatile: No data.

Section 10. Stability and Reactivity

10.1 Reactivity:	No data available.
10.2 Stability:	Unstable <input type="checkbox"/> Stable <input checked="" type="checkbox"/>
10.3 Stability Note(s):	Stable if stored in accordance with information listed on the product insert.
10.4 Conditions To Avoid:	No data available.
10.3 Polymerization:	Will occur <input type="checkbox"/> Will not occur <input checked="" type="checkbox"/>
10.5 Incompatibility - Materials To Avoid:	strong oxidizing agents
10.6 Hazardous Decomposition Or Byproducts:	carbon dioxide carbon monoxide nitrogen oxides

Section 11. Toxicological Information

11.1 Information on Toxicological Effects:	The toxicological effects of this product have not been thoroughly studied.
Chronic Toxicological Effects:	No data available.



Transcription Factor Developing Solution

Revision: 08/30/2013

Supersedes Revision: 11/29/2012

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. 3,3',5,5'-Tetramethylbenzidine (TMB) solution	NA	n.a.	n.a.	n.a.	n.a.
2. Hydrogen peroxide	7722-84-1	n.a.	3	A3	n.a.

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

Section 12. Ecological Information

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

Section 13. Disposal Considerations

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

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Not dangerous goods.

14.1 LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Not dangerous goods.

14.3 AIR TRANSPORT (ICAO/IATA)

ICAO/IATA Shipping Name Not dangerous goods.

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

Section 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.

S28 - After contact with skin, wash immediately with plenty of soap-suds.

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. 3,3',5,5'-Tetramethylbenzidine (TMB) solution	NA	No	No	No	No
2. Hydrogen peroxide	7722-84-1	Yes 1000 LB	Yes NA	No	No

Other US EPA or State Lists

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. 3,3',5,5'-Tetramethylbenzidine (TMB) solution	NA	No	No	No	No
2. Hydrogen peroxide	7722-84-1	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.

Section 16. Other Information

Revision Date: 08/30/2013

Company Policy or Disclaimer

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

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



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

Product Code: 10006889
Product Name: Transcription Factor Stop Solution
Intended Use: For research use only, not for human or veterinary use.

Manufacturer Information

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

2. Hazards Identification

GHS Classification	Placard	Key word	GHS Hazard
Skin Corrosion/Irritation, Category 1A	Corrosive	Danger	Causes severe skin burns and eye damage

GHS Hazard Phrases: H314: Causes severe skin burns and eye damage.

GHS Precaution Phrases:
 P260: Do not breathe dust/fume/gas/mist/vapours/spray.
 P264: Wash hands thoroughly after handling.
 P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.

GHS Response Phrases:
 P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
 P363: Wash contaminated clothing before reuse.
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P310: Immediately call a POISON CENTER or doctor/physician.

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

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

Potential Health Effects (Acute and Chronic): Irritating to eyes, respiratory system, and skin.
 Chronic exposure to mists containing sulfuric acid is a cancer hazard.
 Harmful if swallowed, inhaled, or absorbed through the skin.
 Inhalation may cause lung edema.
 Long-term exposure to mist or vapors may cause damage to teeth.
 Material is irritating to the mucous membranes and upper respiratory tract.

Target Organs: Eyes, Lungs, Teeth, Respiratory system, Skin.

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

Signs and Symptoms Of Exposure: Circulatory collapse with clammy skin, weak and rapid pulse, shallow respirations, and scanty urine may follow ingestion or skin contact.
 Ingestion may cause: Sore throat, vomiting, and diarrhea.
 Irritating to the skin, eyes, nose, throat, and respiratory tract.
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Medical Conditions Generally Aggravated By No data available.

Exposure:

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Sulfuric acid	7664-93-9	0.0 -5.0 %	231-639-5	R35	WS5600000
2. Water	7732-18-5	95.0 -100.0 %	231-791-2	No phrases apply.	ZC0110000

4. First Aid Measures

Emergency and First Aid Procedures:

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

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

In Case of Eye Contact: Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

In Case of Ingestion: Do NOT induce vomiting. Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention.

5. Fire Fighting Measures

Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

Unsuitable Extinguishing Media: DO NOT USE WATER.

Flammable Properties and Hazards: Concentrated solutions react violently with water, spattering and liberating heat. Emits toxic and corrosive fumes under fire conditions. Not Flammable, but reacts with most metals to form flammable hydrogen gas.

Hazardous Combustion Products: No data available.

Flash Pt: No data.

Autoignition Pt: No data available.

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

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.

6. Accidental Release Measures

Protective Precautions, Protective Equipment and Emergency Procedures: Avoid breathing vapors and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

Environmental Precautions: Take steps to avoid release into the environment, if safe to do so.

Steps To Be Taken In Case Material Is Released Or Spilled: Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

7. Handling and Storage

Precautions To Be Taken in Handling: Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure.

Precautions To Be Taken in Storing: Keep container tightly closed. Store in accordance with information listed on the product insert.

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

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TWA	Other Limits
1. Sulfuric acid	7664-93-9	PEL: 1 mg/m3	TLV: (1 mg/m3) STEL: (3 mg/m3)	No data.
2. Water	7732-18-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	
1. Sulfuric acid	7664-93-9	No data.	TWA: 1.0 mg/m3 STEL: 3.0 mg/m3	
2. Water	7732-18-5	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
Engineering Controls (Ventilation etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
Eye Protection:	Safety glasses
Protective Gloves:	Compatible chemical-resistant gloves
Other Protective Clothing:	Lab coat
Respiratory Equipment (Specify Type):	NIOSH approved respirator, as conditions warrant.
Work/Hygienic/Maintenance Practices:	Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Wash thoroughly after handling.

9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Physical States:	<input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Solid
Appearance and Odor:	No data available.
Boiling Point:	No data.
Melting 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.
Other Information	
Percent Volatile:	No data.

10. Stability and Reactivity

Stability:	Unstable <input type="checkbox"/> Stable <input checked="" type="checkbox"/>
Stability Note(s):	Stable if stored in accordance with information listed on the product insert.
Conditions To Avoid:	heat
Polymerization:	Will occur <input type="checkbox"/> Will not occur <input checked="" type="checkbox"/>
Incompatibility - Materials To Avoid:	bases halogens hydrides lithium metal acetylides metals

organic material
 oxides
 potassium chlorate
 potassium perchlorate
 potassium permanganate
 sodium
 strong oxidizing agents
 strong reducing agents
 water

Hazardous Decomposition Or Byproducts: carbon dioxide
 hydrogen cyanide
 hydrogen sulfide

11. Toxicological Information

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

Sulfuric acid - Toxicity Data: Oral LD50 (rat): 2,140 mg/kg; Inhalation TCLO (human): 0.63 mg/m³; Inhalation LC50 (mouse): 320 mg/m³; Inhalation LC50 (guinea pig): 18 mg/m³ (8hr); Sulfuric acid - Irritation Data: Eyes (rabbit): 5 mg (30s) severe;

Chronic Toxicological Effects: Sulfuric acid - Investigated as a reproductive effector. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Sulfuric Acid RTECS Number: WS5600000

Carcinogenicity/Other Information: IARC: 1 - Group 1: Carcinogenic to humans, Occupational exposure to strong-inorganic-acid mists containing sulfuric acid is carcinogenic to humans.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Sulfuric acid	7664-93-9	Known	Unknown	A2	n.a.
2. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

12. Ecological Information

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

13. Disposal Considerations

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

14. Transport Information

Globally Harmonized System of Classification and Labelling

Skin Corrosion/Irritation, Category 1A - Danger! Causes severe skin burns and eye damage

LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Sulfuric acid [with 51% or less acid]
DOT Hazard Class: 8
DOT Hazard Label: CORROSIVE
UN/NA Number: 2796
Packing Group: II

LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Sulfuric acid [with 51% or less acid]
UN Number: 2796



SAFETY DATA SHEET

Transcription Factor Stop Solution

Hazard Class:	8 - CORROSIVE
Packing Group:	II
AIR TRANSPORT (ICAO/IATA)	
ICAO/IATA Shipping Name	Sulfuric acid [with 51% or less acid]
UN Number:	2796
Hazard Class:	8 - CORROSIVE
Packing Group:	II
IATA Classification:	8
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

- R36/38 - Irritating to eyes and skin.
- 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.
- 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. Sulfuric acid	7664-93-9	Yes 1000 LB	Yes 1000 LB	Yes	No
2. 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. Sulfuric acid	7664-93-9	No	No	Inventory	No
2. Water	7732-18-5	No	No	Inventory	No

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200, 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



SAFETY DATA SHEET

Transcription Factor Reagent A

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

according to Regulation (EC) No. 1907/2006

Revision: 08/30/2013
Supersedes Revision: 09/13/2012

Section 1. Identification of the Substance/Mixture and of the

- 1.1 Product Code:** 10007472
- Product Name:** Transcription Factor Reagent A
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
- Relevant identified uses:** For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet**
- 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

Section 2. Hazards Identification

- GHS Hazard Phrases:** Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS.
- GHS Precaution Phrases:** No data available.
- GHS Response Phrases:** No data available.
- GHS Storage and Disposal Phrases:** Please refer to Section 7 for Storage and Section 13 for Disposal information.
- 2.3 Adverse Human Health Effects and Symptoms:** 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.
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.
- Target Organs:** No data available.
- Medical Conditions Generally Aggravated By Exposure:** No data available.

Section 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Transcription Factor Reagent A	NA	<=1.0 %	NA	No phrases apply.	NA
2. Water	7732-18-5	>=99.0 %	231-791-2	No phrases apply.	ZC0110000

Section 4. First Aid Measures

- 4.1 Description of First Aid Measures:**
- 4.1.1 In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- 4.1.2 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.
- 4.1.3 In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
- 4.1.4 In Case of Ingestion:** 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.

4.2 Important Symptoms and Effects, Both Acute and Delayed: No data available.

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

Section 5. Fire Fighting Measures

5.1 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.

5.2 Flammable Properties and Hazards: No data available.

Flash Pt: No data.

Autoignition Pt: No data available.

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

Hazardous Combustion Products: No data available.

5.3 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.

Section 6. Accidental Release Measures

6.1 Protective Precautions, Protective Equipment and Emergency Procedures: Avoid breathing vapors and provide adequate ventilation.
As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

6.2 Environmental Precautions: Take steps to avoid release into the environment, if safe to do so.

6.3 Methods and Material For Containment and Cleaning Up: Contain spill and collect, as appropriate.
Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

7.1 Precautions To Be Taken in Handling: Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid prolonged or repeated exposure.

7.2 Precautions To Be Taken in Storing: Keep container tightly closed.
Store in accordance with information listed on the product insert.

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

Section 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Transcription Factor Reagent A	NA	No data.	No data.	No data.
2. Water	7732-18-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. Transcription Factor Reagent A	NA	No data.	No data.	No data.
2. 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

8.2.1 Engineering Controls (Ventilation etc.): Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

8.2.2.1 Eye Protection: Safety glasses

8.2.2.2 Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

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



SAFETY DATA SHEET

Transcription Factor Reagent A

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.

8.2.3 Environmental Exposure Controls: No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

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

Appearance and Odor: No data available.

Melting Point: No data.

Boiling Point: No data.

Flash Pt: No data.

Evaporation Rate: No data.

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

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

Specific Gravity (Water = 1): No data.

Solubility in Water: No data.

Autoignition Pt: No data.

Explosive Properties: No data available.

Oxidizing Properties: No data available.

9.2 Other Information

Percent Volatile: No data.

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

10.3 Stability Note(s): Stable if stored in accordance with information listed on the product insert.

10.4 Conditions To Avoid: No data available.

10.3 Polymerization: Will occur [] Will not occur [X]

10.5 Incompatibility - Materials To Avoid: No data available.

10.6 Hazardous Decomposition Or Byproducts: No data available.

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: 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. Transcription Factor Reagent A	NA	n.a.	n.a.	n.a.	n.a.
2. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

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

Section 12. Ecological Information

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



SAFETY DATA SHEET

Transcription Factor Reagent A

Section 13. Disposal Considerations

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

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Not dangerous goods.

14.1 LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Not dangerous goods.

14.3 AIR TRANSPORT (ICAO/IATA)

ICAO/IATA Shipping Name Not dangerous goods.

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

Section 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. Transcription Factor Reagent A	NA	No	No	No	No
2. 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. Transcription Factor Reagent A	NA	No	No	No	No
2. 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.

Section 16. Other Information

Revision Date: 08/30/2013

Company Policy or Disclaimer

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