

# Material Safety Data Sheet (MSDS) for SignalStain® IHC Detection Kit

New 06/09

## I. IDENTIFICATION:

**Product name:** SignalStain® IHC Detection Kit

**Product Catalog Number:** #8100, 8110, 8120, 8130

**Manufacturer Supplier:** Cell Signaling Technology®

3 Trask Lane

Danvers, MA 01923 USA

1-978-867-2300 TEL

1-978-867-2400 FAX

1-978-578-6737 Emergency Phone

## II. COMPOSITION/INFORMATION ON INGREDIENTS:

**Substance Name:** SignalStain® IHC Detection Kit

**CAS#:** None

Please see the individual material safety data sheets which can be found on the CST website [www.cellsignal.com/support/msds.html](http://www.cellsignal.com/support/msds.html) for hazard information specific to kit components.

- Peroxidase Quench MSDS
- Blocking Solution MSDS
- Prediluted Cleaved Antibody (covered by "Antibodies" MSDS)
- Prediluted Negative Control (covered by "Antibodies" MSDS)
- Biotinylated Secondary Antibody (covered by "Antibodies" MSDS)
- Reagent A+B MSDS
- NovaRed Substrate 1, 2, 3, 4 MSDS
- Blocking Peptide MSDS

## III. HAZARD IDENTIFICATION:

Flammable. Irritant.

**HMIS Rating:** Health: 2      Flammability: 3      Reactivity: 1

## VII. HANDLING AND STORAGE:

**Storage:** Store kit in tightly closed container at 4°C.

**VIII-XIII:** Refer to individual MSDS for kit components for Sections 8-13 information: Exposure Controls/Personal Protection, Physical and Chemical Properties, Stability and Reactivity, Toxicological Information, Ecological information, Disposal Considerations.

## XIV. TRANSPORT INFORMATION:

**D.O.T. and IATA**

**Proper Shipping Name:** None

Non hazardous for transport

## XV. REGULATORY INFORMATION:

**EU Regulations/Classifications/Labeling Information:**

**Risk Phrases:** Irritant. Irritating to eyes and skin. Harmful if swallowed.

**Safety Phrases:** In case of contact wash with water and seek medical attention.

**US Regulatory Information:** Irritating to eyes, respiratory system and skin.

**Sara Listed:** No.

## XVI. OTHER INFORMATION:

This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

# Material Safety Data Sheet (MSDS) for Antibodies

rev. 06/02/09

## I. Identification:

**Product name:** Antibodies

**Product Catalog Number:** Includes antibodies within the following range of catalog numbers: 2000-5999, 7000-7999 and 9000-9999.

**CAS number:** None

**Manufacturer Supplier:** Cell Signaling Technology  
3 Trask Lane  
Danvers, MA 01923 USA  
1-978-867-2300 TEL  
1-978-867-2400 FAX  
1-978-578-6737 Emergency Phone

## II. Composition/Information on Ingredients:

This product is composed of antibodies in aqueous buffer solution. According to 29 CFR 1910.1200(d), hazardous ingredients at less than <1% and carcinogens at less than < 0.1% are considered non-hazardous. Any hazardous or carcinogenic ingredients exceeding these criteria are listed below.

This product may contain the following hazardous ingredients.

## III. Hazard Identification:

**Emergency Overview of Hazardous ingredient:** Glycerol (CAS# 56-81-5)

**Caution:** Avoid contact and inhalation.

**Target Organ:** Kidneys.

Ingredient	CAS#	Percent
Glycerol	56-81-5	50%

## NFPA Rating:

Health Rating:	1
Flammability Rating:	0
Reactivity Rating:	0

## IV. First Aid Measures:

**Inhalation:** If inhaled, remove to fresh air. If breathing is difficult, get medical attention.

**Ingestion:** If swallowed and person is conscious, rinse out mouth with water. Get medical attention.

**Skin Exposure:** In case of contact, wash skin with soap and water.

**Eye Exposure:** In case of contact with eyes, immediately flush eyes water for at least 15 minutes. Get medical attention.

## V. Fire Fighting Measures:

**Flash Point:** Data not available.

**Autoignition Temperature:** Data not available.

**Fire Extinguishing Media:** Water spray, dry chemical, foam, or carbon dioxide.

**Firefighting:** Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.

## VI. Accidental Release Measures:

Absorb liquid with an absorbent material. Transfer contaminated absorbent to a chemical waste container for disposal.

## VII. Handling And Storage:

Avoid inhalation and contact with eyes and skin. Avoid prolonged or repeated exposure.

Store at -20°C in tightly closed container.

## VIII. Exposure Controls/Personal

**Engineering Controls:** Maintain adequate ventilation, eye wash and quick-drench facilities in work area.

**Personal Protective Equipment:** Lab coat, chemical resistant gloves and chemical safety glasses.

**Occupational Exposure Limits:** Data not available.

## IX. Exposure Controls/Personal Protection:

<b>Physical State:</b>	Colorless liquid.
<b>Odor:</b>	Odorless.
<b>Boiling Point:</b>	Data not available.
<b>Melting Point:</b>	Data not available.
<b>Volatile Organic Compound:</b>	Data not available.
<b>Solubility in water:</b>	Readily miscible in water.

## X. Stability and Reactivity:

**Stability:** Stable.

**Hazardous Decomposition:** May form carbon dioxide and carbon monoxide.

**Conditions to avoid:** Strong oxidizing agents

## XI. Toxicological Information:

May cause skin irritation.

May be toxic if absorbed through skin or ingested.

May cause eye irritation.

**Target Organs:** Kidneys

Prolonged exposure may cause nausea, headache, and vomiting.

## XII. Ecological Information:

Data not available.

## XIII. Disposal Considerations:

Dispose of in accordance with federal, state and local environmental regulations.

## XIV. Transport Information:

**D.O.T.:** This substance is considered non-hazardous for transport.

**IATA:** This substance is considered non-hazardous for air transport.

## XV. Regulatory Information:

**EU Regulation/Classification/Labeling Information:** Not available for this product.

**Chemical Inventory Status:**

**SARA Listed Component:** None.

**TSCA Listed Component:** None.

**Canada (WHMIS):** DSL No, NDSL No.

## XVI. Other Information:

This compound is sold only for research use by personnel familiar with chemicals and who are well trained in good laboratory habits, such as avoiding spills, keeping hands clean at all times and not rubbing eyes with hands while working in the laboratory.

This solution is sold only in microliter quantities for use in life sciences research. No other use is intended, and any other use may involve substantive hazards.

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide for experienced personnel. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product. The burden of safe use of this material rests entirely with the user.

# Material Safety Data Sheet (MSDS) for Blocking Peptides



Cell Signaling

TECHNOLOGY®

rev. 06/04/09

## I. Identification:

**Product name:** Blocking Peptides

**Product Catalog Number:** Includes products within the following range of catalog numbers: 1000-1999.

**CAS number:** None

**Manufacturer Supplier:** Cell Signaling Technology  
3 Trask Lane  
Danvers, MA 01923 USA  
1-978-867-2300 TEL  
1-978-867-2400 FAX  
1-978-578-6737 Emergency Phone

## II. Composition/Information on Ingredients:

This product is composed of peptides in aqueous buffer solution. According to 29 CFR 1910.1200(d), hazardous ingredients at less than <1% and carcinogens at less than < 0.1%

Ingredient	CAS#	Percent
Glycerol	56-81-5	5%

are considered non-hazardous. This product may contain the following hazardous ingredients:

## III. Hazard Identification:

To the best of our knowledge, the chemical, physical, and toxicological properties of this solution have not been thoroughly investigated.

**Emergency Overview of Hazardous ingredient:** Glycerol (CAS# 56-81-5).

**Caution:** Avoid contact and inhalation.

**Target organ:** Kidneys.

## IV. First Aid Measures:

**Inhalation:** If inhaled, remove to fresh air. If breathing is difficult, get medical attention.

**Ingestion:** If swallowed, rinse mouth with water provided person is conscious. Get medical attention.

**Skin Exposure:** In case of contact, wash skin with soap and water.

**Eye Exposure:** In case of contact with eyes, immediately flush eyes with water for at least 15 minutes. Get medical attention.

## V. Fire Fighting Measures:

**Flash Point:** Data not available.

**Autoignition Temperature:** Data not available.

**Fire extinguishing media:** Water spray, dry chemical, foam, or carbon dioxide.

**Firefighting:** Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.

## VI. Accidental Release Measures:

Absorb liquid with an absorbent material. Transfer contaminated absorbent to a chemical waste container for disposal.

## VII. Handling And Storage:

Avoid inhalation, ingestion and contact with eyes and skin. Avoid prolonged or repeated exposure. Store at -20°C in tightly closed container.

## VIII. Exposure Controls/Personal

**Engineering Controls:** Maintain adequate ventilation, eye wash and quick-drench facilities in work area.

**Personal Protective Equipment:** Lab coat, chemical resistant gloves and chemical safety glasses.

**Occupational Exposure Limits:** Data not available.

## IX. Exposure Controls/Personal Protection:

**Physical State:** Colorless liquid.

**Odor:** Odorless.

**Boiling Point:** Data not available.

**Melting Point:** Data not available.

**Volatile Organic Compound:** Data not available.

**Solubility in water:** Readily miscible in water.

## X. Stability and Reactivity:

**Stability:** Stable under recommended conditions.

**Hazardous Decomposition:** May form carbon dioxide and carbon monoxide.

**Conditions to avoid:** Strong oxidizing agents.

## XI. Toxicological Information:

To the best of our knowledge, the chemical, physical, and toxicological properties of this solution have not been thoroughly investigated.

## XII. Ecological Information:

Data not available.

## XIII. Disposal Considerations:

Dispose of in accordance with federal, state and local environmental regulations.

## XIV. Transport Information:

**D.O.T.:** This substance is considered non-hazardous for transport.

**IATA:** This substance is considered non-hazardous for air transport.

## XV. Regulatory Information:

**EU Regulations/Classifications/Labeling Information:** Not available for this product.

**US Regulatory Information:**

**SARA listed components:** None.

**TSCA components:** None.

**DSL components:** None.

**Canada (WHMIS):** DSL No, NDSL No.

## XVI. Other Information:

This product is not intended for use in humans. It is sold only for research use by personnel familiar with chemicals and who are well trained in good laboratory habits, such as avoiding spills, keeping hands clean at all times and not rubbing eyes with hands while working in the laboratory. No other use is intended, and any other use may involve substantive hazards.

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide for experienced personnel. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product. The burden of safe use of this material rests entirely with the user.

# Material Safety Data Sheet (MSDS) for Blocking Solution

New 06/09

## I. IDENTIFICATION:

**Product name:** Blocking Solution

**Product Catalog Number:** Component of kit #8100, 8110, 8120, 81303

**Manufacturer Supplier:** Cell Signaling Technology®

3 Trask Lane

Danvers, MA 01923 USA

1-978-867-2300 TEL

1-978-867-2400 FAX

1-978-578-6737 Emergency Phone

## II. COMPOSITION/INFORMATION ON INGREDIENTS:

This product is a mixture of substances. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than < 0.1% are considered non-hazardous. Ingredients in this mixture above these thresholds are listed below.

Hazardous Ingredient	Percent	CAS#
Sodium Chloride	<6%	7647-14-5
Tween 20	<1%	9005-64-5
Sodium Azide	<0.01%	26628-22-8

## III. HAZARD IDENTIFICATION:

May be irritating to eyes, respiratory system, skin.

**HMIS Rating:** Health: 0 Flammability: 0 Reactivity: 0

**NFPA Rating:** Health: 0 Flammability: 0 Reactivity: 0

## IV. FIRST AID MEASURES:

**Inhalation:** Remove to fresh air. If breathing is difficult, get medical attention.

**Ingestion:** If person is conscious, wash out mouth with water. Get medical attention.

**Skin Exposure:** Wash skin with soap and water. If irritation develops or persists, get medical attention.

**Eye Exposure:** Immediately flush eyes with water for at least 15 minutes. Get medical attention.

## V. FIRE FIGHTING MEASURES:

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion:** Not applicable.

**Fire Extinguishing Media:** Water spray, dry chemical, alcohol foam, or carbon dioxide.

**Firefighting:** Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.

**Specific Hazard:** None.

## VI. ACCIDENTAL RELEASE MEASURES:

Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

## VII. HANDLING AND STORAGE:

Store at 4°C temperature in tightly closed container.

Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid prolonged or repeated exposure.

## VIII. EXPOSURE CONTROLS/PERSONAL

**Ventilation System:** A system of local (fume hood) and general exhaust is recommended.

**Skin Protection:** Wear compatible chemical resistant gloves and protective clothing.

**Eye protection:** Wear chemical safety goggles. Maintain emergency eyewash and shower in work area.

## IX. EXPOSURE CONTROLS/PERSONAL PROTECTION:

**Appearance:**

Colorless liquid

**Odor:**

Data not available

**pH :**

Data not available

**Boiling Point:**

Data not available

**Melting Point:**

Data not available

**Freezing Point:**

Data not available

**Volatile Organic Compounds (VOC):**

Data not available

**Autoignition temp.**

Data not available

**Solubility:**

Data not available

## X. STABILITY AND REACTIVITY:

**Stability:** Stable.

**Conditions to avoid:** Bases, oxidizing agents.

**Hazardous Decomposition:** Data not available.

**Hazardous polymerization:** Will not occur.

## XI. TOXICOLOGICAL INFORMATION:

To the best of our knowledge, the chemical, physical, and toxicological properties of this mixture have not been thoroughly investigated.

**Routes of Exposure:**

**Skin Exposure:** May cause skin irritation. May be harmful if absorbed through skin.

**Eye Exposure:** May cause eye irritation.

**Inhalation:** May be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.

**Ingestion:** May be harmful if swallowed.

## XII. ECOLOGICAL INFORMATION:

Data not available.

## XIII. DISPOSAL CONSIDERATIONS:

Dispose of in accordance with federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

## XIV. TRANSPORT INFORMATION:

**D. O. T.**

**Proper Shipping Name:** None.

This substance is considered non-hazardous for transport.

**IATA**

**Proper Shipping Name:** None.

This substance is considered non-hazardous for air transport.

## XV. REGULATORY INFORMATION:

**US Regulations/Classifications:** Data not available.

SARA Listed: No

TSCA Listed: Yes

Canada (WHMIS): DSL No, NDSL No.

## XVI. OTHER INFORMATION:

This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

# Material Safety Data Sheet (MSDS) for NovaRED Substrate 1,2,3,4

New 06/09



## I. IDENTIFICATION:

**Product name:** NovaRED Substrate 1,2,3,4  
**Product Catalog Number:** Component of kit #8100, 8110, 8120, 8130  
**Manufacturer Supplier:** Vector Laboratories, Inc  
30 Ingold Road  
Burlingame, CA 94010 USA  
1-650-697-3600 TEL  
1-650-697-0339 FAX  
Email: vector@vectorlabs.com

## II. COMPOSITION/INFORMATION ON INGREDIENTS:

This product is a mixture of substances. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than < 0.1% are considered non-hazardous. Ingredients in this mixture above these thresholds are listed below.

Hazardous Ingredient	Percent	CAS#	RTECS #
Acetonitrile (Substrates 2 and 3 are dissolved in acetonitrile)	20-35%	75-05-08	AL7700000

## III. HAZARD IDENTIFICATION of Hazardous Ingredient Acetonitrile:

Flammable Liquid. Harmful by Ingestion. Harmful by skin absorption. Irritant.

**Target Organs:** Lungs, Blood, Kidney, Liver, Central nervous system. Note: metabolized by liver to cyanide.

<b>HMIS Rating:</b>	Health: 3	Flammability: 3	Reactivity: 0
<b>NFPA Rating:</b>	Health: 2	Flammability: 3	Reactivity: 0

## IV. FIRST AID MEASURES:

**Inhalation:** Remove to fresh air. If breathing is difficult, get medical attention.

**Ingestion:** If person is conscious, wash out mouth with water. Get medical attention.

**Skin Exposure:** Wash skin with soap and water. If irritation develops or persists, get medical attention.

**Eye Exposure:** Immediately flush eyes with water for at least 15 minutes. Get medical attention.

## V. FIRE FIGHTING MEASURES:

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion:** Not applicable.

**Fire Extinguishing Media:** Water spray, dry chemical, alcohol foam, or carbon dioxide.

**Firefighting:** Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.

## VI. ACCIDENTAL RELEASE MEASURES:

Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

## VII. HANDLING AND STORAGE:

Avoid sources of ignition. Avoid contact with eyes, skin, and clothing. Avoid inhalation of vapor. Wear eye protection and compatible chemical resistant gloves. Wash thoroughly after handling. Store at 4°C in tightly closed container.

## VIII. EXPOSURE CONTROLS/PERSONAL

**Ventilation System:** A system of local (fume hood) and general exhaust is recommended.

**Skin Protection:** Wear compatible chemical resistant gloves and protective clothing.

**Eye protection:** Wear chemical safety goggles. Maintain emergency eyewash and shower in work area.

## IX. EXPOSURE CONTROLS/PERSONAL PROTECTION:

<b>Appearance:</b>	Liquid
<b>Odor:</b>	Data not available
<b>pH :</b>	Data not available
<b>Boiling Point:</b>	Data not available
<b>Melting Point:</b>	Data not available
<b>Freezing Point:</b>	Data not available
<b>Volatile Organic Compounds (VOC):</b>	Data not available
<b>Autoignition temp.</b>	Data not available
<b>Solubility:</b>	Data not available

## X. STABILITY AND REACTIVITY:

**Stability:** Stable under normal conditions.

**Conditions to avoid:** Acidic pH, strong oxidizers.

**Hazardous Decomposition:** Carbon monoxide, carbon dioxide, nitrogen oxides.

**Hazardous polymerization:** Data not available.

## XI. TOXICOLOGICAL INFORMATION for Hazardous Ingredient Acetonitrile, RTECS# AL7700000:

### Routes of Exposure

**Skin Exposure:** Causes skin irritation. Harmful if absorbed through skin.

**Eye Exposure:** Causes eye irritation.

**Inhalation:** May be harmful if inhaled. Causes irritation to mucous membrane and upper respiratory tract.

**Ingestion:** Harmful if swallowed.

**Target Organs:** Lungs, Blood, Kidney, Liver, Central Nervous System.

### Toxicity Data

**Oral, Rat:** LD50 2460mg/kg

**Inhalation, Rat:** LC50 -8h- 7551ppm

Remarks: Behavioral: Altered sleep time (including change in righting reflex). Behavioral: Convulsions or effect of seizure threshold. Blood: hemorrhage.

Dermal Rabbit: LD50 2000 mg/kg

## XII. ECOLOGICAL INFORMATION:

Toxicity to Fish: LC50 Pimephales promelas (fathead minnow) 1,640.00 mg/L – 96h.

Toxicity to Daphnia and other aquatic invertebrates: EC50 Daphnia magna (water flea) 640 mg/L – 14d.

## XIII. DISPOSAL CONSIDERATIONS:

Dispose of in accordance with federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

## XIV. TRANSPORT INFORMATION:

### D.O.T. (US)

Proper Shipping Name: None

Non-hazardous for transport.

### IATA

Class: 3 Packing Group: II

## XV. REGULATORY INFORMATION:

**US Regulations/Classifications: OSHA Hazards:** Flammable Liquid, Target Organ Effect, Harmful by Ingestion, Harmful by skin absorption, Irritant.

TSCA Listed: No

Canada (WHMIS): DSL listed: No.

**XVI. OTHER INFORMATION:** This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

# Material Safety Data Sheet (MSDS) for Peroxidase Quench

New 06/09

## I. IDENTIFICATION:

**Product name:** Peroxidase Quench  
**Product Catalog Number:** Component of kit #8100, 8110, 8120, 81303  
**Manufacturer Supplier:** Cell Signaling Technology®  
3 Trask Lane  
Danvers, MA 01923 USA  
1-978-867-2300 TEL  
1-978-867-2400 FAX  
1-978-578-6737 Emergency Phone

## II. COMPOSITION/INFORMATION ON INGREDIENTS:

This product is a mixture of substances. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than <0.1% are considered non-hazardous. Ingredients in this mixture above these thresholds are listed below.

Hazardous Ingredient	Synonyms	Percent	CAS#	RTECS #
Hydrogen Peroxide	Albone, Albone 35, Albone 50, Hydrogen Peroxide 3%,	3%	7722-84-1	MX088700

## III. HAZARD IDENTIFICATION on Hazardous Ingredient Hydrogen Peroxide:

**Target organs:** Eyes, skin.

<b>HMIS Rating:</b>	Health: 0	Flammability: 0	Reactivity: 1
<b>NFPA Rating:</b>	Health: 0	Flammability: 0	Reactivity: 1

## IV. FIRST AID MEASURES:

**Inhalation:** Remove to fresh air. If breathing is difficult, get medical attention.  
**Ingestion:** If person is conscious, wash out mouth with water. Get medical attention.  
**Skin Exposure:** Wash skin with soap and water. If irritation develops or persists, get medical attention.  
**Eye Exposure:** Immediately flush eyes with water for at least 15 minutes. Get medical attention.

## V. FIRE FIGHTING MEASURES:

**Flash Point:** Not applicable.  
**Autoignition Temperature:** Not applicable.  
**Explosion:** Not applicable.  
**Fire Extinguishing Media:** Water spray, dry chemical, alcohol foam, or carbon dioxide.  
**Firefighting:** Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.  
**Specific Hazard:** Emits toxic fumes under fire conditions.

## VI. ACCIDENTAL RELEASE MEASURES:

Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

## VII. HANDLING AND STORAGE:

Store at 4°C temperature in tightly closed container.  
Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid prolonged or repeated exposure.

## VIII. EXPOSURE CONTROLS/PERSONAL

**Ventilation System:** A system of local and general exhaust is recommended.  
**Skin Protection:** Wear compatible chemical resistant gloves and protective clothing.  
**Eye protection:** Wear chemical safety goggles. Maintain emergency eyewash and shower in work area.

## IX. EXPOSURE CONTROLS/PERSONAL PROTECTION:

**Appearance:** Liquid  
**Odor:** Odorless  
**pH :** Data not available  
**Boiling Point:** Data not available  
**Melting Point:** Data not available  
**Freezing Point:** Data not available  
**Volatile Organic Compounds (VOC):** Data not available  
**Autoignition temp.** Data not available  
**Solubility:** Data not available

## X. STABILITY AND REACTIVITY:

**Stability:** Stable.  
**Conditions to avoid:** Light, rust, brass iron and iron salts, finely powdered metals, copper alloys, galvanized iron, zinc, nickel.  
**Hazardous Decomposition:** Oxygen.  
**Hazardous polymerization:** Will not occur.

## XI. TOXICOLOGICAL INFORMATION:

To the best of our knowledge, the chemical, physical, and toxicological properties of this mixture have not been thoroughly investigated.

**Routes of Exposure:**  
**Skin Exposure:** May cause skin irritation. May be harmful if absorbed through skin.  
**Eye Exposure:** May cause eye irritation.  
**Inhalation:** May be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.  
**Ingestion:** May be harmful if swallowed.

**Target Organs:** Eyes, Skin

**Toxicity Data for Hazardous Ingredient:** Hydrogen Peroxide  
**Oral, Child:** LDLo 12 mL/kg  
**Remarks: Behavioral:** Sleep. Lungs/Thorax/Respiration: Acute Pulmonary Edema. Gastro-intestinal: other changes.  
**Oral, Child:** LDLo 9mL/kg  
**Remarks: Brain and coverings:** Other degenerative changes. Peripheral Nerve and sensation: Spastic paralysis with or without sensory change. Lung, Thorax, or Respiration: Cyanosis.

## XII. ECOLOGICAL INFORMATION:

Data not available.

## XIII. DISPOSAL CONSIDERATIONS:

Dispose of in accordance with federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

## XIV. TRANSPORT INFORMATION:

**D.O.T. and IATA**  
**Proper Shipping Name:** None.  
Not Restricted. This substance is considered non-hazardous for transport.

## XV. REGULATORY INFORMATION:

**US Regulations/Classifications:**  
Target Organ(s): Eyes, Skin.  
SARA Listed: No  
TSCA Listed: Yes  
Canada (WHMIS): DSL No, NDSL No.

## XVI. OTHER INFORMATION:

This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

# Material Safety Data Sheet (MSDS) for Reagent A+B

New 06/09

## I. IDENTIFICATION:

**Product name:** Reagent A+B  
**Product Catalog Number:** Component of kit #8100, 8110, 8120, 81303  
**Manufacturer Supplier:** Vector Laboratories, Inc  
30 Ingold Road  
Burlingame, CA 94010 USA  
1-650-697-3600 TEL  
1-650-697-0339 FAX  
Email: vector@vectorlabs.com

## II. COMPOSITION/INFORMATION ON INGREDIENTS:

This solution is a mixture of substances. Hazardous or carcinogenic ingredients are listed below.

Hazardous Ingredient	Percent	CAS#	RTECS #
Thimerosal	0.05%	54-64-8	OV8400000

## III. HAZARD IDENTIFICATION:

According to 29 CFR 1910.1200(d), hazardous ingredients at less than <1% and carcinogens at less than < 0.1% are considered non-hazardous. None of the ingredients in this mixture are above the 0.1% carcinogen and 1% hazard classification threshold.

<b>HMIS Rating:</b>	Health: 0	Flammability: 0	Reactivity: 0
<b>NFPA Rating:</b>	Health: 0	Flammability: 0	Reactivity: 0

## IV. FIRST AID MEASURES:

**Inhalation:** Remove to fresh air. If breathing is difficult, get medical attention.  
**Ingestion:** If person is conscious, wash out mouth with water. Get medical attention.  
**Skin Exposure:** Wash skin with soap and water. If irritation develops or persists, get medical attention.  
**Eye Exposure:** Immediately flush eyes with water for at least 15 minutes. Get medical attention.

## V. FIRE FIGHTING MEASURES:

**Flash Point:** Not applicable.  
**Autoignition Temperature:** Not applicable.  
**Explosion:** Not applicable.  
**Fire Extinguishing Media:** Water spray, dry chemical, alcohol foam, or carbon dioxide.  
**Firefighting:** Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.  
**Specific Hazard:** Emits toxic fumes under fire conditions.

## VI. ACCIDENTAL RELEASE MEASURES:

Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

## VII. HANDLING AND STORAGE:

Avoid contact with eyes, skin, and clothing. Wear eye protection and compatible chemical resistant gloves. Wash thoroughly after handling. Avoid prolonged or repeated exposure. Danger of cumulative effects.  
Store at 4°C in tightly closed container.

## VIII. EXPOSURE CONTROLS/PERSONAL

**Ventilation System:** A system of local (fume hood) and general exhaust is recommended.  
**Skin Protection:** Wear compatible chemical resistant gloves and protective clothing.  
**Eye protection:** Wear chemical safety goggles. Maintain emergency eyewash and shower in work area.

## IX. EXPOSURE CONTROLS/PERSONAL PROTECTION:

<b>Appearance:</b>	Liquid
<b>Odor:</b>	None
<b>pH :</b>	Data not available
<b>Boiling Point:</b>	Data not available
<b>Melting Point:</b>	Data not available
<b>Freezing Point:</b>	Data not available
<b>Volatile Organic Compounds (VOC):</b>	Data not available
<b>Autoignition temp.</b>	Data not available
<b>Solubility:</b>	Data not available

## X. STABILITY AND REACTIVITY:

**Conditions to avoid:** Acidic pH, strong oxidizers.  
**Hazardous Decomposition:** Carbon monoxide, carbon dioxide, nitrogen oxides.  
**Hazardous polymerization:** Data not available.

## XI. TOXICOLOGICAL INFORMATION:

To the best of our knowledge, the chemical, physical, and toxicological properties of this mixture have not been thoroughly investigated.

### Routes of Exposure:

**Skin Exposure:** May cause skin irritation. May be harmful if absorbed through skin.  
**Eye Exposure:** May cause eye irritation.  
**Inhalation:** May be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.  
**Ingestion:** May be harmful if swallowed.

### Toxicity Data for Hazardous Ingredient Thimerosal, RTECS# OV8400000

Oral, Rat: LD50 75mg/kg  
Subcutaneous, Rat: LD50 98mg/kg

## XII. ECOLOGICAL INFORMATION:

Data not available.

## XIII. DISPOSAL CONSIDERATIONS:

Dispose of in accordance with federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

## XIV. TRANSPORT INFORMATION:

### D.O.T.

**Proper Shipping Name:** None.  
This substance is considered non-hazardous for transport.

### IATA

**Proper Shipping Name:** None.  
This substance is considered non-hazardous for air transport.

## XV. REGULATORY INFORMATION:

**US Regulations/Classifications:** Target Organ(s): Eyes, Skin.  
SARA Listed: No  
TSCA Listed: Yes  
Canada (WHMIS): DSL No, NDSL No.

## XVI. OTHER INFORMATION:

This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.