CELL SIGNALING TECHNOLOGY MATERIAL SAFETY DATA SHEET -KIT April 2012

1. PRODUCT IDENTIFICATION

Product Name: SignalKine™ Ô@{ a { a ^• &^} o Sandwich ELISA Kit

Product catalog #: ÌÎÌÌ

Product Use: This product is intended for Research Use Only (RUO).

It is not intended for clinical diagnostic or therapeutic use in humans or animals.

Manufacturer/Supplier: Cell Signaling Technology

3 Trask Lane Danvers, MA 01923

Janvers, MA 01923

USA

978-867-2300 TEL 978-867-2400 FAX

978-578-6737 EMERGENCY TEL

3. HAZARDS IDENTIFICATION

✓ ELISA Wash Buffer (CST#9801)

- ✓ Luminol/Enhancer Solution/Stable Peroxide Buffer
- ✓ Assay Diluent 1
- ✓ Serum Diluent 1
- ✓ Detection Antibody Diluent
- ✓ HRP-linked Streptavidin (lyophilized) 100X
- ✓ HRP Diluent

Based on percentages of hazardous ingredients in all other kit components in this product, this product is not classified as "dangerous" under EU Directives 67/548/EEC or hazardous under US OSHA Hazard Communications regulations 29 CFR 1910.1200.

3. COMPOSITION/INFORMATION

Preparation Name: SignalKine™ Sandwich ELISA Kit

CAS#: N/A

4. 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 water for at least 15 minutes. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash Point: Not applicable

Autoignition Temperature: Not applicable

Explosion: Not applicable

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.

Specific Hazard: none

6. ACCIDENTAL RELEASE MEASURES

Wear appropriate personal protective equipment. 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.

7. HANDLING AND STORAGE

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

8-13. 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.

14. 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.

15. REGULATORY INFORMATION:

EU: Not classified OSHA: Not listed

Canadian DSL: Not Listed SARA 302, 313 Not Listed. SARA 311/312: Not Listed.

Massachusetts Right To Know: Not Listed. Pennsylvania Right To Know: Not Listed. New Jersey Right To Know: Not Listed.

California Prop. 65: Not Listed

16. OTHER INFORMATION

CELL SIGNALING TECHNOLOGY MATERIAL SAFETY DATA SHEET OF A SHEET OF

1. PRODUCT IDENTIFICATION

Substance/Preparation: Preparation

Identified Use: This product is for in vivo laboratory research use only (RUO).

It is not intended for clinical diagnostic or therapeutic use in humans or animals.

Supplier: Cell Signaling Technology

3 Trask Lane Danvers, MA 01923

USA

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2. COMPOSITION/INFORMATION on hazardous ingredients

According to 29CFR 1910.1200(d), mixtures with hazardous ingredients at less than 1% and carcinogens at less than 0.1% are considered non-hazardous.

Ingredient:CAS#% VolumeTween 209005-64-50.5%Non hazardous Phosphate Buffered Saline, 5XN/A99.5%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

OSHA: Non-hazardous

EU: This product is not classified according to Directive 1999/45/EC.

Appearance: Colorless liquid Possible routes of exposure:

Eye/Skin Contact: May cause irritation to eyes, skin.

Ingestion: May cause gastrointestinal tract irrit

Ingestion: May cause gastrointestinal tract irritation. Inhalation: May cause respiratory tract irritation.

4. FIRST AID MEASURES

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

<u>Ingestion:</u> If swallowed, wash out mouth with water provided person is conscious. Get medical attention or

Call Poison Control Center for most current information.

Skin Exposure: In case of contact, immediately wash skin with soap and water for at least 15 minutes.

Remove contaminated clothing. Wash clothing before reuse.

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

Get medical attention.

5. FIRE FIGHTING MEASURES

Flash Point: Not Flammable.

Autoignition Temperature: Not considered to be a fire hazard.

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.

6. ACCIDENTAL RELEASE MEASURES :

Wear appropriate personal protective equipment. Avoid contact with spilled material. Avoid breathing vapor or mist. Provide adequate ventilation.

7. HANDLING AND STORAGE

Store in tightly closed container at 4'C. Keep and use in a well-ventilated area. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation System: a system of local and/or general exhaust is recommended.

Skin Protection: wear compatible chemical resistant gloves and protective clothing, such as a lab coat.

Eye protection: wear protective safety glasses or chemical safety goggles. Maintain eye wash fountain and quick-

drench facilities in work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: colorless liquid
Odor: no data available
pH: no data available
Melting Point: no data available
Boiling Point no data available

Flash Point Not considered to be a fire hazard.

Explosive properties Not considered to be an explosion hazard.

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.

Hazardous Polymerization: no data available Hazardous Decomposition: no data available Conditions to avoid: no data available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity no data available Chronic Toxicity no data available

Routes of Exposure:

Skin Exposure: May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation. Inhalation: May be harmful if inhaled. Ingestion: May be harmful if swallowed.

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

12. ECOLOGICAL INFORMATION

No data available

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with federal, state, local environmental regulations-

14. 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.

15. REGULATORY INFORMATION

OSHA: Not classified as hazardous. EU: Not classified as dangerous. Canadian DSL: Not Listed SARA 302, 313 Not Listed. SARA 311/312: Not Listed. Massachusetts Right To Know: Not Listed.

Massachusetts Right To Know: Not Listed Pennsylvania Right To Know: Not Listed. New Jersey Right To Know: Not Listed.

California Prop. 65: Not Listed

16. OTHER INFORMATION

This compound is sold only for *in vitro* laboratory research use only. It is not for use in humans. It is not intended for use as diagnostic or clinical therapeutic. 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. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

CELL SIGNALING TECHNOLOGY MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

Product Name: ELISA Wash Buffer (20X)
Product catalog #: #Ì Î Î Kit component

CAS# N/A

Product Use: This product is intended for Research Use Only (RUO). It is not intended for clinical

diagnostic or therapeutic use in humans or animals.

Manufacturer/Supplier: Cell Signaling Technology

3 Trask Lane Danvers, MA 01923

USA

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2. HAZARDS IDENTIFICATION

OSHA regulatory status:

This material is considered non-hazardous according to OSHA Hazard Communication Standard (29 CFR 1910.1200).

EU regulatory Status:

Not a hazardous mixture according to Regulation (EC) No. 1272/2008.

Not a hazardous mixture according to EC Directives 67/548/EEC or 1999/45/EC.

3. COMPOSITION/INFORMATION

Ingredient	Percent	CAS#
Tween 20 Kathon Non-hazardous 20X phosphate buffered saline	1% 0.5% 98.5%	9005-64-5 55965-84-9 none

4. 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. Eye Exposure: Flush eyes water as a precaution.

5. FIRE FIGHTING MEASURES

Flammability: Not flammable.

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.

Specific Hazard: none known

6. ACCIDENTAL RELEASE MEASURES

Use appropriate personal protective equipment. Absorb liquid with an absorbent material. Wash spill site after material has been picked up for disposal.

7. HANDLING AND STORAGE

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Keep container tightly closed. Recommended storage temperature 4'C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures: showers, eyewash, ventilation systems. Hygiene Measures: wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: colorless liquid Odor: data not available data not available pH: 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: water soluble

10. STABILITY AND REACTIVITY

Stability: no data available.
Conditions/materials to avoid: no data available
Hazardous Decomposition: no data available
Hazardous polymerization: no data available.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity no data available Chronic Toxicity no data available

Routes of Exposure:

Skin Exposure: May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation. Inhalation: May be harmful if inhaled. Ingestion: May be harmful if swallowed.

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

12. ECOLOGICAL INFORMATION

No data available

13. 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.

14. 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.

15. REGULATORY INFORMATION

OSHA: Not classified as hazardous. EU: Not classified as dangerous. Canadian DSL: Not Listed SARA 302, 313 Not Listed. SARA 311/312: Not Listed. Massachusetts Right To Know: Not Listed.

Pennsylvania Right To Know: Not Listed. New Jersey Right To Know: Not Listed.

California Prop. 65: Not Listed

16. OTHER INFORMATION

CELL SIGNALING TECHNOLOGY MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

Product Name: Assay Diluent 1
Product catalog #: #Ì Î Î İ Kit component

CAS# N/A

Product Use: This product is intended for Research Use Only (RUO). It is not intended for clinical

diagnostic or therapeutic use in humans or animals.

Manufacturer/Supplier: Cell Signaling Technology

3 Trask Lane Danvers, MA 01923

USA

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2. HAZARDS IDENTIFICATION

OSHA regulatory status:

This material is considered non-hazardous according to OSHA Hazard Communication Standard (29 CFR 1910.1200).

EU regulatory Status:

Not a hazardous mixture according to Regulation (EC) No. 1272/2008.

Not a hazardous mixture according to EC Directives 67/548/EEC or 1999/45/EC.

3. COMPOSITION/INFORMATION

Ingredient	Percent	CAS#
Fetal Bovie Serum	99.95%	9014-81-7
Sodium azide	0.05%	26628-22-8

4. 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. **Eye Exposure**: Flush eyes water as a precaution.

5. FIRE FIGHTING MEASURES

Flammability: Not flammable.

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.

Specific Hazard: none known

6. ACCIDENTAL RELEASE MEASURES

Use appropriate personal protective equipment. Absorb liquid with an absorbent material. Wash spill site after material has been picked up for disposal.

7. HANDLING AND STORAGE

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Keep container tightly closed. Recommended storage temperature 4°C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures: showers, eyewash, ventilation systems. Hygiene Measures: wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: colorless liquid Odor: data not available

7.2-7.4 pH:

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: water soluble

10. STABILITY AND REACTIVITY

Stability: no data available. Conditions/materials to avoid: no data available **Hazardous Decomposition:** no data available **Hazardous polymerization:** no data available.

11. TOXICOLOGICAL INFORMATION

no data available **Acute Toxicity Chronic Toxicity** no data available

Routes of Exposure:

Skin Exposure: May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation. Inhalation: May be harmful if inhaled. Ingestion: May be harmful if swallowed.

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

12. ECOLOGICAL INFORMATION

No data available

13. 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.

14. 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.

15. REGULATORY INFORMATION

OSHA: No known hazards

EU: not classified. Canadian DSL: Not Listed SARA 302, 313 Not Listed. SARA 311/312: Not Listed.

Massachusetts Right To Know: Not Listed. Pennsylvania Right To Know: Not Listed. New Jersey Right To Know: Not Listed.

California Prop. 65: Not Listed

16. OTHER INFORMATION

CELL SIGNALING TECHNOLOGY MATERIAL SAFETY DATA SHEET December 22, 2011

1. PRODUCT IDENTIFICATION

CAS# N/A

Product Use: This product is intended for Research Use Only (RUO).

It is not intended for clinical diagnostic or therapeutic use in humans or animals.

Manufacturer/Supplier: Cell Signaling Technology

3 Trask Lane Danvers, MA 01923

USA

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2. HAZARDS IDENTIFICATION

OSHA regulatory status:

This material is considered non-hazardous according to OSHA Hazard Communication Standard (29 CFR 1910.1200).

EU regulatory Status:

Not a hazardous mixture according to Regulation (EC) No. 1272/2008.

Not a hazardous mixture according to EC Directives 67/548/EEC or 1999/45/EC.

3. COMPOSITION/INFORMATION

Ingredient	Percent	CAS#
Fetal Bovie Serum	99.95%	9014-81-7
Sodium azide	0.05%	26628-22-8

4. 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. **Eye Exposure:** Flush eyes water as a precaution.

5. FIRE FIGHTING MEASURES

Flammability: Not flammable.

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.

Specific Hazard: none known

6. ACCIDENTAL RELEASE MEASURES

Use appropriate personal protective equipment. Absorb liquid with an absorbent material. Wash spill site after material has been picked up for disposal.

7. HANDLING AND STORAGE

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Keep container tightly closed. Recommended storage temperature 4"C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures: showers, eyewash, ventilation systems. Hygiene Measures: wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: colorless liquid
Odor: data not available

pH: 7.2-7.4

Boiling Point:

Melting Point:

Greezing Point:

Volatile Organic Compounds (VOC):

Autoignition temp.

Solubility:

data not available data not available data not available water soluble

10. STABILITY AND REACTIVITY

Stability: no data available.
Conditions/materials to avoid: no data available
Hazardous Decomposition: no data available
Hazardous polymerization: no data available.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity no data available Chronic Toxicity no data available

Routes of Exposure:

Skin Exposure: May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation. Inhalation: May be harmful if inhaled. Ingestion: May be harmful if swallowed.

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

12. ECOLOGICAL INFORMATION

No data available

13. 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.

14. 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.

15. REGULATORY INFORMATION

OSHA: No known hazards

EU: not classified.

Canadian DSL: Not Listed SARA 302, 313 Not Listed. SARA 311/312: Not Listed.

Massachusetts Right To Know: Not Listed. Pennsylvania Right To Know: Not Listed. New Jersey Right To Know: Not Listed.

California Prop. 65: Not Listed

16. OTHER INFORMATION

CELL SIGNALING TECHNOLOGY MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

Product Name: Detection Antibody Diluent

Product catalog #: AWWWWAîîì kit component

CAS# N/A

Product Type: Preparation

Product Use: This product is intended for Research Use Only (RUO).

It is not intended for clinical diagnostic or therapeutic use in humans or animals.

Manufacturer/Supplier: Cell Signaling Technology

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USA

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2. HAZARDS IDENTIFICATION

OSHA regulatory status:

This material is considered non-hazardous according to OSHA Hazard Communication Standard (29 CFR 1910.1200).

EU regulatory Status:

Not a hazardous mixture according to Regulation (EC) No. 1272/2008.

Not a hazardous mixture according to EC Directives 67/548/EEC or 1999/45/EC.

3. COMPOSITION/INFORMATION

Ingredient	Percent	CAS#
Bovine Serum Albumin	2%	9048-46-8
Fetal Bovine Serum	25%	N/A
Tween 20	0.1%	9005-64-5
Kathon	0.05%	55965-84-9

4. 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. **Eye Exposure:** Flush eyes water as a precaution.

5. FIRE FIGHTING MEASURES

Flammability: Not flammable.

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.

Specific Hazard: none known

6. ACCIDENTAL RELEASE MEASURES

Use appropriate personal protective equipment. Absorb liquid with an absorbent material. Wash spill site after material has been picked up for disposal.

7. HANDLING AND STORAGE

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Keep container tightly closed. Recommended storage temperature 4'C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures: showers, eyewash, ventilation systems. **Hygiene Measures:** wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: green liquid data not available Odor: data not available pH: 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: water soluble

10. STABILITY AND REACTIVITY

Stability: no data available.
Conditions/materials to avoid: no data available
Hazardous Decomposition: no data available
Hazardous polymerization: no data available.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity no data available Chronic Toxicity no data available

Routes of Exposure:

Skin Exposure: May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation. Inhalation: May be harmful if inhaled. Ingestion: May be harmful if swallowed.

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

12. ECOLOGICAL INFORMATION

No data available

13. 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.

14. 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.

15. REGULATORY INFORMATION

OSHA: Not classified as hazardous. EU: Not classified as dangerous. Canadian DSL: Not Listed SARA 302, 313 Not Listed. SARA 311/312: Not Listed. Massachusetts Right To Know: Not Listed.

Pennsylvania Right To Know: Not Listed.
New Jersey Right To Know: Not Listed.

California Prop. 65: Not Listed

16. OTHER INFORMATION

CELL SIGNALING TECHNOLOGY MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

Product Name: HRP-Linked Streptavidin (lyophilized) 100X

Product catalog #: #ì Î Î Kit component

CAS# N/A

Product Use: This product is intended for Research Use Only (RUO). It is not intended for clinical

diagnostic or therapeutic use in humans or animals.

Manufacturer/Supplier: Cell Signaling Technology

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USA

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2. HAZARDS IDENTIFICATION

OSHA regulatory status:

This material is considered non-hazardous according to OSHA Hazard Communication Standard (29 CFR 1910.1200).

EU regulatory Status:

Not a hazardous mixture according to Regulation (EC) No. 1272/2008.

Not a hazardous mixture according to EC Directives 67/548/EEC or 1999/45/EC.

3. COMPOSITION/INFORMATION

Ingredient	Percent	CAS#
Trehalose	5%	6138-23-4
Non-hazardous Phosphate Buffered Saline	95%	N/A

4. 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. **Eye Exposure**: Flush eyes water as a precaution.

5. FIRE FIGHTING MEASURES

Flammability: Not flammable.

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.

Specific Hazard: none known

6. ACCIDENTAL RELEASE MEASURES

Use appropriate personal protective equipment. Absorb liquid with an absorbent material. Wash spill site after material has been picked up for disposal.

7. HANDLING AND STORAGE

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Keep container tightly closed. Recommended storage temperature 4'C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures: showers, eyewash, ventilation systems. **Hygiene Measures:** wear suitable gloves and eye/face protection.

nyglene measures: wear suitable gloves and eyenace protection

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: lyophilized powder Odor: data not available data not available pH: **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: water soluble

10. STABILITY AND REACTIVITY

Stability:no data available.Conditions/materials to avoid:no data availableHazardous Decomposition:no data availableHazardous polymerization:no data available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity no data available Chronic Toxicity no data available

Routes of Exposure:

Skin Exposure: May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation. Inhalation: May be harmful if inhaled. Ingestion: May be harmful if swallowed.

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

12. ECOLOGICAL INFORMATION

No data available

13. 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.

14. 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.

15. REGULATORY INFORMATION

OSHA: Not classified as hazardous.

EU: Not classified as dangerous. Canadian DSL: Not Listed SARA 302, 313 Not Listed. SARA 311/312: Not Listed.

Massachusetts Right To Know: Not Listed. Pennsylvania Right To Know: Not Listed. New Jersey Right To Know: Not Listed.

California Prop. 65: Not Listed

16. OTHER INFORMATION

CELL SIGNALING TECHNOLOGY MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

Product Name: HRP Diluent

Product catalog #: #8668 Kit component

CAS# N/A

Product Type: Preparation

Product Use: This product is intended for Research Use Only (RUO). It is not intended for clinical

diagnostic or therapeutic use in humans or animals.

Manufacturer/Supplier: Cell Signaling Technology

3 Trask Lane Danvers, MA 01923

USA

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2. HAZARDS IDENTIFICATION

OSHA regulatory status:

This material is considered non-hazardous according to OSHA Hazard Communication Standard (29 CFR 1910.1200).

EU regulatory Status:

Not a hazardous mixture according to Regulation (EC) No. 1272/2008.

Not a hazardous mixture according to EC Directives 67/548/EEC or 1999/45/EC.

3. COMPOSITION/INFORMATION

Ingredient	Percent	CAS#
Bovine Serum Albumin	2%	9048-46-8
Fetal Bovine Serum	25%	N/A
Tween 20	0.1%	9005-64-5
Kathon	0.05%	55965-84-9

4. 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. **Eye Exposure:** Flush eyes water as a precaution.

5. FIRE FIGHTING MEASURES

Flammability: Not flammable.

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.

Specific Hazard: none known

6. ACCIDENTAL RELEASE MEASURES

Use appropriate personal protective equipment. Absorb liquid with an absorbent material. Wash spill site after material has been picked up for disposal.

7. HANDLING AND STORAGE

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Keep container tightly closed. Recommended storage temperature 4'C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures: showers, eyewash, ventilation systems. **Hygiene Measures:** wear suitable gloves and eye/face protection.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: red liquid

Odor: data not available data not available pH: 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: water soluble

10. STABILITY AND REACTIVITY

Stability: no data available.
Conditions/materials to avoid: no data available
Hazardous Decomposition: no data available
no data available
no data available.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity no data available Chronic Toxicity no data available

Routes of Exposure:

Skin Exposure: May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation. Inhalation: May be harmful if inhaled. Ingestion: May be harmful if swallowed.

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

12. ECOLOGICAL INFORMATION

No data available

13. 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.

14. 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.

15. REGULATORY INFORMATION

OSHA: Not classified as hazardous. EU: Not classified as dangerous. Canadian DSL: Not Listed SARA 302, 313 Not Listed. SARA 311/312: Not Listed. Massachusetts Right To Know: Not Listed. Pennsylvania Right To Know: Not Listed.

New Jersey Right To Know: Not Listed.

California Prop. 65: Not Listed

16. OTHER INFORMATION



Material Safety Data Sheet (MSDS)

SDS #: 6883

Revision Date: 2011-08-08

Version 4.01

1. PRODUCT AND COMPANY IDENTIFICATION

Product Code(s)

Pure substance/preparation Substance Preparation

Identified uses For research use only, Not for use in humans.

Manufacturer

Cell Signaling Technology, Inc.

3 Trask Lane Danvers, MA 01923 TEL: 978-867-2300

Emergency telephone In case of emergency call CHEMTREC 1-800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview

May cause central nervous system depression Causes respiratory tract, eye, and skin irritation.

May be harmful if swallowed

Appearance Clear Physical State liquid Odor No information available

OSHA Regulatory Status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR

1910.1200).

Potential Health Effects

Acute Toxicity

Eyes Irritating to eyes. Skin Irritating to skin.

Inhalation Irritating to respiratory system. Exposure to decomposition products may cause a health hazard.

Serious effects may be delayed following exposure.

Ingestion Harmful if swallowed.

Chronic Effects

Chronic toxicityContains material that can cause target organ damage.

Aggravated Medical Conditions Central nervous system Pre-existing eye disorders. Skin disorders Respiratory disorders Use of

alcoholic beverages may enhance toxic effects

Interactions with Other Chemicals

Environmental hazard

Use of alcoholic beverages may enhance toxic effects See Section 12 for additional Ecological Information.

SDS #: 6883

Revision Date: 2011-08-08

Version 4.01

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components

Chemical Name	CAS-No	Weight %
Ethylene glycol	107-21-1	1- 3

Chemical Name	CAS-No	Weight %	EC-No
Tris (hydroxymethyl)aminomethane	77-86-1	1- 3	201-064-4
Ethylene glycol	107-21-1	1- 3	203-473-3
Non-hazardous proprietary solution	N/A	<0.05	-

4. FIRST AID MEASURES

Eye contact Rinse immediately with plenty of water and seek medical advice.

Skin contact Rinse immediately with plenty of water and seek medical advice.

Inhalation Move to fresh air.

Ingestion Never give anything by mouth to an unconscious person. Clean mouth with water.

Notes to physician Ingestion, depending on the dose, can cause i.a. abnormal behaviour, unconsciousness, convulsions,

respiratory paralysis, pulmonary oedemas, as well as damages to liver and kidneys and can lead, in the worst case, to death. A quick treatment of an ethylene-glycol intoxication, when necessary with haemodialysis, may reduce the toxical effects. Intravenous ethyl alcohol in sodium bicarbonate solution

is an approved antitoxin. Rinse mouth.

5. FIRE-FIGHTING MEASURES

Flammable Properties
Suitable Extinguishing Media
Protective Equipment and Precautions for Firefighters

Not flammable.

Dry chemical, CO, alcohol-resistant foam or water spray.

As in any fire, wear self-contained breathing apparatus pressure-demand,

MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA Health Hazard 2 Flammability 0 Stability 0 Physical and chemical hazards -

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Avoid contact with skin, eyes and clothing.

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Prevent product from entering drains.

SDS #: 6883

Revision Date: 2011-08-08

Version 4.01

7. HANDLING AND STORAGE

Advice on safe handling Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice.

Technical measures/Storage conditions Keep container tightly closed. Recommended storage temperature 22 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established

by the region specific regulatory bodies.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ethylene glycol	Ceiling: 100 mg/m ³	(vacated) Ceiling: 50 ppm (vacated)	
107-21-1		Ceiling: 125 mg/m ³	

Engineering Measures Showers, eyewash stations, and ventilation systems.

Hygiene measures When using, do not eat, drink or smoke Wear suitable gloves and eye/face protection Wash hands

before breaks and at the end of workday Wash hands with water as a precaution Regular cleaning of

equipment, work area and clothing is recommended Avoid breathing vapors, mist or gas

Personal Protective Equipment

Respiratory protection None required under normal usage. If exposure limits are exceeded or irritation is experienced,

NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be

provided in accordance with current local regulations.

Eye/Face Protection Safety glasses with side-shields

Skin and body protection Protective gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical StateliquidAppearanceClearColorlight pink

Odor No information available

pH pH 9.5

SolubilityNo information availableMelting point/rangeNo information availableBoiling Point/RangeNo information available

No information available Flash point **Autoignition temperature** No information available Flammability Limits in Air No information available **Explosive properties** No information available **VOC Content** No information available **Initial Boiling Point** No information available **Evaporation Rate** No information available **Decomposition Temperature °C** No information available _____

SDS #: 6883

Revision Date: 2011-08-08

Version 4.01

10. STABILITY AND REACTIVITY

Stability Stable under normal conditions.

Conditions to Avoid No information available

Hazardous Decomposition Products None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Caution - substance not yet tested completely

Ingestion Ingestion constitutes the main danger because of the toxicity of ethylene glycol Accidental ingestion

may be hamful to the central nervous system Ingestion is followed first by digestive disorders (nausea, vomiting, abdominal pain), then by loss of muscular coordination, convulsions, headaches, and dizzy spells, preceding serious nervous disorders. This develops into a state of torpor and then coma, at times accompanied by convulsions. High metabolic acidosis (oxalic acid) leads to affliction of the renal ducts, with anuresis Intoxication can lead to a coma with metabolic acidosis that may be fatal.

Chronic toxicity Carcinogenicity Contains material that can cause target organ damage. There are no known carcinogenic chemicals in this product.

Target Organ Effects Central nervous system (CNS), Eyes, Respiratory system, Skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to	Toxicity to daphnia and
		-	microorganisms	other aquatic invertebrates
Ethylene glycol			EC50 = 620 mg/L 30 min	
, ,			EC50 = 10000 mg/L 16 h	
			EC50 = 620.0 mg/L 30 min	

Persistence and degradability No information available.

Bioaccumulation No information available.

Mobility No information available.

Chemical Name	log Pow
Ethylene glycol	-1.93

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods

Dispose of in accordance with all applicable national environmental laws and regulations.

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Revision Date: 2011-08-08

Version 4.01

14. TRANSPORT INFORMATION

DOTNot regulatedMEXNot regulatedIATANot regulated

15. REGULATORY INFORMATION

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

International Inventories

 TSCA

 DSL/NDSL

 EINECS/ELINCS

 ENCS

 IECSC

 KECL

 PICCS

 AICS

 NZIOC

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Ethylene glycol	107-21-1	1- 3	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard No
Chronic Health Hazard No
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

1000.						
Chemical Name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Ethylene glycol	107-21-1	1- 3		Group I		

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	1
Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	

Eth

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5000 lb	

TSCA

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated by state right-to-know regulations.

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ethylene glycol	X	X	X	X	X

International Regulations

Mexico - Grade No information available.

Chemical Name	Carcinogen Status	Exposure Limits
Ethylene glycol		Mexico: Ceiling 100 mg/m ³

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

Not Determined

Legend

NPRI - National Pollutant Release Inventory

INFINE NATIONAL FOILULANT RElease inventory			
Component	NPRI		
Ethylene glycol	X		
107-21-1 (1- 3)			

16. OTHER INFORMATION

Revision Date: 2011-08-08

Revision Note No information available.

Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text

End of Material Safety Data Sheet



Material Safety Data Sheet (MSDS)

SDS #: 6883B

Revision Date: 2011-08-08

Version 3

1. PRODUCT AND COMPANY IDENTIFICATION

Product Code(s) 6883

Product Name SignalFire ECL (TM) Reagent B

Pure substance/preparation Substance Preparation

Identified uses For research use only, Not for use in humans.

Manufacturer

Cell Signaling Technology, Inc.

3 Trask Lane Danvers, MA 01923 TEL: 978-867-2300

Emergency telephone In case of emergency call CHEMTREC 1-800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview

The product contains no substances which at their given concentration, are considered to be hazardous to health.

Appearance colorless Physical State liquid Odor No information available

Potential Health Effects

Acute Toxicity

Eyes May cause slight irritation.

SkinNo known effect based on information supplied.InhalationNo known effect based on information supplied.IngestionNo known effect based on information supplied.

Chronic Effects

Chronic toxicity No known effect based on information supplied.

Aggravated Medical Conditions None known.

Environmental hazard See Section 12 for additional Ecological Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %	EC-No
Non-hazardous proprietary solution	N/A	NF	-

4. FIRST AID MEASURES

Eye contact Rinse immediately with plenty of water and seek medical advice.

Skin contact Rinse immediately with plenty of water and seek medical advice.

Inhalation Move to fresh air.

Ingestion Never give anything by mouth to an unconscious person. Clean mouth with water.

Cell Signaling Technology, Inc.

www.cellsignal.com

SDS #: 6883B

Revision Date: 2011-08-08

Version 3

5. FIRE-FIGHTING MEASURES

Flammable Properties
Suitable Extinguishing Media
Protective Equipment and Precautions for Firefighters

Not flammable.

Dry chemical, CO, alcohol-resistant foam or water spray.

As in any fire, wear self-contained breathing apparatus pressure-demand,

MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA Health Hazard 0 Flammability 0 Stability 0 Physical and chemical hazards -

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Avoid contact with skin, eyes and clothing.

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up No dangerous substances are released.

7. HANDLING AND STORAGE

Advice on safe handling Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice.

Technical measures/Storage conditions Keep container tightly closed. Recommended storage temperature 22 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established

by the region specific regulatory bodies.

Engineering Measures Showers, eyewash stations, and ventilation systems.

Hygiene measures When using, do not eat, drink or smoke Wear suitable gloves and eye/face protection Wash hands

before breaks and at the end of workday Wash hands with water as a precaution Regular cleaning of

equipment, work area and clothing is recommended Avoid breathing vapors, mist or gas

Personal Protective Equipment

Respiratory protection None required under normal usage. If exposure limits are exceeded or irritation is experienced,

NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be

provided in accordance with current local regulations.

Eye/Face Protection Safety glasses with side-shields

Skin and body protection Protective gloves.

SDS #: 6883B

Revision Date: 2011-08-08

Version 3

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State liquid
Appearance colorless
Color clear

Odor No information available

pH pH 4.9-5.1

Solubility
No information available
Melting point/range
No information available
Boiling Point/Range
No information available

No information available Flash point Autoignition temperature No information available Flammability Limits in Air No information available **Explosive properties** No information available **VOC Content** No information available **Initial Boiling Point** No information available **Evaporation Rate** No information available **Decomposition Temperature °C** No information available

10. STABILITY AND REACTIVITY

Stability Stable under normal conditions.

Conditions to Avoid No information available

Hazardous Decomposition Products None under normal use.

11. TOXICOLOGICAL INFORMATION

Caution - substance not yet tested completely

Carcinogenicity There are no known carcinogenic chemicals in this product.

Target Organ Effects None known.

12. ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Mobility No information available.

SDS #: 6883B

Revision Date: 2011-08-08

Version 3

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods

This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261).

14. TRANSPORT INFORMATION

DOT Not regulated

MEX Not regulated

IATA Not regulated

15. REGULATORY INFORMATION

OSHA Regulatory Status

While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product

International Inventories

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard No
Chronic Health Hazard No
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

SDS #: 6883B

Revision Date: 2011-08-08

Version 3

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

TSCA

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated by state right-to-know regulations.

International Regulations

Mexico - Grade

No information available.

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

Not Determined

16. OTHER INFORMATION

Revision Date: 2011-08-08

Revision Note No information available.

Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text

End of Material Safety Data Sheet