

MSDS Cover Page

Please refer to the following material safety data sheets for hazard and regulatory information specific to individual product components. This information can also be found on the Cell Signaling Technology, Inc. website cellsignal.com

Product #	Product Name
6883	SignalFire ECL (TM) Reagent

Component #	Description
6883 Component	SignalFire ECL (TM) Reagent A
6883 Component	SignalFire ECL (TM) Reagent B

1. PRODUCT AND COMPANY IDENTIFICATION

Product Code(s) 6883
Product Name SignalFire ECL (TM) Reagent A

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

Appearance Clear	Emergency Overview May cause central nervous system depression Causes respiratory tract, eye, and skin irritation. May be harmful if swallowed	Odor No information available
	Physical State liquid	

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 toxicity Contains 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 Use of alcoholic beverages may enhance toxic effects

Environmental hazard See Section 12 for additional Ecological Information.

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 toxic effects. Intravenous ethyl alcohol in sodium bicarbonate solution is an approved antitoxin. Rinse mouth.

5. FIRE-FIGHTING MEASURES

Flammable Properties	Not flammable.
Suitable Extinguishing Media	Dry chemical, CO, alcohol-resistant foam or water spray.
Protective Equipment and Precautions for Firefighters	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.

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 107-21-1	Ceiling: 100 mg/m ³	(vacated) Ceiling: 50 ppm (vacated) 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 State liquid
Appearance Clear
Color light pink
Odor No information available
pH pH 9.5
Solubility No information available
Melting point/range No information available
Boiling Point/Range No information available

Flash point No information available
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 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 harmful 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 Contains material that can cause target organ damage.
Carcinogenicity 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 microorganisms	Toxicity to daphnia and 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.

14. TRANSPORT INFORMATION

<u>DOT</u>	Not regulated
<u>MEX</u>	Not regulated
<u>IATA</u>	Not 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.

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	Eth
---------------	--------------------------	------------------------------------	-----

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

Component	NPRI
Ethylene glycol 107-21-1 (1- 3)	X

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

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

Appearance colorless	Emergency Overview The product contains no substances which at their given concentration, are considered to be hazardous to health.	Physical State liquid	Odor No information available
-----------------------------	---	------------------------------	--------------------------------------

Potential Health Effects

Acute Toxicity

Eyes	May cause slight irritation.
Skin	No known effect based on information supplied.
Inhalation	No known effect based on information supplied.
Ingestion	No 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.

5. FIRE-FIGHTING MEASURES

Flammable Properties Not flammable.
Suitable Extinguishing Media Dry chemical, CO, alcohol-resistant foam or water spray.
Protective Equipment and Precautions for Firefighters 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.

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
Flash point	No information available
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.

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

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 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.

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