



Safety Data Sheet - Cover Page

The products listed below meet the criteria for classification as hazardous in accordance with The Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Please refer to the indicated Safety Data Sheet (SDS) for information concerning hazards and appropriate protective measures. SDS for products not classified as hazardous are available on request. Visit www.cellsignal.com for additional technical information and support.

Kit No.	Product name
73159	Immunoprecipitation Application Solutions Kit

Kit Component No.	Product name
9863S	Protein A Agarose Beads
9803S	Cell Lysis Buffer (10X)
8553S	PMSF
7722S	Blue Loading Buffer Pack
7016L	DTT (Dithiothreitol)



Safety Data Sheet (SDS) According to the OSHA Hazard Communication Standard 29 CFR 1910.1200
Issuing Date: 2015-11-13 **Revision Date:** 2015-11-13

Version: 1

SECTION 1. Identification

Product identifier

Product number 9863
Product name Protein A Agarose Beads
Description Protein A Agarose Beads are an affinity matrix for the small-scale isolation of immunocomplexes from immunoprecipitations (IP assays).
Other means of identification 9863P, 9863S

Recommended use of the chemical and restrictions on use

Identified uses This product is intended for research purposes only.
Uses advised against This product is not intended for use in diagnostic procedures or therapeutics.
 This product is not intended for use in humans or animals.

Manufacturer, importer, supplier

Manufacturer address Cell Signaling Technology, Inc.
 3 Trask Lane
 Danvers, MA 01923
 United States
 TEL: +1 978 867 2300
 FAX: +1 978 867 2400
Website www.cellsignal.com
Email address support@cellsignal.com
Emergency telephone number In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification

Classification

This substance/mixture is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation	Category 2B
Flammable liquids	

GHS Label elements, including precautionary statements



Signal Word
Warning

Hazard statement(s)
 Flammable liquid and vapor.
 Causes eye irritation.

Precautionary Statement(s)

Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Keep container tightly closed. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves/protective clothing/eye protection/face protection. Wash face, hands and any exposed skin thoroughly after handling.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Supplementary Hazard Information

No information available.

Hazards not otherwise classified (HNOC)

Not applicable.

SECTION 3. Composition/information on ingredients

Formula CH₃CH₂OH
Chemical nature Ethanol solution
Synonyms Ethyl alcohol; Alcohol, ethyl; Aethanol; Ethylalcohol; Etylowy alkohol

Chemical Name	CAS No	Weight %
ethanol	64-17-5	10 - 30

SECTION 4. First-aid measures

Eye contact Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.

Skin contact Immediate medical attention is not required. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. If symptoms persist, call a physician.

Inhalation Move to fresh air in case of accidental inhalation of vapors. Immediate medical attention is not required. If symptoms persist, call a physician. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Ingestion Clean mouth with water. Drink plenty of water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician. If swallowed, do not induce vomiting - seek medical advice.

Most important symptoms and effects, both acute and delayed

Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Advice for emergency responders

General advice If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance.

Protection of first-aiders Use personal protective equipment.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable Extinguishing Media Cool containers / tanks with water spray. Use: Dry chemical. Carbon dioxide (CO₂). Water spray. Alcohol-resistant foam.

Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

Keep product and empty container away from heat and sources of ignition. Risk of ignition.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

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.

SECTION 6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel Remove all sources of ignition. Take precautionary measures against static discharges. Use personal protective equipment. Heat, flames and sparks. Ensure adequate ventilation.

Other information No information available.

Environmental precautions

Do not flush into surface water or sanitary sewer system. Prevention of fire and explosion. A vapor suppressing foam may be used to reduce vapors. Try to prevent the material from entering drains or water courses. Do not allow material to contaminate ground water system. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

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

Methods for cleaning up Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Take precautionary measures against static discharges.

SECTION 7. Handling and storage**Precautions for safe handling**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only in an area containing flame proof equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Use only in area provided with appropriate exhaust ventilation. Wear personal protective equipment. Prevent the formation of vapors, mists and aerosols. There is a hazard associated with rags, paper or any other material used to remove spills which become soaked with product. Avoid accumulation of these: they are to be disposed off safely after use. Avoid static electricity build up with connection to earth.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Packaging material No information available.

Incompatible products Reacts slowly with calcium hypochlorite, silver oxide and ammonia. Reacts violently with strong oxidants such as nitric acid, silver nitrate, mercuric nitrate or magnesium perchlorate.

SECTION 8. Exposure controls/personal protection**Control parameters**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH REL
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ethanol	STEL 1000 ppm	TWA : 1000 ppm TWA : 1900 mg/m ³	IDLH : 3300 ppm TWA : 1000 ppm TWA : 1900 mg/m ³
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(vacated) = Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Personal protective equipment (PPE) needs to be selected depending on the implemented engineering controls, frequency/duration of work activities and the concentrations of the hazardous substance.

Eye/face protection	Tightly fitting safety goggles.
Skin and body protection	Wear protective gloves/clothing.
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hygiene measures	When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

SECTION 9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid	Color	Clear with white suspended solids
Appearance	Suspension	Odor Threshold	No information available
Odor	Alcohol		
Property	Values	Remarks	Method
pH	No information available		
Melting point/freezing point			
Initial boiling point and boiling range			
Flash point	37.8 °C / 100 °F		
Evaporation rate	No information available		
Flammability (solid, gas)	No information available		
Upper flammability limit			
Upper flammability limit	No information available		
Lower flammability limit	No information available		
Vapor pressure	No information available		
Vapor density	No information available		
Relative density	No information available		
Solubility	No information available.		
Solubility in other solvents	No information available.		
Partition coefficient: n-octanol/water	No information available		
Autoignition temperature	No information available		
Decomposition temperature	No information available		
Viscosity	No information available		
Viscosity, dynamic	No information available		
Explosive properties	No information available		
Oxidizing properties	No information available		
Other information			
Softening point	No information available		
Molecular Weight	No information available		
VOC content	No information available		
Density	No information available.		

Bulk Density VALUE No information available.

SECTION 10. Stability and reactivity

Reactivity

Reacts with incompatible materials causing a fire and explosion hazard.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Hazardous reactions Vapors may form explosive mixtures with air. Exothermic reaction possible with strong oxidizers.

Hazardous polymerization None under normal processing.

Conditions to Avoid

Heat, flames and sparks. Heating in air.

Incompatible Materials

Reacts slowly with calcium hypochlorite, silver oxide and ammonia. Reacts violently with strong oxidants such as nitric acid, silver nitrate, mercuric nitrate or magnesium perchlorate.

Hazardous Decomposition Products

None known based on information supplied.

SECTION 11. Toxicological information

Information on likely routes of exposure

Inhalation There is no data available for this product.

Eye contact May cause temporary eye irritation.

Skin contact There is no data available for this product.

Ingestion There is no data available for this product.

Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
ethanol	7060 (Rat)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Sensitization No information available.

Mutagenic effects No information available.

Carcinogenicity This product is not intended for human consumption. Therefore the IARC, NTP and OSHA carcinogenic classification is not relevant for this product.

Chemical Name	IARC	NTP	OSHA

ethanol 64-17-5	1	Known	X
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Legend:

IARC: (International Agency for Research on Cancer) Group 1 - Carcinogenic to Humans

NTP: (National Toxicity Program) Known - Known Carcinogen

OSHA: (Occupational Safety & Health Administration) X - Present

Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Target Organ Effects	Blood, Reproductive system, Central nervous system (CNS), Eyes, Respiratory system, Liver, Skin.
Neurological effects	No information available.
Aspiration Hazard	No information available.

SECTION 12. Ecological information

Ecotoxicity

50% of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
ethanol	-	LC50 100 mg/L (Pimephales promelas) 96 h LC50 13400 - 15100 mg/L (Pimephales promelas) 96 h LC50 12.0 - 16.0 mL/L (Oncorhynchus mykiss) 96 h	EC50 2 mg/L (Daphnia magna) 48 h EC50 10800 mg/L (Daphnia magna) 24 h LC50 9268 - 14221 mg/L (Daphnia magna) 48 h

Persistence and degradability	No information available.
Bioaccumulation	Not likely to bioaccumulate.
Mobility	Will likely be mobile in the environment due to its water solubility

Chemical Name	Octanol-Water Partition Coefficient
ethanol	-0.32

Other adverse effects

No information available.

SECTION 13. Disposal considerations

Waste Disposal Methods

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

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14. Transport information

This material is not subject to regulation as a hazardous material for shipping.

SECTION 15. Regulatory information

North American Inventory Listing

Chemical Name	TSCA 8(b)	TSCA 12(b)	DSL	NDSL
ethanol	Listed	Not Listed	Listed	Not Listed

Canadian Workplace Hazardous Materials Information System (WHMIS) Classification

This product does not meet the criteria for classification under the Hazardous Products Act.

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	Yes
Chronic Health Hazard	No
Fire Hazard	Yes
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).

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.

California Proposition 65

Ethanol is only considered a Proposition 65 cancer hazard when it is ingested as a beverage. Ethyl alcohol is only considered a Proposition 65 developmental hazard when it is ingested as a beverage.

Chemical Name	California Prop. 65
ethanol	Carcinogen Developmental

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
ethanol	Listed	Listed	Listed

U.S. FIFRA Label Information

This product does not contain any substances regulated as pesticides.

US Commerce Department - Export Administration Regulations Information

This product does not contain any substances regulated under the Chemical Weapons Convention (CWC).

U.S. Drug Enforcement Administration Information

This product does not contain any substances regulated under the DEA.

SECTION 16. Other information

Issuing Date: 2014-02-12

Revision Date: 2015-11-13

Disclaimer

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet



Cell Signaling

TECHNOLOGY®

SAFETY DATA SHEET (SDS): According to the OSHA Hazard Communication Standard 29 CFR 1910.1200

Issuing Date: 2014-01-30

Revision Date: 2014-01-30

Version: 1

SECTION 1. Identification

Product identifier

Product No. 9803
Product name Cell Lysis Buffer (10X)
Other means of identification 9803BC, 9803M, 9803P2, 9803S.

Recommended use of the chemical and restrictions on use

Identified uses This product is intended for research purposes only.
Uses advised against This product is not intended for use in diagnostic procedures or therapeutics.
This product is not intended for use in humans or animals.

Manufacturer, importer, supplier

Manufacturer address Cell Signaling Technology, Inc.
3 Trask Lane
Danvers, MA 01923
TEL: +1 978 867 2300
FAX: +1 978 867 2400

Website www.cellsignal.com
Email address support@cellsignal.com
Company phone number 978-867-2300
Emergency telephone number In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation

Category 2A

GHS Label elements, including precautionary statements



Signal Word
Warning

Hazard statement(s)

Causes serious eye irritation.

Precautionary Statement(s)

Wash face, hands and any exposed skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention

Supplementary Hazard Information

Hazards not otherwise classified (HNOC) None

Unknown Acute Toxicity 2.46% of the mixture consists of ingredient(s) of unknown toxicity.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous surfactant solution of inorganic and organic compounds.
Common name No information available.
Synonyms No information available.

Chemical Name	CAS No.	Weight %
trisodium tetraoxovanadate	13721-39-6	0.1-1
tetrasodium pyrophosphate, decahydrate	13472-36-1	0.5-1.5
Poly(oxy-1,2-ethanediyl), alpha-(4-(1,1,3,3-tetramethylbutyl)phenyl)-omega-hydroxy-	9002-93-1	5-10

SECTION 4. First-aid measures

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
Skin contact Wash off immediately with plenty of water for at least 15 minutes. If symptoms persist, call a physician.
Inhalation Move to fresh air. If symptoms persist, call a physician.
Ingestion Immediate medical attention is not required. Rinse mouth. Drink plenty of water. Do NOT induce vomiting. If swallowed, do not induce vomiting - seek medical advice. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes.

Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

Advice for emergency responders

General advice Immediate medical attention is not required. Show this safety data sheet to the doctor in attendance.
Protection of First-aiders Use personal protective equipment.

SECTION 5. Fire-fighting measures

Extinguishing media

- Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable Extinguishing Media** CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

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.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** Use personal protective equipment. Avoid contact with the skin and the eyes.
- Other information** No information available.

Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

- Methods for containment** Prevent further leakage or spillage if safe to do so.
- Methods for cleaning up** Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. After cleaning, flush away traces with water. Prevent product from entering drains.

SECTION 7. Handling and storage

Precautions for safe handling

Ensure adequate ventilation. Wear personal protective equipment.

Conditions for safe storage, including any incompatibilities

- Technical measures/Storage conditions** Keep container tightly closed. Keep out of the reach of children.
- Packaging material** No information available.
- Incompatible products** Strong oxidizing agents, strong acids, and strong bases.

SECTION 8. Exposure controls/personal protection

Control parameters

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH REL
trisodium tetraoxovanadate 13721-39-6	-	-	Ceiling: 0.05 mg/m ³ (Listed as: Vanadium dust)
tetrasodium pyrophosphate, decahydrate 13472-36-1	-	(vacated) TWA: 5 mg/m ³	TWA: 5 mg/m ³ (Listed as: Tetrasodium pyrophosphate)

(vacated) = Vacated limits revoked by the Court of Appeals decision in *AFL-CIO v. OSHA*, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection	Tightly fitting safety goggles.
Skin and body protection	Wear protective gloves/clothing.
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hygiene measures	When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use.

SECTION 9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Odor	No information available
Color	Colorless
Odor Threshold	No information available
pH	7.5
Melting point/freezing point	No information available
Initial boiling point and boiling range	No information available
Flash point	No information available
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Upper flammability limit	No information available
Lower flammability limit	No information available
Vapor pressure	No information available
Vapor density	No information available
Relative density	No information available
Solubility	No information available
Solubility in other solvents	No information available
Partition coefficient: n-octanol/water	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Explosive properties	No information available
Oxidizing properties	No information available
VOC content	No information available
Viscosity	No information available
Density	No information available

SECTION 10. Stability and reactivity

Reactivity

No information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Hazardous reactions	None under normal processing.
Hazardous polymerization	None under normal processing.

Conditions to Avoid

No information available.

Incompatible Materials

Strong oxidizing agents, strong acids, and strong bases.

Hazardous Decomposition Products

None known based on information supplied.

SECTION 11. Toxicological information**Information on likely routes of exposure**

Inhalation	There is no data available for this product.
Eye contact	May cause temporary eye irritation. Expected to be an irritant based on components.
Skin contact	There is no data available for this product.
Ingestion	There is no data available for this product.

Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
tetrasodium pyrophosphate, decahydrate 13472-36-1	> 2000 mg/kg (Rat)	-	-
Poly(oxy-1,2-ethanediyl), alpha-(4-(1,1,3,3-tetramethylbutyl)phenyl)-omega-hydroxy- 9002-93-1	= 1,800 mg/kg (Rat)	= 8,000 mg/kg (Rabbit)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms	Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes.
Corrosivity	No information available.
Sensitization	No information available.
Mutagenic effects	No information available.
Carcinogenicity	No component of this product present at levels greater than or equal to 0.1% is identifiable as probable, possible or confirmed carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity	No information available.
Developmental Toxicity	No information available.
Teratogenicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Target Organ Effects	Eyes, Respiratory system, Skin.
Neurological effects	No information available.

Aspiration Hazard	No information available.
Endocrine Disruptor Information	No information available.
Unknown Acute Toxicity	2.46% of the mixture consists of ingredient(s) of unknown toxicity.

SECTION 12. Ecological information

Ecotoxicity

4.021% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
tetrasodium pyrophosphate, decahydrate 13472-36-1	-	-	-
Poly(oxy-1,2-ethanediyl), alpha-(4-(1,1,3,3-tetramethylbutyl)phenyl)-omega-hydroxy- 9002-93-1	-	LC50: 8.9 mg/L (Pimephales promelas) 96 h	EC50: 26 mg/L (Daphnia) 48 h

Persistence and degradability	No information available.
Bioaccumulation	No information available.
Mobility	No information available

Other adverse effects

SECTION 13. Disposal considerations

Waste Disposal Methods

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

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14. Transport information

This material is not subject to regulation as a hazardous material for shipping.

SECTION 15. Regulatory information

All of the components in the product are on the following inventory lists:

TSCA	-
DSL	-
NDSL	Complies

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	Yes
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).

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
tetrasodium pyrophosphate, decahydrate 13472-36-1	Listed	Listed	Listed

U.S. EPA Label Information

This product does not contain any substances regulated as pesticides.

SECTION 16. Other information

Issuing Date: 2014-01-30
Revision Date: 2014-01-30
Disclaimer

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End of Safety Data Sheet



Cell Signaling

TECHNOLOGY®

SAFETY DATA SHEET (SDS): According to the OSHA Hazard Communication Standard 29 CFR 1910.1200

Issuing Date: 2014-01-30

Revision Date: 2014-01-30

Version: 1

SECTION 1. Identification

Product identifier

Product No. 8553
Product name PMSF
Packaging size 34.84 mg
UN number UN2928
Description Phenylmethanesulfonyl Fluoride (PMSF) is an inhibitor of serine proteases such as trypsin, chymotrypsin, thrombin, and papain. It is routinely added as a supplement to lysis buffers just prior to lysis, to prevent protease degradation.
Other means of identification 8553M, 8553S.

Recommended use of the chemical and restrictions on use

Identified uses This product is intended for research purposes only.
Uses advised against This product is not intended for use in diagnostic procedures or therapeutics. This product is not intended for use in humans or animals.

Manufacturer, importer, supplier

Manufacturer address Cell Signaling Technology, Inc.
3 Trask Lane
Danvers, MA 01923
TEL: +1 978 867 2300
FAX: +1 978 867 2400
Website www.cellsignal.com
Email address support@cellsignal.com
Company phone number 978-867-2300
Emergency telephone number In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 3
Skin corrosion/irritation	Category 1

GHS Label elements, including precautionary statements

**Signal Word**

Danger

Hazard statement(s)

Toxic if swallowed

Causes severe skin burns and eye damage

Precautionary Statement(s)

Do not breathe dust/fume/gas/mist/vapors/spray

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Wear protective gloves/protective clothing/eye protection/face protection IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Immediately call a POISON CENTER or doctor/physician

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Supplementary Hazard Information**Hazards not otherwise classified (HNOC)** Contact with water liberates toxic gas**SECTION 3. Composition/information on ingredients**

Formula	C ₇ H ₇ FO ₂ S
Chemical nature	Organic compound.
Common name	Phenylmethylsulfonyl fluoride
Synonyms	PMSF, Benzenemethanesulfonyl fluoride, Benzylsulfonyl fluoride, Phenylmethylsulfonyl fluoride.

Chemical Name	CAS No.	Weight %
alpha-toluenesulphonyl fluoride	329-98-6	100

SECTION 4. First-aid measures

Eye contact	Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.
Skin contact	Immediate medical attention is required. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
Inhalation	Immediate medical attention is required. Move to fresh air. If not breathing, give artificial respiration.
Ingestion	Do NOT induce vomiting. Immediate medical attention is required. Never give anything by mouth to an unconscious person. Drink plenty of water. Rinse mouth.

Most important symptoms and effects, both acute and delayed

No information or data specific to the product on this toxicological (health) effect is available.

Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

Advice for emergency responders

General advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Protection of First-aiders Use personal protective equipment. Avoid contact with skin, eyes and clothing.

SECTION 5. Fire-fighting measures**Extinguishing media**

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

Water hydrolyzes material liberating acidic gas. Contact with metals may evolve flammable hydrogen gas.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

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.

SECTION 6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel Ensure adequate ventilation. Use personal protective equipment. Avoid contact with the skin and the eyes. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Other information DO NOT GET WATER on spilled substance or inside containers.

Environmental precautions

Do not flush into surface water or sanitary sewer system. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

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

Methods for cleaning up Use personal protective equipment. Clean contaminated surface thoroughly. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically and collect in suitable container for disposal. Avoid dust formation.

SECTION 7. Handling and storage**Precautions for safe handling**

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions	Keep container tightly closed in a dry and well-ventilated place. Keep away from heat.
Packaging material	No information available.
Incompatible products	Strong oxidizing agents, Bases, Water.

SECTION 8. Exposure controls/personal protection**Control parameters**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection	Safety glasses with side-shields. If splashes are likely to occur, wear: Tightly fitting safety goggles.
Skin and body protection	Wear protective gloves/clothing.
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hygiene measures	When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use.

SECTION 9. Physical and chemical properties**Information on basic physical and chemical properties**

Physical state	Solid
Appearance	Crystalline powder
Odor	No information available
Color	White to off-white, light yellow
Odor Threshold	No information available
pH	No information available
Melting point/freezing point	92 °C
Initial boiling point and boiling range	No information available
Flash point	No information available
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Upper flammability limit	No information available
Lower flammability limit	No information available
Vapor pressure	No information available
Vapor density	No information available
Relative density	No information available
Solubility	No information available
Solubility in other solvents	No information available
Partition coefficient: n-octanol/water	No information available

Autoignition temperature	No information available
Decomposition temperature	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Molecular Weight	174.1943
VOC content	No information available
Viscosity	No information available
Density	No information available

SECTION 10. Stability and reactivity

Reactivity

No information available.

Chemical stability

Reacts with water.

Possibility of hazardous reactions

Hazardous reactions	Reacts with water to produce toxic and corrosive gas.
Hazardous polymerization	None under normal processing.

Conditions to Avoid

Incompatible products. Extremes of temperature and direct sunlight.

Incompatible Materials

Strong oxidizing agents, Bases, Water.

Hazardous Decomposition Products

Carbon oxides, Sulfur oxides, Hydrogen fluoride.

SECTION 11. Toxicological information

Information on likely routes of exposure

Inhalation	Contact with moist mucous membranes of the respiratory system can cause caustic condition resulting in burns.
Eye contact	May cause irreversible damage to eyes.
Skin contact	Contact with moist skin may cause skin burns.
Ingestion	Ingestion causes burns of the upper digestive and respiratory tract. Toxic if swallowed.

Information on toxicological effects

Product is toxic by ingestion. This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
alpha-toluenesulphonyl fluoride 329-98-6	200 (mg/kg) (mice)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms	Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate.
Corrosivity	This product is corrosive to living tissue.
Sensitization	No information available.
Mutagenic effects	No information available.
Carcinogenicity	No component of this product present at levels greater than or equal to 0.1% is identifiable as probable, possible or confirmed carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity	No information available.
Developmental Toxicity	No information available.
Teratogenicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Neurological effects	No information available.
Aspiration Hazard	No information available.
Endocrine Disruptor Information	No information available.

SECTION 12. Ecological information

Ecotoxicity

100% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Persistence and degradability	No information available.
Bioaccumulation	No information available.
Mobility	No information available

Other adverse effects

No information available.

SECTION 13. Disposal considerations

Waste Disposal Methods

Should not be released into the environment.

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14. Transport information

DOT

UN number	UN2928
Transport hazard class(es)	6.1
Subsidiary Class	8
Packing Group	II
Description	UN2928, Toxic solid, corrosive, organic, n.o.s (alpha-Toluenesulfonyl fluoride), 6.1 (8), II,

Emergency Response Guide Number 154

IATA

UN number UN2928
Transport hazard class(es) 6.1
Subsidiary hazard class 8
Packing Group II
ERG Code 6C
Special precautions for user A5
Description UN2928, Toxic solid, corrosive, organic, n.o.s (alpha-Toluenesulfonyl fluoride), 6.1 (8), II

IMDG/IMO

UN number UN2928
Transport hazard class(es) 6.1
Subsidiary hazard class 8
Packing group II
EmS No. F-A, S-B
Description UN2928, Toxic solid, corrosive, organic, n.o.s (alpha-Toluenesulfonyl fluoride), 6.1 (8), II

SECTION 15. Regulatory information

All of the components in the product are on the following inventory lists:

TSCA	Complies
DSL	Complies
NDSL	Complies

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

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).

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.

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
alpha-toluenesulphonyl fluoride 329-98-6	Not Listed	Not Listed	Not Listed

U.S. EPA Label Information

This product does not contain any substances regulated as pesticides.

SECTION 16. Other information

Issuing Date: 2014-01-30

Revision Date: 2014-01-30

Disclaimer

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet



Cell Signaling

TECHNOLOGY®

SAFETY DATA SHEET (SDS): According to the OSHA Hazard Communication Standard 29 CFR 1910.1200

Issuing Date: 2014-01-31

Revision Date: 2014-01-31

Version: 1

SECTION 1. Identification

Product identifier

Product No. 7722-1
Product name 3X Blue Loading Buffer
Description The Blue Loading Buffer Pack is used to lyse cells for Western blotting analysis.
Other means of identification 7722M, 7722S.

Recommended use of the chemical and restrictions on use

Identified uses This product is intended for research purposes only.
Uses advised against This product is not intended for use in diagnostic procedures or therapeutics.
This product is not intended for use in humans or animals.

Manufacturer, importer, supplier

Manufacturer address Cell Signaling Technology, Inc.
3 Trask Lane
Danvers, MA 01923
TEL: +1 978 867 2300
FAX: +1 978 867 2400
Website www.cellsignal.com
Email address support@cellsignal.com
Company phone number 978-867-2300
Emergency telephone number In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1

GHS Label elements, including precautionary statements



Signal Word
Danger

Hazard statement(s)

Causes serious eye damage
Causes skin irritation

Precautionary Statement(s)

Wash face, hands and any exposed skin thoroughly after handling. Wear protective gloves/eye protection/face protection

IF ON SKIN: Wash with plenty of soap and water

If skin irritation occurs: Get medical advice/attention

Take off contaminated clothing and wash before reuse

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Immediately call a POISON CENTER or doctor/physician

Supplementary Hazard Information

Hazards not otherwise classified (HNOC) None

Unknown Acute Toxicity 1.99% of the mixture consists of ingredient(s) of unknown toxicity.

SECTION 3. Composition/information on ingredients

Common name No information available
Synonyms No information available.

Chemical Name	CAS No.	Weight %
sodium dodecyl sulphate	151-21-3	5-10
glycerol	56-81-5	30-60

SECTION 4. First-aid measures

Eye contact Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.

Skin contact Consult a physician if necessary. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation Move to fresh air. Consult a physician. If not breathing, give artificial respiration.

Ingestion Rinse mouth. Drink plenty of water. If symptoms persist, call a physician. Do NOT induce vomiting. If swallowed, do not induce vomiting - seek medical advice. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes.

Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

Advice for emergency responders

General advice If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance. Do not breathe dust/fume/gas/mist/vapors/spray.

Protection of First-aiders Use personal protective equipment.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

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.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Ensure adequate ventilation.

Other information No information available.

Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

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

Methods for cleaning up Cover liquid spill with sand, earth or other noncombustible absorbent material. Cover powder spill with plastic sheet or tarp to minimize spreading. Pick up and transfer to properly labeled containers.

SECTION 7. Handling and storage

Precautions for safe handling

Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Prevent the formation of vapors, mists and aerosols. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Packaging material No information available.

Incompatible products Strong oxidizing agents.

SECTION 8. Exposure controls/personal protection

Control parameters

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH REL
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glycerol 56-81-5	TWA: 10 mg/m ³	TWA: 15 mg/m ³ (total) TWA: 5 mg/m ³ (resp) (vacated) TWA: 10 mg/m ³ (total) (vacated) TWA: 5 mg/m ³ (resp)	-
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(total) = Total dust

(resp) = Respirable fraction

(vacated) = Vacated limits revoked by the Court of Appeals decision in *AFL-CIO v. OSHA*, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection	Tightly fitting safety goggles.
Skin and body protection	Wear protective gloves/clothing.
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hygiene measures	Do not eat, drink or smoke when using this product.

SECTION 9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Odor	No information available
Color	Blue
Odor Threshold	No information available
pH	No information available
Melting point/freezing point	No information available
Initial boiling point and boiling range	No information available
Flash point	No information available
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Upper flammability limit	No information available
Lower flammability limit	No information available
Vapor pressure	No information available
Vapor density	No information available
Relative density	No information available
Solubility	No information available
Solubility in other solvents	No information available
Partition coefficient: n-octanol/water	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Explosive properties	No information available
Oxidizing properties	No information available
VOC content	No information available
Viscosity	No information available
Density	No information available

SECTION 10. Stability and reactivity

Reactivity

No information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Hazardous reactions None under normal processing.
Hazardous polymerization None under normal processing.

Conditions to Avoid

No information available.

Incompatible Materials

Strong oxidizing agents.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating gases and vapors: Sulfur oxides, Sodium oxides: Acrolein.

SECTION 11. Toxicological information**Information on likely routes of exposure**

Inhalation Not an expected route of exposure.
Eye contact May cause irreversible damage to eyes.
Skin contact Irritating to skin.
Ingestion Not an expected route of exposure. Low order of toxicity based on components.

Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
sodium dodecyl sulphate 151-21-3	= 1288 mg/kg (Rat)	= 580 mg/kg (Rabbit)	> 3900 mg/m ³ (Rat) 1 h
glycerol 56-81-5	= 12600 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes.

Corrosivity No information available.

Sensitization No information available.

Mutagenic effects No information available.

Carcinogenicity No component of this product present at levels greater than or equal to 0.1% is identifiable as probable, possible or confirmed carcinogen by IARC, ACGIH, NTP, or OSHA.

Reproductive toxicity No information available.

Developmental Toxicity No information available.

Teratogenicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target Organ Effects	Eyes, Respiratory system, Kidney, Skin.
Neurological effects	No information available.
Aspiration Hazard	No information available.
Endocrine Disruptor Information	No information available.
Unknown Acute Toxicity	1.99% of the mixture consists of ingredient(s) of unknown toxicity.

SECTION 12. Ecological information

Ecotoxicity

1.99% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
sodium dodecyl sulphate 151-21-3	EC50: 3.59 - 15.6 mg/L (Pseudokirchneriella subcapitata) 96 h	LC50: 1.31 mg/L (Cyprinus carpio) 96 h LC50: 4.62 mg/L (Oncorhynchus mykiss) 96 h	EC50: 1.8 mg/L (Daphnia magna) 48 h
glycerol 56-81-5	-	LC50: 51 - 57 mL/L (Oncorhynchus mykiss) 96 h	EC50: 500 mg/L (Daphnia magna) 24 h

Persistence and degradability	No information available.
Bioaccumulation	Most components of this material are unlikely to bioaccumulate but some have not been tested.
Mobility	No information available

Chemical Name	Octanol-Water Partition Coefficient
sodium dodecyl sulphate 151-21-3	1.6
glycerol 56-81-5	-1.76

Other adverse effects

No information available.

SECTION 13. Disposal considerations

Waste Disposal Methods

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

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14. Transport information

This material is not subject to regulation as a hazardous material for shipping.

SECTION 15. Regulatory information

All of the components in the product are on the following Inventory lists:

TSCA	Complies
DSL	-
NDSL	-

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	Yes
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).

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.

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
sodium dodecyl sulphate 151-21-3	Not Listed	Not Listed	Not Listed
glycerol 56-81-5	Listed	Listed	Listed

U.S. EPA Label Information

This product does not contain any substances regulated as pesticides.

SECTION 16. Other information

Issuing Date: 2014-01-31
Revision Date: 2014-01-31
Disclaimer

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet



Cell Signaling

TECHNOLOGY®

SAFETY DATA SHEET (SDS): According to the OSHA Hazard Communication Standard 29 CFR 1910.1200

Issuing Date: 2014-01-31

Revision Date: 2014-01-31

Version: 1

SECTION 1. Identification

Product identifier

Product No. 7722-2
Product name 30X Reducing Agent
Description The Blue Loading Buffer Pack is used to lyse cells for Western blotting analysis.
Other means of identification 7722M, 7722S.

Recommended use of the chemical and restrictions on use

Identified uses This product is intended for research purposes only.
Uses advised against This product is not intended for use in diagnostic procedures or therapeutics.
This product is not intended for use in humans or animals.

Manufacturer, importer, supplier

Manufacturer address Cell Signaling Technology, Inc.
3 Trask Lane
Danvers, MA 01923
TEL: +1 978 867 2300
FAX: +1 978 867 2400
Website www.cellsignal.com
Email address support@cellsignal.com
Company phone number 978-867-2300
Emergency telephone number In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2

GHS Label elements, including precautionary statements



Signal Word
Warning

Hazard statement(s)

Causes skin irritation. Causes serious eye irritation.

Precautionary Statement(s)

Wash hands thoroughly after handling. Wear protective gloves/eye protection/face protection.

IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Supplementary Hazard Information

Hazards not otherwise classified (HNOC) None

SECTION 3. Composition/information on ingredients

Common name No information available
Synonyms No information available.

Chemical Name	CAS No.	Weight %
(R*,R*)-1,4-dimercaptobutane-2,3-diol	3483-12-3	15-40

SECTION 4. First-aid measures

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact Wash skin with soap and water.
Inhalation Move to fresh air.
Ingestion If swallowed, do not induce vomiting - seek medical advice.

Most important symptoms and effects, both acute and delayed

Irritating material.

Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

Advice for emergency responders

General advice For further assistance, contact your local Poison Control Center.
Protection of First-aiders Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

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.

SECTION 6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel Ensure adequate ventilation.

Other information No information available.

Environmental precautions

See Section 12 for additional information.

Methods and material for containment and cleaning up

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

Methods for cleaning up Pick up and transfer to properly labeled containers.

SECTION 7. Handling and storage**Precautions for safe handling**

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Packaging material No information available.

Incompatible products None known based on information supplied.

SECTION 8. Exposure controls/personal protection**Control parameters**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Safety glasses with side-shields.

Skin and body protection Wear protective gloves/clothing.

Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Odor	Rotten-egg like
Color	Colorless
Odor Threshold	No information available
pH	No information available
Melting point/freezing point	No information available
Initial boiling point and boiling range	No information available
Flash point	No information available
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Upper flammability limit	No information available
Lower flammability limit	No information available
Vapor pressure	No information available
Vapor density	No information available
Relative density	No information available
Solubility	No information available
Solubility in other solvents	No information available
Partition coefficient: n-octanol/water	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Explosive properties	No information available
Oxidizing properties	No information available
VOC content	No information available
Viscosity	No information available
Density	No information available

SECTION 10. Stability and reactivity

Reactivity

No information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Hazardous reactions	None under normal processing.
Hazardous polymerization	None under normal processing.

Conditions to Avoid

No information available.

Incompatible Materials

None known based on information supplied.

Hazardous Decomposition Products

None known based on information supplied.

SECTION 11. Toxicological information

Information on likely routes of exposure

Inhalation	This product exhibits very strong odor characteristics.
Eye contact	Expected to be an irritant based on components.
Skin contact	Expected to be an irritant based on components.
Ingestion	Not an expected route of exposure.

Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
(R*,R*)-1,4-dimercaptobutane-2,3-diol 3483-12-3	= 400 mg/kg (Rat)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms	Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes.
Corrosivity	No information available.
Sensitization	No information available.
Mutagenic effects	No information available.
Carcinogenicity	No component of this product present at levels greater than or equal to 0.1% is identifiable as probable, possible or confirmed carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity	No information available.
Developmental Toxicity	No information available.
Teratogenicity	No information available.
STOT - single exposure	Respiratory system.
STOT - repeated exposure	No information available.
Target Organ Effects	Respiratory system, Eyes, Skin.
Neurological effects	No information available.
Aspiration Hazard	No information available.
Endocrine Disruptor Information	No information available.

SECTION 12. Ecological information

Ecotoxicity

16.15% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
(R*,R*)-1,4-dimercaptobutane-2,3-diol 3483-12-3	-	-	LC50: 27mg/L (Daphnia magna) 48 h

Persistence and degradability	No information available.
Bioaccumulation	No information available.
Mobility	No information available

Other adverse effects

No information available.

SECTION 13. Disposal considerations

Waste Disposal Methods

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

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14. Transport information

This material is not subject to regulation as a hazardous material for shipping.

SECTION 15. Regulatory information

All of the components in the product are on the following Inventory lists:

TSCA	Complies
DSL	Complies
NDSL	Complies

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	Yes
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).

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.

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
(R*,R*)-1,4-dimercaptobutane-2,3-diol 3483-12-3	Not Listed	Not Listed	Not Listed

U.S. EPA Label Information

This product does not contain any substances regulated as pesticides.

SECTION 16. Other information

Issuing Date: 2014-01-31

Revision Date: 2014-01-31

Disclaimer

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet



Cell Signaling

TECHNOLOGY®

SAFETY DATA SHEET (SDS): According to the OSHA Hazard Communication Standard 29 CFR 1910.1200

Issuing Date: 2014-10-16

Revision Date: 2014-10-16

Version: 1

SECTION 1. Identification

Product identifier

Product number 7016L
Product name DTT (Dithiothreitol)

Recommended use of the chemical and restrictions on use

Identified uses This product is intended for research purposes only.
Uses advised against This product is not intended for use in diagnostic procedures or therapeutics.
This product is not intended for use in humans or animals.

Manufacturer, importer, supplier

Manufacturer address Cell Signaling Technology, Inc.
3 Trask Lane
Danvers, MA 01923
United States
TEL: +1 978 867 2300
FAX: +1 978 867 2400

Website www.cellsignal.com
Email address support@cellsignal.com
Company phone number 978-867-2300
Emergency telephone number In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification

Classification

This substance/mixture is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Specific target organ toxicity - single exposure (STOT SE)	Category 3

GHS Label elements, including precautionary statements



Signal Word
Warning

Hazard statement(s)

Harmful if swallowed
 Causes skin irritation
 Causes serious eye irritation
 May cause respiratory irritation

Precautionary Statement(s)

Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Wear protective gloves/protective clothing/eye protection/face protection
 Avoid breathing dust/fume/gas/mist/vapors/spray
 Use only outdoors or in a well-ventilated area
 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
 Rinse mouth
 IF ON SKIN: Wash with plenty of soap and water
 If skin irritation occurs: Get medical advice/attention
 Take off contaminated clothing and wash before reuse
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 Call a POISON CENTER or doctor/physician if you feel unwell
 Store in a well-ventilated place. Keep container tightly closed
 Store locked up
 Dispose of contents/container to an approved waste disposal plant

Supplementary Hazard Information

Hazards not otherwise classified (HNOC) None.

SECTION 3. Composition/information on ingredients

Formula	C ₄ H ₁₀ O ₂ S ₂
Molecular Weight	154.25 g/mol
Chemical nature	Monoconstituent substance
Synonyms	DTT; Dithiothreitol; Cleland's reagent; Sputolysin; (2S,3S)-1,4-bis(sulfanyl)butane-2,3-diol

Chemical Name	CAS No	Weight %
(R*,R*)-1,4-dimercaptobutane-2,3-diol	3483-12-3	60-100

SECTION 4. First-aid measures

Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash skin with soap and water.
Inhalation	Move to fresh air.
Ingestion	Clean mouth with water and afterwards drink plenty of water.

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Advice for emergency responders

General advice	For further assistance, contact your local Poison Control Center.
Protection of first-aiders	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

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.

SECTION 6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel Ensure adequate ventilation.

Other information No information available.

Environmental precautions

See Section 12 for additional information.

Methods and material for containment and cleaning up

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

Methods for cleaning up Pick up and transfer to properly labeled containers.

SECTION 7. Handling and storage**Precautions for safe handling**

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Packaging material No information available.

Incompatible products None known based on information supplied.

SECTION 8. Exposure controls/personal protection**Control parameters**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Personal protective equipment (PPE) needs to be selected depending on the implemented engineering controls, frequency/duration of work activities and the concentrations of the hazardous substance.

Eye/face protection	Safety glasses with side-shields.
Skin and body protection	Wear protective gloves/clothing.
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. Physical and chemical properties**Information on basic physical and chemical properties**

Physical state	Solid
Appearance	Powder
Odor	No information available
Color	White
Odor Threshold	No information available
pH	No information available
Melting point/freezing point	No information available
Initial boiling point and boiling range	No information available
Flash point	No information available.
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Upper flammability limit	No information available.
Lower flammability limit	No information available.
Vapor pressure	No information available
Vapor density	No information available
Relative density	No information available
Solubility	No information available.
Solubility in other solvents	No information available
Partition coefficient: n-octanol/water	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available.
Explosive properties	No information available
Oxidizing properties	No information available
Molecular Weight	154.25 g/mol
VOC content	No information available
Viscosity	No information available.
Density	No information available.

SECTION 10. Stability and reactivity**Reactivity**

No information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Hazardous reactions	None under normal processing.
Hazardous polymerization	None under normal processing.

Conditions to Avoid

No information available.

Incompatible Materials

None known based on information supplied.

Hazardous Decomposition Products

None known based on information supplied.

SECTION 11. Toxicological information

Information on likely routes of exposure

Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system.
Eye contact	Contact with eyes may cause irritation.
Skin contact	Contact with skin may cause irritation.
Ingestion	May be harmful if swallowed.

Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
(R*,R*)-1,4-dimercaptobutane-2,3-diol	400 mg/kg (Rat)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms	No information available.
Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.
Sensitization	No information available.
Mutagenic effects	No information available.
Carcinogenicity	No component of this product present at levels greater than or equal to 0.1% is identifiable as probable, possible or confirmed carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity	No information available.
STOT - single exposure	Respiratory system.
STOT - repeated exposure	No information available.
Target Organ Effects	Respiratory system, Eyes, Skin.
Neurological effects	No information available.
Aspiration Hazard	No information available.

SECTION 12. Ecological information

Ecotoxicity

Product does not present an aquatic toxicity hazard based on known or supplied information.

Persistence and degradability	No information available.
Bioaccumulation	No information available.
Mobility	No information available.

Other adverse effects

No information available.

SECTION 13. Disposal considerations

Waste Disposal Methods

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

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14. Transport information


This material is not subject to regulation as a hazardous material for shipping.

SECTION 15. Regulatory information

North American Inventory Listing

Chemical Name	TSCA 8(b)	TSCA 12(b)	DSL	NDSL
(R*,R*)-1,4-dimercaptobutane-2,3-diol	Listed	Not Listed	Listed	Not Listed

Canadian Workplace Hazardous Materials Information System (WHMIS) Classification

	Class D1B - Toxic Material at \geq 1% Class D2B - Toxic Material at \geq 1%
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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	Yes
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).

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.

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 under applicable state right-to-know regulations

U.S. FIFRA Label Information

This product does not contain any substances regulated as pesticides.

US Commerce Department - Export Administration Regulations Information

This product does not contain any substances regulated under the Chemical Weapons Convention (CWC).

U.S. Drug Enforcement Administration Information

This product does not contain any substances regulated under the DEA.

SECTION 16. Other information

Issuing Date: 2014-10-16

Revision Date: 2014-10-16

Disclaimer

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End of Safety Data Sheet