

MSDS #1549 COVER SHEET

34077 SuperSignal® West Pico	
Component #	Description
1859119	SuperSignal® West Pico Peroxide
1859120	SuperSignal® West Pico Luminol

34078 SuperSignal® West Pico	
Component #	Description
1859674	SuperSignal® West Pico Peroxide
1859675	SuperSignal® West Pico Luminol

34079 SuperSignal® ELISA West Pico Trial	
Component #	Description
1856151	SuperSignal® ELISA Pico Luminol
1856150	SuperSignal® ELISA Pico Peroxide

34080 SuperSignal® West Pico	
Component #	Description
1856135	SuperSignal® West Pico Peroxide
1856136	SuperSignal® West Pico Luminol

34087 SuperSignal® West Pico	
Component #	Description
1862123	SuperSignal® WEST Pico Luminol
1862124	SuperSignal® WEST Pico Peroxide

34094 SuperSignal® West Femto Trial	
Component #	Description
1856192	SuperSignal® ELISA Femto Luminol
1856191	SuperSignal® ELISA Femto Peroxide

37069 SuperSignal® ELISA Pico	
Component #	Description
1859676	SuperSignal® ELISA Pico Luminol
1859677	SuperSignal® ELISA Pico Peroxide

37070 SuperSignal® ELISA Pico	
Component #	Description
1856156	SuperSignal® West Pico Peroxide
1856155	SuperSignal® West Pico Luminol

37071 SuperSignal® West Dura Trial	
Component #	Description
1856157	SuperSignal® West Dura Luminol
1856158	SuperSignal® West Dura Peroxide

37074 SuperSignal® ELISA Femto	
Component #	Description
1859678	SuperSignal® ELISA Femto Luminol
1859679	SuperSignal® ELISA Femto Peroxide

37075 SuperSignal® ELISA Femto	
Component #	Description
1856193	SuperSignal® ELISA Femto Luminol
1856194	SuperSignal® ELISA Femto Peroxide

CH-FAST/20 SuperSignal® West Dura Trial	
Component #	Description
1856157	SuperSignal® West Dura Luminol
1856158	SuperSignal® West Dura Peroxide

NCI4077		SuperSignal® West Pico Trial	
Component#	Description		
1858593	SuperSignal® West Pico Luminol		
1858594	SuperSignal® West Pico Peroxide		

NCI4075		SuperSignal® West Dura	
Component #	Description		
1856145	SuperSignal® West Dura Luminol		
1856146	SuperSignal® West Dura Peroxide		

NCI4075SY		SuperSignal® West Dura Trial	
Component #	Description		
1856157	SuperSignal® West Dura Luminol		
1856158	SuperSignal® West Dura Peroxide		

NCI4080KR		SuperSignal® West Pico	
Component #	Description		
1862637	SuperSignal® West Pico Luminol		
1862638	SuperSignal® West Pico Peroxide		

NCI4080TW		SuperSignal® West Pico	
Component #	Description		
1862518	SuperSignal® West Pico Luminol		
1862519	SuperSignal® West Pico Peroxide		

Material Safety Data Sheet

Luminol/Enhancer Solutions

1. Product and company identification

Product name	: Luminol/Enhancer Solutions		
Synonym	: Supersignal® ELISA Pico Luminol/Enhancer; Supersignal® Stable Luminol/Enhancer Solution; Supersignal® ELISA Femto Luminol/Enhancer; Supersignal® West Femto Luminol/Enhancer Solution; Supersignal® West Pico Luminol/Enhancer Solution; Supersignal® West Dura Luminol/Enhancer Solution; Luminol/Enhancer Solution; North2South Luminol/Enhancer Solution; LightShift® Luminol/Enhancer Solution; Chemifast Luminol/Enhancer Solution		
Supplier	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723	Manufacturer	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723
Code	: 0034075B 0034080B 0034095B 0034095BE 0037070B 0037075B 0089880E 1856136 1856136B 1856145 1856151 1856155 1856157 1856189 1856192 1856193 1856229 1856302 1856304 1856320 1858089 1858114 1858410 1858593 1858783 1859022 1859024 1859027 1859028 1859120 1859675 1859676 1859678 1860852 1860854 1862123 1862503 1862637 1862505 1862815 1900252 1900253 1900288 1900289 NCI0025 NCI2012 NCI2112 NCI3408B NCI3409B NCI3708B NCI4095B NCI7075B NCI1858089		
MSDS #	: 7337		
Validation date	: 8/23/2011.		
Print date	: 8/23/2011.		
Responsible name	: MSDS Specialist		
In case of emergency	: CHEMTREC: 800.424.9300 OUTSIDE US: 703.527.3887	Material uses	: Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.
Product type	: Liquid.		

2. Hazards identification

Emergency overview

Physical state	: Liquid. [Clear sparkling liquid.]
Color	: Colorless. Light Pink
Signal word	: WARNING!
Hazard statements	: CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

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2. Hazards identification

Precautionary measures	: Do not breathe vapor or mist. Use only with adequate ventilation. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Keep container tightly closed. Wash thoroughly after handling.
OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Routes of entry	: Eye contact. Inhalation. Ingestion.
Potential acute health effects	
Inhalation	: Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	: No known significant effects or critical hazards.
Skin	: Irritating to skin.
Eyes	: Irritating to eyes.
Potential chronic health effects	
Chronic effects	: Contains material that can cause target organ damage.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
Target organs	: Contains material which may cause damage to the following organs: kidneys, the nervous system, liver, cardiovascular system, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.
Over-exposure signs/symptoms	
Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	: No specific data.
Skin	: Adverse symptoms may include the following: irritation redness
Eyes	: Adverse symptoms may include the following: pain or irritation watering redness
Medical conditions aggravated by over-exposure	: Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

United States

Name	CAS number	%
Tris(hydroxymethyl)aminomethane	77-86-1	1 - 3
ethylene glycol	107-21-1	1 - 3

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3. Composition/information on ingredients

Name	CAS number	%
Tris(hydroxymethyl)aminomethane	77-86-1	1 - 3
ethylene glycol	107-21-1	1 - 3

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

Flammability of the product : In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

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6. Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

United States

Ingredient	Exposure limits
ethylene glycol	ACGIH TLV (United States, 2/2010). C: 100 mg/m ³ Form: Aerosol OSHA PEL 1989 (United States, 3/1989). CEIL: 125 mg/m ³ CEIL: 50 ppm

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8. Exposure controls/personal protection

<u>Occupational exposure limits</u>		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m ³	Other	ppm	mg/m ³	Other	ppm	mg/m ³	Other	Notations
ethylene glycol	US ACGIH 2/2010	-	-	-	-	-	-	-	100	-	[a]
	AB 4/2009	-	-	-	-	-	-	-	100	-	[3] [b]
	BC 9/2010	-	-	-	-	-	-	-	100	-	[a]
		-	10	-	-	20	-	-	-	-	[c]
	ON 7/2010	-	-	-	-	-	-	-	50	-	[d]
	QC 6/2008	-	-	-	-	-	-	-	-	100	-
		-	-	-	50	127	-	-	-	-	[e]

[3]Skin sensitization

Form: [a]Aerosol [b]aerosol [c]Particulate [d]Vapour [e]vapour and mist

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

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Luminol/Enhancer Solutions

9. Physical and chemical properties

Physical state : Liquid. [Clear sparkling liquid.]
Flash point : [Product does not sustain combustion.]
Color : Colorless. Light Pink
pH : 9.5
Solubility : Easily soluble in the following materials: cold water and hot water.

10. Stability and reactivity

Chemical stability : The product is stable.
Conditions to avoid : No specific data.
Incompatible materials : No specific data.
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Tris(hydroxymethyl)aminomethane ethylene glycol	LD50 Oral	Rat	>3000 mg/kg	-
	LD50 Dermal	Rabbit	10626 mg/kg	-
	LD50 Oral	Rat	4000 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Tris(hydroxymethyl)aminomethane ethylene glycol	Skin - Moderate irritant	Rabbit	-	-	-
	Skin - Severe irritant	Rabbit	-	-	-
	Eyes - Mild irritant	Rabbit	-	-	-
	Eyes - Moderate irritant	Rabbit	-	-	-
	Skin - Mild irritant	Rabbit	-	-	-

Conclusion/Summary : Not available.

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Tris(hydroxymethyl)aminomethane	-	-	-	None.	-	None.
ethylene glycol	A4	-	-	None.	-	None.

Mutagenicity

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11. Toxicological information

Product/ingredient name	Test	Experiment	Result
ethylene glycol	Cytogenetic Analysis DNA Inhibition Mutation in Mammalian Somatic Cells	Subject: Mammalian-Animal Subject: Mammalian-Human Subject: Mammalian-Human	Positive Positive Positive

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
ethylene glycol	Positive	Positive	Positive	Mouse	Inhalation: 1000 mg/m ³	-
	-	-	Positive	Mouse	Oral: 7500 mg/kg	-
	Positive	Positive	Positive	Mouse	During Pregnancy	-
	Positive	Positive	Positive	Rat	Oral: During Pregnancy	-
	-	Positive	-	Rabbit	Oral: 28 g/kg (6-19 days pregnant)	-
	-	-	Positive	Mouse	Unreported	-
	-	-	Positive	Rat	Unreported	-

Conclusion/Summary : Not available.

Canada

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Tris(hydroxymethyl)aminomethane	LD50 Oral	Rat	>3000 mg/kg	-
ethylene glycol	LD50 Dermal	Rabbit	10626 mg/kg	-
	LD50 Oral	Rat	4000 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Tris(hydroxymethyl)aminomethane	Skin - Moderate irritant	Rabbit	-	-	-
	Skin - Severe irritant	Rabbit	-	-	-
ethylene glycol	Eyes - Mild irritant	Rabbit	-	-	-
	Eyes - Moderate irritant	Rabbit	-	-	-
	Skin - Mild irritant	Rabbit	-	-	-

Conclusion/Summary : Not available.

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11. Toxicological information

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Tris(hydroxymethyl)aminomethane	-	-	-	None.	-	None.
ethylene glycol	A4	-	-	None.	-	None.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
ethylene glycol	Cytogenetic Analysis DNA Inhibition Mutation in Mammalian Somatic Cells	Subject: Mammalian-Animal Subject: Mammalian-Human Subject: Mammalian-Human	Positive Positive Positive

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
ethylene glycol	-	Positive	-	Rabbit	Oral: 28 g/kg (6-19 days pregnant)	-
	-	-	Positive	Mouse	Oral: 7500 mg/kg	-
	-	-	Positive	Mouse	During Pregnancy	-
	Positive	Positive	Positive	Mouse	Unreported	-
	Positive	Positive	Positive	Mouse	Inhalation: 1000 mg/m ³	-
	Positive	Positive	Positive	Mouse	Oral: During Pregnancy	-
	Positive	Positive	Positive	Rat	Oral: During Pregnancy	-
	-	-	Positive	Rat	Unreported	-

Conclusion/Summary : Not available.

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Luminol/Enhancer Solutions

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
ethylene glycol	Acute LC50 >100000 ug/L Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 6900000 to 8800000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 8050000 ug/L Fresh water	Fish - Pimephales promelas - <=7 days	96 hours
	Chronic NOEC 11610000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia - <=24 hours	48 hours
	Chronic NOEC 6090000 ug/L Fresh water	Fish - Pimephales promelas - <=7 days	96 hours

Conclusion/Summary : Not available.

Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
ethylene glycol	-	60.47 % - Readily - 5 days	-	-

Conclusion/Summary : Not available.

Canada

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
ethylene glycol	Acute LC50 >100000 ug/L Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 6900000 to 8800000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 8050000 ug/L Fresh water	Fish - Pimephales promelas - <=7 days	96 hours
	Chronic NOEC 11610000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia - <=24 hours	48 hours
	Chronic NOEC 6090000 ug/L Fresh water	Fish - Pimephales promelas - <=7 days	96 hours

Conclusion/Summary : Not available.

Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
ethylene glycol	-	60.47 % - Readily - 5 days	-	-

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered

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13. Disposal considerations

when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
DOT Classification	Not regulated.	-	-	-
IATA-DGR Class	Not regulated.	-	-	-

PG* : Packing group

15. Regulatory information

United States

HCS Classification : Irritating material
Target organ effects

U.S. Federal regulations : TSCA 8(a) IUR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): Not determined.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Tris(hydroxymethyl)aminomethane; ethylene glycol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Tris(hydroxymethyl)aminomethane: Immediate (acute) health hazard; ethylene glycol: Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

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15. Regulatory information

	Product name	CAS number	Concentration
Form R - Reporting requirements	ethylene glycol	107-21-1	1 - 3
Supplier notification	ethylene glycol	107-21-1	1 - 3

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

- Massachusetts** : The following components are listed: ETHYLENE GLYCOL
New York : The following components are listed: Ethylene glycol
New Jersey : The following components are listed: ETHYLENE GLYCOL; 1,2-ETHANEDIOL
Pennsylvania : The following components are listed: 1,2-ETHANEDIOL
United States inventory (TSCA 8b) : Not determined.

Canada

- WHMIS (Canada)** : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

- Canadian NPRI** : The following components are listed: Ethylene glycol
CEPA Toxic substances : None of the components are listed.
Canada inventory : Not determined.

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

International regulations

- International lists** : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): Not determined.
Japan inventory: Not determined.
Korea inventory: Not determined.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): Not determined.

16. Other information

- Label requirements** : CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Hazardous Material Information System (U.S.A.)

Health	2
Flammability	0
Physical hazards	0

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

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16. Other information

- Date of printing** : 8/23/2011.
Date of issue : 8/23/2011.
Date of previous issue : 3/10/2011.
Version : 1.03
Prepared by : MSDS Specialist

☑ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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Material Safety Data Sheet

Stable Peroxide Solutions

1. Product and company identification

Product name	: Stable Peroxide Solutions		
Synonym	: SuperSignal® West Dura Stable Peroxide; SuperSignal® West Femto Max Sensitivity Stable Peroxide; SuperSignal® West Pico Stable Peroxide; SuperSignal® ELISA Pico Stable Peroxide; SuperSignal® ELISA Femto Stable Peroxide; Dura Stable Peroxide; North2South Stable Peroxide Solution; LightShift® Stable Peroxide Solution; Stable Peroxide; Chemiluminescent Substrate B; ChemiFast Stable Peroxide Solution		
Supplier	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723	Manufacturer	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723
Code	: 0034075A 0034095A 0037070A 0037075A 0089880F 1856135 1856135B 1856146 1856150 1856156 1856158 1856190 1856191 1856194 1856230 1856303 1856305 1856321 1858090 1858115 1858409 1858594 1858780 1859023 1859025 1859026 1859029 1859119 1859674 1859677 1859679 1860853 1860855 1862124 1862504 1862506 1862519 1862638 1900266 1900290 1900251 NCI0266 NCI2013 NCI2113 NCI3408A NCI3409A NCI3708A NCI4076 NCI4095A NCI7071 NCI7075A NCI1858090		
MSDS #	2290		
Validation date	: 8/23/2011.		
Print date	: 8/23/2011.		
Responsible name	MSDS Specialist		
	CHEMTREC: 800.424.9300 OUTSIDE US: 703.527.3887	Material uses	Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.
Product type	: Liquid.		

2. Hazards identification

Emergency overview

Physical state	: Liquid. [Clear sparkling liquid.]
Color	: Colorless.
Hazard statements	: NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.
OSHA/HCS 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.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

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2. Hazards identification

Potential acute health effects

Inhalation	: No known significant effects or critical hazards.
Ingestion	: No known significant effects or critical hazards.
Skin	: No known significant effects or critical hazards.
Eyes	: No known significant effects or critical hazards.

Potential chronic health effects

Chronic effects	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation	: No specific data.
Ingestion	: No specific data.
Skin	: No specific data.
Eyes	: No specific data.

Medical conditions aggravated by over-exposure : None known.

See toxicological information (Section 11)

3. Composition/information on ingredients

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

Eye contact	: Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if symptoms occur.
Skin contact	: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.
Inhalation	: Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms occur.
Ingestion	: Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training.
Notes to physician	: No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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5. Fire-fighting measures

Flammability of the product : In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Hazardous thermal decomposition products : No specific data.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Canada

Occupational exposure limits

No exposure limit value known.

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmospheric or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Physical state : Liquid. [Clear sparkling liquid.]

Flash point : [Product does not sustain combustion.]

Color : Colorless.

pH : 4.9 to 5.1

Dispersibility properties : Easily dispersible in the following materials: cold water and hot water.

Solubility : Easily soluble in the following materials: cold water and hot water.

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10. Stability and reactivity

- Chemical stability** : The product is stable.
Conditions to avoid : No specific data.
Incompatible materials : No specific data.
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

United States

Acute toxicity

- Conclusion/Summary** : To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity

- Conclusion/Summary** : Not available.

Irritation/Corrosion

- Conclusion/Summary** : Not available.

Sensitizer

- Conclusion/Summary** : Not available.

Carcinogenicity

- Conclusion/Summary** : Not available.

Mutagenicity

- Conclusion/Summary** : Not available.

Teratogenicity

- Conclusion/Summary** : Not available.

Reproductive toxicity

- Conclusion/Summary** : Not available.

Canada

Acute toxicity

- Conclusion/Summary** : To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity

- Conclusion/Summary** : Not available.

Irritation/Corrosion

- Conclusion/Summary** : Not available.

Sensitizer

- Conclusion/Summary** : Not available.

Carcinogenicity

- Conclusion/Summary** : Not available.

Mutagenicity

- Conclusion/Summary** : Not available.

Teratogenicity

- Conclusion/Summary** : Not available.

Reproductive toxicity

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11. Toxicological information

- Conclusion/Summary** : Not available.

12. Ecological information

- Ecotoxicity** : No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

- Conclusion/Summary** : Not available.

Persistence/degradability

- Conclusion/Summary** : Not available.

Canada

Aquatic ecotoxicity

- Conclusion/Summary** : Not available.

Persistence/degradability

- Conclusion/Summary** : Not available.

Other adverse effects

- Conclusion/Summary** : No known significant effects or critical hazards.

13. Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
DOT Classification	Not regulated.	-	-	-
IATA-DGR Class	Not regulated.	-	-	-

PG* : Packing group

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15. Regulatory information

United States

- HCS Classification** : Not regulated.
- U.S. Federal regulations** : **TSCA 8(a) IUR Exempt/Partial exemption**: Not determined
United States inventory (TSCA 8b): All components are listed or exempted.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.
Clean Water Act (CWA) 311: Acetic acid

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

State regulations

- Massachusetts** : None of the components are listed.
- New York** : None of the components are listed.
- New Jersey** : None of the components are listed.
- Pennsylvania** : None of the components are listed.

United States inventory (TSCA 8b) : All components are listed or exempted.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

Canadian lists

- Canadian NPRI** : None of the components are listed.
- CEPA Toxic substances** : None of the components are listed.
- Canada inventory** : All components are listed or exempted.

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

International regulations

- International lists** : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.

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16. Other information

Label requirements : NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

Hazardous Material Information System (U.S.A.) :

Health	0
Flammability	0
Physical hazards	0

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



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Prepared by : MSDS Specialist

☑ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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