

Conforms to 93/112/EC and ISO 11014-1

Responsible Name Pierce Administration

? **Section 1. Chemical Product and Company Identification**

Product name **Luminol / Enhancer Solution, 80 mL**

Product No. 89880E

<b>Supplier</b>	<i>In USA:</i>	<i>In Europe:</i>	<b>Manufacturer</b>	Pierce Biotechnology
	Pierce	Perbio Science		P.O. Box 117
	P.O. Box 117	Industriezone III		Rockford, IL 61105
	Rockford, IL 61105	Industrielaan 27		USA
	USA	9320 Erembodegem-Aalst		815.968.0747 or
	815.968.0747 or	Belgium		1.800.874.3723
	1.800.874.3723	Tel:+32 53 83 44 04		
		Fax:+32 53 83 76 38		

**In Case of Emergency** CALL CHEMTREC:  
800.424.9300  
OUTSIDE US:  
202.483.7616

**Print Date** 7/27/2004  
**Validation Date** 5/14/2004  
**MSDS#** 7147

**Intended Use** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

 **Section 2. Composition, Information on Ingredients**

**Substance/Preparation** : Preparation

<u>Ingredient Name</u>	<u>CAS No.</u>	<u>%</u>	<u>EC Number</u>	<u>Symbol</u>	<u>R-Phrases</u>
1) Ingredient Name #1		0.1-1	xxx-xxx-x	Xi	R36/37/38
2) Ingredient Name #2		0.1-1	xxx-xxx-x	--	Not controlled under dsd (Europe).
3) Ethylene Glycol	107-21-1	1-3	203-473-3	Xn	R21/22, R36/37/38
4) Ingredient Name #4		3-5	xxx-xxx-x	Xi	R36/37/38

 **Section 3. Hazards Identification**

**United States** Review the most current and approved institutional guideline, protocol, standard operating procedure(s) and MSDS(s) for the proper handling of institutional materials/equipment associated with the use of this product.

**Emergency Overview** WARNING!  
POSSIBLE BIRTH DEFECT HAZARD.  
CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA.  
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, LUNGS, NERVOUS SYSTEM, LIVER, RESPIRATORY TRACT, SKIN, EYES, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.  
CONTAINS MATERIAL WHICH MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: REPRODUCTIVE SYSTEM.  
Avoid exposure during pregnancy.

**Routes of Entry** Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

**Potential Acute Health Effects** Slightly hazardous in case of ingestion, of inhalation.

**Carcinogenic Effects Data** **CARCINOGENIC EFFECTS:** Classified None. by NIOSH [Ethylene Glycol]. Classified A4 (Not classifiable for human or animal.) by ACGIH [Ethylene Glycol].  
**MUTAGENIC EFFECTS:** Not available.  
**TERATOGENIC EFFECTS:** Not available.

**Medical Conditions Aggravated by Overexposure:** Repeated or prolonged exposure is not known to aggravate medical condition.

**Overexposure /Signs/Symptoms** Not available.

Europe

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<b>Classification</b>	Not controlled under dsd (Europe).
<i>Physical/chemical hazards</i>	Not applicable.
<i>Human health hazards</i>	Not applicable.
<i>Environmental hazards</i>	Not applicable.

See Toxicological Information (section 11)

## Section 4. First Aid Measures

**Notice to Reader** Get immediate medical attention.

### **Effects and symptoms**

<i>Inhalation</i>	Slightly hazardous in case of inhalation.
<i>Ingestion</i>	Slightly hazardous in case of ingestion.
<i>Skin Contact</i>	Irritation of the product in case of skin contact: Not available. Sensitization of the product: Not available.
<i>Eye Contact</i>	Not available.
<i>Aggravating conditions</i>	Repeated or prolonged exposure is not known to aggravate medical condition.

### **First-Aid Measures**

<i>Inhalation</i>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<i>Ingestion</i>	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.
<i>Skin Contact</i>	Wash with soap and water. Get medical attention if irritation develops. Cold water may be used.
<i>Eye Contact</i>	Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.
<i>Notes to Physician</i>	Not available.
<i>Protection of first-aiders</i>	Not available.

## Section 5. Fire Fighting Measures

<i>Flammability of the Product</i>	Non-flammable.
<i>Flash Points</i>	Not applicable.
<i>Fire Hazards in Presence of Various Substances</i>	Not applicable.
<i>Fire Fighting Media and Instructions</i>	Not applicable.
<i>Protective Clothing (Fire)</i>	Not applicable.
<i>Hazardous thermal (de)composition products</i>	Not applicable.

## Section 6. Accidental Release Measures

<i>Personal precautions</i>	Safety glasses. Lab coat.
<i>Environmental Precautions and Clean-up Methods</i>	Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.
<i>Small Spill and Leak</i>	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

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## Section 7. Handling and Storage

**Handling** Avoid breathing vapors or spray mists.

**Storage** Keep container tightly closed. Keep container in a cool, well-ventilated area.

**Intended Use** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

### Packaging materials

**Suitable / Not suitable** Use original container.

## Section 8. Exposure Controls/Personal Protection

**Engineering Controls** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

### Exposure Limit Values

#### Ingredient Name

#### Occupational Exposure Limits

#### **United States**

1) Ethylene Glycol

CEIL: 100 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] [2003] Inhalation

2) Ingredient Name #4

CEIL: 50 (ppb) from OSHA (PEL) [United States] [1989] Inhalation  
Not available.

#### **Sweden**

1) Ingredient Name #1

Not available.

2) Ingredient Name #2

Not available.

3) Ethylene Glycol

TWA: 10 STEL: 50 CEIL: 20 (ppm) from AFS [Sweden] [1996] SKIN

4) Ingredient Name #4

Not available.

#### **Denmark**

1) Ingredient Name #1

Not available.

2) Ingredient Name #2

Not available.

3) Ethylene Glycol

TWA: 10 (ppm) from Arbejdstilsynet [Denmark] [1996] SKIN

4) Ingredient Name #4

Not available.

#### **Norway**

1) Ingredient Name #1

Not available.

2) Ingredient Name #2

Not available.

3) Ethylene Glycol

TWA: 10 CEIL: 125 (mg/m<sup>3</sup>) from Arbejdstilsynet [Norway] [1996] Inhalation

4) Ingredient Name #4

Not available.

#### **France**

1) Ingredient Name #1

Not available.

2) Ingredient Name #2

Not available.

3) Ethylene Glycol

STEL: 50 (ppm) from INRS [France] [1999] Inhalation

4) Ingredient Name #4

Not available.

#### **Netherlands**

1) Ingredient Name #1

Not available.

2) Ingredient Name #2

Not available.

3) Ethylene Glycol

TWA: 26 (mg/m<sup>3</sup>) from Arbeidsinspectie [Netherlands] [1999] Inhalation

4) Ingredient Name #4

Not available.

#### **Germany**

1) Ingredient Name #1

Not available.

2) Ingredient Name #2

Not available.

3) Ethylene Glycol

TWA: 10 CEIL: 10 (ppm) from BAuA [Germany] [1999] SKIN

4) Ingredient Name #4

Not available.

### Personal Protection

**Eyes** Splash goggles.

**Body** Lab coat.

**Hands** Gloves.

**Respiratory** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

Protective Clothing  
(Pictograms)

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## Section 9. Physical and Chemical Properties

**Physical State and Appearance** Liquid.

**Odor** Not available.

**Molecular Weight** Not applicable.

**Taste** Not available.

**pH (1% Soln/Water)** 9.5 [Basic.]

**Color** Clear

**Boiling/Condensation Point** The lowest known value is 100°C (212°F) (Milli-Q Water). Weighted average: 101.68°C (215°F)

**Melting/Freezing Point** May start to solidify at -0.1°C (31.8°F) based on data for: Milli-Q Water. Weighted average: -0.32°C (31.4°F)

**Specific Gravity** Weighted average: 1 (Water = 1)

**Vapor Pressure** The highest known value is 2.3 kPa (@ 20°C) (Milli-Q Water). Weighted average: 2.26 kPa (@ 20°C)

**Vapor Density** The highest known value is 2.14 (Air = 1) (Ethylene Glycol). Weighted average: 0.65 (Air = 1)

**Evaporation Rate** 0.36 (Milli-Q Water) compared to Butyl acetate.

**LogK<sub>ow</sub>** The product is much more soluble in water.

**Dispersion Properties** See solubility in water, methanol, diethyl ether, acetone.

**Solubility** Easily soluble in cold water, hot water, methanol, diethyl ether.  
Partially soluble in acetone.  
Very slightly soluble in n-octanol.

## Section 10. Stability and Reactivity

**Stability and Reactivity** The product is stable.

**Conditions to avoid** Not available.

**Materials to avoid** Slightly reactive to reactive with oxidizing agents, metals, acids, alkalis.

**Hazardous Polymerization** Will not occur.

**Hazardous Decomposition Products** Not applicable.

## Section 11. Toxicological Information

**Toxicity to Animals** **Ingredient Name #1**

LD50: Not available.

LC50: Not available.

**Ingredient Name #2**

LD50: Not available.

LC50: Not available.

**Ethylene Glycol:**

ORAL (LD50): Acute: 4700 mg/kg [Rat]. 1650 mg/kg [Cat.]. 5500 mg/kg [Mouse].

DERMAL (LD50): Acute: 9530 mg/kg [Rabbit].

**Milli-Q Water**

LD50: Not available.

LC50: Not available.

**Ingredient Name #4:**

ORAL (LD50): Acute: 5900 mg/kg [Rat].

**Ingredient Name #5:**

ORAL (LD50): Acute: 250 mg/kg [Rat].

DERMAL (LD50): Acute: 13 mg/kg [Rabbit]. 13 mg/kg [Rabbit].

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**Chronic Effects on Humans** **CARCINOGENIC EFFECTS:** Classified None. by NIOSH [Ethylene Glycol]. Classified A4 (Not classifiable for human or animal.) by ACGIH [Ethylene Glycol].

**DEVELOPMENTAL TOXICITY:** Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED] [Ethylene Glycol].

Contains material which may cause damage to the following organs: the reproductive system.

**Other Toxic Effects on Humans** Slightly hazardous in case of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals** Not available.

**Special Remarks on Chronic Effects on Humans** Not available.

**Special Remarks on Other Toxic Effects on Humans** To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated. (Ingredient Name #4)



### Section 12. Ecological Information

**Mobility** Not available.

**Persistence/degradability** Not available.

**Bioaccumulative potential** Not available.

**Ecotoxicity** Not available.

**Germany water class** VCI WGK: No products were found.



### Section 13. Disposal Considerations

**Waste Information** Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**Waste Stream** Not available.

*Consult your local or regional authorities.*



### Section 14. Transport Information

Contact the supplier for all information regarding the proper transportation method for this material.



### Section 15. Regulatory Information

#### Label Requirements (Europe)

This product is not classified according to the EU regulations.

#### HCS Classification

Target organ effects.  
Reproductive toxins.

**U.S. Federal Regulations** TSCA 8(b) inventory: Ingredient Name #1; Ethylene Glycol; Milli-Q Water; Ingredient Name #4; Ingredient Name #5  
TSCA 8(d) H and S data reporting: Ethylene Glycol  
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: Ethylene Glycol  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Ethylene Glycol: immediate health hazard, delayed health hazard  
SARA 313 toxic chemical notification and release reporting: Ethylene Glycol 1.665%  
Clean Water Act (CWA) 307: No products were found.  
Clean Water Act (CWA) 311: No products were found.  
Clean air act (CAA) 112 accidental release prevention: No products were found.

Clean air act (CAA) 112 regulated flammable substances: No products were found.  
 Clean air act (CAA) 112 regulated toxic substances: No products were found.

WHMIS (Canada) CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

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CEPA DSL: Ingredient Name #1; Ethylene Glycol; Milli-Q Water; Ingredient Name #4; Ingredient Name #5

**International Regulations**

EINECS Not available.

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DSCL (EEC) This product is not classified according to the EU regulations.

International Lists Australia (NICNAS): Ingredient Name #1; Ethylene Glycol; Milli-Q Water; Ingredient Name #4; Ingredient Name #5

Germany water class: Ethylene Glycol

VCI WGK: No products were found.

Korea (TCCL): Ethylene Glycol; Milli-Q Water; Ingredient Name #4; Ingredient Name #5

Philippines (RA6969): Ingredient Name #1; Ethylene Glycol; Milli-Q Water; Ingredient Name #4; Ingredient Name #5

State Regulations Pennsylvania RTK: Ethylene Glycol: (environmental hazard, generic environmental hazard)

Massachusetts RTK: Ethylene Glycol

New Jersey: Ethylene Glycol

California prop. 65: No products were found.

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**Section 16. Other Information**

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

Health	*	1
Fire Hazard		0
Reactivity		1
Personal Protection		a

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



References Not available.

History of Document Changes Any information changes since last document version are marked with a triangle symbol. ▶

Full text of R-Phrases referenced under headings 2 and 3:  
 Irritating to eyes, respiratory system and skin.  
 Not applicable.  
 Harmful in contact with skin and if swallowed.  
 Irritating to eyes, respiratory system and skin.  
 Irritating to eyes, respiratory system and skin.

Intended Use Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

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Verified by Pierce Administration.

Date of Previous Issue No Previous Validation

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Version 2.01

**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.*