

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

Responsible Name Pierce Administration

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

Product name **North2South® Luminol/Enhancer Solution**

Product No. 1856229

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

800.424.9300  
OUTSIDE US:  
202.483.7616

Print Date 2/4/2003

Validation Date **2/4/2003**

MSDS# 3841

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

Ingredient Name	CAS No.	%	EC Number	Symbol	R-Phrases
1) Enhancer Solution Component 1		0.1-1	xxx-xxx-x	Xi	R36/37/38
2) Enhancer Solution Component 2		0.1-1	Not available.	--	Not controlled under dsd (Europe).
3) Ethylene Glycol	107-21-1	1-3	203-473-3	Xn	R21/22, R36/37/38
4) Enhancer Solution Component 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!  
BIRTH DEFECT HAZARD  
CONTAINS MATERIAL WHICH CAN CAUSE BIRTH DEFECT.  
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:  
KIDNEYS, LUNGS, NERVOUS SYSTEM, REPRODUCTIVE SYSTEM, LIVER,  
RESPIRATORY TRACT, SKIN, EYES, CENTRAL NERVOUS SYSTEM, EYE, LENS OR  
CORNEA.  
Avoid exposure during pregnancy.

**Routes of Entry** Absorbed through skin. 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**

**Classification** Not controlled under dsd (Europe).

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Physical/chemical hazards	Not applicable.
Human health hazards	Not applicable.
Environmental hazards	Not applicable.

See Toxicological Information (section 11)

## Section 4. First Aid Measures

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

### Effects and symptoms

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

### First-Aid Measures

Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion	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.
Skin Contact	Wash with soap and water. Get medical attention if irritation develops. Cold water may be used.
Eye Contact	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.
Notes to Physician	Not available.
Protection of first-aiders	Not available.

## Section 5. Fire Fighting Measures

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

## Section 6. Accidental Release Measures

Personal precautions	Safety glasses. Lab coat. Gloves.
Environmental Precautions and Clean-up Methods	Absorb with an inert material and put the spilled material in an appropriate waste disposal. <b>Neutralize the residue with a dilute solution of acetic acid.</b> 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.
Small Spill and Leak	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: <b>Neutralize the residue with a dilute solution of acetic acid.</b> 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. Store between 2 to 8°C (35.6 to 46.4°F).

**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] [2000] Inhalation

2) Enhancer Solution Component 4

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

#### Sweden

1) Enhancer Solution Component 1

Not available.

2) Enhancer Solution Component 2

Not available.

3) Ethylene Glycol

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

4) Enhancer Solution Component 4

Not available.

#### Denmark

1) Enhancer Solution Component 1

Not available.

2) Enhancer Solution Component 2

Not available.

3) Ethylene Glycol

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

4) Enhancer Solution Component 4

Not available.

#### Norway

1) Enhancer Solution Component 1

Not available.

2) Enhancer Solution Component 2

Not available.

3) Ethylene Glycol

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

4) Enhancer Solution Component 4

Not available.

#### France

1) Enhancer Solution Component 1

Not available.

2) Enhancer Solution Component 2

Not available.

3) Ethylene Glycol

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

4) Enhancer Solution Component 4

Not available.

#### Netherlands

1) Enhancer Solution Component 1

Not available.

2) Enhancer Solution Component 2

Not available.

3) Ethylene Glycol

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

4) Enhancer Solution Component 4

Not available.

#### Germany

1) Enhancer Solution Component 1

Not available.

2) Enhancer Solution Component 2

Not available.

3) Ethylene Glycol

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

4) Enhancer Solution Component 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)** Basic.

**Color** Not available.

**Boiling/Condensation Point** The lowest known value is 100°C (212°F) (Milli-Q Water). Weighted average: 101.54°C (214.8°F)

**Melting/Freezing Point** May start to solidify at -0.1°C (31.8°F) based on data for: Milli-Q Water. Weighted average: -0.3°C (31.5°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: 0.64 (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** Acute oral toxicity (LD50): 1650 mg/kg [Cat.]. (Ethylene Glycol).

Acute dermal toxicity (LD50): 9530 mg/kg [Rabbit.]. (Ethylene Glycol).

**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 [PROVEN] [Ethylene Glycol].

**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.

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## Section 12. Ecological Information

<i>Mobility</i>	Not available.
<i>Persistence/degradability</i>	Not available.
<i>Bioaccumulative potential</i>	Not available.
<i>Ecotoxicity</i>	Not available.
<i>Germany water class</i>	VCI WGK: No products were found.



## Section 13. Disposal Considerations

<i>Waste Information</i>	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
<i>Waste Stream</i>	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: Enhancer Solution Component 1; Ethylene Glycol; Enhancer Solution Component 4; Enhancer Solution Component 5; Milli-Q

Water

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 1.5%

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).

CEPA DSL: Enhancer Solution Component 1; Ethylene Glycol; Enhancer Solution Component 4; Enhancer Solution Component 5; Milli-Q Water

### International Regulations

**EINECS** Not available.

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

### International Lists

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Australia (NICNAS): Enhancer Solution Component 1; Ethylene Glycol; Enhancer Solution Component 4; Enhancer Solution Component 5; Milli-Q Water

Germany water class: Ethylene Glycol

VCI WGK: No products were found.

Korea (TCCL): Ethylene Glycol; Enhancer Solution Component 4; Enhancer Solution Component 5; Milli-Q Water

Philippines (RA6969): Enhancer Solution Component 1; Ethylene Glycol; Enhancer Solution Component 4; Enhancer Solution Component 5; Milli-Q Water

*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.**

**Section 16. Other Information**

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

Health	*	<b>1</b>
Fire Hazard		<b>0</b>
Reactivity		<b>0</b>
Personal Protection		<b>a</b>

**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.

**Validated by Pierce Administration on 2/4/2003.**

**Verified by Pierce Administration.**

**Date of Previous Issue**

**2/4/2003**

**Printed 2/4/2003.**

**Version**

**3**

**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.*