

## SAFETY DATA SHEET

New Zealand

### Section 1. Identification

Product name

**Lumigen PS-3 detection reagent, Solution B; part of 'ECL Plus™ Western Blotting Detection Reagent, for 1000 cm²'**

Catalogue Number

RPN2132



Other means of identification

Not available.

Product type

Liquid.

Identified uses

Analytical chemistry. Laboratory chemicals Research and Development

#### Supplier

GE Healthcare UK Ltd  
Amersham Place  
Little Chalfont  
Buckinghamshire HP7 9NA  
England  
+44 0870 606 1921

GE Healthcare Bio-Sciences  
8 Tangihua Street  
Auckland 1010

Person who prepared the MSDS :

msdslifesciences@ge.com

Emergency telephone number (with hours of operation)

0800 733 893  
(10am - 7pm)

### Section 2. Hazards identification

HSNO Classification

3.1 - FLAMMABLE LIQUIDS - Category A  
6.1 - ACUTE TOXICITY: ORAL - Category D  
6.3 - SKIN IRRITATION - Category B  
6.4 - EYE IRRITATION - Category A (Irritant)  
6.7 - CARCINOGENICITY - Category A  
6.9 - SPECIFIC TARGET ORGAN TOXICITY (SINGLE OR REPEATED EXPOSURE): ORAL - Category B  
6.9 - SPECIFIC TARGET ORGAN TOXICITY (SINGLE OR REPEATED EXPOSURE): INHALATION - Category B  
9.1 - AQUATIC ECOTOXICITY - Category D  
9.3 - TERRESTRIAL VERTEBRATE ECOTOXICITY - Category C

This material is classified as hazardous according to criteria in the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001 and has been classified according to the Hazardous Substances (Classifications) Regulations 2001.

#### GHS label elements

Signal word

Danger

Hazard statements

Extremely flammable liquid and vapor.  
Harmful if swallowed.  
Causes mild skin irritation.  
Causes serious eye irritation.  
May cause cancer.  
May cause damage to organs if inhaled.  
May cause damage to organs if swallowed.  
Harmful to terrestrial vertebrates.  
May cause long lasting harmful effects to aquatic life.

#### Precautionary statements

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from ignition sources such as heat/sparks/open flame. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Avoid release to the environment. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.



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<b>Response</b>	IF SWALLOWED: Rinse mouth. 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. Wash hands after handling. IF exposed or concerned: Call a POISON CENTER or doctor/physician if exposed or you feel unwell. Get medical attention/advice.
<b>Storage</b>	Store locked up. Store in cool/well-ventilated place.
<b>Disposal</b>	Dispose of contents and container in accordance with all local, regional, national and international regulations.
<b>Symbol</b>	



**Other hazards which do not result in classification** Not available.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	Mixture
<b>Other means of identification</b>	Not available.
<b>CAS number/other identifiers</b>	
<b>CAS number</b>	Not applicable.
<b>EC number</b>	Mixture.
<b>Product code</b>	RPN2132

Ingredient name	%	CAS number
1,4-Dioxane	56.6	123-91-1
Ethanol	42.9	64-17-5

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.

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Ingestion</b>	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Skin contact</b>	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Eye contact</b>	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

<b>Inhalation</b>	May cause damage to organs following a single exposure if inhaled.
<b>Ingestion</b>	Harmful if swallowed. May cause damage to organs following a single exposure if swallowed. Irritating to mouth, throat and stomach.
<b>Skin contact</b>	Causes mild skin irritation.
<b>Eye contact</b>	Causes serious eye irritation.

#### Over-exposure signs/symptoms

<b>Inhalation</b>	No specific data.
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<b>Ingestion</b>	No specific data.
<b>Skin</b>	Adverse symptoms may include the following: irritation redness
<b>Eyes</b>	Adverse symptoms may include the following: pain or irritation watering redness
<b>Indication of immediate medical attention and special treatment needed, if necessary</b>	
<b>Specific treatments</b>	Not available.
<b>Notes to physician</b>	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Protection of first-aiders</b>	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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

<b>Suitable</b>	Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
<b>Not suitable</b>	Do not use water jet.
<b>Specific hazards arising from the chemical</b>	Extremely flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. This material may cause long lasting harmful effects to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
<b>Hazardous thermal decomposition products</b>	Decomposition products may include the following materials: carbon dioxide carbon monoxide
<b>Hazchem code</b>	Not available.
<b>Special precautions for fire-fighters</b>	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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
<b>Environmental precautions</b>	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). Water polluting material. May be harmful to the environment if released in large quantities.

### Methods and materials for containment and cleaning up

<b>Small spill</b>	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. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
<b>Large spill</b>	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). Use spark-proof tools and explosion-proof equipment. 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.



## Section 7. Handling and storage

### Precautions for safe 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. Avoid exposure - obtain special instructions before use. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

### Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. 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.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

##### Ingredient name

1,4-Dioxane

##### Exposure limits

**NZ OSH (New Zealand, 1/2002). Absorbed through skin.**

WES-TWA: 90 mg/m³ 8 hour(s).

WES-TWA: 25 ppm 8 hour(s).

Ethanol

**NZ OSH (New Zealand, 1/2002).**

WES-TWA: 1880 mg/m³ 8 hour(s).

WES-TWA: 1000 ppm 8 hour(s).

### 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.

### Appropriate engineering controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

### 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.

### Individual protection measures

#### 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.

#### Respiratory protection

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.

#### Hand protection

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.

#### Eye protection

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, gases or dusts.

#### Skin protection

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.

## Section 9. Physical and chemical properties

### Appearance

#### Physical state

Liquid.

#### Color

Colorless.

#### Odor

Alcohol-like. Ethereal.

#### Odor threshold

Not available.

#### pH

Not available.



<b>Melting point</b>	Not available.
<b>Boiling point</b>	Not available.
<b>Flash point</b>	Closed cup: 12 to 15°C (53.6 to 59°F)
<b>Burning rate</b>	Not applicable.
<b>Burning time</b>	Not applicable.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.
<b>Lower and upper explosive (flammable) limits</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility</b>	Easily soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>SADT</b>	Not available.
<b>Viscosity</b>	Not available.
<b><u>Aerosol product</u></b>	
<b>Type of aerosol</b>	Not applicable.
<b>Heat of combustion</b>	Not available.
<b>Ignition distance</b>	Not applicable.
<b>Enclosed space ignition - Time equivalent</b>	Not applicable.
<b>Enclosed space ignition - Deflagration density</b>	Not applicable.
<b>Flame height</b>	Not applicable.
<b>Flame duration</b>	Not applicable.

## Section 10. Stability and reactivity

<b>Chemical stability</b>	The product is stable.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
<b>Incompatible materials</b>	Reactive or incompatible with the following materials: oxidizing materials
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on the likely routes of exposure

<b>Inhalation</b>	May cause damage to organs following a single exposure if inhaled.
<b>Ingestion</b>	Harmful if swallowed. May cause damage to organs following a single exposure if swallowed. Irritating to mouth, throat and stomach.
<b>Skin contact</b>	Causes mild skin irritation.
<b>Eye contact</b>	Causes serious eye irritation.

### Symptoms related to the physical, chemical and toxicological characteristics

<b>Inhalation</b>	No specific data.
<b>Ingestion</b>	No specific data.



<b>Skin contact</b>	Adverse symptoms may include the following: irritation redness
<b>Eye contact</b>	Adverse symptoms may include the following: pain or irritation watering redness

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Acute toxicity**

Product/ingredient name	Result	Species	Dose	Exposure
1,4-Dioxane	LD50 Oral	Rat	4200 mg/kg	-
Ethanol	LC50 Inhalation Vapor	Rat	124700 mg/m3	4 hours

**Irritation/Corrosion**

Product/ingredient name	Result	Species	Score	Exposure	Observation
1,4-Dioxane	Eyes - Moderate irritant	Guinea pig	-	-	-
	Eyes - Moderate irritant	Rabbit	-	-	-
	Eyes - Severe irritant	Rabbit	-	-	-
	Skin - Mild irritant	Rabbit	-	-	-

**Sensitization**

Not available.

**Potential chronic health effects**

<b>General</b>	No known significant effects or critical hazards.
<b>Inhalation</b>	No known significant effects or critical hazards.
<b>Ingestion</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	No known significant effects or critical hazards.
<b>Eye contact</b>	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	May cause cancer. Risk of cancer depends on duration and level of exposure.
<b>Mutagenicity</b>	No known significant effects or critical hazards.
<b>Teratogenicity</b>	No known significant effects or critical hazards.
<b>Developmental effects</b>	No known significant effects or critical hazards.
<b>Fertility effects</b>	No known significant effects or critical hazards.

**Chronic toxicity**

Not available.

**Carcinogenicity**

Not available.

**Mutagenicity**

Not available.

**Teratogenicity**

Not available.

**Reproductive toxicity**

Not available.

**Specific target organ toxicity**

Name	Category	Route of exposure	Target organs
1,4-Dioxane	Category B	Oral Inhalation	Not determined Not determined

**Aspiration hazard**

Not available.

**Numerical measures of toxicity**

**Acute toxicity estimates**



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Route	ATE value
Oral	883.4 mg/kg

## Section 12. Ecological information

**Ecotoxicity** This material may cause long lasting harmful effects to aquatic life.

### Aquatic and terrestrial toxicity

Product/ingredient name	Result	Species	Exposure
1,4-Dioxane	Acute LC50 6700000 ug/L Marine water	Fish - Menidia beryllina - 40 to 100 mm	96 hours
Ethanol	Acute EC50 >100 ppm Fresh water	Daphnia - Daphnia magna - <24 hours	48 hours
	Acute LC50 25500 ug/L Marine water	Crustaceans - Artemia franchiscana - LARVAE	48 hours
	Acute LC50 42000 ug/L Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC <6.3 g/L Fresh water	Daphnia - Daphnia magna	48 hours

### Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Ethanol	-	100 % - Readily - 20 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
1,4-Dioxane	-	-	Not readily
Ethanol	-	-	Readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
1,4-Dioxane	-0.27	-	low
Ethanol	-	0.66	low

### Mobility in soil




**Soil/water partition coefficient (K<sub>oc</sub>)** Not available.

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




## Section 13. Disposal considerations

**Disposal methods** The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
New Zealand Class	UN1993	FLAMMABLE LIQUIDS, N.O.S. (1,4-Dioxane, Ethanol)	3	II
		-		
ADG Class	UN1993	FLAMMABLE LIQUIDS, N.O.S. (1,4-Dioxane, Ethanol)	3	II
		-		
UN Class	UN1993	FLAMMABLE LIQUIDS, N.O.S. (1,4-Dioxane, Ethanol)	3	II
		-		



<b>ADR/RID Class</b>	UN1993	FLAMMABLE LIQUIDS, N.O.S. (1,4-Dioxane, Ethanol)	3	II
		<b>Special provisions</b> 640 (C)		
		<b>Tunnel code</b> (D/E)		
<b>IATA Class</b>	UN1993	FLAMMABLE LIQUIDS, N.O.S. (1,4-dioxane, Ethanol)	3	II
		-		
<b>IMDG Class</b>	UN1993	FLAMMABLE LIQUIDS, N.O.S. (1,4-dioxane, Ethanol)	3	II
		-		

PG\* : Packing group

## Section 15. Regulatory information

**New Zealand Inventory of Chemicals (NZIoC)** All components are listed or exempted.

<b>HSNO Approval Number</b>	HSR001140, HSR001144
<b>HSNO Group Standard</b>	Laboratory Chemicals and Reagent Kits
<b>HSNO Classification</b>	3.1 - FLAMMABLE LIQUIDS - Category A 6.1 - ACUTE TOXICITY: ORAL - Category D 6.3 - SKIN IRRITATION - Category B 6.4 - EYE IRRITATION - Category A (Irritant) 6.7 - CARCINOGENICITY - Category A 6.9 - SPECIFIC TARGET ORGAN TOXICITY (SINGLE OR REPEATED EXPOSURE): ORAL - Category B 6.9 - SPECIFIC TARGET ORGAN TOXICITY (SINGLE OR REPEATED EXPOSURE): INHALATION - Category B 9.1 - AQUATIC ECOTOXICITY - Category D 9.3 - TERRESTRIAL VERTEBRATE ECOTOXICITY - Category C

**Australia inventory (AICS)** All components are listed or exempted.

**Safety, health and environmental regulations specific for the product** No known specific national and/or regional regulations applicable to this product (including its ingredients).

## Section 16. Other information

### History

<b>Date of printing</b>	7 October 2011
<b>Date of issue/ Date of revision</b>	07 October 2011
<b>Date of previous issue</b>	1/11/2011.
<b>Version</b>	1

<b>Key to abbreviations</b>	ADN/ADNR = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail UN = United Nations
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**References** Not available.



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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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