

## Kit SDS Cover Sheet

Doc. ID: PS3-100-75: Rev. AA  
Issued (year/month/day) 2015/05/28

### Product Information

<b>Product Name</b>	Lumigen ECL Plus Chemiluminescent Reagent (Lumigen PS-3)
<b>Part Number</b>	PS3-100, PS3-1000

### Components

<b>Description</b>	Lumigen ECL Plus Solution A Chemiluminescent Reagent (Lumigen PS-3) Lumigen ECL Plus Solution B Chemiluminescent Reagent (Lumigen PS-3)
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### Transport Information

Shipping Information	IATA	IMDG	US DOT	European ADR	Canadian TDG
<b>UN/ID Number</b>	1987	1987	1987	1987	1987
<b>Shipping Name</b>	Alcohols, n.o.s. (Ethanol solution)				
<b>Hazard Class</b>	Flammable liquids	Flammable liquids	Flammable liquid	Flammable liquids	Flammable liquids
<b>Subsidiary Risk</b>	None	None	Not applicable	None	None
<b>Classification Code</b>	Not applicable	Not applicable	Not applicable	F1	Not applicable
<b>Packing Group</b>	II	II	II	II	II
<b>Special Provisions</b>	A3; A180	274	172	274	16
<b>Additional information</b>					
<b>IATA ERG Code</b>	3L	Not applicable	Not applicable	Not applicable	Not applicable
<b>EmS</b>	Not applicable	F-E, S-D	Not applicable	Not applicable	Not applicable
<b>NAERG Code</b>	Not applicable	Not applicable	127	Not applicable	127
<b>Environmental Hazards</b>					
<b>Marine Pollutant</b>	Not applicable	No	Not applicable	Not applicable	Not applicable

### Special Precautions for user

No special precautions for users are required.



## SAFETY DATA SHEET

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### Section 1 Identification of the Substance/mixture and of the Company/undertaking

#### 1.1 Product Identifier

**Product Name** Lumigen ECL Plus Solution A Chemiluminescent Reagent (Lumigen PS-3)  
**Part Number** Component of P/N PS3-100, PS3-1000

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Product Use** For laboratory use only. See product literature for details.

#### 1.3 Details of the supplier of the safety data sheet

##### Manufacturer

Lumigen, Inc. (A Beckman Coulter company)  
22900 W. Eight Mile Road  
Southfield, MI 48033, U.S.A.  
Tel: 248-351-5600

**e-mail address** ksrashid@beckman.com

#### 1.4 Emergency telephone number

**Telephone number (24H)** ChemTel Expert Assistance  
Hotline/MSDS Fax Access by dialing 800-255-3924 or for  
International +01-813-248-0585

##### Distributor and Emergency Phone No.

Refer to attached list, Document ID: [472050](#), for local distributor and emergency phone numbers.

### Section 2 Hazards Identification

#### 2.1 Classification of substance or mixture

**Product Description** Mixture  
Colorless; Clear; Liquid; Ammonia-like

##### Classification according to EC 1272/2008 (CLP/GHS)

Not classified as hazardous per EC 1272/2008 (CLP/GHS)

##### Classification according to EC Directives 1999/45/EC and 67/548/EEC

Not classified as dangerous per EC Directives (1999/45/EC and 67/548 EEC)

##### Classification according to US-OSHA (HCS 29 CFR 1910.1200) and UN GHS

Not classified as hazardous per US-OSHA HCS 2012 and UN GHS

#### 2.2 Label Elements

**According to EC 1272/2008 (CLP/GHS), US-OSHA and UN GHS**  
Not classified as hazardous per EC 1272/2008 (CLP/GHS)

## Section 2 Hazards Identification (Continued)

### 2.3 Other hazards

Results of PBT and vPvB assessment  
PBT: Not applicable.  
vPvB: Not applicable.

See Section 11 Toxicological Information for more detailed health information.

## Section 3 Composition and Information on Ingredients

### 3.2 Mixtures

Hazardous Ingredients: None

## Section 4 First Aid Measures

### 4.1 Description of first aid measures

**Inhalation** If product is inhaled, move exposed individual to fresh air. If individual is not breathing, begin artificial respiration immediately and obtain medical attention.

**Eye Contact** If product enters eyes, wash eyes gently under running water for 15 minutes or longer, making sure that the eyelids are held open. If pain or irritation occur, obtain medical attention.

**Skin Contact** In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. If pain or irritation occur, obtain medical attention.

**Ingestion** If ingested, wash mouth out with water. If irritation or discomfort occurs, seek medical attention.

### 4.2 Most important symptoms and effects, both acute and delayed

See Section 11 Toxicological Information for more detailed health information.

### 4.3 Indication of any immediate medical attention and special treatment needed

No specific medical attention or treatment required.

## Section 5 Fire Fighting Measures

**Flammable Properties** Nonflammable

**5.1 Extinguishing Media** In case of fire use carbon dioxide (CO<sub>2</sub>), dry chemical, water spray or foam.  
For large fires use extinguishing media suitable for surrounding fire.

### 5.2 Special hazards arising from the substance or mixture

**Special Fire and Explosion Hazards**

No special hazards determined.

### Hazardous Combustion Products

No combustion products posing significant hazards are expected from this product.

## Section 5 Fire Fighting Measures (Continued)

### 5.3 Advice for fire fighters

#### Protective Equipment

Self-contained breathing apparatus is recommended for firefighters in all chemical fire situations.

### 5.4 Additional information

No further relevant information available.

## Section 6 Accidental Release Measures

### 6.1 Personal precautions, protective equipment and emergency procedures

#### Personal Precautions

Observe general safety guidelines for protection; avoid eye and skin contact.  
Wear protective gloves, protective clothing and eye/face protection.

### 6.2 Environmental Precautions

No special requirements.

### 6.3 Methods and material for containment and cleaning up

#### Spill and Leak Procedures

Absorb spilled material with an appropriate inert, non-flammable absorbent and dispose according to local regulations.

### 6.4 Reference to other sections

Refer sections 8 and 13.

## Section 7 Handling and Storage

### 7.1 Precautions for safe handling

Use good laboratory procedures; avoid eye and skin contact.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep away from incompatible material (see Section 10).  
To maintain efficacy, store according to the instructions in the product labeling.

### 7.3 Specific end uses

No further relevant information available.

## Section 8 Exposure Controls and Personal Protection

### 8.1 Control parameters

#### Exposure Limits

##### US OSHA

None established

##### ACGIH

None established

##### DFG MAK

None established

##### Ireland

None established

##### IOELVs

None established

##### NIOSH

None established

##### Japan

None established

### 8.2 Exposure controls

#### Engineering Controls

No special engineering controls are required. Use with good general ventilation.

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### Section 8 Exposure Controls and Personal Protection (Continued)

<b>Eye Protection</b>	Safety glasses or chemical goggles should be worn to prevent eye contact. Refer U.S. OSHA 29 CFR 1910.133, European Standard EN166 or appropriate government standards.
<b>Skin Protection</b>	Impervious gloves, such as Nitrile or equivalent, should be worn to prevent skin contact. Refer U.S. OSHA 29 CFR 1910.138, European Standard EN374 or appropriate government standards.
<b>Respiratory Protection</b>	Under normal conditions, the use of this product should not require respiratory protection. If overexposure should occur and ventilation is not adequate to maintain airborne concentrations at acceptable levels, the use of respiratory protection should be evaluated by a qualified professional.

### Section 9 Physical and Chemical Properties

#### 9.1 Information on basic physical and chemical properties

<b>Physical State</b>	Liquid	<b>Specific Gravity (Water=1.0)</b>	1.0
<b>Color</b>	Colorless	<b>Solubility</b>	
<b>Transparency</b>	Clear	<b>Water</b>	Soluble
<b>Odor</b>	Ammonia-like	<b>Organic</b>	Not determined
<b>pH</b>	8.00 @25°C	<b>Partition coefficient: n-octanol/water</b>	Not determined
<b>Freezing Point</b>	Not determined	<b>Auto-ignition Temp.</b>	Not applicable
<b>Boiling Point</b>	100°C (212°F)	<b>Decomposition Temperature</b>	Not determined
<b>Flash Point</b>	Not applicable	<b>Percent Volatiles</b>	Not applicable
<b>Evaporation Rate</b>	Not determined	<b>Vapor Pressure</b>	Not determined
<b>Flammability (Solid, Gas)</b>	Not applicable	<b>Viscosity</b>	Not determined
<b>Flammability Limits</b>	Not applicable	<b>Explosive Properties</b>	Not applicable
<b>Vapor Density</b>	Not determined	<b>Oxidizing Properties</b>	Not determined
<b>Odor Threshold</b>	Not applicable		

**9.2 Other Information** No further relevant information available.

### Section 10 Stability and Reactivity

<b>10.1 Reactivity</b>	No data available.
<b>10.2 Chemical Stability</b>	Stable under normal temperatures and pressures.

## Section 10 Stability and Reactivity (Continued)

### 10.3 Possibility of hazardous reactions

No further relevant information available.

### 10.4 Conditions to Avoid

To maintain product performance keep away from strong acids, strong bases, strong oxidizers.

Avoid exposure to heat and direct sunlight.

### 10.5 Incompatible materials

No further relevant information available.

### 10.6 Hazardous Decomposition Products

No decomposition products posing significant hazards would be expected from this product (an aqueous solution).

## Section 11 Toxicological Information

### 11.1 Information on toxicological effects

#### Toxicity Data for Hazardous Ingredients

Not applicable

#### Primary Routes of Exposure

Eye contact, ingestion, inhalation, and skin contact.

#### Skin Corrosion/Irritation

No data available.

#### Serious eye damage/eye irritation

No data available.

#### Respiratory/skin sensitization

No data available.

#### Carcinogenicity

No ingredients in this product are listed as carcinogens by ACGIH, IARC, NTP, OSHA or 67/548/EEC Annex I.

#### Germ cell mutagenicity

No data available

#### Reproductive Toxicity

No data available.

#### Specific target organ toxicity – single exposure

No data available.

#### Specific target organ toxicity – repeated exposure

No data available.

#### Aspiration hazard

No data available.

#### Other Information

No further relevant information available.

## Section 12 Ecological Information

### 12.1 Ecotoxicity

#### Fresh Water Species

No information available.

#### Microtox

No information available.

## Section 12 Ecological Information (Continued)

<b>Water Flea</b>	No information available.
<b>Fresh Water Algae</b>	No information available.
<b>12.2 Persistence and degradability</b>	No information available.
<b>12.3 Bioaccumulation</b>	No information available.
<b>12.4 Mobility in soil</b>	No information available.
<b>12.5 Results of PBT and vPvB assessment</b>	Not determined for the product. PBT: Not applicable, vPvB: Not applicable.
<b>12.6 Other Adverse Effects</b>	No further relevant information available.

## Section 13 Disposal Considerations

<b>13.1 Waste treatment methods</b>	
<b>Product Waste Disposal</b>	Chemical residues and remains should be routinely handled as special waste. This must be disposed of in compliance with anti-pollution and other laws of the country concerned. To ensure compliance we recommend that you contact the relevant (local) authorities and/or an approved waste-disposal company for information.
<b>Package disposal</b>	Dispose of waste product, unused product and contaminated packaging in compliance with federal, state and local regulations. If unsure of the applicable requirements, contact the authorities for information.
<b>13.2 Additional information</b>	Suggested European waste catalogue 18 01 07 - chemicals other than those mentioned in 18 01 06. Dispose in accordance with national, state and local waste regulations.

## Section 14 Transport Information

Transportation of this product is not regulated under ICAO, IMDG, US DOT, European ADR or Canadian TDG.

## Section 15 Regulatory Information

<b>15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture</b>	
<b><u>US Federal and State Regulations</u></b>	
<b>SARA 313</b>	No ingredients listed.
<b>CERCLA RG's, 40 CFR 302.4</b>	No ingredients listed.
<b>California Proposition 65</b>	No ingredients listed.
<b>Massachusetts MSL</b>	No ingredients listed.
<b>New Jersey Dept. of Health RTK List</b>	Urea Hydrogen Peroxide is listed.
<b>Pennsylvania RTK</b>	No ingredients listed.

## Section 15 Regulatory Information (Continued)

### EU Regulations

This SDS complies with EC Regulations 1907/2006 (REACH) and amendments.

**Water Hazard Class (Germany)** WGK 1, low water endangering

**REACH 1907/2006 EC - Annex XIV - list of substances subject to authorization.**

No ingredients listed.

**According to EC Directives (1999/45/EC and 67/548 EEC)**

Not classified as dangerous per EC Directives (1999/45/EC and 67/548 EEC)

### Canada

This product does not meet WHMIS criteria for hazardous materials.

**PIN** Not applicable

**Ingredients on Ingredient Disclosure List**

None

**Ingredients with unknown toxicological properties**

None

**15.2 Chemical Safety Assessment** A Chemical Safety Assessment has not been carried out.

*Some hazardous ingredients listed in Section 15 are below OSHAs and WHMIS' 1.0% w/w (0.1% for carcinogens) or EU's ingredient specific concentrations required for reporting in Section 3.*

## Section 16 Other Information

<b>Safety Ratings</b>	<b>Flammability: 0</b> <b>Health: 1</b> <b>Reactivity with Water: 0</b> <b>Contact: 1</b>	<b>Code</b> 0=None 1=Slight 2=Caution 3=Severe
<b>Revision Changes</b>	New document	
<b>Abbreviations and Acronyms</b>	ACGIH - American Conference of Governmental Industrial Hygienists ADR - European Agreement Concerning The International Carriage Of Dangerous Goods By Road CERCLA - The Comprehensive Environmental Response, Compensation, and Liability Act CLP - Classification, Labeling and Packaging DFGMAK - Republic Germany's maximum exposure limit GHS - Globally Harmonized System HCS - Hazard Communication Standard IARC - International Agency for Research on Cancer IATA - International Air Transport Association ICAO - International Civil Aviation Organization IMDG - International Maritime Dangerous Goods IOELVs - European Unions' Indicative Occupational Exposure Limit Values NIOSH - National Institute for Occupational Safety and Health NTP - National Toxicology Program OSHA - Occupational Safety and Health Administration	



## Section 16 Other Information (Continued)

PBT - Persistent bioaccumulative and toxic substances  
SARA - Superfund Amendments and Reauthorization Act  
TDG - Canadian Transportation Of Dangerous Goods Regulations.  
UN GHS - United Nations Globally Harmonized System  
US DOT - United States Department of Transportation  
WHMIS - Workplace Hazardous Material Information System  
vPvB - Very persistent and very bioaccumulative substances

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## SAFETY DATA SHEET

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### Section 1 Identification of the Substance/mixture and of the Company/undertaking

#### 1.1 Product Identifier

**Product Name** Lumigen ECL Plus Solution B Chemiluminescent Reagent (Lumigen PS-3)  
**Part Number** Component of P/N PS3-100, PS3-1000

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Product Use** For laboratory use only. See product literature for details.

#### 1.3 Details of the supplier of the safety data sheet

##### Manufacturer

Lumigen, Inc. (A Beckman Coulter company)  
22900 W. Eight Mile Road  
Southfield, MI 48033, U.S.A.  
Tel: 248-351-5600

**e-mail address** ksrashid@beckman.com

#### 1.4 Emergency telephone number

**Telephone number (24H)** ChemTel Expert Assistance  
Hotline/MSDS Fax Access by dialing 800-255-3924 or for  
International +01-813-248-0585

##### Distributor and Emergency Phone No.

Refer to attached list, Document ID: [472050](#), for local distributor and emergency phone numbers.

### Section 2 Hazards Identification

#### 2.1 Classification of substance or mixture

**Product Description** Mixture  
Colorless; Clear; Liquid; Alcohol odor

##### Classification according to EC 1272/2008 (CLP/GHS)

Flammable Liquids, Category 1  
Eye Irritation Category 2  
Carcinogenicity Category 2  
Specific Target Organ Toxicity Single Exposure Category 3

##### Classification according to EC Directives 1999/45/EC and 67/548/EEC

F;R11; Xi;R36/38

## Section 2 Hazards Identification (Continued)

### Classification according to US-OSHA (HCS 29 CFR 1910.1200) and UN GHS

Flammable Liquids, Category 1  
Acute Toxicity Oral, Category 5  
Eye Irritation Category 2  
Carcinogenicity Category 2  
Specific Target Organ Toxicity Single Exposure Category 3

#### 2.2 Label Elements

### According to EC 1272/2008 (CLP/GHS), US-OSHA and UN GHS

#### Hazardous Ingredients

Ethyl Alcohol  
1,4-Dioxane

#### Pictogram



#### Signal Word

DANGER

#### Hazard Statements

H224 Extremely flammable liquid and vapour.  
H303 May be harmful if swallowed.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H351 Suspected of causing cancer.

#### Precautionary Statements

P201 Obtain special instructions before use.  
P210 Keep away from heat, hot surfaces, and sparks. No smoking.  
P233 Keep container tightly closed.  
P240 Ground container and receiving equipment.  
P241 Use explosion-proof electrical equipment.  
P242 Use non-sparking tools.  
P243 Take action to prevent static discharge.  
P261 Avoid breathing vapours.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves, protective clothing and eye/face protection.  
P303+P361+P353 IF ON SKIN (or hair): Rinse skin with water.  
P304+P340 IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P312 Call a POISON CENTER or doctor/physician if you feel unwell.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P370+P378 In case of fire: Use water spray for extinction.

## Section 2 Hazards Identification (Continued)

P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P403+P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/national regulations  
Product label will display most significant precautionary statements.

### 2.3 Other hazards

Results of PBT and vPvB assessment  
PBT: Not applicable.  
vPvB: Not applicable.

See Section 11 Toxicological Information for more detailed health information.

## Section 3 Composition and Information on Ingredients

### 3.2 Mixtures

Hazardous Ingredients:		Hazard Classification of Pure Ingredients			
Chemical Name	% by wt.	EU-67/548/EEC	EU 1272/2008 CLP/GHS	GHS	
1,4-Dioxane CAS # 123-91-1 EINECS # 204-661-8 Index # 603-024-00-5	50-60	F;R11-19 Xn;R36/37-40-66 Carc. Cat. 3	Carc. 2 Eye Irrit. 2 Flam. Liq. 2 STOT SE 3 H225; H319; H335; H351	Acute Tox. Oral 5 Carc. 2 Eye Irrit. 2 Flam. Liq. 2 STOT SE 3 H225; H303; H319; H335; H351	
Ethyl Alcohol CAS # 64-17-5 EINECS # 200-578-6 Index # 603-002-00-5	40-50	F;R11	Flam. Liq. 2 H225	Flam. Liq. 2 H225	

See section 8 for available Occupational exposure limits

See Section 15 for additional regulatory information

See Section 16 for hazard class, hazard statements and risk phrase description

## Section 4 First Aid Measures

### 4.1 Description of first aid measures

#### Inhalation

If product is inhaled, move exposed individual to fresh air. If individual is not breathing, begin artificial respiration immediately and obtain medical attention.

#### Eye Contact

If product enters eyes, wash eyes gently under running water for 15 minutes or longer, making sure that the eyelids are held open. If pain or irritation occur, obtain medical attention.

#### Skin Contact

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. If pain or irritation occur, obtain medical attention.

#### Ingestion

If ingested, wash mouth out with water. If irritation or discomfort occurs, seek medical attention.

## Section 4 First Aid Measures (Continued)

### 4.2 Most important symptoms and effects, both acute and delayed

See Section 11 Toxicological Information for more detailed health information.  
May be harmful if swallowed.  
Causes serious eye irritation.  
May cause respiratory irritation.  
Suspected of causing cancer.

### 4.3 Indication of any immediate medical attention and special treatment needed

No specific medical attention or treatment required.

## Section 5 Fire Fighting Measures

**Flammable Properties** Highly flammable liquid and vapour.

**5.1 Extinguishing Media** In case of fire use carbon dioxide (CO<sub>2</sub>), dry chemical, water spray or foam.  
For large fires use extinguishing media suitable for surrounding fire.

### 5.2 Special hazards arising from the substance or mixture

#### Special Fire and Explosion Hazards

Flammable liquid in aqueous solution; vapors may present fire hazard at elevated temperatures.

#### Hazardous Combustion Products

No information available.

### 5.3 Advice for fire fighters

**Protective Equipment** Self-contained breathing apparatus is recommended for firefighters in all chemical fire situations.

**5.4 Additional information** No further relevant information available.

## Section 6 Accidental Release Measures

### 6.1 Personal precautions, protective equipment and emergency procedures

**Personal Precautions** Observe general safety guidelines for protection; avoid eye and skin contact.  
Wear protective gloves, protective clothing and eye/face protection.

**6.2 Environmental Precautions** No special requirements.

### 6.3 Methods and material for containment and cleaning up

**Spill and Leak Procedures** Absorb spilled material with an appropriate inert, non-flammable absorbent and dispose according to local regulations.

**6.4 Reference to other sections** Refer sections 8 and 13.

## Section 7 Handling and Storage

- 7.1 Precautions for safe handling** Use good laboratory procedures; avoid eye and skin contact.
- 7.2 Conditions for safe storage, including any incompatibilities**  
Keep away from incompatible material (see Section 10).  
To maintain efficacy, store according to the instructions in the product labeling.
- 7.3 Specific end uses** No further relevant information available.

## Section 8 Exposure Controls and Personal Protection

### 8.1 Control parameters

#### Exposure Limits

##### US OSHA

Ethyl Alcohol CAS # 64-17-5	1000 ppm TWA; 1900 mg/m3 TWA
1,4-Dioxane CAS # 123-91-1	100 ppm TWA; 360 mg/m3 TWA; prevent or reduce skin absorption

##### ACGIH

Ethyl Alcohol CAS # 64-17-5	1000 ppm STEL
1,4-Dioxane CAS # 123-91-1	20 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous route

##### DFG MAK

Ethyl Alcohol CAS # 64-17-5	1000 ppm Peak; 1920 mg/m3 Peak; 500 ppm TWA MAK; 960 mg/m3 TWA MAK
1,4-Dioxane CAS # 123-91-1	40 ppm Peak; 146 mg/m3 Peak; skin notation; 20 ppm TWA MAK; 73 mg/m3 TWA MAK

##### Ireland

Ethyl Alcohol CAS # 64-17-5	1000 ppm STEL
1,4-Dioxane CAS # 123-91-1	20 ppm TWA (technical grade); 73 mg/m3 TWA; Potential for cutaneous absorption (technical grade)

##### IOELVs

1,4-Dioxane CAS # 123-91-1	20 ppm TWA; 73 mg/m3 TWA
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##### NIOSH

Ethyl Alcohol CAS # 64-17-5	3300 ppm IDLH (10% LEL); 1000 ppm TWA; 1900 mg/m3 TWA
1,4-Dioxane CAS # 123-91-1	500 ppm IDLH

##### Japan

1,4-Dioxane CAS # 123-91-1	10 ppm OEL; 36 mg/m3 OEL
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## Section 8 Exposure Controls and Personal Protection (Continued)

### 8.2 Exposure controls

#### Engineering Controls

No special engineering controls are required. Use with good general ventilation.

#### Eye Protection

Safety glasses or chemical goggles should be worn to prevent eye contact. Refer U.S. OSHA 29 CFR 1910.133, European Standard EN166 or appropriate government standards.

#### Skin Protection

Impervious gloves, such as Nitrile or equivalent, should be worn to prevent skin contact. Refer U.S. OSHA 29 CFR 1910.138, European Standard EN374 or appropriate government standards.

#### Respiratory Protection

Under normal conditions, the use of this product should not require respiratory protection. If overexposure should occur and ventilation is not adequate to maintain airborne concentrations at acceptable levels, the use of respiratory protection should be evaluated by a qualified professional.

## Section 9 Physical and Chemical Properties

### 9.1 Information on basic physical and chemical properties

<b>Physical State</b>	Liquid	<b>Specific Gravity (Water=1.0)</b>	0.914
<b>Color</b>	Colorless	<b>Solubility</b>	
<b>Transparency</b>	Clear	<b>Water</b>	Soluble
<b>Odor</b>	Alcohol odor	<b>Organic</b>	Not determined
<b>pH</b>	Not determined	<b>Partition coefficient: n-octanol/water</b>	Not determined
<b>Freezing Point</b>	Not determined	<b>Auto-ignition Temp.</b>	Not applicable
<b>Boiling Point</b>	<35°C (95°F)	<b>Decomposition Temperature</b>	Not determined
<b>Flash Point</b>	< 0°C (32°F)	<b>Percent Volatiles</b>	Not applicable
<b>Evaporation Rate</b>	Not determined	<b>Vapor Pressure</b>	Not determined
<b>Flammability (Solid, Gas)</b>	Not applicable	<b>Viscosity</b>	Not determined
<b>Flammability Limits</b>	Not applicable	<b>Explosive Properties</b>	Not applicable
<b>Vapor Density</b>	Not determined	<b>Oxidizing Properties</b>	Not determined
<b>Odor Threshold</b>	Ethyl Alcohol 180 ppm geometric mean air odor threshold = (detectable); 100 ppm geometric mean air odor threshold = (recognizable) 1,4-Dioxane 12 ppm geometric mean air odor threshold = (detectable); 22 ppm geometric mean air odor threshold = (recognizable)		

### 9.2 Other Information

No further relevant information available.

## Section 10 Stability and Reactivity

<b>10.1 Reactivity</b>	No data available.
<b>10.2 Chemical Stability</b>	Stable under normal temperatures and pressures.
<b>10.3 Possibility of hazardous reactions</b>	No further relevant information available.
<b>10.4 Conditions to Avoid</b>	To maintain product performance keep away from strong acids, strong bases, strong oxidizers. Avoid exposure to heat and direct sunlight.
<b>10.5 Incompatible materials</b>	No further relevant information available.
<b>10.6 Hazardous Decomposition Products</b>	No decomposition products posing significant hazards would be expected from this product (an aqueous solution).

## Section 11 Toxicological Information

<b>11.1 Information on toxicological effects</b>	
<b>Toxicity Data for Hazardous Ingredients</b>	
Ethyl Alcohol CAS # 64-17-5	Oral LD50 Rat 7060 mg/kg; Inhalation LC50 Rat 124.7 mg/L 4 h
1,4-Dioxane CAS # 123-91-1	Oral LD50 Rat 4200 mg/kg; Dermal LD50 Rabbit 7600 mg/kg; Inhalation LC50 Rat 48.5 mg/L 4 h
<b>Primary Routes of Exposure</b>	Eye contact, ingestion, inhalation, and skin contact.
<b>Skin Corrosion/Irritation</b>	No data available.
<b>Serious eye damage/eye irritation</b>	Causes serious eye irritation.
<b>Respiratory/skin sensitization</b>	No data available.
<b>Carcinogenicity</b>	Suspected of causing cancer.
<b>Germ cell mutagenicity</b>	No data available
<b>Reproductive Toxicity</b>	No data available.
<b>Specific target organ toxicity – single exposure</b>	May cause respiratory irritation.
<b>Specific target organ toxicity – repeated exposure</b>	No data available.
<b>Aspiration hazard</b>	No data available.
<b>Other Information</b>	May be harmful if swallowed.



## Section 12 Ecological Information

### 12.1 Ecotoxicity

#### Fresh Water Species

Ethyl Alcohol  
CAS # 64-17-5

96 h LC50 *Oncorhynchus mykiss*: 12.0 - 16.0 mL/L [static]; 96 h LC50 *Pimephales promelas*: >100 mg/L [static]; 96 h LC50 *Pimephales promelas*: 13400 - 15100 mg/L [flow-through]

1,4-Dioxane  
CAS # 123-91-1

96 h LC50 *Lepomis macrochirus*: >10000 mg/L [static]; 96 h LC50 *Lepomis macrochirus*: >10000 mg/L [semi-static]; 96 h LC50 *Pimephales promelas*: 9850 mg/L [flow-through]; 96 h LC50 *Pimephales promelas*: 10306-14742 mg/L [static]; 96 h LC50 *Pimephales promelas*: 9850 mg/L

#### Microtox

No information available.

#### Water Flea

Ethyl Alcohol  
CAS # 64-17-5

48 h LC50 *Daphnia magna*: 9268 - 14221 mg/L; 24 h EC50 *Daphnia magna*: 10800 mg/L; 48 h EC50 *Daphnia magna*: 2 mg/L [Static]

1,4-Dioxane  
CAS # 123-91-1

48 h EC50 water flea: 163 mg/L [Static]

#### Fresh Water Algae

No information available.

**12.2 Persistence and degradability** No information available.

**12.3 Bioaccumulation** No information available.

**12.4 Mobility in soil** No information available.

### 12.5 Results of PBT and vPvB assessment

Not determined for the product. PBT: Not applicable, vPvB: Not applicable.

**12.6 Other Adverse Effects** No further relevant information available.

## Section 13 Disposal Considerations

### 13.1 Waste treatment methods

#### Product Waste Disposal

Chemical residues and remains should be routinely handled as special waste. This must be disposed of in compliance with anti-pollution and other laws of the country concerned. To ensure compliance we recommend that you contact the relevant (local) authorities and/or an approved waste-disposal company for information.

#### Package disposal

Dispose of waste product, unused product and contaminated packaging in compliance with federal, state and local regulations. If unsure of the applicable requirements, contact the authorities for information.

### 13.2 Additional information

Suggested European waste catalogue 18 01 06\* - chemicals consisting of or containing dangerous substances. Dispose in accordance with national, state and local waste regulations.

## Section 14 Transport Information

Shipping Information	IATA	IMDG	US DOT	European ADR	Canadian TDG
<b>14.1 UN/ID Number</b>	1987	1987	1987	1987	PIN - 1987

# SAFETY DATA SHEET

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## Section 14 Transport Information (Continued)

Shipping Information	IATA	IMDG	US DOT	European ADR	Canadian TDG
<b>14.2 Shipping Name</b>	Alcohols, n.o.s. (Ethanol solution)				
<b>14.3 Hazard Class</b>	Flammable liquids	Flammable liquids	Flammable liquid	Flammable liquids	Flammable liquids
<b>Subsidiary Risk</b>	None	None	Not applicable	None	None
<b>Classification Code</b>	Not applicable	Not applicable	Not applicable	F1	Not applicable
<b>14.4 Packing Group</b>	II	II	II	II	II
<b>Special Provisions</b>	A3; A180	274	172	274	16
<b>Additional information</b>					
<b>IATA ERG Code</b>	3L	Not applicable	Not applicable	Not applicable	Not applicable
<b>EmS</b>	Not applicable	F-E, S-D	Not applicable	Not applicable	Not applicable
<b>NAERG Code</b>	Not applicable	Not applicable	127	Not applicable	127
<b>14.5 Environmental Hazards</b>					
<b>Marine Pollutant</b>	Not applicable	No	Not applicable	Not applicable	Not applicable
<b>14.6 Special Precautions for user</b>	None				
<b>14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable				

## Section 15 Regulatory Information

<b>15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture</b>		
<b><u>US Federal and State Regulations</u></b>		
<b>SARA 313</b>	1,4-Dioxane is subject to reporting requirements of Section 313, Title III of SARA. 0.1 % de minimis concentration	
<b>CERCLA RG's, 40 CFR 302.4</b>	1,4-Dioxane is listed.	

## Section 15 Regulatory Information (Continued)

### California Proposition 65

Ethyl Alcohol has been identified by the State of California to cause cancer and reproductive harm. The State of California has adopted a regulation which requires a warning be given to individual who may be exposed to chemicals identified by the State to cause cancer or reproductive harm.

**WARNING:** This product contains a chemical known to the State of California to cause cancer and reproductive harm.

1,4-Dioxane has been identified by the State of California to cause cancer. The State of California has adopted a regulation which requires a warning be given to individual who may be exposed to chemicals identified by the State to cause cancer or reproductive harm.

**WARNING:** This product contains a chemical known to the State of California to cause cancer.

### Massachusetts MSL

Ethyl Alcohol is listed.

1,4-Dioxane is listed.

### New Jersey Dept. of Health RTK List

Ethyl Alcohol is listed.

1,4-Dioxane is listed.

### Pennsylvania RTK

Ethyl Alcohol is listed.

1,4-Dioxane is listed.

### EU Regulations

This SDS complies with EC Regulations 1907/2006 (REACH) and amendments.

**Water Hazard Class (Germany)** WGK 2, water endangering

**REACH 1907/2006 EC - Annex XIV - list of substances subject to authorization.**

No ingredients listed.

### According to EC Directives (1999/45/EC and 67/548 EEC)

Irritant

Xi



Highly flammable

F



### Risk and Safety Phrases

R11 Highly flammable.

R36/38 Irritating to eyes and skin.

S35 This material and its container must be disposed of in a safe way.

S37 Wear suitable gloves.

S43 In case of fire use... (indicate in the space the precise type of fire fighting equipment. If water increases the risk, add - Never use water).

S51 Use only in well ventilated areas.

S9 Keep container in a well-ventilated place.

### Canada

#### WHMIS Classification:

B2 - Flammable and Combustible Material: Flammable Liquid

D2B - Poisonous and Infectious Material: Division 2 - Other Toxic Effects: Toxic (Skin Irritation)

D2B - Poisonous and Infectious Material: Division 2 - Other Toxic Effects: Toxic (Eye Irritation)

PIN

1987

## Section 15 Regulatory Information (Continued)

### Ingredients on Ingredient Disclosure List

Ethyl Alcohol  
1,4-Dioxane

### Ingredients with unknown toxicological properties

None

### 15.2 Chemical Safety Assessment A Chemical Safety Assessment has not been carried out.

*Some hazardous ingredients listed in Section 15 are below OSHAs and WHMIS' 1.0% w/w (0.1% for carcinogens) or EU's ingredient specific concentrations required for reporting in Section 3.*

## Section 16 Other Information

<b>Safety Ratings</b>	<b>Flammability: 3</b> <b>Health: 2</b> <b>Reactivity with Water: 1</b> <b>Contact: 2</b>	<b>Code</b> 0=None 1=Slight 2=Caution 3=Severe
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**Revision Changes** New document

### Hazard Class, hazard statements and risk phrase description from section 3

Carc. Cat. 3 - Carcinogen Category 3  
F - Highly flammable  
Xn - Harmful  
R11 Highly flammable.  
R19 May form explosive peroxides.  
R36/37 Irritating to eyes and respiratory system.  
R40 Limited evidence of a carcinogenic effect  
R66 Repeated exposure may cause skin dryness or cracking.  
Acute Tox. Oral 5 - Acute Toxicity Oral, Category 5  
Carc. 2 - Carcinogenicity Category 2  
Eye Irrit. 2 - Eye Irritation Category 2  
Flam. Liq. 2 - Flammable Liquids, Category 2  
STOT SE 3 - Specific Target Organ Toxicity Single Exposure Category 3  
H225 - Highly flammable liquid and vapour.  
H303 - May be harmful if swallowed.  
H319 - Causes serious eye irritation.  
H335 - May cause respiratory irritation.  
H351 - Suspected of causing cancer.

## Section 16 Other Information (Continued)

### Abbreviations and Acronyms

ACGIH - American Conference of Governmental Industrial Hygienists  
ADR - European Agreement Concerning The International Carriage Of Dangerous Goods By Road  
CERCLA - The Comprehensive Environmental Response, Compensation, and Liability Act  
CLP - Classification, Labeling and Packaging  
DFGMAK - Republic Germany's maximum exposure limit  
GHS - Globally Harmonized System  
HCS - Hazard Communication Standard  
IARC - International Agency for Research on Cancer  
IATA - International Air Transport Association  
ICAO - International Civil Aviation Organization  
IMDG - International Maritime Dangerous Goods  
IOELVs - European Unions' Indicative Occupational Exposure Limit Values  
NIOSH - National Institute for Occupational Safety and Health  
NTP - National Toxicology Program  
OSHA - Occupational Safety and Health Administration  
PBT - Persistent bioaccumulative and toxic substances  
SARA - Superfund Amendments and Reauthorization Act  
TDG - Canadian Transportation Of Dangerous Goods Regulations.  
UN GHS - United Nations Globally Harmonized System  
US DOT - United States Department of Transportation  
WHMIS - Workplace Hazardous Material Information System  
vPvB - Very persistent and very bioaccumulative substances  
LC50 - Lethal Concentration, 50%

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