




# Safety Data Sheet

Canada

## Section 1. Identification

**Product name** Luminol/Enhancers; part of 'ECL™ Prime Western Blotting Detection Reagent'

**Catalogue Number** RPN2232SK   
9 0 R P N 2 2 3 2 S K

**Component Number** RPN2232S1

**Product type** Liquid.

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

#### Identified uses

Analytical chemistry.  
Laboratory chemicals  
Scientific research and development

**Supplier** Cytiva  
Amersham Place  
Little Chalfont  
Buckinghamshire  
HP7 9NA United Kingdom  
+44 1494 508000

**Importer** Cytiva Canada  
1055 Vernon Dr  
Vancouver BC V6A 3P4  
Canada  
+1 778-956-2584

**In case of emergency** INFOTRAC  
Outside of the United States, call 24 Hour number: 001-352-323-3500 (Call Collect)  
In the United States, call 24 Hour number: 1-800-535-5053

## Section 2. Hazard identification

**Classification of the substance or mixture** SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1

### GHS label elements

#### Hazard pictograms



**Signal word** Danger

**Hazard statements** Causes damage to organs.

### Precautionary statements

**Prevention** Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

**Response** IF exposed or concerned: Call a POISON CENTER or doctor.

**Storage** Store locked up.

**Disposal** Dispose of contents and container in accordance with all local, regional, national and international regulations.



<b>Supplemental label elements</b>	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 4%
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### Section 3. Composition/information on ingredients

**Substance/mixture** Mixture

**Other means of identification** Not available.

<b>Ingredient name</b>	<b>Synonyms</b>	<b>% (w/w)</b>	<b>CAS number</b>
Tris(hydroxymethyl)aminomethane	1,3-Propanediol, 2-amino-2-(hydroxymethyl)-; Tris(hydroxymethyl)aminoethane; Tris(hydroxymethyl)aminomethane; Tris(hydroxymethyl)methylamine; TROMETHAMINE; 2-amino-2-hydroxymethylpropanediol; tri(hydroxymethyl)methylamine; 2-amino-2-(hydroxymethyl)propane-1,3-diol; 2-Amino-2-hydroxymethyl-1,3-propanediol; 1,3-Propanediol, 2-amino-2-hydroxymethyl-; 2-Amino-2-hydroxymethyl-1, 3-propanediol	≥1 - ≤5	CAS: 77-86-1
Ethylene glycol	ethylene glycol; ethane-1,2-diol; 1,2-Ethanediol; Glycol; Monoethylene glycol; 1,2-Ethanediol (ethylene glycol); Glycol alcohol; 1,2-Dihydroxyethane; catalyst, containing N-(2-hydroxypropylammonium)diazabicyclo [2,2,2]octane-2-ethyl hexanoate, dissolved in ethane-1,2-diol; preparations consisting predominantly of ethylene glycol (CAS RN 107-21-1) and: — either diethylene glycol (CAS RN 111-46-6), dodecandioic acid and ammonia water, — or N,N-dimethylformamide (CAS RN 68-12-2), — or γ-butyrolactone (CAS RN 96-48-0), — or silicon oxide, — or ammonium hydrogen azelate, — or ammonium hydrogen azelate and silicon oxide, — or dodecandioic acid, ammonia water and silicon oxide, for the manufacture of electrolytic capacitors; 1,2-ethanediol	≥1 - ≤5	CAS: 107-21-1

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified 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>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. If necessary, call a poison center or physician.
<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 necessary, call a poison center or physician. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
<b>Skin contact</b>	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Ingestion</b>	Wash out mouth with water. Remove dentures if any. 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. If necessary, call a poison center or physician. 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.



**Most important symptoms/effects, acute and delayed****Potential acute health effects**

<b>Eye contact</b>	No known significant effects or critical hazards.
<b>Inhalation</b>	Causes damage to organs following a single exposure if inhaled.
<b>Skin contact</b>	Causes damage to organs following a single exposure in contact with skin.
<b>Ingestion</b>	Causes damage to organs following a single exposure if swallowed.

**Over-exposure signs/symptoms**

<b>Eye contact</b>	No specific data.
<b>Inhalation</b>	No specific data.
<b>Skin contact</b>	No specific data.
<b>Ingestion</b>	No specific data.

**Indication of immediate medical attention and special treatment needed, if necessary**

<b>Notes to physician</b>	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
<b>Specific treatments</b>	No specific treatment.
<b>Protection of first-aiders</b>	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

**Section 5. Fire-fighting measures****Extinguishing media**

<b>Suitable extinguishing media</b>	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	None known.

**Specific hazards arising from the chemical** In a fire or if heated, a pressure increase will occur and the container may burst.

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

**Special protective actions for fire-fighters** 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.

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

**Section 6. Accidental release measures****Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel** No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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

**Methods and materials for containment and cleaning up**

**Small spill** Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. 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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. 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.
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Section 7. Handling and storage

Precautions for safe handling

<b>Protective measures</b>	Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
<b>Advice on general occupational hygiene</b>	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. See also Section 8 for additional information on hygiene measures.
<b>Conditions for safe storage, including any incompatibilities</b>	Store between the following temperatures: 18 to 30°C (64.4 to 86°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. 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. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<b>Ingredient name</b> Ethylene glycol	<b>Exposure limits</b> <b>CA Saskatchewan Provincial (Canada, 4/2021)</b> CEIL: 100 mg/m³. Form: aerosol. <b>CA British Columbia Provincial (Canada, 9/2024)</b> Notes: No British Columbia exposure limit at this time for inhalable aerosol TWA 8 hours: 10 mg/m³. Form: Total, Aerosol. STEL 15 minutes: 20 mg/m³. Form: Total, Aerosol. C: 100 mg/m³. Form: Total, Aerosol. C: 50 ppm. Form: Vapour. <b>CA Ontario Provincial (Canada, 6/2019)</b> Ceiling Limit: 10 mg/m³. Form: Inhalable particulate matter, aerosol only. STEL 15 minutes: 50 ppm. Form: Vapour fraction.. TWA 8 hours: 25 ppm. Form: Vapour fraction.. <b>CA Quebec Provincial (Canada, 2/2024)</b> C: 50 ppm. Form: vapour and mist. C: 127 mg/m³. Form: vapour and mist. <b>CA Alberta Provincial (Canada, 3/2023)</b> C: 100 mg/m³.
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Biological exposure indices

No exposure indices known.

<b>Appropriate engineering controls</b>	If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
<b>Environmental exposure controls</b>	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

<b>Hygiene measures</b>	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.
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<b>Eye/face protection</b>	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. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
<b>Skin protection</b>	
<b>Hand protection</b>	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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
<b>Body protection</b>	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.
<b>Other skin protection</b>	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
<b>Respiratory protection</b>	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

<b>Physical state</b>	Liquid.
<b>Color</b>	Clear. Colorless.
<b>Odor</b>	Not available.
<b>Odor threshold</b>	Not available.
<b>pH</b>	9.4
<b>Melting point/freezing point</b>	Not available.
<b>Boiling point or initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not applicable.
<b>Burning time</b>	Not applicable.
<b>Burning rate</b>	Not applicable.
<b>Evaporation rate</b>	Not available.
<b>Flammability</b>	Not available.
<b>Lower and upper explosive (flammable) limits</b>	Not available.
<b>Vapor pressure</b>	Not available.

### Vapor Pressure at 20°C

### Vapor pressure at 50°C

	<b>Ingredient name</b>	<b>mm Hg</b>	<b>kPa</b>	<b>Method</b>	<b>mm Hg</b>	<b>kPa</b>	<b>Method</b>
	water	17.5	2.3				
	ethanediol	0.09226	0.012				

<b>Relative vapor density</b>	Not available.
<b>Relative density</b>	Not available.

### Solubility(ies)

<b>Media</b>	<b>Result</b>
cold water	Easily soluble
hot water	Easily soluble

<b>Solubility in water</b>	Not available.
<b>Partition coefficient: n-octanol/ water</b>	Not applicable.

<b>Auto-ignition temperature</b>	Not available.
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<b>Ingredient name</b>	<b>°C</b>	<b>°F</b>	<b>Method</b>
ethanediol	398	748.4	

<b>Decomposition temperature</b>	Not available.
<b>SADT</b>	Not available.

<b>Viscosity</b>	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C (104°F)): Not available.
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<b>Flow time (ISO 2431)</b>	Not available.
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### Particle characteristics



Median particle size	Not applicable.
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Section 10. Stability and reactivity

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	No specific data.
Incompatible materials	No specific data.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result
Ethylene glycol	Rat - Oral - LD50 4700 mg/kg
Conclusion/Summary [Product]	Not available.

Skin corrosion/irritation

Not available.	
Conclusion/Summary [Product]	Not available.

Serious eye damage/eye irritation

Not available.	
Conclusion/Summary [Product]	Not available.

Respiratory corrosion/irritation

Not available.	
Conclusion/Summary [Product]	Not available.

Respiratory or skin sensitization

Not available.	
Skin	
Conclusion/Summary [Product]	Not available.

Respiratory

Conclusion/Summary [Product]	Not available.
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Germ cell mutagenicity

Not available.	
Conclusion/Summary [Product]	Not available.



**Carcinogenicity**

Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
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**Classification**

Product/ingredient name	IARC	NTP	ACGIH
Ethylene glycol	-	-	A4

**Reproductive toxicity**

Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
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**Specific target organ toxicity (single exposure)**

Product/ingredient name	Result
Ethylene glycol	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

**Specific target organ toxicity (repeated exposure)**

Not available.

**Aspiration hazard**

Not available.

<b>Information on the likely routes of exposure</b>	Not available.
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**Potential acute health effects**

<b>Eye contact</b>	No known significant effects or critical hazards.
<b>Inhalation</b>	Causes damage to organs following a single exposure if inhaled.
<b>Skin contact</b>	Causes damage to organs following a single exposure in contact with skin.
<b>Ingestion</b>	Causes damage to organs following a single exposure if swallowed.

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

<b>Eye contact</b>	No specific data.
<b>Inhalation</b>	No specific data.
<b>Skin contact</b>	No specific data.
<b>Ingestion</b>	No specific data.

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

<b>Potential immediate effects</b>	Not available.
<b>Potential delayed effects</b>	Not available.

**Long term exposure**

<b>Potential immediate effects</b>	Not available.
<b>Potential delayed effects</b>	Not available.

**Potential chronic health effects**

Not available.



<b>Conclusion/Summary [Product]</b>	Not available.
<b>General</b>	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	No known significant effects or critical hazards.
<b>Mutagenicity</b>	No known significant effects or critical hazards.
<b>Reproductive toxicity</b>	No known significant effects or critical hazards.

**Numerical measures of toxicity****Acute toxicity estimates**

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Luminol/Enhancers; part of 'ECL Prime Western Blotting Detection Reagent'	25000	N/A	N/A	N/A	N/A
Ethylene glycol	500	N/A	N/A	N/A	N/A

**Section 12. Ecological information****Toxicity**

Product/ingredient name	Result
Ethylene glycol	<b>Acute - LC50 - Fresh water</b> Fish - Fathead minnow - <i>Pimephales promelas</i> Age: ≤7 days 8050 mg/l [96 hours] Effect: Mortality <b>Acute - LC50 - Fresh water</b> Crustaceans - Water flea - <i>Ceriodaphnia dubia</i> - Neonate 6900 mg/l [48 hours] Effect: Mortality
<b>Conclusion/Summary [Product]</b>	Not available.

**Persistence and degradability**

Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
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Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Tris(hydroxymethyl) aminomethane	-	-	Readily
Ethylene glycol	-	-	Readily

**Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Ethylene glycol	-1.36	10	Low

**Mobility in soil**

<b>Soil/Water partition coefficient</b>	Not available.
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<b>Other adverse effects</b>	No known significant effects or critical hazards.
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**Section 13. Disposal considerations**

<b>Disposal methods</b>	<p>The generation of waste should be avoided or minimized wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.</p>
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## Section 14. Transport information

	TDG Classification	DOT Classification	ADR/RID	IMDG	IATA
<b>UN number</b>	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
<b>UN proper shipping name</b>	-	-	-	-	-
<b>Transport hazard class(es)</b>	-	-	-	-	-
<b>Packing group</b>	-	-	-	-	-
<b>Environmental hazards</b>	No.	No.	No.	No.	No.
<b>Additional information</b>	-	-	-	-	-
<b>Special precautions for user</b>	<b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.				
<b>Transport in bulk according to IMO instruments</b>	Not available.				

## Section 15. Regulatory information

Canadian lists

<b>Canadian NPRI</b>	The following components are listed: ethylene glycol
<b>CEPA Toxic substances</b>	None of the components are listed.

International regulationsChemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

<b>Canada</b>	Not determined.
<b>United States</b>	Not determined.

## Section 16. Other information

History


<b>Date of printing</b>	1/8/2026
<b>Date of issue/Date of revision</b>	1/8/2026
<b>Date of previous issue</b>	12/18/2020
<b>Version</b>	5.01
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<b>Key to abbreviations</b>	ATE = Acute Toxicity Estimate
	BCF = Bioconcentration Factor
	GHS = Globally Harmonized System of Classification and Labelling of Chemicals
	HPR = Hazardous Products Regulations
	IATA = International Air Transport Association
	IBC = Intermediate Bulk Container
	IMDG = International Maritime Dangerous Goods
	LogPow = logarithm of the octanol/water partition coefficient
	MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
	N/A = Not available
	UN = United Nations

**Procedure used to derive the classification**

Classification	Justification
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1	Calculation method

<b>References</b>	Not available.
	 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.

