



## Counterstain Diluent USA

### Leica Biosystems

Version No: 1.5  
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Chemwatch Hazard Alert Code: 2

Issue Date: 02/03/2016  
Print Date: 02/03/2016  
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S.GHS.USA.EN

## SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

### Product Identifier

Product name	Counterstain Diluent USA
Synonyms	LK-097X
Other means of identification	Not Available

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

Relevant identified uses	Diluent for DAPI Counterstain (0,1 µg/ml) and DAPI Counterstain (0,01 µg/mL)
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### Details of the supplier of the safety data sheet

Registered company name	Leica Biosystems
Address	1700 Leider Lane Buffalo Grove IL 60089 United States
Telephone	800-248-0123
Fax	Not Available
Website	www.LeicaBiosystems.com
Email	kreatech-support@leicabiosystems.com

### Emergency telephone number

Association / Organisation	Leica Biosystems
Emergency telephone numbers	800-248-0123
Other emergency telephone numbers	Not Available

## SECTION 2 HAZARDS IDENTIFICATION

### Classification of the substance or mixture

#### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	1	
Toxicity	0	
Body Contact	2	
Reactivity	1	
Chronic	0	

0 = Minimum  
1 = Low  
2 = Moderate  
3 = High  
4 = Extreme



GHS Classification	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, STOT - SE (Resp. Irr.) Category 3
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### Label elements

GHS label elements	
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SIGNAL WORD	WARNING
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### Hazard statement(s)

Continued...

## Counterstain Diluent USA

<b>H315</b>	Causes skin irritation
<b>H319</b>	Causes serious eye irritation
<b>H335</b>	May cause respiratory irritation

### Precautionary statement(s) Prevention

<b>P271</b>	Use only outdoors or in a well-ventilated area.
<b>P261</b>	Avoid breathing dust/fume/gas/mist/vapours/spray.
<b>P280</b>	Wear protective gloves/protective clothing/eye protection/face protection.

### Precautionary statement(s) Response

<b>P362</b>	Take off contaminated clothing.
<b>P305+P351+P338</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<b>P312</b>	Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
<b>P337+P313</b>	If eye irritation persists: Get medical advice/attention.
<b>P302+P352</b>	IF ON SKIN: Wash with plenty of water and soap
<b>P304+P340</b>	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
<b>P332+P313</b>	If skin irritation occurs: Get medical advice/attention.

### Precautionary statement(s) Storage

<b>P405</b>	Store locked up.
<b>P403+P233</b>	Store in a well-ventilated place. Keep container tightly closed.

### Precautionary statement(s) Disposal

<b>P501</b>	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration
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## SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

### Substances

See section below for composition of Mixtures

### Mixtures

CAS No	%[weight]	Name
56-81-5	90-100	<u>glycerol</u>
7732-18-5	<1	<u>water</u>

## SECTION 4 FIRST AID MEASURES

### Description of first aid measures

<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>‣ Wash out immediately with fresh running water.</li> <li>‣ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>‣ Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>‣ Immediately remove all contaminated clothing, including footwear.</li> <li>‣ Flush skin and hair with running water (and soap if available).</li> <li>‣ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>‣ If fumes or combustion products are inhaled remove from contaminated area. Lay patient down. Keep warm and rested.</li> <li>‣ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>‣ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>‣ Transport to hospital, or doctor, without delay.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>‣ Immediately give a glass of water.</li> <li>‣ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.</li> </ul>

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

	See Section 11
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### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5 FIREFIGHTING MEASURES

### Extinguishing media

## Counterstain Diluent USA

- ‡ Foam.
- ‡ Dry chemical powder.
- ‡ BCF (where regulations permit).
- ‡ Carbon dioxide.
- ‡ Water spray or fog - Large fires only.

### Special hazards arising from the substrate or mixture

- |                             |  |
|-----------------------------|--|
| <b>Fire Incompatibility</b> | ‡ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
|-----------------------------|--|

### Advice for firefighters

- |                              |  |
|------------------------------|--|
| <b>Fire Fighting</b>         | <ul style="list-style-type: none"> <li>‡ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>‡ Wear full body protective clothing with breathing apparatus.</li> <li>‡ Prevent, by any means available, spillage from entering drains or water course.</li> <li>‡ Use water delivered as a fine spray to control fire and cool adjacent area.</li> <li>‡ Avoid spraying water onto liquid pools.</li> <li>‡ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>‡ Cool fire exposed containers with water spray from a protected location.</li> <li>‡ If safe to do so, remove containers from path of fire.</li> </ul> |
| <b>Fire/Explosion Hazard</b> | <ul style="list-style-type: none"> <li>‡ Combustible.</li> <li>‡ Slight fire hazard when exposed to heat or flame.</li> <li>‡ Heating may cause expansion or decomposition leading to violent rupture of containers.</li> <li>‡ On combustion, may emit toxic fumes of carbon monoxide (CO).</li> <li>‡ May emit acrid smoke.</li> <li>‡ Mists containing combustible materials may be explosive.</li> </ul> <p>Combustion products include: carbon dioxide (CO<sub>2</sub>), acrolein, other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes.</p>  |

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

- |                     |  |
|---------------------|--|
| <b>Minor Spills</b> | <p>Slippery when spilt.</p> <ul style="list-style-type: none"> <li>‡ Remove all ignition sources.</li> <li>‡ Clean up all spills immediately.</li> <li>‡ Avoid breathing vapours and contact with skin and eyes.</li> <li>‡ Control personal contact with the substance, by using protective equipment.</li> <li>‡ Contain and absorb spill with sand, earth, inert material or vermiculite.</li> <li>‡ Wipe up.</li> <li>‡ Place in a suitable, labelled container for waste disposal.</li> </ul> |
| <b>Major Spills</b> | Not Applicable   |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 HANDLING AND STORAGE

### Precautions for safe handling

- |                          |  |
|--------------------------|--|
| <b>Safe handling</b>     | <ul style="list-style-type: none"> <li>‡ <b>DO NOT allow clothing wet with material to stay in contact with skin</b></li> <li>‡ Avoid all personal contact, including inhalation.</li> <li>‡ Wear protective clothing when risk of exposure occurs.</li> <li>‡ Use in a well-ventilated area.</li> <li>‡ Prevent concentration in hollows and sumps.</li> <li>‡ <b>DO NOT enter confined spaces until atmosphere has been checked.</b></li> <li>‡ Avoid smoking, naked lights or ignition sources.</li> <li>‡ Avoid contact with incompatible materials.</li> <li>‡ When handling, <b>DO NOT eat, drink or smoke.</b></li> <li>‡ Keep containers securely sealed when not in use.</li> <li>‡ Avoid physical damage to containers.</li> <li>‡ Always wash hands with soap and water after handling.</li> <li>‡ Work clothes should be laundered separately.</li> <li>‡ Use good occupational work practice.</li> <li>‡ Observe manufacturer's storage and handling recommendations contained within this MSDS.</li> <li>‡ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.</li> </ul> |
| <b>Other information</b> | <ul style="list-style-type: none"> <li>‡ Store in original containers.</li> <li>‡ Keep containers securely sealed.</li> <li>‡ No smoking, naked lights or ignition sources.</li> <li>‡ Store in a cool, dry, well-ventilated area.</li> <li>‡ Store away from incompatible materials and foodstuff containers.</li> <li>‡ Protect containers against physical damage and check regularly for leaks.</li> <li>‡ Observe manufacturer's storage and handling recommendations contained within this MSDS.</li> </ul>  |

### Conditions for safe storage, including any incompatibilities

- |                                |   |
|--------------------------------|---|
| <b>Suitable container</b>      | <ul style="list-style-type: none"> <li>‡ Metal can or drum</li> <li>‡ Packaging as recommended by manufacturer.</li> <li>‡ Check all containers are clearly labelled and free from leaks.</li> </ul>  |
| <b>Storage incompatibility</b> | <p>Glycerol:</p> <ul style="list-style-type: none"> <li>‡ reacts violently with strong oxidisers, acetic anhydride, alkali metal hydrides, calcium hypochlorite, calcium oxychloride, chlorine, chromic anhydride, chromium oxides, ethylene oxide, hydrogen peroxide, phosphorous triiodide, potassium chlorate, potassium permanganate, potassium peroxide, silver perchlorate, sodium hydride, sodium peroxide, sodium triiodide, sodium tetrahydroborate, is incompatible with strong acids, caustics, aliphatic amines, isocyanates, uranium fluoride</li> </ul> |

Continued...

## Counterstain Diluent USA

- ▶ is able to polymerise above 145 C
- ▶ Avoid reaction with oxidising agents

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

## Control parameters

## OCCUPATIONAL EXPOSURE LIMITS (OEL)

## INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Levels (PELs) - Table Z1	glycerol	Glycerin / Glycerin - Respirable fraction	15 mg/m <sup>3</sup> / 5 mg/m <sup>3</sup>	Not Available	Not Available	Total dust; (mist) / (mist)
US NIOSH Recommended Exposure Limits (RELs)	glycerol	Glycerin (anhydrous); Glycerol; Glycyl alcohol; 1,2,3-Propanetriol; Trihydroxypropane	Not Available	Not Available	Not Available	See Appendix D

## EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
glycerol	Glycerine (mist); (Glycerol; Glycerin)	30 mg/m <sup>3</sup>	310 mg/m <sup>3</sup>	2500 mg/m <sup>3</sup>

Ingredient	Original IDLH	Revised IDLH
glycerol	Not Available	Not Available
water	Not Available	Not Available

## Exposure controls

Appropriate engineering controls	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <p>General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in special circumstances. If risk of overexposure exists, wear approved respirator. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. Provide adequate ventilation in warehouses and enclosed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.</p>																			
	<table border="1"> <thead> <tr> <th>Type of Contaminant:</th> <th>Air Speed:</th> </tr> </thead> <tbody> <tr> <td>solvent, vapours, degreasing etc., evaporating from tank (in still air).</td> <td>0.25-0.5 m/s (50-100 f/min)</td> </tr> <tr> <td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td> <td>0.5-1 m/s (100-200 f/min.)</td> </tr> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 f/min.)</td> </tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion)</td> <td>2.5-10 m/s (500-2000 f/min.)</td> </tr> </tbody> </table> <p>Within each range the appropriate value depends on:</p> <table border="1"> <thead> <tr> <th>Lower end of the range</th> <th>Upper end of the range</th> </tr> </thead> <tbody> <tr> <td>1: Room air currents minimal or favourable to capture</td> <td>1: Disturbing room air currents</td> </tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only.</td> <td>2: Contaminants of high toxicity</td> </tr> <tr> <td>3: Intermittent, low production.</td> <td>3: High production, heavy use</td> </tr> <tr> <td>4: Large hood or large air mass in motion</td> <td>4: Small hood-local control only</td> </tr> </tbody> </table> <p>Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.</p>	Type of Contaminant:	Air Speed:	solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min)	aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)	direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)	grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion)	2.5-10 m/s (500-2000 f/min.)	Lower end of the range	Upper end of the range	1: Room air currents minimal or favourable to capture	1: Disturbing room air currents	2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity	3: Intermittent, low production.	3: High production, heavy use	4: Large hood or large air mass in motion
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## Personal protection



## Eye and face protection

- ▶ Safety glasses with side shields. Chemical goggles.
- ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

## Counterstain Diluent USA

<b>Skin protection</b>	See Hand protection below
<b>Hands/feet protection</b>	<ul style="list-style-type: none"> <li>‡ Wear chemical protective gloves, e.g. PVC.</li> <li>‡ Wear safety footwear or safety gumboots, e.g. Rubber</li> </ul> <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> <li>‡ frequency and duration of contact,</li> <li>‡ chemical resistance of glove material,</li> <li>‡ glove thickness and</li> <li>‡ dexterity</li> </ul> <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> <li>‡ When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>‡ When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>‡ Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.</li> <li>‡ Contaminated gloves should be replaced.</li> </ul> <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	No special equipment needed when handling small quantities
<b>Thermal hazards</b>	Not Available

**Respiratory protection**

Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

**SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES****Information on basic physical and chemical properties**

<b>Appearance</b>	Not Available		
<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	Not Available
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	Not Available	<b>Decomposition temperature</b>	Not Available
<b>Melting point / freezing point (°C)</b>	Not Available	<b>Viscosity (cSt)</b>	Not Available
<b>Initial boiling point and boiling range (°C)</b>	Not Available	<b>Molecular weight (g/mol)</b>	Not Available
<b>Flash point (°C)</b>	Not Available	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Available	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Available	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	Not Available	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	Not Available	<b>Gas group</b>	Not Available
<b>Solubility in water (g/L)</b>	Immiscible	<b>pH as a solution (1%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Not Available

**SECTION 10 STABILITY AND REACTIVITY**

<b>Reactivity</b>	See section 7
<b>Chemical stability</b>	<ul style="list-style-type: none"> <li>‡ Unstable in the presence of incompatible materials. Product is considered stable.</li> <li>‡ Hazardous polymerisation will not occur.</li> </ul>
<b>Possibility of hazardous reactions</b>	See section 7
<b>Conditions to avoid</b>	See section 7
<b>Incompatible materials</b>	See section 7
<b>Hazardous decomposition products</b>	See section 5

**SECTION 11 TOXICOLOGICAL INFORMATION**

## Counterstain Diluent USA

## Information on toxicological effects

Inhaled	The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by inhalation". This is because of the lack of corroborating animal or human evidence. Not normally a hazard due to non-volatile nature of product
Ingestion	The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.
Skin Contact	The material may accentuate any pre-existing dermatitis condition Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. The material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.
Eye	Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals. Prolonged eye contact may cause inflammation characterised by a temporary redness of the conjunctiva (similar to windburn).
Chronic	Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Counterstain Diluent USA	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
glycerol	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (guinea pig) LD50: 54000 mg/kg <sup>[1]</sup>	Not Available
	Oral (rat) LD50: >20<39800 mg/kg <sup>[1]</sup>	
water	<b>TOXICITY</b>	<b>IRRITATION</b>
	Oral (rat) LD50: >90000 mg/kg <sup>[2]</sup>	Not Available

**Legend:** 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. \* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

Counterstain Diluent USA	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.</p> <p>No significant acute toxicological data identified in literature search.</p> <p>At very high concentrations, evidence predicts that glycerol may cause tremor, irritation of the skin, eyes, digestive tract and airway. Otherwise it is of low toxicity. There is no significant evidence to suggest that it causes cancer, genetic, reproductive or developmental toxicity.</p>
GLYCEROL	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.</p> <p>At very high concentrations, evidence predicts that glycerol may cause tremor, irritation of the skin, eyes, digestive tract and airway. Otherwise it is of low toxicity. There is no significant evidence to suggest that it causes cancer, genetic, reproductive or developmental toxicity.</p>
WATER	No significant acute toxicological data identified in literature search.

Acute Toxicity	☒	Carcinogenicity	☒
Skin Irritation/Corrosion	☑	Reproductive	☒
Serious Eye Damage/Irritation	☑	STOT - Single Exposure	☑
Respiratory or Skin sensitisation	☒	STOT - Repeated Exposure	☒
Mutagenicity	☒	Aspiration Hazard	☒

**Legend:** ☑ – Data required to make classification available  
☒ – Data available but does not fill the criteria for classification  
☒ – Data Not Available to make classification

## Counterstain Diluent USA

### SECTION 12 ECOLOGICAL INFORMATION

#### Toxicity

For Glycerol: Log Kow: -2.66 to -2.47.

Atmospheric Fate: Glycerol is broken down in the air by hydroxyl radicals ◆ the half-life for this process is 6.8 hours. However, only a negligible amount of the substance will move to the atmospheric compartment.

Terrestrial Fate: Only a negligible amount of glycerol will move into the soil compartment, if released into the environment.

Aquatic Fate: Glycerol is considered to be readily biodegradable in the aquatic environment. Pre-adapted microorganisms can break glycerol down rapidly in oxygenated/low oxygen waters.

The substance is not expected to react with water. When released to water, 100% of the substance will remain in the water compartment - only negligible amounts will be distributed to sediment. Ecotoxicity: Glycerol is readily biodegradable. This substance is non-toxic to fish, including goldfish, algae, and bacteria, (*Pseudomonas putida*), and *Daphnia magna* water fleas.

Glycerol is of low toxicity to aquatic organisms. Long-term aquatic toxicity data is not available. The substance is completely biodegradable and has a low potential to accumulate.

**DO NOT discharge into sewer or waterways.**

#### Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
glycerol	LOW	LOW
water	LOW	LOW

#### Bioaccumulative potential

Ingredient	Bioaccumulation
glycerol	LOW (LogKOW = -1.76)
water	LOW (LogKOW = -1.38)

#### Mobility in soil

Ingredient	Mobility
glycerol	HIGH (KOC = 1)
water	LOW (KOC = 14.3)

### SECTION 13 DISPOSAL CONSIDERATIONS

#### Waste treatment methods

<b>Product / Packaging disposal</b>	<p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> <li>▶ Reduction</li> <li>▶ Reuse</li> <li>▶ Recycling</li> <li>▶ Disposal (if all else fails)</li> </ul> <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type.</p> <p>Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.</p> <ul style="list-style-type: none"> <li>▶ <b>DO NOT allow wash water from cleaning or process equipment to enter drains.</b></li> <li>▶ It may be necessary to collect all wash water for treatment before disposal.</li> <li>▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>▶ Where in doubt contact the responsible authority.</li> <li>▶ Recycle wherever possible or consult manufacturer for recycling options.</li> <li>▶ Consult State Land Waste Authority for disposal.</li> <li>▶ Bury or incinerate residue at an approved site.</li> <li>▶ Recycle containers if possible, or dispose of in an authorised landfill.</li> </ul>
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### SECTION 14 TRANSPORT INFORMATION

#### Labels Required

<b>Marine Pollutant</b>	NO
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Land transport (DOT): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### SECTION 15 REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

GLYCEROL(56-81-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

## Counterstain Diluent USA

US - Alaska Limits for Air Contaminants	US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - California Permissible Exposure Limits for Chemical Contaminants	US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Hawaii Air Contaminant Limits	US - Washington Permissible exposure limits of air contaminants
US - Idaho - Limits for Air Contaminants	US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US - Michigan Exposure Limits for Air Contaminants	US NIOSH Recommended Exposure Limits (RELs)
US - Minnesota Permissible Exposure Limits (PELs)	US OSHA Permissible Exposure Levels (PELs) - Table Z1
US - Oregon Permissible Exposure Limits (Z-1)	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	

### WATER(7732-18-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

### Federal Regulations

#### Superfund Amendments and Reauthorization Act of 1986 (SARA)

##### SECTION 311/312 HAZARD CATEGORIES

Immediate (acute) health hazard	YES
Delayed (chronic) health hazard	NO
Fire hazard	NO
Pressure hazard	NO
Reactivity hazard	NO

##### US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)

None Reported

### State Regulations

##### US. CALIFORNIA PROPOSITION 65

None Reported

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (glycerol; water)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	N (water)
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
<b>Legend:</b>	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

## SECTION 16 OTHER INFORMATION

### Other information

#### Ingredients with multiple cas numbers

Name	CAS No
glycerol	29796-42-7, 30049-52-6, 37228-54-9, 56-81-5, 75398-78-6, 78630-16-7, 8013-25-0

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at: [www.chemwatch.net](http://www.chemwatch.net)

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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