

MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

<p><u>TRADE NAME (AS LABELED):</u></p> <p><u>CODE NUMBERS:</u></p> <p><u>U.N. NUMBER:</u></p> <p><u>U.N. DANGEROUS GOODS CLASS/SUBSIDIARY RISK:</u></p> <p><u>HAZCHEM CODE (AUSTRALIA):</u></p> <p><u>POISONS SCHEDULE NUMBER (AUSTRALIA):</u></p> <p><u>PRODUCT USE:</u></p> <p><u>U.S. SUPPLIER/MANUFACTURER'S NAME:</u></p> <p><u>Address:</u></p> <p><u>Business Phone:</u></p> <p><u>AUSTRALIAN SUPPLIER/DISTRIBUTOR'S NAME:</u></p> <p><u>Address:</u></p> <p><u>Business Phone:</u></p> <p><u>EUROPEAN SUPPLIER/ DISTRIBUTOR'S NAME:</u></p> <p><u>Address:</u></p> <p><u>Business Phone:</u></p> <p><u>EMERGENCY PHONE:</u></p> <p><u>EMAIL ADDRESS/COMPETENT PERSON FOR MSDS:</u></p> <p><u>DATE OF PREPARATION:</u></p>	<p>ProfilerPro Plate Kits 3 and 4</p> <p>PN 760441, PN 760442</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Laboratory Biological Research</p> <p>Caliper Life Sciences</p> <p>68 Elm Street Hopkinton, MA 01748 +1-800-LAB-CHIP (toll-free) +1-800-522-2447 (toll-free) +1-508-435-3439 (outside North America)</p> <p>CHEM-TEL: 1-800-255-3924 (U.S., Canada, Puerto Rico, U.S. Virgin Islands) + 01-813-248-0585 (Worldwide Intl.)</p> <p>Techsupport@caliperls.com</p> <p>February 9, 2008</p>
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2. HAZARD IDENTIFICATION

This Material Safety Data sheet describes the ProfilerPro Plate Kits 3 and 4. This product consists of one hundred forty-six solutions. This Material Safety Data Sheet provides complete information on all the components described in the following tables. Unless otherwise specified, the information in each of the following sections (Sections 3–16) of this document is pertinent to each solution.

EU/AUSTRALIAN LABELING AND CLASSIFICATION: The solutions in this product do not meet the definition of any hazard class as defined by the European Union Council Directive 67/548/EEC and subsequent Directives and by the Australian National Occupational Health and Safety Commission [NOHSC(1008:2004)].

Health Hazards:

DKP Termination Buffer, DKP Substrate Reagents, and DKP Substrate Controls: Chronic ingestion of the Dimethyl Sulfoxide constituent in these components may affect the liver and kidneys.

All Other Components: The chief hazard in event of overexposure is the potential for irritation of contaminated skin or eyes.

Flammability Hazards: The components of this product present no significant fire hazards. In the event of a fire, this product will not contribute significant additional hazards.

Reactivity Hazards: This product is not reactive.

Environmental Hazards: Negligible.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	EINECS#	ENCS#	% v/v	EU CLASSIFICATION FOR COMPONENTS
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COMPONENT 1: DKP TERMINATION BUFFER

HEPES Free Acid	7365-45-9	230-907-9	NE	1–5	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
HEPES Sodium Salt	75277-39-3	75277-39-3	NE	1–5	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Dimethyl Sulfoxide	67-68-5	200-664-3	2-1553	3–7	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Water and other constituents. Each of the other constituents is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).				Balance	None of the other constituents in this solution contribute significantly to the hazards associated with this solution.

COMPONENT 2: DKP RECONSTITUTION BUFFER

Water and other constituents. Each of the other constituents is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).				Balance	None of the other constituents in this solution contribute significantly to the hazards associated with this solution.
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COMPONENT 3: DITHIOTHREITOL SOLUTION, 1M

Dithiothreitol	3483-12-3	222-468-7	NE	10–20	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Water and other constituents. Each of the other constituents is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).				Balance	None of the other constituents in this solution contribute significantly to the hazards associated with this solution.

See Section 16 for full text of Ingredient Risk Phrases

3. COMPOSITION AND INFORMATION ON INGREDIENTS (Continued)

CHEMICAL NAME	CAS #	EINECS#	ENCS#	% v/v	EU CLASSIFICATION FOR COMPONENTS
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COMPONENT 4: PROTEASE INHIBITOR

AEBSF Hydrochloride	30827-99-7	Unlisted	Unlisted	1-5	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Water and other constituents. Each of the other constituents is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).				Balance	None of the other constituents in this solution contribute significantly to the hazards associated with this solution.

COMPONENTS 5-19: DKP ENZYME REAGENTS 49 AND 59 IN ENZYME PLATE 3 AND 75, 76, 78, 79, 82, 87, AND 90-96 IN ENZYME PLATE 4

Sodium Chloride	7647-14-5	231-598-3	1-236	1-5	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Tris(hydroxy methyl)amino methane Hydrochloride	1185-53-1	214-684-5	2-318	1-5	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Glycerin	56-81-5	200-289-5	2-242	10-30	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Water and other constituents. Each of the other constituents is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).				Balance	None of the other constituents in this solution contribute significantly to the hazards associated with this solution.

COMPONENTS 20-26: DKP ENZYME REAGENTS 50,51,54,55,60,64, AND 67 IN ENZYME PLATE 3

Sodium Chloride	7647-14-5	231-598-3	1-236	1-5	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Water and other constituents. Each of the other constituents is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).				Balance	None of the other constituents in this solution contribute significantly to the hazards associated with this solution.

COMPONENTS 27-37: DKP ENZYME REAGENTS 52, 56, 58, 61, 61, 65, 66, 68, 69, AND 72 IN ENZYME PLATE 3 AND 85 IN ENZYME PLATE 4

Sodium Chloride	7647-14-5	231-598-3	1-236	1-5	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Tris(hydroxy methyl)amino methane Hydrochloride	1185-53-1	214-684-5	2-318	1-5	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Water and other constituents. Each of the other constituents is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).				Balance	None of the other constituents in this solution contribute significantly to the hazards associated with this solution.

COMPONENTS 38-41: DKP ENZYME REAGENTS 53 IN ENZYME PLATE 3 AND 73, 83, AND 86 IN ENZYME PLATE 4

Glycerin	56-81-5	200-289-5	2-242	10-30	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Water and other constituents. Each of the other constituents is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).				Balance	None of the other constituents in this solution contribute significantly to the hazards associated with this solution.

COMPONENTS 42-45: DKP ENZYME REAGENTS 57 AND 70 IN ENZYME PLATE 3 AND 74 AND 81 IN ENZYME PLATE 4

Water and other constituents. Each of the other constituents is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).				Balance	None of the other constituents in this solution contribute significantly to the hazards associated with this solution.
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COMPONENTS 46-52: DKP ENZYME REAGENTS 63 AND 71 IN ENZYME PLATE 3 AND 77, 80, 84, 88 AND 89 IN ENZYME PLATE 4

Sodium Chloride	7647-14-5	231-598-3	1-236	1-5	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Glycerin	56-81-5	200-289-5	2-242	10-30	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Water and other constituents. Each of the other constituents is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).				Balance	None of the other constituents in this solution contribute significantly to the hazards associated with this solution.

COMPONENTS 53-145: DKP SUBSTRATE REAGENTS 49-72 AND DKP SUBSTRATE CONTROLS 49-72 IN SUBSTRATE PLATE 3 AND DKP SUBSTRATE REAGENTS 73-96 AND DKP SUBSTRATE CONTROLS 73-96 IN SUBSTRATE PLATE 4

Dimethyl Sulfoxide	67-68-5	200-664-3	2-1553	0.1-0.9	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
HEPES Free Acid	7365-45-9	230-907-9	NE	1-5	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
HEPES Sodium Salt	75277-39-3	75277-39-3	NE	1-5	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Water and other constituents. Each of the other constituents is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).				Balance	None of the other constituents in this solution contribute significantly to the hazards associated with this solution.

See Section 16 for full text of Ingredient Risk Phrases

NOTE: Unless otherwise indicated, the hazard assessments in the following sections are pertinent to all component reagents.

4. FIRST-AID MEASURES

Contaminated individuals must seek medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take a copy of label and MSDS to physician or health professional with the contaminated individual.

SKIN EXPOSURE: If this product contaminates the skin, begin decontamination with copious amounts of running water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Contaminated clothing must be removed and laundered before re-use. The contaminated individual must seek medical attention if any adverse effect develops after the area is flushed.

EYE EXPOSURE: If this product contaminates the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have the contaminated individual "roll" eyes. Minimum flushing is for 15 minutes. The contaminated individual must seek medical attention if adverse effects occur after flushing.

INHALATION: If vapors, mists or sprays from this product are inhaled, remove contaminated individual to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers. Seek medical attention if adverse effect continues after removal to fresh air.

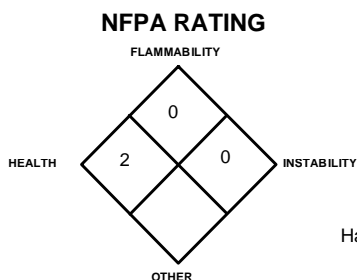
INGESTION: If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING unless directed by medical personnel. Have contaminated individual rinse mouth with water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. If contaminated individual is convulsing, maintain an open airway and obtain immediate medical attention.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing dermatitis, other skin conditions, respiratory conditions, and liver disorders may be aggravated by overexposure to components of this product.

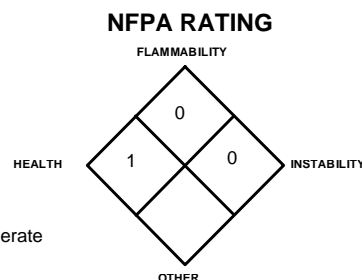
RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.

5. FIRE-FIGHTING MEASURES

DKP Termination Buffer



All Other Reagents



Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate
3 = Serious 4 = Severe

FLASH POINT: Not flammable.

AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %): Not applicable.

FIRE EXTINGUISHING MATERIALS: In the event of a fire, use suppression methods for surrounding materials (e.g., water spray, dry chemical, carbon dioxide, foam, any "ABC" class extinguisher).

FIRE EXTINGUISHING MATERIALS NOT BE USED: Halon extinguishers should not be used for fires involving this product.

UNUSUAL FIRE AND EXPLOSION HAZARDS: When involved in a fire, this product's components will decompose and produce irritating vapors and toxic gases (including carbon oxides, dimethyl amine, hydrogen sulfide, cyanides, sodium oxides, and nitrogen oxides).

SPECIAL FIRE-FIGHTING PROCEDURES: Do not use halogenated extinguishing media. Move containers from fire area if it can be done without risk to personnel. Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Chemical resistant clothing may be necessary. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Trained personnel using pre-planned procedures should respond to uncontrolled releases. Proper protective equipment should be used. In case of a spill, clear the affected area and protect people. Eliminate all sources of ignition before cleanup begins. Use non-sparking tools. The atmosphere must have levels of constituents lower than those listed in Section 8, (Exposure Controls and Personal Protective Equipment), if applicable, and have at least 19.5 percent oxygen before personnel can be allowed into the area without Self-Contained Breathing Apparatus (SCBA).

Small Spills: Lightweight gloves, a lab coat, and eye protection should be worn. Absorb spilled liquid with paper towels. Wash contaminated area with soap and water, absorb with paper towels, and rinse with water.

Large Spills: Minimum Personal Protective Equipment should be **Level D: lab-gloves, chemical resistant apron, boots, and splash goggles.**

Respiratory protection should not be necessary. Absorb spilled liquid with polypads or other suitable absorbent materials. Dike or otherwise contain spill and remove with vacuum truck or pump to storage/salvage vessels. Decontaminate the area thoroughly. Prevent material from entering sewer or confined spaces, waterways, soil or public waters. Monitor area and confirm levels are below exposure limits given in Section 8 (Exposure Controls-Personal Protection), if applicable, before non-response personnel are allowed into the spill area.

Place all spill residue in a double plastic bag or other containment and seal. Decontaminate the area thoroughly. Do not mix with wastes from other materials. Dispose of in accordance with applicable International, National, and local procedures (see Section 13, Disposal Considerations). For spills on water, contain, minimize dispersion and collect. Dispose of recovered material and report spill per regulatory requirements.

7. HANDLING and STORAGE

SAFE WORK AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product's components ON YOU or IN YOU. Wash thoroughly after handling this product's components. Avoid splashing or spraying this product's components. Do not eat or drink while handling this product's components.

7. HANDLING and STORAGE (Continued)

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Avoid breathing vapors or mists generated by this product's components. Ensure containers of this product's components are properly labeled. Open containers slowly on a stable surface. Store vials as directed in the product insert. Keep vials tightly closed when not in use. Store away from incompatible materials. Inspect vials containing this product's components for leaks or damage. Read instructions provided with the product prior to use.

SPECIFIC USE(S): This product is for use in laboratory biological research. Follow all industry standards for use.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely, as applicable. Collect all rinsates and dispose of according to applicable International, National, and local hazardous waste disposal regulations.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION, ENGINEERING, AND OCCUPATIONAL EXPOSURE CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided below, if applicable. If necessary, refer to Australian National Code of Practice for the Control of Workplace Hazardous Substances [NOHSC: 2007 (1994)] for further information. As with all products that contain chemicals, ensure proper decontamination equipment (e.g., eyewash/safety shower stations) are available near areas where this product is used as necessary.

EXPOSURE LIMITS/GUIDELINES:

NOTE: For Component Numbers not specifically listed, those components are primarily water and trace constituents—no exposure limits are applicable.

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR							
		ACGIH-TLVs		OSHA-PELs		NIOSH-RELs		NIOSH	OTHER
		TWA mg/m ³	STEL mg/m ³	TWA mg/m ³	STEL mg/m ³	TWA mg/m ³	STEL mg/m ³	IDLH mg/m ³	mg/m ³

COMPONENT 1: DKP TERMINATION BUFFER

HEPES Free Acid	7365-45-9	NE	NE	NE	NE	NE	NE	NE	NE
HEPES Sodium Salt	75277-39-3	NE	NE	NE	NE	NE	NE	NE	NE
Dimethyl Sulfoxide	67-68-5	NE	NE	NE	NE	NE	NE	NE	NE

COMPONENT 3: DITHIOTHREITOL SOLUTION, 1M

Dithiothreitol	3483-12-3	NE	NE	NE	NE	NE	NE	NE	NE
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COMPONENT 4: PROTEASE INHIBITOR

AEBSF Hydrochloride	30827-99-7	NE	NE	NE	NE	NE	NE	NE	NE
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COMPONENTS 5–19: DKP ENZYME REAGENTS 49 AND 59 IN ENZYME PLATE 3 AND 75, 76, 78, 79, 82, 87, AND 90–96 IN ENZYME PLATE 4

Sodium Chloride	7647-14-5	NE	NE	NE	NE	NE	NE	NE	NE
Tris(hydroxy methyl)amino methane Hydrochloride	1185-53-1	NE	NE	NE	NE	NE	NE	NE	NE
Glycerin	56-81-5	10 (mist)	NE	15 (total dust) 5 (resp. frac.) 10 (total dust) 5 (resp. frac.) [vacated 1989 PEL]	NE	NE	NE	NE	DFG MAKs: TWA = 50 (Inhalable fraction) PEAK = 2•MAK 15 min, average value, 1-hr interval Pregnancy Risk Group C

COMPONENTS 20–26: DKP ENZYME REAGENTS 50,51,54,55,60,64, AND 67 IN ENZYME PLATE 3

Sodium Chloride	7647-14-5	NE	NE	NE	NE	NE	NE	NE	NE
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COMPONENTS 27–37: DKP ENZYME REAGENTS 52, 56, 58, 61, 61, 65, 66, 68, 69, AND 72 IN ENZYME PLATE 3 AND 85 IN ENZYME PLATE 4

Sodium Chloride	7647-14-5	NE	NE	NE	NE	NE	NE	NE	NE
Tris(hydroxy methyl)amino methane Hydrochloride	1185-53-1	NE	NE	NE	NE	NE	NE	NE	NE

COMPONENTS 38–41: DKP ENZYME REAGENTS 53 IN ENZYME PLATE 3 AND 73, 83, AND 86 IN ENZYME PLATE 4

Glycerin	56-81-5	10 (mist)	NE	15 (total dust) 5 (resp. frac.) 10 (total dust) 5 (resp. frac.) [vacated 1989 PEL]	NE	NE	NE	NE	DFG MAKs: TWA = 50 (Inhalable fraction) PEAK = 2•MAK 15 min, average value, 1-hr interval Pregnancy Risk Group C
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NE = Not Established.

See Section 16 for Definitions of Terms Used.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

EXPOSURE LIMITS/GUIDELINES (continued):

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR							
		ACGIH-TLVs		OSHA-PELs		NIOSH-RELs		NIOSH	OTHER
		TWA mg/m ³	STEL mg/m ³	TWA mg/m ³	STEL mg/m ³	TWA mg/m ³	STEL mg/m ³	IDLH mg/m ³	mg/m ³

COMPONENTS 46–52: DKP ENZYME REAGENTS 63 AND 71 IN ENZYME PLATE 3 AND 77, 80, 84, 88 AND 89 IN ENZYME PLATE 4

Sodium Chloride	7647-14-5	NE	NE	NE	NE	NE	NE	NE	NE
Glycerin	56-81-5	10 (mist)	NE	15 (total dust) 5 (resp. frac.) 10 (total dust) 5 (resp. frac.) [vacated 1989 PEL]	NE	NE	NE	NE	DFG MAKs: TWA = 50 (Inhalable fraction) PEAK = 2•MAK 15 min, average value, 1-hr interval Pregnancy Risk Group C

COMPONENTS 53–145: DKP SUBSTRATE REAGENTS 49–72 AND DKP SUBSTRATE CONTROLS 49–72 IN SUBSTRATE PLATE 3 AND DKP SUBSTRATE REAGENTS 73–96 AND DKP SUBSTRATE CONTROLS 73–96 IN SUBSTRATE PLATE 4

Dimethyl Sulfoxide	67-68-5	NE	NE	NE	NE	NE	NE	NE	NE
HEPES Free Acid	7365-45-9	NE	NE	NE	NE	NE	NE	NE	NE
HEPES Sodium Salt	75277-39-3	NE	NE	NE	NE	NE	NE	NE	NE

NE = Not Established.

See Section 16 for Definitions of Terms Used.

INTERNATIONAL OCCUPATIONAL EXPOSURE LIMITS: Currently the following international exposure limits are in place for the some constituents of this product. Values given may not be the most current; individual country lists should be consulted to determine most current values available.

GLYCERIN:

Australia: TWA = 10 mg/m³, JAN 1993
 Belgium: TWA = 10 mg/m³, JAN 1993
 Finland: TWA = 20 mg/m³, JAN 1999
 France: VME = 10 mg/m³, JAN 1999
 Korea: TWA = 10 mg/m³ (mist), 2006
 Mexico: TWA = 10 mg/m³ (inhalable), 2004
 The Netherlands: MAC-TGG = 10 mg/m³, 2003

GLYCERIN (continued):

New Zealand: TWA = 10 mg/m³ (mist), JAN 2002
 United Kingdom: TWA = TWA 10 mg/m³, 2005
 In Argentina, Bulgaria, Colombia, Jordan,
 Singapore, Vietnam check ACGIH TLV
DIMETHYL SULFOXIDE:
 Germany: No MAK Established, JAN 1999
 Russia: STEL = 20 mg/m³, JUN 2003

DIMETHYL SULFOXIDE (continued):

Sweden: TWA = 50 ppm (150 mg/m³), KTV = 150
 ppm (500 mg/m³), Skin, JAN 1999
 Switzerland: MAK-W = 50 ppm (160 mg/m³), Skin,
 JAN 1999
 The Netherlands: MAC-TGG = 150 mg/m³, Skin,
 2003
SODIUM CHLORIDE:
 Russia: STEL = 5 mg/m³, JUN 2003

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132), equivalent standards of Canada (including CSA Standard Z94.4-02 and CSA Standard Z94.3-07), standards of EU member states (including EN 529:2005 for respiratory PPE, CEN/TR 15419:2006 for hand protection, and CR 13464:1999 for face/eye protection), or standards of Australia (including AS/NZS 1715:1994 for respiratory PPE, AS/NZS 4501.2:2006 for protective clothing, AS/NZS 2161.1:2000 for glove selection, and AS/NZS 1336:1997 for eye protection). Please reference applicable regulations and standards for relevant details.

RESPIRATORY PROTECTION: Respiratory protection is not generally needed when using this product. Maintain airborne contaminant concentrations below limits listed above. In instances where inhalable mists or sprays of product may be generated and respiratory protection is necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, the Canadian CSA Standard Z94.4-02, the European Standard EN 529:2005, the Australian Standard 1716-Respiratory Protective Devices, the Australian Standard 1715-Selection, Use, and Maintenance of Respiratory Protective Devices, or the requirements of Japan. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, SAR with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

EYE PROTECTION: Depending on the use of this product, splash goggles or safety glasses may be worn. Use goggles or safety glasses for spill response, as stated in Section 6 (Accidental Release Measures) of this MSDS. If necessary, refer to U.S. OSHA 29 CFR 1910.133, the European Standard CR 13464:1999 and the Canadian CSA Standard Z94.3-07, *Industrial Eye and Face Protectors*, the Australian Standard 1337-Eye Protection for Industrial Applications and Australian Standard 1336-Recommended Practices for Eye Protection in the Industrial Environment, as well as requirements of Japan for further information.

HAND PROTECTION: Wear butyl rubber, neoprene, or nitrile rubber or latex gloves for routine use. If necessary, refer to U.S. OSHA 29 CFR 1910.138 appropriate Standards of Canada, the European Standard CEN/TR 15419:2006 or the Australian Standard 2161-Industrial Safety Gloves and Mittens, and applicable Standards of Japan, for further information.

BODY PROTECTION: Use body protection appropriate for task, such as a lab coat. If necessary, use body protection appropriate for task (e.g., Tyvek suit, rubber apron). If necessary, refer appropriate Standards of Canada, the European Standard CEN/TR 15419:2006 to the Australian Standard 3765-Clothing for Protection Against Hazardous Chemicals, or Japan for further information. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136 and the Canadian CSA Standard Z195-02, *Protective Footwear*.

ENVIRONMENTAL EXPOSURE CONTROLS: Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE, ODOR AND COLOR:

Dithiothreitol Solution: Clear, colorless solution with a mildly sulfurous odor.

DKP Termination Buffer, DKP Substrate Reagents, and DKP Substrate Controls: Clear, colorless liquids with a mildly garlic-like odor.

All Other Components: Clear, odorless, colorless liquids.

9. PHYSICAL and CHEMICAL PROPERTIES (Continued)

HOW TO DETECT THIS SUBSTANCE:

Dithiothreitol Solution, DKP Termination Buffer, DKP Substrate Reagents, and DKP Substrate Controls: The odor may act as a warning property associated with these components.

All Other Components: There are no unusual warning properties associated with these solutions.

pH:

Dithiothreitol Solution, DKP Termination Buffer, DKP Substrate Reagents, and DKP Substrate Controls: Not established.

All Other Components: 6.0–10.7

BOILING POINT: Not established.

MELTING/FREEZING POINT: Not established.

FLASH POINT: Not applicable.

FLAMMABILITY: Not flammable.

EXPLOSIVE PROPERTIES: Not explosive

OXIDIZING PROPERTIES: Not an oxidizer.

VAPOR PRESSURE: Not established.

SPECIFIC GRAVITY: Not established.

SOLUBILITY: Not miscible in organic solvents.

SOLUBILITY IN WATER: Completely soluble.

VISCOSITY: Not established.

RELATIVE VAPOR DENSITY (air = 1): Not established.

EVAPORATION RATE: Similar to water.

ODOR THRESHOLD: Not established.

COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not established.

10. STABILITY AND REACTIVITY

DECOMPOSITION CONDITIONS/STABILITY: Stable.

DECOMPOSITION PRODUCTS:

Combustion: Carbon oxides, dimethyl amine, hydrogen sulfide, cyanides, sodium oxides, and nitrogen oxides.

Hydrolysis: None known.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:

DKP Termination Buffer, DKP Substrate Reagents, and DKP Substrate Controls: Strong oxidizers, acetyl chloride, cyanuric chloride, acid chlorides, phosphorus halides, strong acids, strong reducers, substances that are incompatible with water.

All Other Components: Strong oxidizers, strong acids, some metals, substances that are incompatible with water.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Any conditions that are incompatible with water, mixing this product with incompatible chemicals.

11. TOXICOLOGICAL INFORMATION

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms.

ACUTE:

Dithiothreitol Solution: Inhalation of vapors, mists, or sprays of this component may cause nausea, headache, and vomiting. Symptoms of skin overexposure may include redness and discomfort. If this component is swallowed, it may irritate the mouth, throat, and other tissues of the digestive system.

DKP Termination Buffer: Inhalation of vapors, mists, or sprays of this component may cause nausea, headache, and vomiting. Symptoms of skin overexposure may include redness and discomfort. The Dimethyl Sulfoxide constituent of this component can be absorbed through the skin and may carry dissolved chemicals with it into the body. Symptoms of overexposure for a prolonged period of time and a large area of skin may include redness, burning, itching, scaling, vision disturbance, photophobia, headache, and diarrhea. Large oral doses may cause nausea, vomiting, chills, cramps, and lethargy.

DKP Substrate Reagents: The Dimethyl Sulfoxide constituent of this component can be absorbed through the skin and may carry dissolved chemicals with it into the body. Symptoms of overexposure for a prolonged period of time and a large area of skin may include redness, burning, itching, scaling, vision disturbance, photophobia, headache, and diarrhea.

DKP Substrate Controls: The Dimethyl Sulfoxide constituent of this component can be absorbed through the skin and may carry dissolved chemicals with it into the body. Symptoms of overexposure for a prolonged period of time and a large area of skin may include redness, burning, itching, scaling, vision disturbance, photophobia, headache, and diarrhea.

All Other Components: These components do not usually cause acute health effects.

CHRONIC:

DKP Termination Buffer, DKP Substrate Reagents, and DKP Substrate Controls: Chronic ingestion of the Dimethyl Sulfoxide constituent of these components may affect the liver and kidneys.

All Other Components: These components are not known to cause any significant chronic health effects.

TARGET ORGANS:

ACUTE:

Dithiothreitol Solution: Eyes, skin

DKP Termination Buffer, DKP Substrate Reagents, and DKP Substrate Controls: Eyes, gastrointestinal tract

All Other Solutions: Eyes, gastrointestinal tract.

CHRONIC:

Dithiothreitol Solution: Skin.

DKP Termination Buffer, DKP Substrate Reagents, and DKP Substrate Controls: Liver, kidneys.

All Other Solutions: None known.

TOXICITY DATA: The following information is available for the constituents in constituents in this product present in greater than 1 percent concentration and listed in Section 3 (Composition and Information on Ingredients). Only human data and LD₅₀ Oral-Rat, LD₅₀ Oral-Mouse, and irritancy data are provided. Other data are available, but are not provided in this MSDS:

DIMETHYL SULFOXIDE:

TDLo (intravenous, man) = 606 mg/kg;
Gastrointestinal: nausea or vomiting; Liver: jaundice, other or unclassified

LD₅₀ (oral, rat) = 14500 mg/kg; Sense Organs and Special Senses (Eye): hemorrhage; Sense Organs and Special Senses (Eye): conjunctive irritation

LD₅₀ (oral, mouse) = 7920 mg/kg

GLYCERIN:

DNA Inhibition (human, lymphocyte) = 200 mmol/L

GLYCERIN (continued):

LD₅₀ (oral, rat) = 12600 mg/kg; general anesthetic, muscle weakness, Liver: other changes

LD₅₀ (oral, mouse) = 4090 mg/kg

LD₅₀ (skin, rabbit) > 10 g/kg

Skin Irritancy (rabbit) = 500 mg/24 hours; mild

Eye Irritancy (rabbit) = 126 mg; mild

Eye Irritancy (rabbit) = 500 mg/24 hours; mild

HEPES FREE ACID:

LD₅₀ (oral, quail) > 316 mg/kg

SODIUM CHLORIDE:

TDLo (intraplacental, woman) = 27 mg/kg/15 weeks pregnant; Reproductive effects

SODIUM CHLORIDE (continued):

TDLo (oral, human) = 12,357 mg/kg/23 days/continuous; Cardiovascular effects

LD₅₀ (oral, rat) = 3000 mg/kg

LD₅₀ (oral, mouse) = 4000 mg/kg

SODIUM CHLORIDE (continued):

Skin Irritancy (rabbit) = 500 mg/24 hours; mild

Skin Irritancy (rabbit) = 50 mg/24 hours; mild

Eye Irritancy (rabbit) = 100 mg; mild

Eye Irritancy (rabbit) = 100 mg/24 hours; moderate

Eye Irritancy (rabbit) = 10 mg; moderate

DNA Inhibition (fibroblast, human) = 125 mmol/L

IRRITANCY OF PRODUCT:

Dithiothreitol Solution and DKP Termination Buffer: Depending on the duration and concentration of overexposure, skin and eye contact can irritate contaminated tissue.

11. TOXICOLOGICAL INFORMATION (Continued)

IRRITANCY OF PRODUCT (continued):

All Other Components: Contact with the skin or eyes may cause mild irritation, which is alleviated upon rinsing.

SENSITIZATION TO THE PRODUCT:

DKP Termination Buffer, DKP Substrate Reagents, and DKP Substrate Controls: The Dimethyl Sulfoxide component of this product can cause anaphylactic reaction by unspecified exposure routes; symptoms may include rash, abdominal cramps, nausea, chills, and chest pain.

All Other Components: All other components of this product are not known to cause skin or respiratory sensitization.

CARCINOGENICITY INFORMATION: The constituents in the solutions of this product are not found on the following lists: U.S. EPA, U.S. NTP, U.S. OSHA, U.S. NIOSH, GERMAN MAK, IARC, or ACGIH and therefore are neither considered to be nor suspected to be cancer causing agents by these agencies.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: The constituents in the components in this product are not reported to produce mutagenic effects in humans. Human mutation data are available for the Dimethyl Sulfoxide and Glycerin constituents components; these data were obtained during clinical studies on specific human tissues exposed to high doses of these compounds.

Embryotoxicity: The constituents in the components in this product are not reported to cause human embryotoxic effects.

Teratogenicity: The constituents in the components in this product are reported to cause teratogenic effects in humans. Clinical studies on test animals exposed to relatively high doses of the Dimethyl Sulfoxide constituent indicate teratogenic effects.

Reproductive Toxicity: The constituents in the components in this product are not reported to cause adverse reproductive effects in humans. Clinical studies on test animals exposed to relatively high doses of the Dimethyl Sulfoxide and Glycerin constituents indicate adverse reproductive effects.

A *mutagen* is a chemical that causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An *embryotoxin* is a chemical that causes damage to a developing embryo (i.e., within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A *teratogen* is a chemical that causes damage to a developing fetus, but the damage does not propagate across generational lines. A *reproductive toxin* is any substance that interferes in any way with the reproductive process.

BIOLOGICAL EXPOSURE INDICES: Currently, there are no Biological Exposure Indices (BEIs) determined for the constituents in this product's components.

12. ECOLOGICAL INFORMATION

MOBILITY: This product has not been tested for mobility in soil.

DIMETHYL SULFOXIDE:

Soil Adsorption/Mobility: The Koc of Dimethyl Sulfoxide is estimated as 4, using a log Kow of -1.35 and a regression-derived equation. According to a classification scheme, this estimated Koc value suggests that Dimethyl Sulfoxide is expected to have very high mobility in soil.

GLYCERIN:

Soil Adsorption/Mobility: Based on an experimental log octanol/water partition coefficient of -1.76 and its water solubility, 1,220,000 mg/L at 5°C, soil adsorption coefficients for Glycerin can be estimated at 3 and 2, respectively, using regression-derived equations. The magnitude of these values indicate that glycerin will display very high mobility in soil.

PERSISTENCE AND BIODEGRADABILITY: This product has not been tested for persistence or biodegradability. It is expected that the constituents of this product will slowly degrade in the environment and form a variety of organic and inorganic materials; however, no specific information is known. Data for some constituents of this product are available as follows:

DIMETHYL SULFOXIDE:

Persistence and Biodegradability: If released to air, a vapor pressure of 6.1X10⁻¹ mm Hg at 25°C indicates Dimethyl Sulfoxide will exist solely as a vapor phase in the atmosphere. Vapor-phase dimethyl sulfoxide will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 6.2-6.6 hours. Dimethyl Sulfoxide does not absorb light at wavelengths >290 nm and therefore is not expected to be susceptible to direct photolysis by sunlight. If released to soil, Dimethyl Sulfoxide is expected to have very high mobility based upon an estimated Koc of 4. Volatilization from water and moist soil surfaces is not expected to be an important fate process based upon a Henry's Law constant of 1.5X10⁻⁹ atm-cu m/mole. Dimethyl Sulfoxide is expected to slowly volatilize from dry soil surfaces based upon its vapor pressure. A 3% theoretical BOD after 2 weeks in activated sludge indicates that biodegradation is not expected to be an important environmental fate process. If released into water, dimethyl sulfoxide is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. A low experimental BCF of <1 suggests that bioconcentration in aquatic organisms is low. Hydrolysis is not expected to be an important environmental fate process since this compound lacks functional groups that hydrolyze under environmental conditions..

GLYCERIN:

Persistence and Biodegradability: If released to soil, glycerin is expected to undergo rapid biodegradation under aerobic conditions. It is expected to display very high mobility in soil and it is not expected to significantly volatilize to the atmosphere. If released to water, glycerin is expected to rapidly degrade under aerobic conditions. Biodegradation in seawater and under anaerobic conditions is also expected. Glycerin is not expected to bioconcentrate in fish and aquatic organisms nor is it expected to adsorb to sediment and suspended organic matter. Volatilization to the atmosphere is expected to be slower than for water itself. If released to the atmosphere, Glycerin may undergo a gas-phase oxidation with photochemically produced hydroxyl radicals with a half-life of 33 hrs. It may also undergo atmospheric removal by wet deposition processes.

SODIUM CHLORIDE:

Water solubility = 37 g/ 100 mL @ 0°C; 39.12 g/100 ml of water @ 100°C; Log Kow = -3.0

BIO-ACCUMULATION POTENTIAL: This product has not been tested for bio-accumulation potential.

DIMETHYL SULFOXIDE:

Bioconcentration: A BCF of < 1 was observed for Dimethyl Sulfoxide, using orange-red killifish (*Oryzias latipes*) which were exposed over an 8-week period. According to a classification scheme, this BCF suggests that bioconcentration in aquatic organisms is low.

GLYCERIN:

Bioconcentration: Based on an experimental log octanol/water partition coefficient of -1.76 and its water solubility, 1,220,000 mg/L at 5°C, bioconcentration factors for Glycerin can be estimated at 3 and 0.2, respectively, using regression-derived equations. The magnitude of these values indicate that bioconcentration of Glycerin in fish and aquatic organisms will not be significant. Log K_{OW} = -1.76.

ECOTOXICITY: This product has not been tested for aquatic or animal toxicity. All releases to terrestrial, atmospheric and aquatic environments should be avoided. The following aquatic toxicity data for some constituents of this product are available as follows:

DIMETHYL SULFOXIDE:

TLm (bluegill) 48 hours = 33,500 ppm; fresh water

GLYCERIN:

EC₀ (*Pseudomonas putida* bacteria) 16 hours = >10,000 mg/L

EC₀ (*Microcystis aeruginosa* algae) 8 days = 2,900 mg/L

EC₀ (*Scenedesmus quadricauda* green algae) 7 days = > 10,000 mg/L

LC₅₀ (goldfish) 24 hours = > 5,000 mg/L

GLYCERIN (continued):

EC₀ (*Entosiphon sulcatum* protozoa) 72 hours = 3,200 mg/L

EC₀ (*Uronema parducci* Chatton-Lwoff protozoa) = > 10,000 mg/L

SODIUM CHLORIDE:

LC₅₀ (*Carassius auratus* goldfish) 240 hours = 11,764.3 mg/L (@ 23.5°C, tap water, static bioassay)

LC₅₀ (*Tinca tinca* tench) 12 hours = 112 mg/L @ 25°C, freshwater, static bioassay)

SODIUM CHLORIDE (continued):

LC₅₀ (*Tinca tinca* tench) 12 hours = 1142 mg/L @ 20°C, freshwater, static bioassay)

LC₅₀ (*Tinca tinca* tench) 24 hours = 119 mg/L @ 25°C, freshwater, static bioassay)

LC₅₀ (*Tinca tinca* tench) 24 hours = 104 mg/L @ 20°C, freshwater, static bioassay)

EC₅₀ (*Daphnia magna* water flea) 48 hours = 340.7-469.2 mg/L s.c. (11.5-14.5°C, well water, static bioassay)

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHODS: Do NOT dispose of any solution of this product by pouring down the drain. It is the responsibility of the generator to determine at the time of disposal whether the product meets the criteria of a hazardous waste per regulations of the area in which the waste is generated and/or disposed of. Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority. Shipment of wastes must be done with appropriately permitted and registered transporters.

DISPOSAL CONTAINERS: Waste materials must be placed in and shipped in appropriate 5-gallon or 55-gallon poly or metal waste pails or drums. Permeable cardboard containers are not appropriate and should not be used. Ensure that any required marking or labeling of the containers be done to all applicable regulations.

PRECAUTIONS TO BE FOLLOWED DURING WASTE HANDLING: Wear proper protective equipment when handling waste materials.

U.S. EPA WASTE NUMBER: Not applicable.

EWC WASTE CODE: Wastes from research, diagnoses, treatment, or preventions of disease involving animals: chemicals other than containing dangerous substances: 18-02-06

14. TRANSPORTATION INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION REGULATIONS: This product is NOT classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is NOT classified as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION/ICAO (IATA/ICAO): This product is NOT classified as dangerous goods, per rules of IATA.

INTERNATIONAL MARITIME ORGANIZATION (IMO): This product is NOT classified as dangerous goods, per the rules of IMO.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR): This product is NOT classified by the United Nations Economic Commission for Europe to be dangerous goods.

AUSTRALIAN FEDERAL OFFICE OF ROAD SAFETY CODE FOR THE TRANSPORTATION OF DANGEROUS GOODS BY ROAD OR RAIL: This product is NOT dangerous goods, per regulations of the Office of Road Safety.

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The constituents in components of this product are not subject to Sections 302, 304, and 313 reporting requirements under the Superfund Amendment and Reauthorization Act.

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for the constituents in components of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Not applicable.

U.S. TSCA INVENTORY STATUS: Some solutions of this product contain ingredients not included in the TSCA Inventory. In accordance with the conditions listed in 40 CFR 720.36 and 721.47, this product must be used only for research and development, pharmaceutical manufacture, or export. It must be used by, or directly under the supervision of, a technically qualified individual. The manufacturer should be consulted prior to using this product for other applications. Other requirements may apply.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No constituent of this product is on the California Proposition 65 lists.

ANSI LABELING (Z129.1; Provided to Summarize Occupational Hazard Information):

For DKP Termination Buffer, DKP Substrate Reagents, and DKP Substrate Controls: **CAUTION!** MAY CAUSE SENSITIZATION BY UNSPECIFIED ROUTE OF EXPOSURE. MAY CAUSE SKIN, EYE, AND RESPIRATORY TRACT IRRITATION. MAY CAUSE DISCOMFORT IF SWALLOWED. Do not taste or swallow. Avoid skin or eye contact. Avoid prolonged or repeated skin contact. Avoid breathing mists or sprays. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves and goggles. FIRST-AID: In case of contact, immediately flush skin or eyes with plenty of water. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention if necessary. IN CASE OF FIRE: Use water fog, dry chemical, CO₂, or "alcohol" foam. IN CASE OF SPILL: Absorb spill with polypads and place in suitable container. Consult Material Safety Data Sheet for additional information.

All Other Solutions: **CAUTION!** MAY CAUSE SKIN, EYE, AND RESPIRATORY TRACT IRRITATION. MAY CAUSE DISCOMFORT IF SWALLOWED. Do not taste or swallow. Avoid skin or eye contact. Avoid prolonged or repeated skin contact. Avoid breathing mists or sprays. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves and goggles. FIRST-AID: In case of contact, immediately flush skin or eyes with plenty of water. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention if necessary. IN CASE OF FIRE: Use water fog, dry chemical, CO₂, or "alcohol" foam. IN CASE OF SPILL: Absorb spill with polypads and place in suitable container. Consult Material Safety Data Sheet for additional information.

ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL/NDL INVENTORY STATUS: Some solutions of this product contain ingredients not included in the DSL/NDL Inventory. This product must be used only for research and development purposes. The manufacturer should be consulted prior to using this product for other applications. Other requirements may apply.

OTHER CANADIAN REGULATIONS: Not applicable.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITY SUBSTANCES LISTS: The constituents in components of this product are not on the CEPA Priority Substances Lists.

15. REGULATORY INFORMATION (Continued)

ADDITIONAL CANADIAN REGULATIONS (continued):

CANADIAN WHMIS CLASSIFICATION AND SYMBOLS:

DKP Termination Buffer: D2B Materials Causing Other Toxic Effects (Contains sensitizer in greater than 1%)

All Other Components: Not applicable.



EUROPEAN UNION INFORMATION:

LABELING/CLASSIFICATION: This product does not meet the definition of any hazard class, as defined by EU Council Directive 67/548/EEC and subsequent directives. Caution-this preparation has not been fully tested.

FOR CONSTITUENTS:

All Constituents:

An official classification for these substances has not been published in Commission Directives 93/72/EEC, 94/69/EC, 96/56/EC, or 98/98/EC.

AUSTRALIAN INFORMATION FOR PRODUCT:

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS: The constituents in this product's solutions are on the AICS as indicated in composition tables in Section 3 (Composition and Information on Ingredients). Hydrates of listed compounds and biological materials are exempt from listing. Any chemical not included in AICS is regarded as a new industrial chemical unless it is outside the scope of the Industrial Chemicals (Notification and Assessment) Act 1989 OR is otherwise exempt from notification. New industrial chemicals must be notified and assessed before being manufactured or imported into Australia.

HAZARDOUS SUBSTANCES INFORMATION SYSTEM (HSIS): The constituents in this product's solutions are not listed in the HSIS.

CLASSIFICATION: This product does not meet the definition of hazardous, as defined by the Australian National Occupational Health and Safety Commission [NOHSC (1008:2004)].

POISONS SCHEDULE NUMBER: Not applicable.

JAPANESE INFORMATION FOR PRODUCT:

JAPANESE ENCS: The constituents in this product's solutions are on the ENCS Inventory as indicated in composition tables in Section 3 (Composition and Information on Ingredients).

POISONOUS AND DELETERIOUS SUBSTANCES CONTROL LAW: No constituent in this product's solutions is listed under the Poisonous and Deleterious Substances Control Law.

16. OTHER INFORMATION

PREPARED BY:

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