

## MATERIAL SAFETY DATA SHEET

### 1. PRODUCT IDENTIFICATION

<u>TRADE NAME (AS LABELED):</u>	<b>HT Protein 200 Sample Buffer</b> <b>HT Pico Protein Express Sample Buffer</b>
<u>CODE NUMBERS:</u>	760283, 760414, 760518
<u>U.N. NUMBER:</u>	Not applicable
<u>U.N. DANGEROUS GOODS CLASS/SUBSIDIARY RISK:</u>	Not applicable
<u>HAZCHEM CODE (AUSTRALIA):</u>	Not applicable
<u>POISONS SCHEDULE NUMBER (AUSTRALIA):</u>	Not applicable
<u>PRODUCT USE:</u>	Laboratory Biological Research
<u>U.S. SUPPLIER/MANUFACTURER'S NAME:</u>	<b>Caliper Life Sciences</b>
<u>Address:</u>	68 Elm Street Hopkinton, MA 01748
<u>Business Phone:</u>	1-800-LAB-CHIP (toll-free) 1-800-522-2447 (toll-free) +1-508-435-3439 (outside North America)

AUSTRALIAN SUPPLIER/DISTRIBUTOR'S NAME:

Address:

Business Phone:

EUROPEAN SUPPLIER/ DISTRIBUTOR'S NAME:

Address:

Business Phone:

EMERGENCY PHONE: CHEM-TEL: 1-800-255-3924 (U.S., Canada, Puerto Rico, U.S. Virgin Islands) 24 hr  
+1-813-248-0585 (Worldwide Intl.) 24 hr

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DATE OF PREPARATION: August 26, 2009

NOTE: ALL United States Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards, Canadian WHMIS [Controlled Products Regulations], European Union [Regulation (EC) 1907/2006 Annex II], Australian [NOHSC:2011 (2003)], and Japanese Industrial Standard (JIS Z 7250: 2000) required information is included in appropriate sections based on the U.S. ANSI Z400.1-2004 format. These products have been classified in accordance with the hazard criteria of the countries listed above.

### 2. HAZARD IDENTIFICATION

EU/AUSTRALIAN LABELING AND CLASSIFICATION: One product meets the definition of a hazard classes, 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)].

HT Protein 200 Sample Buffer:  
Hazard Classification: Not applicable.  
Risk Phrases: Not applicable.

HT Pico Protein Express Sample Buffer:  
Hazard Classification: Harmful.  
Risk Phrases: R 42

THIS MSDS PROVIDES INFORMATION ON TWO SEPARATE PRODUCTS.

#### Health Hazards:

HT Protein 200 Sample Buffer: The chief hazard in event of overexposure is the potential for irritation of contaminated skin or eyes.

HT Pico Protein Express Buffer: The Lithium Dodecyl Sulfate component of these products is known to be a respiratory sensitizer; subsequent exposure to very small amounts may cause allergic reaction.

**Flammability Hazards:** These products present no significant fire hazards. In the event of a fire, these products will not contribute significant additional hazards.

**Reactivity Hazards:** These products are not reactive.

**Environmental Hazards:** Negligible.

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

This Material Safety Data sheet describes two products: HT Protein 200 Sample Buffer and HT Pico Protein Express Buffer. This Material Safety Data Sheet provides complete information on all the products 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 product. These products are mixtures (preparations) of the following chemical components:

CHEMICAL NAME	CAS #	EINECS#	ENCS#	% v/v	EU CLASSIFICATION FOR COMPONENTS
<b>PRODUCT 1: HT PROTEIN 200 SAMPLE BUFFER</b>					
Glycerol	56-81-5	200-289-5	2-242	5-10	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Water and Other Non-Hazardous Ingredients					
<b>PRODUCT 2: HT PICO PROTEIN EXPRESS SAMPLE BUFFER</b>					
Glycerol	56-81-5	200-289-5	2-242	5-10	HAZARD CLASSIFICATION: Not applicable. RISK PHRASES: Not applicable.
Lithium Dodecyl Sulfate	2044-56-6	218-058-2	2-3045	1-5	SELF-CLASSIFICATION HAZARD CLASSIFICATION: Harmful RISK PHRASES: R 42.
Water and Other Non-Hazardous Ingredients					

See Section 16 for full text of Ingredient Risk Phrases

#### 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 these products contaminate 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 these products contaminate 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 20 minutes. The contaminated individual must seek medical attention if adverse effects occur after flushing.

**INHALATION:** If mists or sprays of these products 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.

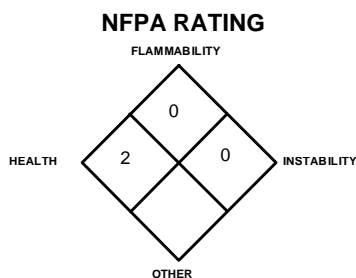
**INGESTION:** If these products are swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING unless directed by medical personnel. Have contaminated individual rinse mouth with water. Never induce vomiting or give diluents (milk or water) to someone who 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 these products.

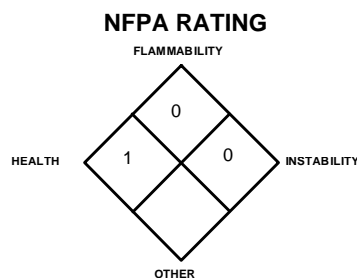
**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and eliminate overexposure.

#### 5. FIRE-FIGHTING MEASURES

##### HT PICO PROTEIN EXPRESS SAMPLE BUFFER



##### HT PROTEIN 200 SAMPLE BUFFER



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, halon, any "ABC" class extinguisher).

**FIRE EXTINGUISHING MATERIALS NOT BE USED:** None known.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** The HT Pico Protein Express Sample Buffer contains Lithium Dodecyl Sulfate (a respiratory sensitizer), and so these products present an exposure hazard to fire fighters. When involved in a fire, these products will decompose and produce irritating vapors and toxic gases (including carbon oxides).

**SPECIAL FIRE-FIGHTING PROCEDURES:** 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. 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. 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

**WORK PRACTICES AND HYGIENE PRACTICES:** As with all chemicals, avoid getting these products ON YOU or IN YOU. Wash thoroughly after handling these products. Do not eat, drink, smoke, or apply cosmetics while handling these products. Use in a well-ventilated location. Remove contaminated clothing immediately.

**STORAGE AND HANDLING PRACTICES:** All employees who handle these materials should be trained to handle them safely. Avoid breathing vapors or mists generated by these products. Ensure containers of these products 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 these products for leaks or damage. Read instructions provided with the product prior to use.

**SPECIFIC USE(S):** These products are 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 these products are used as necessary.

**EXPOSURE LIMITS/GUIDELINES:**

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

### PRODUCT 1: HT PROTEIN 200 SAMPLE BUFFER

Glycerol	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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### PRODUCT 2: HT PICO PROTEIN EXPRESS SAMPLE BUFFER

Glycerol	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
Lithium Dodecyl Sulfate	2044-56-6	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 these products. Values given may not be the most current; individual country lists should be consulted to determine most current values available.

#### GLYCEROL:

Australia: TWA = 10 mg/m<sup>3</sup>, JAN 1993  
Belgium: TWA = 10 mg/m<sup>3</sup>, JAN 1993  
Finland: TWA = 20 mg/m<sup>3</sup>, JAN 1999

#### GLYCEROL (continued):

France: VME = 10 mg/m<sup>3</sup>, JAN 1999  
Korea: TWA = 10 mg/m<sup>3</sup> (mist), 2006  
Mexico: TWA = 10 mg/m<sup>3</sup> (inhalable), 2004  
The Netherlands: MAC-TGG = 10 mg/m<sup>3</sup>, 2003

#### GLYCEROL (continued):

New Zealand: TWA = 10 mg/m<sup>3</sup> (mist), JAN 2002  
United Kingdom: TWA = TWA 10 mg/m<sup>3</sup>, 2005  
In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV

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/body protection, and CR 13464:1999 for face/eye protection), 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), or standards of Japan (including JIS T 8116:2005 for glove selection, JIS T 8150:2006 for respiratory PPE, JIS T 8147:2003 for eye protectors, and JIS T 8030:2005 for protective clothing). Please reference applicable regulations and standards for relevant details.

**RESPIRATORY PROTECTION:** Respiratory protection is not generally needed when using these products. 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, Canadian CSA Standard Z94.4-02, European Standard EN 529:2005, EU member state standards, Australian Standard 1716-Respiratory Protective Devices and Australian Standard 1715-Selection, Use, and Maintenance of Respiratory Protective Devices, or Japanese Standard JIS T 8150:2006. 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, supplied air respirator with auxiliary self-contained air supply is required under U.S. Federal OSHA's Respiratory Protection Standard (1910.134-1998).

**EYE PROTECTION:** Depending on the use of these products, 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, Canadian CSA Standard Z94.3-07, European Standard CR 13464:1999, Australian Standard 1337-Eye Protection for Industrial Applications and Australian Standard 1336-Recommended Practices for Eye Protection in the Industrial Environment, or Japanese Standard JIS T 8147:2003.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

**HAND PROTECTION:** Wear butyl rubber, neoprene, or nitrile rubber or latex gloves for routine use. Use triple gloves for spill response. If necessary, refer to U.S. OSHA 29 CFR 1910.138, Australian Standard 2161-Industrial Safety Gloves and Mittens, European Standard CEN/TR 15419:2006, or Japanese Standard JIS T 8116:2005.

**BODY PROTECTION:** Use body protection appropriate for task, such as a lab coat. If necessary, refer to OSHA Technical Manual (Section VII: Personal Protective Equipment), European Standard CEN/TR 15419:2006, Australian Standard 3765-Clothing for Protection Against Hazardous Chemicals, or Japanese Standard JIS T 8030:2005. 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, Canadian CSA Standard Z195.1-02, *Guideline on Selection, Care, and Use of Protective Footwear*, or European Standard CEN ISO/TR 18690:2006.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**APPEARANCE AND COLOR:** Clear, colorless, odorless liquids

**HOW TO DETECT THIS SUBSTANCE:** There are no unusual warning properties associated with these products.

**pH:** Not established.

**BOILING POINT:** Not established.

**FLASH POINT:** Not applicable.

**EXPLOSIVE PROPERTIES:** Not explosive

**VAPOR PRESSURE:** Not established.

**SOLUBILITY:** Miscible in methanol and ethanol.

**VISCOSITY:** Not established.

**EVAPORATION RATE:** Similar to water.

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

**MELTING/FREEZING POINT:** Not established.

**FLAMMABILITY:** Not flammable.

**OXIDIZING PROPERTIES:** Not an oxidizer.

**SPECIFIC GRAVITY:** Not established.

**SOLUBILITY IN WATER:** Completely soluble.

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

**ODOR THRESHOLD:** Not established.

## 10. STABILITY AND REACTIVITY

**STABILITY:** Stable.

**DECOMPOSITION PRODUCTS:** *Combustion:* carbon oxides. *Hydrolysis:* None known.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong oxidizers, substances that are incompatible with water.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Any conditions that are incompatible with water, mixing these products with incompatible chemicals.

## 11. TOXICOLOGICAL INFORMATION

**SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE:** No adverse health effects should occur from routine, occupational use of these products in the manner specified by the manufacturer's instructions. The potential health effects of these products, via route of exposure, are described as follows:

### INHALATION:

**HT Protein 200 Sample Buffer:** Inhalation of vapors, mists, or sprays of these products may mildly irritate the nose, throat, and lungs. Symptoms may include coughing and sneezing.

**HT Pico Protein Express Sample Buffer:** The Lithium Dodecyl Sulfate component of these products is known to be a respiratory sensitizer; subsequent exposure to very small amounts may cause allergic reaction.

**CONTACT WITH SKIN or EYES:** Depending on the duration and concentration of overexposure, skin and eye contact may mildly irritate contaminated tissue. Symptoms of skin overexposure may include redness and discomfort. Prolonged or repeated skin contact may cause dermatitis (dry, red skin). Symptoms of eye overexposure may include redness, tearing, and discomfort.

**SKIN ABSORPTION:** The components of these products are not known to be absorbed through the skin.

**INGESTION:** Ingestion is not anticipated to be a significant route of exposure for these products. If these products are swallowed, especially in large volumes, they may cause nausea, vomiting, and diarrhea.

**INJECTION:** Accidental injection of these products, via laceration or puncture by a contaminated object, may cause local reddening and discomfort in addition to the wound.

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

**Acute:** Contact with these products may mildly irritate contaminated skin, eyes, and other tissue. Large oral doses may cause nausea, vomiting, and diarrhea.

**Chronic:** Prolonged or repeated skin contact may cause dermatitis (dry, red skin).

**TARGET ORGANS:** **Acute:** Eyes, skin. **Chronic:** *HT Protein 200 Sample Buffer:* Skin. *HT Pico Protein Express Sample Buffer:* Respiratory system, skin.

**TOXICITY DATA:** The following information is available for the constituents in constituents in these products present in greater than 1 percent concentration and listed in Section 3 (Composition and Information on Ingredients).

### GLYCEROL:

Skin Irritancy (rabbit) = 500 mg/24 hours; mild  
 Eye Irritancy (rabbit) = 126 mg; mild  
 Eye Irritancy (rabbit) = 500 mg/24 hours; mild  
 LD<sub>50</sub> (oral, rat) = 12600 mg/kg; general anesthetic, muscle weakness, Liver: other changes  
 LC<sub>50</sub> (inhalation, rat) > 570 mg/m<sup>3</sup>/1 hour  
 LD<sub>50</sub> (intraperitoneal, rat) = 4420 mg/kg; toxic psychosis; Cardiac; other changes; Kidney, Urethra, Bladder: other changes  
 LD<sub>50</sub> (subcutaneous, rat) = 100 mg/kg  
 LD<sub>50</sub> (intravenous, rat) = 5566 mg/kg  
 LD<sub>50</sub> (oral, mouse) = 4090 mg/kg  
 LD<sub>50</sub> (intraperitoneal, mouse) = 8700 mg/kg  
 LD<sub>50</sub> (subcutaneous, mouse) = 91 mg/kg  
 LD<sub>50</sub> (intravenous, mouse) = 4250 mg/kg  
 LD<sub>50</sub> (oral, rabbit) = 27 g/kg

### GLYCEROL (continued):

LD<sub>50</sub> (skin, rabbit) > 10 g/kg  
 LD<sub>50</sub> (intravenous, rabbit) = 53 g/kg  
 LD<sub>50</sub> (oral, guinea pig) = 7750 mg/kg  
 TDLo (oral, rat) = 16800 mg/kg/28 days/continuous; Endocrine: changes in adrenal weight  
 TDLo (oral, rat) = 96 g/kg/30 days/intermittent; Blood: changes in leukocyte (WBC) count, changes in serum composition (e.g. TP, bilirubin, cholesterol); Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: true cholinesterase  
 TDLo (oral, rat) = 100 mg/kg/male 1 day pre-mating; Reproductive: Fertility: post-implantation mortality  
 TDLo (intratesticular, rat) = 280 mg/kg/male 2 days pre-mating; Reproductive: Paternal Effects: spermatogenesis, testes, epididymis, sperm duct

### GLYCEROL (continued):

TDLo (intratesticular, rat) = 1600 mg/kg/male 1 day pre-mating; Reproductive: Fertility: male fertility index  
 TDLo (intratesticular, rat) = 862 mg/kg/male 1 day pre-mating; Reproductive: Paternal Effects: spermatogenesis  
 TDLo (intratesticular, monkey) = 119 mg/kg/male 1 day pre-mating; Reproductive: Fertility: male fertility index; spermatogenesis, testes, epididymis, sperm duct  
 TDLo (oral, mouse) = 560 g/kg/8 weeks/continuous; Lungs, Thorax, or Respiration: structural or functional change in trachea or bronchi  
 DNA Inhibition (human, lymphocyte) = 200 mmol/L  
 Cytogenetic Analysis (oral, rat) = 1 g/kg  
**LITHIUM DODECYL SULFATE:**  
 Currently, there are no toxicological data available for this component.

## 11. TOXICOLOGICAL INFORMATION (Continued)

**IRRITANCY OF PRODUCT:** Depending on the duration and concentration of overexposure, skin and eye contact may mildly irritate contaminated tissue.

**SENSITIZATION TO THE PRODUCT:**

**HT Protein 200 Sample Buffer:** This product is not currently known to cause sensitization with prolonged or repeated use.

**HT Pico Protein Express Sample Buffer:** The Lithium Dodecyl Sulfate component of these products is known to be a respiratory sensitizer; subsequent exposure to very small amounts may cause allergic reaction.

**CARCINOGENIC POTENTIAL:** The components of these products 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 these products on the human reproductive system.

**Mutagenicity:** The components of these products are not reported to produce mutagenic effects in humans. Human mutation data are available for the Glycerol component of these products; these data were obtained during clinical studies on specific human tissues exposed to high doses of this compound.

**Embryotoxicity:** The components of these products are not reported to cause human embryotoxic effects.

**Teratogenicity:** The components of these products are not reported to cause teratogenic effects in humans.

**Reproductive Toxicity:** The components of these products are not reported to cause adverse reproductive effects in humans. Clinical studies on test animals exposed to relatively high doses of the Glycerol component of these products 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 components of these products.

## 12. ECOLOGICAL INFORMATION

**MOBILITY:** These products have not been tested for mobility in soil. Additional data for components are available as follows:

**GLYCERIN:**

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:** These products have not been tested for persistence or biodegradability. It is expected that the components of these products will slowly degrade in the environment and form a variety of organic and inorganic materials; however, no specific information is known. Additional data for components are available as follows:

**GLYCERIN:**

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.

**BIO-ACCUMULATION POTENTIAL:** These products have not been tested for bio-accumulation potential. Additional data for components are available as follows:

**GLYCERIN:**

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:** These products have not been tested for aquatic or animal toxicity. All releases to terrestrial, atmospheric and aquatic environments should be avoided. Additional data for components are available as follows:

**GLYCEROL:**

EC<sub>0</sub> (*Pseudomonas putida* bacteria) 16 hours = >10,000 mg/L

EC<sub>0</sub> (*Microcystis aeruginosa* algae) 8 days = 2,900 mg/L

**GLYCEROL (continued):**

EC<sub>0</sub> (*Scenedesmus quadricauda* green algae) 7 days = > 10,000 mg/L

EC<sub>0</sub> (*Entosiphon sulcatum* protozoa) 72 hours = 3,200 mg/L

**GLYCEROL (continued):**

EC<sub>0</sub> (*Uronema parduca* Chatton-Lwoff protozoa) = > 10,000 mg/L

LC<sub>50</sub> (goldfish) 24 hours = > 5,000 mg/L

**OTHER ADVERSE EFFECTS:** These products do not contain any component with known ozone depletion potential.

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

## 13. DISPOSAL CONSIDERATIONS

**DISPOSAL METHODS:** Do NOT dispose of these products 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. These products, 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: These products are NOT classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: These products are NOT classified as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION/ICAO (IATA/ICAO): These products are NOT classified as dangerous goods, per rules of IATA.

INTERNATIONAL MARITIME ORGANIZATION (IMO): These products are NOT classified as dangerous goods, per the rules of IMO.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR): These products are 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: These products are NOT dangerous goods, per regulations of the Office of Road Safety.

## 15. REGULATORY INFORMATION

### ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The components of these products 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 components of these products. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) therefore applies, per 40 CFR 370.20.

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

U.S. TSCA INVENTORY STATUS: The components of these products are on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The components of these products are not on the California Proposition 65 lists.

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

HT Protein 200 Sample Buffer: **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, CO<sub>2</sub>, or "alcohol" foam. IN CASE OF SPILL: Absorb spill with polypads and place in suitable container. Consult Material Safety Data Sheet for additional information.

HT Pico Protein Express Sample Buffer: **DANGER!** MAY CAUSE ALLERGIC RESPIRATORY REACTION. MAY CAUSE SKIN, EYE, AND RESPIRATORY TRACT IRRITATION. MAY CAUSE DISCOMFORT IF SWALLOWED. Do not breathe mists or sprays. Avoid skin or eye contact. Do not taste or swallow. 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, CO<sub>2</sub>, 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: The components of these products are listed on the DSL Inventory.

OTHER CANADIAN REGULATIONS: Not applicable.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITY SUBSTANCES LISTS: The components of these products are not on the CEPA Priority Substances Lists.

CANADIAN WHMIS CLASSIFICATION AND SYMBOLS:

HT Protein 200 Sample Buffer: Not applicable.

HT Pico Protein Express Sample Buffer: D2A Materials Causing Other Toxic Effects (Contains respiratory sensitizer in greater than 1%)



### EUROPEAN UNION INFORMATION:

LABELING AND CLASSIFICATION: One product meets the definition of the following hazard class, as defined by the European Union Council Directive 67/548/EEC and subsequent Directives.

HT Protein 200 Sample Buffer:

Hazard Classification: Not applicable.

Risk Phrases: Not applicable.

Safety Phrases: Not applicable.

Annex II Hazard Symbol: Not applicable.

HT Pico Protein Express Sample Buffer:

Hazard Classification: Harmful.

Risk Phrases: R 42: May cause sensitization by inhalation.

Safety Phrases: S 2: Keep out of the reach of children. S 23: Do not breathe mists or sprays. S 63: In case of accident by inhalation, remove casualty to fresh air and keep at rest.

Annex II Hazard Symbol: Xn



### FOR CONSTITUENTS:

#### Glycerol:

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

**15. REGULATORY INFORMATION (Continued)****EUROPEAN UNION INFORMATION (continued):****FOR CONSTITUENTS (continued):****Lithium Dodecyl Sulfate (Self-classification):**

Classification: Irritant.

Risk Phrases: R 42: May cause sensitization by inhalation.

Safety Phrases: S 1/2: Keep locked up and out of reach of children. S 23: Do not breathe mists or sprays. S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S 63: In case of accident by inhalation, remove casualty to fresh air and keep at rest.

**AUSTRALIAN INFORMATION FOR PRODUCT:**

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS: The components of these products are listed on the AICS.

LIST OF DESIGNATED SUBSTANCES: Not applicable.

STANDARD FOR THE UNIFORM SCHEDULING OF DRUGS AND POISONS: Not applicable.

LABELING AND CLASSIFICATION: One product meets the definition of the following 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)].

HT Protein 200 Sample Buffer:

Hazard Classification: Not applicable.

Risk Phrases: Not applicable.

Safety Phrases: Not applicable.

Hazard Symbol: Not applicable.

HT Pico Protein Express Sample Buffer:

Hazard Classification: Harmful.

Risk Phrases: R 42: May cause sensitization by inhalation.

Safety Phrases: S 2: Keep out of the reach of children. S 23: Do not breathe mists or sprays. S 63: In case of accident by inhalation, remove casualty to fresh air and keep at rest.

Hazard Symbol: Xn

**JAPANESE INFORMATION FOR PRODUCT:**

JAPANESE ENCS: The components of these products are on the ENCS Inventory.

POISONOUS AND DELETERIOUS SUBSTANCES CONTROL LAW: No component of these products is listed Specified Poisonous Substance under the Poisonous and Deleterious Substances Control Law.

**16. OTHER INFORMATION**PREPARED BY:

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