

MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

<u>TRADE NAME (AS LABELED):</u>	LabChip Test Kit
<u>CODE NUMBERS:</u>	PN 760403
<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>SUPPLIER/MANUFACTURER'S NAME:</u>	Caliper Life Sciences
<u>ADDRESS:</u>	68 Elm Street Hopkinton, MA 01748
<u>EMERGENCY PHONE:</u>	1-800-255-3924 (CHEM-TEL) in U.S., Canada, Puerto Rico, U.S. Virgin Islands
<u>INFORMATION NUMBER:</u>	+1-800-LAB-CHIP (toll-free) +1-800-522-2447 (toll-free) +1-508-435-3439 (outside North America)

2. COMPOSITION AND INFORMATION ON INGREDIENTS

This Material Safety Data sheet describes the LabChip Test Kit. This product consists of 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.

CHEMICAL NAME	CAS #	EINECS#	ENCS#	% v/v	EU CLASSIFICATION FOR COMPONENTS
---------------	-------	---------	-------	-------	----------------------------------

COMPONENT 1: DKP SEPARATION 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 mixture contribute significantly to the hazards associated with these components. All hazard information relevant to this product is provided in this Material Safety Data Sheet, per the requirements of the US Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), US State equivalent standards, and Canadian Workplace Hazardous Materials Identification System Standards (CPR 4).

COMPONENT 2: 5M NACL

Sodium Chloride	7647-14-5	231-598-3	1-236	25–35	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 mixture contribute significantly to the hazards associated with these components. All hazard information relevant to this product is provided in this Material Safety Data Sheet, per the requirements of the US Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), US State equivalent standards, and Canadian Workplace Hazardous Materials Identification System Standards (CPR 4).

COMPONENT 3: 2µM FLUORSCEIN

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 mixture contribute significantly to the hazards associated with these components. All hazard information relevant to this product is provided in this Material Safety Data Sheet, per the requirements of the US Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), US State equivalent standards, and Canadian Workplace Hazardous Materials Identification System Standards (CPR 4).

NE = Not Established.

See Section 16 for Definitions of Terms Used.

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

2. COMPOSITION AND INFORMATION ON INGREDIENTS (Continued)

CHEMICAL NAME	CAS #	EINECS#	ENCS#	% v/v	EU CLASSIFICATION FOR COMPONENTS
---------------	-------	---------	-------	-------	----------------------------------

COMPONENT 4: BFA

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 mixture contribute significantly to the hazards associated with these components. All hazard information relevant to this product is provided in this Material Safety Data Sheet, per the requirements of the US Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), US State equivalent standards, and Canadian Workplace Hazardous Materials Identification System Standards (CPR 4).

COMPONENT 5: DIFMU

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 mixture contribute significantly to the hazards associated with these components. All hazard information relevant to this product is provided in this Material Safety Data Sheet, per the requirements of the US Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), US State equivalent standards, and Canadian Workplace Hazardous Materials Identification System Standards (CPR 4).

COMPONENT 6: S101

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 mixture contribute significantly to the hazards associated with these components. All hazard information relevant to this product is provided in this Material Safety Data Sheet, per the requirements of the US Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), US State equivalent standards, and Canadian Workplace Hazardous Materials Identification System Standards (CPR 4).

NE = Not Established.

See Section 16 for Definitions of Terms Used.

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

3. HAZARD IDENTIFICATION

EU LABELING AND CLASSIFICATION: (See Section 15 for definition of risk phrases, safety phrases and symbols.) According to Article 1 of European Union Council Directive 92/32/EEC, medical products in the finished state for human use (as defined by European Union Council Directives 67/548/EEC and 87/21/EEC) are not subject to the regulations and administrative provisions of European Union Council Directive 92/32/EEC.

Health Hazards:

DKP SEPARATION BUFFER, FLUORSCHEIN, and BFA: Inhalation of vapors, mists, or sprays of these components may irritate the nose, throat, and lungs. Symptoms may include nausea, headache, and vomiting. Depending on the duration and concentration of overexposure, skin and eye contact may irritate contaminated tissue. Symptoms of skin overexposure may include redness and discomfort. Symptoms of eye overexposure may include redness, tearing, and pain. The Dimethyl Sulfoxide constituent of these components 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. If these components are swallowed, they may cause gastric distress. Large doses may cause nausea, vomiting, chills, cramps, and lethargy. Chronic ingestion of the Dimethyl Sulfoxide constituent of these components may affect the liver and kidneys. The Dimethyl Sulfoxide constituents of these components can cause anaphylactic reaction by unspecified exposure routes; symptoms may include rash, abdominal cramps, nausea, chills, and chest pain.

ALL OTHER SOLUTIONS: The chief hazard in event of overexposure is the potential for mild irritation of contaminated skin, eyes, and other tissues. If these components are swallowed, they may cause gastric distress. Large doses may cause nausea, vomiting, and diarrhea.

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.

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.

4. FIRST-AID MEASURES (Continued)

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.

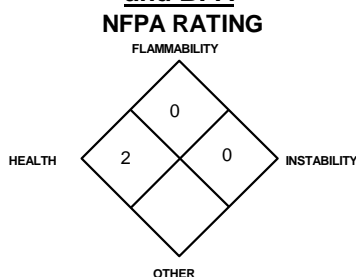
INGESTION: If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING unless directed by medical personnel. Have contaminated individual rinse mouth with water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious,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

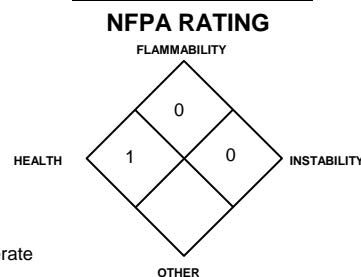
RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.

5. FIRE-FIGHTING MEASURES

DKP Separation Buffer, Fluorescein, and BFA



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: Water spray, alcohol-resistant foam, carbon dioxide, or dry chemical.

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: For small releases take basic hygiene precautions. 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. Trained personnel using pre-planned procedures should respond to large releases that are not immediately controlled. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel. In the event of a non-incident release, 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. Decontaminate the area thoroughly. Place all spill residue in a suitable container and seal. Dispose of in accordance with U.S. Federal, State, and local hazardous waste disposal regulations, those of Canada, European EU Member States, Australia and its Provinces and those of Japan (see Section 13, Disposal Considerations).

7. HANDLING and STORAGE

WORK PRACTICES 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.

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.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in this section, if applicable. Ensure eyewash/safety shower stations are available near areas where this product is used.

EXPOSURE LIMITS/GUIDELINES: There are no exposure limits established for components of this product present in greater than 1% concentration (0.1% for carcinogens).

INTERNATIONAL OCCUPATIONAL EXPOSURE LIMITS: Not established.

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 standard of Canada, Australia, Japan or standards of EU member states. 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 in this section. 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), or equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN 529:2005, and EU member states, or the Australian Standard 1716-Respiratory Protective Devices, the Australian Standard 1715-Selection, Use, and Maintenance of Respiratory Protective Devices, as well as 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-M1982, *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-M1984, *Protective Footwear*.

9. PHYSICAL and CHEMICAL PROPERTIES

FOR ALL COMPONENTS UNLESS OTHERWISE INDICATED:

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

EVAPORATION RATE (nBuAc = 1): Similar to water.

SPECIFIC GRAVITY (water = 1): Not established.

FREEZING/MELTING POINT: Not established.

BOILING POINT: Not established.

SOLUBILITY IN WATER: Completely soluble.

FOR DKP SEPARATION BUFFER, FLUORSCEIN, and BFA:

VAPOR PRESSURE, mm Hg @ 20°C: Not established.

LOG WATER/OIL DISTRIBUTION COEFFICIENT: Not available.

APPEARANCE AND COLOR: Clear, colorless liquid with a mildly garlic-like odor.

HOW TO DETECT THIS SUBSTANCE: The odor may act as a warning property associated with these components.

pH: Not established.

ODOR THRESHOLD: Not available.

FOR ALL OTHER SOLUTIONS:

VAPOR PRESSURE, mm Hg @ 20°C: Not established.

LOG WATER/OIL DISTRIBUTION COEFFICIENT: Not available.

APPEARANCE, ODOR and COLOR: Clear, odorless, colorless liquids.

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

pH: Not established.

ODOR THRESHOLD: Not available.

10. STABILITY AND REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Thermal decomposition of this product's components may produce carbon oxides, dimethyl amine, hydrogen sulfide, cyanides, sodium oxides, and nitrogen oxides.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:

DKP SEPARATION BUFFER, FLUORSCEIN, and BFA: Strong oxidizers, acetyl chloride, cyanuric chloride, acid chlorides, phosphorus halides, strong acids, strong reducers, substances that are incompatible with water.

ALL OTHER SOLUTIONS: 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

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 2 (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

DIMETHYL SULFOXIDE (continued):

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

DIMETHYL SULFOXIDE (continued):

LD₅₀ (oral, mouse) = 7920 mg/kg
Open Irritation Test (skin, rabbit) = 10 mg/24 hours
Standard Draize Test (skin, rabbit) = 500 mg/24 hours; mild

11. TOXICOLOGICAL INFORMATION (Continued)

TOXICITY DATA (continued):

DIMETHYL SULFOXIDE (continued):

Standard Draize Test (eye, rabbit) = 100 mg
Standard Draize Test (eye, rabbit) = 500 mg/24 hours;
mild

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
DNA Inhibition (fibroblast, human) = 125 mmol/L
LD₅₀ (oral, rat) = 3000 mg/kg
LD₅₀ (oral, mouse) = 4000 mg/kg
LD₅₀ (skin, rabbit) > 10 g/kg

SODIUM CHLORIDE (continued):

Skin Irritancy (rabbit) = 50 mg/24 hours; mild
Skin Irritancy (rabbit) = 500 mg/24 hours; mild
Eye Irritancy (rabbit) = 100 mg; mild
Eye Irritancy (rabbit) = 100 mg/24 hours; moderate
Eye Irritancy (rabbit) = 10 mg; moderate

SUSPECTED CANCER AGENT: The constituents in the components of this product are not found on the following lists: NTP, IARC, FEDERAL OSHA Z-List, and CAL-OSHA and therefore are neither considered to be nor suspected to be cancer causing agents by these agencies.

IRRITANCY OF PRODUCT:

DKP SEPARATION BUFFER, FLUORSCEIN, and BFA: Depending on the duration and concentration of overexposure, skin and eye contact can irritate contaminated tissue.

ALL OTHER SOLUTIONS: Contact with the skin or eyes may cause mild irritation, which is alleviated upon rinsing.

SENSITIZATION TO THE PRODUCT: The components of this product are not known to cause skin or respiratory sensitization.

DKP SEPARATION BUFFER, FLUORSCEIN, and BFA: 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 SOLUTIONS: ALL OTHER SOLUTIONS of this product are not known to cause skin or respiratory sensitization.

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 constituent in a component of this product; 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 in a component of this product, 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 constituent a component of this product 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

ENVIRONMENTAL STABILITY: The components of this product will degrade in the environment into smaller organic and inorganic constituents. Additional environmental data for components are available as follows:

DIMETHYL SULFOXIDE:

Biological Half-Life: Dermal application resulted in 50-60 mg % in blood in 4-8 hr; half-life 11-14 hr. 220-340 mg % reported following oral admin of 1,000 mg/kg; half-life 20 hours.
Biodegradation: No degradation of Dimethyl Sulfoxide (%) was noted in a screening test using an activated sludge inoculum. Dimethyl Sulfoxide is considered to be very difficult to degrade in water, based on available data. The data used to make this classification were not indicated. A variety of microorganisms, including some that are found in anaerobic lake mud, have the ability to transform Dimethyl Sulfoxide to dimethyl sulfide.

SODIUM CHLORIDE:

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

EFFECT OF MATERIAL ON PLANTS or ANIMALS: Release of large quantities of this product's components into the environment may have adverse effects on plants or animals.

EFFECT OF CHEMICAL ON AQUATIC LIFE: Release of large quantities of this product's components into an aquatic environment may have adverse effects on aquatic plants or animals. Additional aquatic toxicity data are available as follows:

DIMETHYL SULFOXIDE:

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

SODIUM CHLORIDE:

LC₅₀ (*Carassius auratus* goldfish) 24 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

PREPARING WASTES FOR DISPOSAL: Do NOT dispose of any component of this product by pouring down the drain. 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.

U.S. EPA WASTE NUMBER: Not applicable.

14. TRANSPORTATION INFORMATION

THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is not classified as dangerous goods, per regulations of Transport Canada.

14. TRANSPORTATION INFORMATION (Continued)

INTERNATIONAL AIR TRANSPORT ASSOCIATION DESIGNATION: 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 rules of the IMO.

Marine Pollutant: No component of this product is designated by the IMO to be a Marine Pollutant.

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 CODE FOR THE TRANSPORTATION OF DANGEROUS GOODS BY ROAD AND RAIL (ADG CODE): This product is not classified by the National Road Transport Commission (NRTC) to be dangerous goods.

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: This product is regulated by the Food and Drug Administration; it is exempt from the requirements of TSCA.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

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

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

FOR DKP SEPARATION BUFFER, FLUORSCEIN, and BFA: 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: The constituents in components of this product are listed on the DSL Inventory or are exempt.

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.

CANADIAN WHMIS CLASSIFICATION AND SYMBOLS: Not applicable.

DKP SEPARATION BUFFER, FLUORSCEIN, and BFA: D2B Materials Causing Other Toxic Effects (Contains sensitizer in greater than 1%)



ALL OTHER SOLUTIONS: Not applicable.

EUROPEAN UNION INFORMATION:

EU LABELING AND CLASSIFICATION: (See Section 15 for definition of risk phrases, safety phrases and symbols.) According to Article 1 of European Union Council Directive 92/32/EEC, medical products in the finished state for human use (as defined by European Union Council Directives 67/548/EEC and 87/21/EEC) are not subject to the regulations and administrative provisions of European Union Council Directive 92/32/EEC.

FOR CONSTITUENTS:

Dimethyl Sulfoxide:

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.

HEPES Free Acid:

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.

HEPES Sodium Salt:

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.

Sodium Chloride:

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)**AUSTRALIAN INFORMATION FOR PRODUCT:**

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS: The components of this product are listed on the AICS or are exempt.

LIST OF DESIGNATED SUBSTANCES: Not applicable.

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

LABELING AND CLASSIFICATION: The components of this product do not meet the definition of any hazard class.

JAPANESE INFORMATION FOR PRODUCT:

JAPANESE ENCS: The constituents in components of this product are on the ENCS Inventory as indicated in composition tables in Section 2 (Composition and Information on Ingredients).

POISONOUS AND DELETERIOUS SUBSTANCES CONTROL LAW: No constituent in the components of this product is a listed Specified Poisonous Substance under the Poisonous and Deleterious Substances Control Law.

16. OTHER INFORMATION**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.
PO Box 3519, La Mesa, CA 91944-3519
800/441-3365