



SAFETY DATA SHEET (SDS)

Hema-Screen™ Fecal Occult Blood Test
Hema-screen™ Developing Solution

SDS №: HS002

Reviewed & Revised: 5/22/2015

Created: 03/2005

Complies with OSHA's Hazard Communication Standard, 29 CFR 1910.1200; and the Globally Harmonized System of Classification and Labeling of Chemicals.

SECTION 1: PRODUCT IDENTIFICATION

PRODUCT NAME:	Hema Screen™ Fecal Occult Blood Test DEVELOPER	SERIES NAME:	Hema Screen™
CATALOGUE №.:	HS-34; HS-50; HS-100; HS-1000; HSPP-50; HSDV-8; HSDV-15ML; HSII-20; HSII-34; HSII-50; HSII-100; HSII-1000; HSIIPP-50; HSTAT-50; HSEZ-30; HSEZ-50; HSEZLP-50; HSTR-335; HSTR-335CS; HSDV-1L		
INTENDED USE:	hema-screen™ is a rapid, convenient, and non-offensive qualitative method for detecting occult blood in the stool. It is intended for professional use as an aid in the diagnosis of asymptomatic gastrointestinal conditions that may manifest themselves by the presence of occult blood in the stool.		
PRODUCT USE:	For In Vitro Diagnostic Use. See product literature for details.	EMERGENCY:	+1 (800) 424-9300 (CHEMTREC)
MANUFACTURER:	Immunostics, Inc.	POISON CONTROL:	1-800-876-4766 (USA only)/ 1-800-672-1697
ADDRESS:	1750 Brielle Ave. • Suite A5 • Ocean, NJ 07712 (Mailing Address)	WEBSITE:	www.immunostics.com
	3505 Sunset Ave. • Ocean, NJ 07712 (Manufacturing Site)	EMAIL:	Technical@immunostics.com
TELEPHONE:	+1 (732) 918-0770	FAX:	+1 (732) 918-0618

SECTION 2: HAZARD IDENTIFICATION

PRODUCT DESCRIPTION: Mixture; Clear; Liquid; Alcohol Odor; Consisting of the following ingredient(s)

	OSHA PEL	ACGIH TLV	DFG MAK	NIOSH	Classification: 1999/45/EC & 67/548 EEC
Hydrogen Peroxide (Stabilized) EU Index: 008-003-00-9 EU Classification: Oxidant (O) Corrosive (C)	1 ppm TWA; 1.4 mg/m ³	1 ppm TWA	1ppm, 1.4 mg/m ³	1 ppm; 1.4 mg/m ³ TWA (IDLH): 75 ppm	Labeling R & S Phrases R8; R34. S3; S26; S28; S36/37/39; S45. Hazard & Precautionary Statements H270; H302; H314; H333; H402 P220, P280, P305+351+338, P310
Ethanol EU Index: 603-002-00-5 EU Classification: Highly Flammable (F)	1000 ppm TWA; 1900 mg/m ³ TWA	1000 ppm; 1880 mg/m ³ TWA	500 ppm, 960 mg/m ³	1000 ppm; 1900 mg/m ³ TWA (IDLH): 3,300 ppm [LEL]	Labeling R & S Phrases R11; R20/21/22. S16; S36/37. Hazard & Precautionary Statements H225; H302; H312 P210; P243; P280; P303+361+353 ; P403+233

The R & S Phrases as well as the Hazard & Precautionary Statements listed above, pertain to the chemical as a whole, prior to incorporating into the mixture for which this SDS was prepared.

Emergency Overview: As part of good industrial, personal hygiene & safety procedure, avoid all unnecessary exposure to the chemical components in this kit and ensure prompt removal from skin, eyes, and clothing. Significant health effects are NOT anticipated from routine use when adhering to the instructions listed in the Package Insert provided with kit.

Avoid prolonged contact with any chemical within this kit.

This kit may contain material of human or animal origin and should be considered as potentially capable of transmitting infectious diseases. Human serum products and patient specimens should be considered potentially hazardous and handled in the same manner as an infectious agent. Follow Universal Precautions as necessary.



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SECTION 3: COMPOSITION

DESCRIPTION OF COMPONENTS:

1. hema-screen™ Developing Solution - Contains a stabilized mixture of hydrogen peroxide(less than 6%) and 75% denatured ethyl alcohol in aqueous solution.

NOTE: Variations of the kits purchased may include all of these components or only individual components.

CHEMICAL	IUPAC	SYNONYMS	MOLECULAR FORMULA	IDENTIFIERS	
Water Kit Component: Developer Concentration: < 20%	Oxidane	Hydrogen oxide, Dihydrogen monoxide, Hydrogen monoxide, Dihydrogen oxide & Hydrogen hydroxide	H ₂ O	CAS	7732-18-5
				PUBCHEM	962
				EC	231-491-2
				UN	N/A
				RTEC	ZC0110000
Hydrogen Peroxide Kit Component: Developer Concentration: < 6%	Dihydrogen Dioxide	Dioxidane	H ₂ O ₂	CAS	7722-84-1
				PUBCHEM	784
				EC	231-765-0
				UN	2984
				RTEC	MX0887000
Ethyl Alcohol Kit Component: Developer Concentration: ≤75%	Ethanol	Ethyl alcohol, Ethyl hydrate, Ethyl hydroxide, Ethylic alcohol, Ethylol, Hydroxyethane, Methyl Carbinol	C ₂ H ₆ O	CAS	64-17-5
				PUBCHEM	702
				EC	200-578-6
				UN	1170
				RTEC	KQ6300000

SECTION 4: FIRST AID MEASURES

EYES:	In case of contact with eyes, immediately wash eyes under potable running water for at least 15 minutes, making sure that the eyelids are held open. If pain or irritation occurs, obtain medical attention.
SKIN:	In case of contact to the skin, remove any contaminated clothing and wash affected area with plenty of soap and water. If pain, irritation, or other symptoms develop, obtain medical attention.
INGESTION:	In case of ingestion, contact a poison control center or physician for instructions. Only induce vomiting if directed to do so by medical personnel. Never give anything by mouth to an unconscious person.
INHALATION:	Move victim into fresh air. If breathing is labored or victim loses consciousness contact a physician immediately. If breathing stops, administer artificial respiration; use oxygen as required. Contact a physician immediately..
SYMPTOMS:	To the best of our knowledge, no symptoms, acute or delayed, have been reported.

SECTION 5: FIRE FIGHTING & EXPLOSION HAZARDS

Flash Point:	Hema Screen™ Developer: 21 °C (69.8 °F) Ethyl Alcohol: 56° F (13 °C) Tag Closed Cup 60° F (16 °C) Tag Open Cup Peroxide: Not Combustible
Auto-ignition Temperature:	Not Applicable
Upper / Lower Explosion Limit:	Not Applicable
Extinguishing Media:	For small fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray
Special Fire Fighting Procedures:	Use extinguishing material suitable to the surrounding fire. Utilize proper personal protective equipment when responding to any fire. Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Do not use oxidizable sorbents.



Quality Microbiological, Serological and Immunological Reagents

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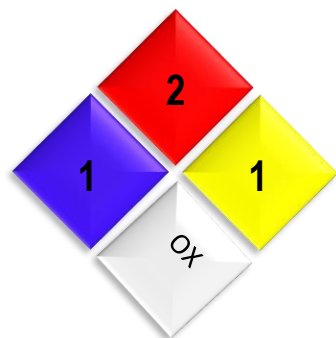
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Special Exposure Hazards: Oxygen evolution from decomposition of hydrogen peroxide will support combustion and may serve to intensify a fire. (Hydrogen Peroxide concentration is nominal)

Only trained and competent personnel shall attempt to extinguish a fire. Contact emergency response personnel as required. Be cautious of surrounding materials that may react with the extinguishing media.

NFPA Ratings:

	FLAMMABILITY	REACTIVITY	SPECIAL	HEALTH
	0 Will not burn (e.g., argon)	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g., helium)	The white "special notice" area can contain several symbols. The following symbols are defined by the NFPA 704 standard.	Poses no health hazard, no precautions necessary (e.g., water)
1	Must be heated before ignition can occur (e.g., mineral oil). Flash point over 93°C (200°F)	Normally stable, but can become unstable at elevated temperatures and pressures (e.g., propene)		Exposure would cause irritation with only minor residual injury (e.g., acetone)
2	Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur (e.g., diesel fuel). Flash point between 38°C (100°F) and 93°C (200°F)	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water (e.g., phosphorus, potassium, sodium)	OX Oxidizer (e.g., potassium perchlorate, ammonium nitrate, hydrogen peroxide)	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g., ethyl ether)
3	Liquids and solids that can be ignited under almost all ambient temperature conditions (e.g., gasoline). Liquids having a Flash point below 23°C (73°F) and having a Boiling point at or above 38°C (100°F) or having a Flash point between 23°C (73°F) and 38°C (100°F)	Capable of detonation or explosive decomposition but requires a strong initiating source, must be heated under confinement before initiation, reacts explosively with water, or will detonate if severely shocked (e.g., ammonium nitrate)	W Reacts with water in an unusual or dangerous manner (e.g., cesium, sodium, sulfuric acid)	Short exposure could cause serious temporary or moderate residual injury (e.g., chlorine gas)
4	Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will burn readily (e.g., propane, hydrogen). Flash point below 23°C (73°F)	Readily capable of detonation or explosive decomposition at normal temperatures and pressures (e.g., nitroglycerine, Trinitrotoluene)		Very short exposure could cause death or major residual injury (e.g., hydrogen cyanide, phosphine, carbon monoxide)

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use Personal Protective Equipment during clean-up procedures. Use good laboratory procedures; avoid eye and skin contact.

Environmental Precautions: No environmental hazard is anticipated provided that the material is handled and disposed of with due care. Contain spill to prevent migration.

Spill and Leak Procedures: Large spills of this kit are unlikely. Personnel who have received basic chemical safety training can generally handle small-scale releases, such as 1 container in this kit. Utilize safety glasses, nitrile gloves, and lab coat/apron when responding to spills involving the components of this kit. Absorb liquid with an appropriate inert, non-flammable absorbent and place in container suitable for disposal. Dispose of in accordance with applicable U.S. Federal, State, or local procedures or appropriate standards of Canada or the EU (see Section 13, Disposal Considerations).

SECTION 7: HANDLING & STORAGE

Handling: As with all chemicals, avoid getting components within this kit ON YOU or IN YOU. Wash exposed areas thoroughly after using this kit. Do not eat or drink while using this kit. This kit should be handled only by qualified clinical or laboratory personnel trained on the use of this kit. This kit should be handled as though capable of transmitting infectious diseases. Universal Precautions should be followed when using this kit. **Not for use by the general public.**

Storage: Keep away from incompatible materials (Section 10). To maintain efficacy, when not in use, keep components tightly closed and store according to the package insert instructions.

Specific Use: **For in vitro diagnostic use only.**

Other: Do not substitute reagents from kits from other manufacturers. The reagents in each kit are matched. Reagents from different kits must not be interchanged or pooled. Mix the reagents well before use. If the kit does not yield expected results when controls are tested, the kit should be discarded. Traces of detergent or dried reactants on the test slide may adversely affect test performance and results. Replace vial closure when not being used.



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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:

	OSHA PEL	ACGIH TLV	DFG MAK	NIOSH
Hydrogen Peroxide EU Index: 008-003-00-9 EU Classification: Oxidant (O) Corrosive (C)	1 ppm TWA; 1.4 mg/m ³	1 ppm TWA	1 ppm, 1.4 mg/m ³	1 ppm; 1.4 mg/m ³ TWA (IDLH): 75 ppm
Ethanol EU Index: 603-002-00-5 EU Classification: Highly Flammable	1000 ppm TWA; 1900 mg/m ³ TWA	1000 ppm; 1880 mg/m ³ TWA	500 ppm, 960 mg/m ³	1000 ppm; 1900 mg/m ³ TWA (IDLH): 3,300 ppm [LEL]

Occupational Exposure Controls:

Engineering Controls:

No special engineering controls are required when working with this kit. Use with adequate ventilation to ensure exposure levels are maintained below the limits provided above.

Personal Protective Equipment (PPE):

Respiratory Protection:	Under normal conditions, the use of this product should not require respiratory protection.
Eye Contact:	Safety glasses or chemical goggles should be worn to prevent eye contact. Refer U.S. OSHA 29 CFR 1910.133, European Standard EN166 or appropriate government standards.
Skin Contact:	Wear Impervious gloves, such as latex or equivalent, should be worn to prevent skin contact and especially cover any cuts, abrasions or skin lesions. Dispose of gloves as bio-hazardous material. Wash hands thoroughly after removing gloves. Use extreme caution with any sharp object to avoid percutaneous exposure to material. Wear outer protective garments such as a lab coat or gown. Refer U.S. OSHA 29 CFR 1910.138, European Standard EN374 or appropriate government standards.
Other:	Not Applicable



Environmental Controls:

No special environmental controls are required.

SECTION 9: PHYSICAL & CHEMICAL CHARACTERISTICS

Characteristic	Developer
Appearance	Clear to slightly amber
Odor	Odorless
pH	Neutral
Boiling Point	78 °C-81 °C
Melting Point	< -20 °C
Specific Gravity	0.86 @ 20 °C
Vapor Pressure	40 mm Hg @ 25 °C
Vapor Density	1.6
Solubility in Water	Completely Miscible
Evaporation Rate	2.5
Auto-ignition Temperature	Not Available



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Decomposition Temperature

Not Available

Viscosity

Not Available

SECTION 10: STABILITY AND REACTIVITY

Characteristic	Developer
Stability:	Is generally considered to be stable when stored according to approved labeling except when exposed to excessive heat, sparks, open flame, other sources of ignition and incompatible chemicals.
Conditions to Avoid:	Do not freeze. Protect from prolonged exposure to heat, humidity, and light, ignition sources & incompatible materials.
Materials to Avoid (Incompatibility):	Concentrated nitric and sulfuric acids, strong oxidizing agents. Excessive heat. Rust, dirt, dust and inert particulate solids in general. Iron, copper and heavy metals, their salts and alloys. Ultra violet light may induce photo decomposition.
Hazardous Decomposition or Byproducts:	None, when stored as recommended.
Hazardous Reactions:	NONE EXPECTED

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicity Data for Hazardous Ingredients:

	Inhalation LC50 Rat	Oral LD50 Rat	Dermal LD50 Rat	Dermal LD50 Rabbit
Ethyl Alcohol	124.7 mg/L 4 h	7060 mg/kg	N/A	N/A
Hydrogen Peroxide	2 mg/L 4 h	801 mg/kg	4060 mg/kg	2000 mg/kg

Routes of Exposure:

Overexposures to components within this kit are not expected. Common routes of exposure may include ingestion and eye/skin contact. Specific paths of concern for potentially infectious materials are skin puncture, contact with broken skin, contact with mucous membranes and inhalation of aerosolized material.

Potential Effects of Acute Overexposure, By Route Of Exposure:

This kit may contain materials of human or animal origin and should be considered as potentially capable of transmitting infectious diseases.

INHALATION:

Vapors, mists, sprays, or dusts of this kit can cause irritation to the respiratory tract.

CONTACT WITH SKIN or EYES:

Contact can cause eye or skin irritation.

SKIN ABSORPTION:

May be harmful if absorbed through skin.

INGESTION:

May cause nausea, diarrhea, vomiting, and headache, slight lowering of blood pressure, abdominal pain, and a general feeling of apprehension and un-wellness, as well as, irritation of the mouth, throat, and other issues of the gastro-intestinal system may occur.

INJECTION:

Accidental injection of this kit may cause burning, reddening, and swelling in addition to the wound. Symptoms of such exposure can include those described under "Inhalation", "Contact with Skin or Eyes," and "Ingestion".

Potential Effects of Chronic Exposure:

Chronic exposure may result in effects similar to those described for acute exposure. Frequent or long-term contact may dry out the skin resulting in dermatitis. Repeated exposure may result in allergic reactions.

Symptoms of Overexposure:

Symptoms of overexposure may include: throat irritation and coughing; dry, red, cracked skin; red irritated eyes; headache, drowsiness, dizziness, stupor; and convulsions.

Medical Conditions Aggravated by Exposure:

Persons with pre-existing skin disorders; eye problems or impaired respiratory system function can be more susceptible to health effects associated with overexposures to the chemicals within this kit.

Irritation/Sensitization

May cause sensitization by inhalation and skin contact.

Other Effects

None identified.

Carcinogenicity

No ingredients in this product are listed as carcinogens by ACGIH, IARC, NTP, OSHA or GHS



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SECTION 12: ECOLOGICAL INFORMATION

Eco-toxicity

Toxic to fish and other water organisms.

Fresh Water Species

Ethyl Alcohol	96 Hr LC50 Oncorhynchus mykiss: 12.0 - 16.0 mL/L [static]; 96 Hr LC50 Pimephales promelas: >100 mg/L [static]; 96 Hr LC50 Pimephales promelas: 13400 - 15100 mg/L [flow-through]
Hydrogen Peroxide	96 Hr LC50 Pimephales promelas: 16.4 mg/L; 96 Hr LC50 Lepomis macrochirus: 18-56 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 10.0-32.0 mg/L [static]

Microtox

No Information available.

Water Flea

Ethyl Alcohol	48 Hr LC50 Daphnia magna: 9268 - 14221 mg/L; 24 Hr EC50 Daphnia magna: 10800 mg/L; 48 Hr EC50 Daphnia magna: 2 mg/L [Static]
Hydrogen Peroxide	24 Hr EC50 Daphnia magna: 7.7 mg/L; 48 Hr EC50 Daphnia magna: 18 - 32 mg/L [Static]

Fresh Water Algae

Hydrogen Peroxide	72 Hr EC50 Chlorella vulgaris: 2.5 mg/L
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Persistence and Degradability, Mobility & Bioaccumulation

Data are not available for the components of this kit.

There is limited potential for the components within this kit to accumulate in plant or animal systems.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:

Dispose of waste materials, unused components and contaminated packaging in compliance with country (i.e., Canada, EU) federal, state and local regulations. If unsure of the applicable requirements, contact the authorities for information.

WITH SPECIMEN:

Patient specimens and all materials coming into contact with them should be handled as if capable of transmitting infections and disposed of with proper precautions.

SECTION 14: TRANSPORT INFORMATION

U.S. Transportation (US DOT)

UN ID Number:	1170
Proper Shipping Name:	ETHANOL OR ETHYL ALCOHOL/ETHANOL OR ETHYL ALCOHOL SOLUTIONS
Hazard Class/Label:	3 - FLAMMABLE LIQUID/CORROSIVE
Subsidiary Risk:	None
Packaging Group:	II
Packaging Exception/Special Provisions:	150/173.150
Non Bulk Pack/Bulk Pack:	202/242
Vessel Stow Req.:	A
NAERG Number:	127

Canadian Transportation (TDG)

UN ID Number:	1170
Proper Shipping Name:	ETHANOL OR ETHYL ALCOHOL/ETHANOL OR ETHYL ALCOHOL SOLUTIONS
Hazard Class/Label:	3 - FLAMMABLE LIQUID/CORROSIVE
Subsidiary Risk:	None
Packaging Group:	II
Packaging Exception/Special Provisions:	16
NAERG Number:	127

International Air Transportation (IATA)

UN ID Number:	1170
Proper Shipping Name:	ETHANOL OR ETHYL ALCOHOL/ETHANOL OR ETHYL ALCOHOL SOLUTIONS
Hazard Class/Label:	3 - FLAMMABLE LIQUID/CORROSIVE
Subsidiary Risk:	None



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Packaging Group:	II
Packaging Exception/Special Provisions:	A3, A58
Packaging Note Cargo:	307
IATA ERG Code:	3L

International Maritime Dangerous Goods (IMDG)

UN ID Number:	1170
Proper Shipping Name:	ETHANOL OR ETHYL ALCOHOL/ETHANOL OR ETHYL ALCOHOL SOLUTIONS
Hazard Class/Label:	3 - FLAMMABLE LIQUID/CORROSIVE
Subsidiary Risk:	None
Packaging Group:	II
Packaging Exception/Special Provisions:	274
Marine Pollutant:	No

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL AND STATE REGULATIONS

U.S. SARA SECTION 311/312 FOR KIT: Not applicable

U.S. TSCA INVENTORY STATUS: Ethanol and Hydrogen Peroxide are listed on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Not applicable

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): NO INGREDIENTS LISTED

CANADIAN REGULATIONS:

CANADIAN DSL/NDL INVENTORY STATUS: Hydrogen Peroxide & Ethanol are listed on the DSL Inventory.

CANADIAN WHMIS SYMBOLS: None Required

HMIS RATINGS

Health	2
Flammability	1
Physical Hazard	1
Protective Equipment	B

B: Safety Glasses and Gloves

EU LABELING CLASSIFICATION

Classification: Very Flammable.

Risk Phrases: R11

Safety Phrases: S16; S7



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SECTION 16: OTHER INFORMATION

Labeling: Hazard: warning: flammable, protect from heat.
Labeling: This package conforms to 49 CFR 173.4

R-Phrases Defined:

R8:	Contact with combustible material may cause fire
R11:	Highly flammable
R34:	Causes burns
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed

S-Phrases Defined:

S3:	Keep in a cool place
S16:	Keep away from sources of ignition - No smoking
S26:	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S28:	After contact with skin, wash immediately with plenty of ... (to be specified by the manufacturer)
S45:	In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)
S36/37	Wear suitable protective clothing and gloves
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection

Hazard Statements Defined:

H225:	Highly flammable liquid and vapor
H270:	May cause or intensify fire; oxidizer
H302:	Harmful if swallowed
H312:	Harmful in contact with skin
H314:	Causes severe skin burns and eye damage
H333:	May be harmful if inhaled
H402:	Harmful to aquatic life

Precautionary Statements Defined:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220	Keep/Store away from clothing/.../combustible materials.
P243	Take precautionary measures against static discharge
P280	Wear protective gloves/protective clothing/eye protection/face protection
P310	Immediately call a POISON CENTER/doctor/...
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
P403+233	Store in a well ventilated place. Keep container tightly closed.

Revision Date: May 22, 2015

This SDS has been updated to comply with GHS requirements

This SDS has been prepared in accordance with ANSI Z400.1 format. Every effort has been made to adhere to the hazard criteria and content requirements of the US OSHA Hazard Communication Standard, European Communities Safety Data Sheets Directive, Canadian Controlled Products Regulations, UK Chemical Hazard information and Packaging Regulations, and UN Globally Harmonized System of Classification and Labeling of Chemicals.

The hazard ratings on this SDS are for appropriately trained workers using the Hazardous Materials Identification System (HMIS®) or a National Fire Protection Association (NFPA) 704 Program. The ratings are estimates and should be treated as such. The hazard rating scales range from (0) minimal hazards to (4) significant hazards or risks (Refer to Definitions of Terms at the end of this SDS). Chronic (long-term) health effects are indicated in the HMIS by asterisk (*). HMIS is a registered trade and service mark of the NPCA. For details on HMIS ratings visit www.paint.org/hmis. For details on NFPA 704 visit www.nfpa.org.

DISCLAIMER:

The information provided in this Safety Data Sheet has been compiled, in good faith, from our experience and data presented in various technical publications and believed to be accurate and represents the best information currently available to us. An SDS for a substance is not primarily intended for use by the general consumer, focusing instead on the hazards of working with the material in an occupational setting. However, we make no warranty of merchantability, fitness for a particular purpose or of any other type, expressed or implied, with respect to products described or data or information provided, and we assume no liability resulting from the use of such products, data or information. Users should make their own investigations to determine the suitability of the information for their particular purposes, and the user assumes all risk arising from their use of the material. The user is required to comply with all laws and regulations relating to the purchase, use, storage and disposal of the material, and must be familiar with and follow generally accepted safe handling procedures. Immunostics, Inc. shall not be held liable for any claims, losses, or damages of any individual or for post profits of any special, indirect, incidental, consequential or exemplary damages, resulting from handling or from contact with the product described in this SDS even if Immunostics, Inc. has been advised of the possibility of such damages. We reserve the right to update SDS sheets from time to time as new information becomes available. It is the responsibility of the user to verify that they have the latest revision available.

NFPA 704

CHEMTREC® (24 hours) 1-800-424-9300 (Toll-free in the U.S., Canada, and the U.S. Virgin Islands) For calls originating elsewhere: 703-527-3887 (Collect calls are accepted)	CHEMTEL, INC. (24 hours) 1-888-255-3924 (Toll-free in the U.S., Canada, Puerto Rico and the U.S. Virgin Islands) For calls originating elsewhere: 813-248-0585 (Collect calls are accepted)
INFOTRAC (24 hours) 1-800-535-5053 (Toll-free in the U.S., Canada, and the U.S. Virgin Islands) For calls originating elsewhere: 352-323-3500 (Collect calls are accepted)	3E COMPANY (24 hours) 1-800-451-8346 (Toll-free in the U.S., Canada, and the U.S. Virgin Islands) For calls originating elsewhere: 760-602-8703 (Collect calls are accepted)

The emergency response information services shown above have requested to be listed as providers of emergency response information and have agreed to provide emergency response information to all callers. They maintain periodically updated lists of state and Federal radiation authorities who provide information and technical assistance on handling incidents involving radioactive materials.

NATIONWIDE POISON CONTROL CENTER (United States Only)

Emergency and information calls are answered by the nearest Poison Center (24 hours): **1-800-222-1222** (toll-free in the U.S.).

NATIONAL RESPONSE CENTER (NRC)

The NRC, which is operated by the U.S. Coast Guard, receives reports required when dangerous goods and hazardous substances are spilled. After receiving notification of an incident, the NRC will immediately notify the appropriate Federal On-Scene Coordinator and concerned Federal agencies. Federal law requires that anyone who releases into the environment a reportable quantity of a hazardous substance (including oil when water is, or may be affected) or a material identified as a marine pollutant must **immediately** notify the NRC. When in doubt as to whether the amount released equals the required reporting levels for these materials, the NRC should be notified.

CALL **NRC** (24 hours) **1-800-424-8802** (Toll-free in the U.S., Canada, and the U.S. Virgin Islands)
202-267-2675 in the District of Columbia

Calling the emergency response telephone number, CHEMTREC®, CHEMTEL, INC., INFOTRAC or 3E COMPANY, does not constitute compliance with regulatory requirements to call the NRC.

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these, which are commonly used, include the following:

CAS (Chemical Abstract Service) Number that uniquely identifies each compound.

ACGIH (American Conference of Governmental Industrial Hygienists): a professional association that establishes exposure limits.

TLV (Threshold Limit Value): an airborne concentration of a substance that represents conditions under which it is generally believed that nearly all workers can be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average (**TWA**), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level (**C**). Skin absorption effects must also be considered.

OSHA (U.S. Occupational Safety and Health Administration)

PEL (Permissible Exposure Limit): This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL that was vacated by Court Order.

IDLH (Immediately Dangerous to Life and Health): This level represents a concentration from which one can escape within 30- minutes without suffering escape-preventing or permanent injury.

DFG-MAK is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. NIOSH is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (OSHA).

NIOSH issues exposure guidelines called Recommended Exposure Levels (RELs). When no exposure guidelines are established, an entry of NE is made for reference.

Protective Equipment

A: Safety Glasses.

B: Safety glasses and gloves.

C: Safety glasses, gloves and body protection.

D: Splash goggles with face shield, gloves and body protection.

E: Eye protection, gloves and dust mask respiratory protection.

F: Eye protection, gloves, body protection and dust mask respiratory protection.

G: Eye protection, gloves and air purifying respiratory protection.

HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS):

Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime overexposure can cause permanent injury and can be fatal); **4** (extreme acute exposure hazard; single overexposure can be fatal). * Indicates chronic hazard.

Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); **3** (Class IB and IC flammable liquids with flash points below 38°C [100°F]); **4** (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]).

Reactivity Hazard: **0** (normally stable); **1** (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA):

Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury).

Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR: Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: LD50 - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; LC50 - Lethal Concentration (gases) which kills 50% of the exposed animals; ppm concentration expressed in parts of material per million parts of air or water; mg/m3 concentration expressed in weight of substance per volume of air; mg/kg quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include TDLo, the lowest dose to cause a symptom and TLo the lowest concentration to cause a symptom; TDo, LDLo, LDo, TC, TCo, LCLo, and LCo, the lowest dose (or concentration) to cause lethal or toxic effects. BEI - Biological Exposure Indices, represent the levels of determinants that are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. Ecological Information: EC is the effect concentration in water.

Data from several sources are used to evaluate the cancer-causing potential of the material. The sources and ratings are: IARC - the International Agency for Research on Cancer; 1 = Carcinogenic to humans, 2A, 2B = Probably carcinogenic to humans, 3 = Unclassifiable as to carcinogenicity in humans, and 4 = Probably not carcinogenic to humans. NTP - the National Toxicology Program; K = Known to be a human carcinogen, and R = Reasonably anticipated to be a human carcinogen. RTECS - the Registry of Toxic Effects of Chemical Substances. OSHA - Occupational Safety and Health Administration and CAL/OSHA - California's subunit of the Occupational Safety and Health Administration; Ca = Carcinogen defined with no further categorization. ACGIH - American Conference of Governmental Industrial Hygienists; A1 = Confirmed human carcinogen, A2 = Suspected human carcinogen, A3 = Confirmed animal carcinogen with unknown relevance to humans, A4 = Not classifiable as a human carcinogen, and A5 = Not suspected as a human carcinogen. NIOSH - U.S. National Institute for Occupational Safety and Health; Ca = Potential occupational carcinogen, with no further categorization. EPA - U.S. Environmental Protection Agency; A = Human carcinogen, B = Probable human carcinogen, C = Possible human carcinogen, D = Not classifiable as to human carcinogenicity, E = Evidence of Non-carcinogenicity for humans, K = Known human carcinogen, L = Likely to produce cancer in humans, CBD = Cannot be determined, NL = Not likely to be carcinogenic in humans, and I = Data are inadequate for an assessment of human carcinogenic potential.

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. EPA is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively.

Superfund Amendments and Reauthorization Act (**SARA**); the Canadian Domestic/Non-Domestic Substances List (**DSL/NDL**); the U.S. Toxic Substance Control Act (**TSCA**); Marine Pollutant status according to the DOT; the Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA** or Superfund); and various state regulations.

This section also includes information on the precautionary warnings that appear on a material's industrial package label.