

MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI, and Canadian WHMIS Standards

PART I What is the material and what do I need to know in an emergency?

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED):	ATAC[®] ISE Enzymatic Cleaner Kit
PRODUCT NUMBER (AS LABELED):	549-060
CHEMICAL NAME/CLASS:	Not Applicable
SYNONYMS:	Not applicable
PRODUCT USE:	In-Vitro Diagnostic Reagents
SUPPLIER/MANUFACTURER'S NAME:	Vital Diagnostics, Inc.
ADDRESS:	27 Wellington Road Lincoln, RI 02865 USA
EMERGENCY PHONE:	1-760-602-8700
BUSINESS PHONE:	1-401-642-8400; 1-800-345-2822
DATE OF PREPARATION:	June 1, 2008

2. COMPOSITION and INFORMATION ON INGREDIENTS

This Material Safety Data sheet describes the ATAC ISE ENZYMATIC CLEANER. This product consists of the following two reagents: HYDROCHLORIC ACID DILUENT and PEPSIN

CHEMICAL NAME	CAS #	% v/v	EXPOSURE LIMITS IN AIR					
			ACGIH-TLV		OSHA-PEL		NIOSH IDLH	OTHER
			TWA ppm	STEL ppm	TWA ppm	STEL ppm		

COMPONENT 1: HYDROCHLORIC ACID DILUENT (F8906v1.0)

Hydrochloric Acid	7647-01-0	< 1	NE	5 ceiling	NE	5 ceiling	50	NIOSH REL: STEL = 5 ceiling DFG MAK: TWA = 5 ceiling PEAK = 1•MAK 15 min, average value Carcinogen: IARC-3
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	The remaining components do not contribute any significant additional hazards. All pertinent information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards, and Canadian Workplace Hazardous Materials Identification System Standards (CPR 4).					

COMPONENT 2: PEPSIN (SB930v1.0)

Pepsin (exposure limits are for "Particulates, Not Otherwise Specified")	9001-75-6	> 99	NE	NE	15 (Total dust) 5 (Respirable Fraction)	NE	NE	DFG MAK: TWA = 4 (Inhalable fraction, 1.5 (Respirable fraction)
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	The remaining components do not contribute any significant additional hazards. All pertinent information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. 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: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.




3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: The HYDROCHLORIC ACID DILUENT component is a clear, colorless, odorless liquid. The PEPSIN component is a white to off-white, odorless powder. **Health Hazards:** The HYDROCHLORIC ACID DILUENT component is corrosive and can irritate and damage contaminated tissue. The PEPSIN component may irritate the eyes, skin, nose, and other tissues that come in contact with this product. **Flammability Hazards:** If involved in a fire, the components of this product may decompose to produce toxic gases (e.g., carbon oxides, nitrogen oxides, and hydrogen chloride). **Reactivity Hazards:** Negligible. **Environmental Hazards:** Negligible. **Emergency Recommendations:** Emergency responders must wear personal protective equipment suitable for the situation to which they are responding.

HYDROCHLORIC ACID DILUTION

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
HEALTH		(BLUE)	3
FLAMMABILITY		(RED)	0
REACTIVITY		(YELLOW)	0
PROTECTIVE EQUIPMENT			B
EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		
For routine applications.			

PEPSIN

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
HEALTH		(BLUE)	2
FLAMMABILITY		(RED)	1
REACTIVITY		(YELLOW)	0
PROTECTIVE EQUIPMENT			B
EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		
For routine applications.			

See Section 16 for Definition of Ratings

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: No adverse health effects should occur from routine, occupational use of this product's components in the manner specified by the manufacturer's instructions. The potential health effects of this product's components are as follows:

INHALATION:

HYDROCHLORIC ACID DILUTION: Inhalation of vapors, mists, or sprays of this component can irritate and burn the mouth, throat, nose, and other tissues of the respiratory system. Symptoms may include tightness in the chest, difficulty breathing, and coughing. Severe overexposure may cause pulmonary edema (a life-threatening accumulation of fluid in the lungs). Severe overexposure may be fatal.

PEPSIN: Inhalation of airborne dusts of this component may mildly irritate the mucous membranes and upper respiratory tract. Symptoms of such overexposure may include coughing and congestion. There is some evidence that Pepsin may cause sensitization by inhalation in susceptible individuals. Symptoms may include allergic reaction and asthmatic attacks. Subsequent exposure to very small amounts of this compound in those persons who have become sensitized will result in reaction.

CONTACT WITH SKIN or EYES:

HYDROCHLORIC ACID DILUTION: Depending on the concentration and duration of overexposure, skin contact may cause irritation, redness, burns, ulceration, and scarring. Burns may not be immediately painful. Repeated overexposure may cause dermatitis (dry, red skin). Depending on the concentration and duration of overexposure, eye contact may cause irritation, redness, and damage to the cornea. Severe eye overexposure can cause blindness.

3. HAZARD IDENTIFICATION (Continued)

CONTACT WITH SKIN or EYES (continued):

PEPSIN: Eye contact with this component may be irritating (i.e., foreign object). Symptoms of eye contact may include redness, pain, and watering. Skin contact with this product may be mildly irritating. Symptoms of skin contact may include redness and itching. Repeated skin contact may cause dermatitis (dry, red skin).

SKIN ABSORPTION: Skin absorption is not known to be a potential route of exposure for any constituents in this product's components.

INGESTION: Ingestion is not anticipated to be a significant route of exposure for this product's components.

HYDROCHLORIC ACID DILUTION: If this component is swallowed, it will irritate and burn the mouth, throat, and other tissues of the digestive system. Symptoms can include pain, diarrhea, vomiting, and collapse. Severe overexposure may be fatal.

PEPSIN: If this product is swallowed (i.e., through poor hygiene practices), it may slightly irritate the mouth and throat. Severe ingestion overexposure of this product may cause nausea, vomiting, and diarrhea. In susceptible individuals, ingestion of this compound can cause sensitization and allergic reaction, characterized by rash.

INJECTION: Accidental injection of this product's components, via laceration or puncture by a contaminated object, may cause local redness, tissue swelling, and discomfort in addition to the wound.

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

ACUTE:

HYDROCHLORIC ACID DILUTION: This component can severely irritate and burn contaminated tissue. Severe inhalation and ingestion overexposure to this component may be fatal. Severe eye overexposure may cause blindness.

PEPSIN: Contact with this component may irritate the nose, throat, eyes, skin and other contaminated tissues.

CHRONIC:

HYDROCHLORIC ACID DILUTION: Prolonged or repeated overexposure to this product's components may cause dermatitis (dry, red skin).

PEPSIN: This compound may cause allergic reaction by inhalation or ingestion.

TARGET ORGANS: ACUTE: Eyes, skin. CHRONIC: Skin.

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of label and MSDS to physician or health professional with victim.

SKIN EXPOSURE: Basic hygiene should prevent any problems. If contact with this product's components causes redness, inflammation, or irritation, flush the exposed area with running water. Remove any contaminated clothing, taking care not to contaminate eyes.

EYE EXPOSURE: If liquid or vapors of this product's components enter the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes.

INHALATION: If vapors, mists, or sprays of this product's components are inhaled, causing irritation, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.

INGESTION: If this product's components are swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. 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.

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

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.

5. FIRE-FIGHTING MEASURES

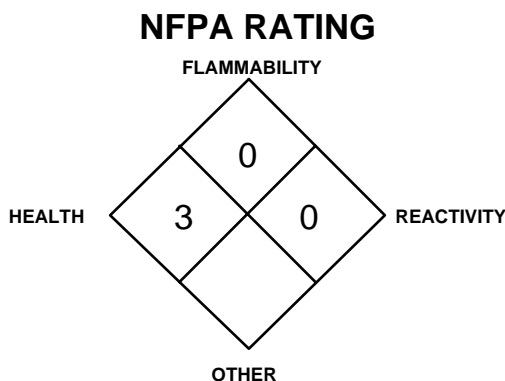
FLASH POINT: Not flammable.

AUTOIGNITION TEMPERATURE: Not established.

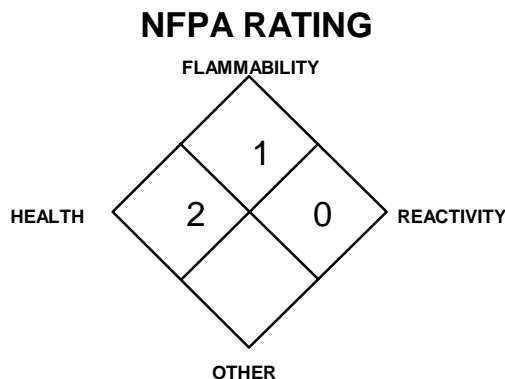
FLAMMABLE LIMITS (in air by volume, %): (LEL): Not applicable.
(UEL): Not applicable.

5. FIRE-FIGHTING MEASURES (Continued)

HYDROCHLORIC ACID DILUTION



PEPSIN



**See Section 16 for
Definition of Ratings**

FIRE EXTINGUISHING MATERIALS: In the event of a fire, use suppression methods for surrounding materials.

Water Spray: YES

Carbon Dioxide: YES

Dry Chemical: YES

Halon: YES

Other: Any "ABC" Class.

Foam: YES

UNUSUAL FIRE AND EXPLOSION HAZARDS: The HYDROCHLORIC ACID DILUTION component is corrosive and presents a severe contact hazard to firefighters. The PEPSIN component can burn when strongly heated. When involved in a fire, this product's components will decompose and produce irritating vapors and toxic gases (including carbon oxides, nitrogen oxides, and hydrogen chloride).

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Large dust clouds of PEPSIN component have the potential to ignite explosively in presence of static discharge.

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: For small releases take basic hygiene precautions. Lightweight gloves, a lab coat, and eye protection should be worn. Absorb spilled liquid with paper towels. Wipe up spilled powder with a damp sponge. 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. Sweep up spilled powder, avoiding the generation of airborne particulates. If HYDROCHLORIC ACID DILUTION component is released, neutralize area with citric acid or other agent suitable for bases. Test area with litmus paper to insure neutralization is complete if necessary. Decontaminate the area thoroughly. Place all spill residue in a suitable container and seal. Dispose of in accordance with applicable U.S. Federal, State, or local procedures or appropriate standards of Canada (see Section 13, Disposal Considerations).

PART III *How can I prevent hazardous situations from occurring?*

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. Avoid breathing airborne dusts and vapors generated by this product. Do not eat or drink while handling this product's components. Follow SPECIFIC USE INSTRUCTIONS supplied with this product.

7. HANDLING and STORAGE (Continued)

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Do NOT pour these solutions down the drain. Open containers slowly on a stable surface. Keep container tightly closed when not in use. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. Store away from incompatible materials (see Section 10, Stability and Reactivity). Store this product in original container at controlled room temperature of 15–30°C (59–86°F). Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged.

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 U.S. Federal, State, or local procedures or appropriate standards of Canada. All disposable items contaminated with this product should be disposed of properly.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in Section 2 (Composition and Information on Ingredients) if applicable. Wipe down work areas routinely to prevent accumulation of dusts. Ensure eyewash/safety shower stations are available near areas where this product is used.

RESPIRATORY PROTECTION: Respiratory protection is not generally needed during routine use of this product. Maintain airborne contaminant concentrations below exposure limits listed in Section 2 (Composition and Information on Ingredients) if applicable. Use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, or Canadian CSA Standard Z94.4-93. Use supplied air respiration protection if oxygen levels are below 19.5% or are unknown.

EYE PROTECTION: Splash goggles or safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133.

HAND PROTECTION: Wear latex or rubber gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 (Accidental Release Measures) of this MSDS.

BODY PROTECTION: Use body protection appropriate for task (e.g., coveralls, Tyvek® suit).

9. PHYSICAL and CHEMICAL PROPERTIES

FOR HYDROCHLORIC ACID DILUTION:

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

SPECIFIC GRAVITY (water = 1): 1.019

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

ODOR THRESHOLD: Not available.

LOG WATER/OIL DISTRIBUTION COEFFICIENT: Not available.

APPEARANCE AND COLOR: Clear, colorless liquid.

HOW TO DETECT THIS SUBSTANCE: There are no unusual warning properties associated with this component.

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

FREEZING/MELTING POINT: Similar to water.

pH: < 1

FOR PEPSIN:

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

SPECIFIC GRAVITY (water = 1): Not established.

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

ODOR THRESHOLD: Not available.

LOG WATER/OIL DISTRIBUTION COEFFICIENT: Not available.

APPEARANCE AND COLOR: White to off-white, odorless powder.

HOW TO DETECT THIS SUBSTANCE: The appearance may act as a warning property associated with this component.

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

FREEZING/MELTING POINT: Similar to water.

pH: Not established.

10. STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Thermal decomposition of this product's components may produce carbon oxides, nitrogen oxides, and hydrogen chloride.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: 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.

PART IV *Is there any other useful information about this material?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following information is available for the constituents in components of this product present in greater than 1 percent concentration.

PEPSIN:

DNA Damage (hamster, fibroblast) = 1000 ppm

SUSPECTED CANCER AGENT: The constituents in this product's components 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:

HYDROCHLORIC ACID DILUTION: Contact with this corrosive material can severely irritate and burn contaminated skin or eyes. If these components contaminate the eyes, corneal damage and blindness can occur. If these components contaminate the skin, ulceration and permanent scarring can occur.

PEPSIN: 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

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

Mutagenicity: This product is not reported to produce mutagenic effects in humans. Animal mutation data are available for the Hydrochloric Acid component of this product; these data were obtained during clinical studies on specific animal tissues exposed to high doses of this compound.

Embryotoxicity: This product is not reported to cause human embryotoxic effects.

Teratogenicity: This product is not reported to cause teratogenic effects in humans. Clinical studies on test animals exposed to relatively high doses of the Hydrochloric Acid component of this product indicate teratogenic effects.

Reproductive Toxicity: This product is not reported to cause adverse reproductive effects in humans.

*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.

EFFECT OF MATERIAL ON PLANTS or ANIMALS:

HYDROCHLORIC ACID DILUTION: Release of this component into the environment can have adverse effects on plants or animals.

PEPSIN: Release of large quantities of this component into the environment may have adverse effects on plants or animals.

EFFECT OF CHEMICAL ON AQUATIC LIFE:

HYDROCHLORIC ACID DILUTION: Release of this component into an aquatic environment can have adverse effects on aquatic plants or animals.

PEPSIN: Release of large quantities of this component into an aquatic environment may have adverse effects on aquatic plants or animals.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations or with regulations of Canada. 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. Do NOT pour these solutions down the drain.

U.S. EPA WASTE NUMBER:

HYDROCHLORIC ACID DILUTION: D002 (Characteristic/Corrosivity), applicable to wastes consisting only of this solution.

PEPSIN: Not applicable to wastes consisting only of this product.

14. TRANSPORTATION INFORMATION

FOR HYDROCHLORIC ACID DILUTION:

THIS COMPONENT IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Hydrochloric acid solution
HAZARD CLASS NUMBER and DESCRIPTION: Class 3 (Corrosive)
UN IDENTIFICATION NUMBER: UN 1789
PACKING GROUP: PG II
DOT LABEL(S) REQUIRED: CORROSIVE
EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 157
MARINE POLLUTANT: No component of this product is designated as a DOT Marine Pollutant (49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This component is considered as dangerous goods, per regulations of Transport Canada. Use above information for Canadian shipments. Consult the Canadian Transportation Of Dangerous Goods Regulations for additional information.

FOR PEPSIN:

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

PROPER SHIPPING NAME: Not Regulated
HAZARD CLASS NUMBER and DESCRIPTION: Not Applicable
UN IDENTIFICATION NUMBER: Not Applicable
PACKING GROUP: Not Applicable
DOT LABEL(S) REQUIRED: Not Applicable
EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): Not Applicable
MARINE POLLUTANT: No component of this product is designated as a DOT Marine Pollutant (49 CFR 172.101, Appendix B).

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

15. REGULATORY INFORMATION

ADDITIONAL UNITED STATES REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The constituents in components of this product are subject to Sections 302, 304, and 313 reporting requirements under the Superfund Amendment and Reauthorization Act, as follows:

COMPONENT	SARA 302	SARA 304	SARA 313
Hydrochloric Acid	No	Yes	Yes (Aerosol Form Only)

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

U.S. CERCLA REPORTABLE QUANTITY (RQ): Hydrochloric Acid = 5000 lb (2268 kg)

U.S. TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

U.S. STATE REGULATORY INFORMATION: Components of this product listed in Section 2 (Composition and Information on Ingredients) are covered under State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: Hydrochloric Acid.

California - Permissible Exposure Limits for Chemical Contaminants: Hydrochloric Acid.

Florida - Substance List: Hydrochloric Acid.

Illinois - Toxic Substance List: Hydrochloric Acid.

Kansas - Section 302/313 List: Hydrochloric Acid.

Massachusetts - Substance List: Hydrochloric Acid.

Minnesota - List of Hazardous Substances: Hydrochloric Acid.

Missouri - Employer Information/Toxic Substance List: Hydrochloric Acid.

New Jersey - Right to Know Hazardous Substance List: Hydrochloric Acid.

North Dakota - List of Hazardous Chemicals, Reportable Quantities: Hydrochloric Acid.

Pennsylvania - Hazardous Substance List: Hydrochloric Acid.

Rhode Island - Hazardous Substance List: Hydrochloric Acid.

Texas - Hazardous Substance List: Hydrochloric Acid.

West Virginia - Hazardous Substance List: Hydrochloric Acid.

Wisconsin - Toxic and Hazardous Substances: Hydrochloric Acid.

15. REGULATORY INFORMATION (Continued)

ADDITIONAL UNITED STATES REGULATIONS (continued):

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

U.S. ANSI STANDARD LABELING (Z129.1):

HYDROCHLORIC ACID DILUTION: DANGER! CORROSIVE. CAUSES SKIN, EYE, RESPIRATORY TRACT, AND DIGESTIVE TRACT BURNS. Do not taste or swallow. Do not get on skin, in eyes, or on clothes. Do not breathe 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.

PEPSIN: CAUTION! MAY CAUSE SKIN AND EYE IRRITATION. Do not taste or swallow. Avoid skin and eye contact. Avoid prolonged or repeated skin contact. Avoid breathing airborne dusts. 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:** Sweep up spill carefully, avoiding the generation or airborne dusts, and place in suitable container. Consult Material Safety Data Sheet for additional information.

ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL/NDSL STATUS: The components of this product are listed on the DSL Inventory.

CANADIAN WHMIS IDL DISCLOSURE STATUS: Hydrochloric Acid has a disclosure requirement level of 1% or greater.

OTHER CANADIAN REGULATIONS: Not applicable.

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

WHMIS SYMBOLS:

HYDROCHLORIC ACID DILUTION: Class E: Corrosive.



PEPSIN: Class D2B: Other Toxic Effects-Sensitizer

16. OTHER INFORMATION

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 #: This is the Chemical Abstract Service Number, which uniquely identifies each constituent.

EXPOSURE LIMITS IN AIR:

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 may 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**. 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. **The 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.

HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: 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 result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal). 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: 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. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TD₀**, **LDLo**, and **LDo**, or **TC**, **TC₀**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause death. **BEI** - Biological Exposure Indices, represent the levels of determinants which 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.

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 Substances List (DSL)**; the U.S. **Toxic Substance Control Act (TSCA)**; Marine Pollutant status according to the **DOT**; California's Safe Drinking Water Act (**Proposition 65**); 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 the materials package label.