SAFETY DATA SHEET

This Material Safety Data Sheet (MSDS) complies with the requirements of the American National Standards Institute (Z400.1, 1998), U.S. Federal Occupational Safety and Health Administration Hazard Communication Standard (29 CFR 1910.1200), and equivalent state Standards. It has also been developed in accordance with the Canadian Workplace Hazardous Materials Standard and the United Nations Globally Harmonized System of Classification of Chemicals. Refer to Section 16 of this document for the definition of terms and abbreviations.

1. PRODUCT IDENTIFICATION

PRODUCT: **Blue Devil Test Kit: B7773**
PRODUCT USE: Testing of Pools and Spas
COMPOSITION: **This kit is comprised of the following products:**

- Solution # 2 Phenol Red pH Test
- Solution #3 Acid Demand & Total Alkalinity Test
- Solution # 4 Chlorine Neutralizer
- Solution #5 Total Alkalinity Test
- Solution # 6 Base Demand Test
- DPD #1 Test Tablets
- DPD #3 Test Tablets
- Cyanuric Acid Test Solution
- Hardness Test Solution A
- Hardness Test Solution B

This MSDS has been prepared to address the hazards associated with all components of this test kit, with the hazards listed specifically in each section as they pertain to a particular item.

MANUFACTURER/
SUPPLIER/DISTRIBUTOR: **Valterra Products, LLC.**
ADDRESS: 15230 San Fernando Mission Blvd.; Suite 107
Mission Hills, CA 91345

BUSINESS PHONE #: 818-898-1671
EMERGENCY PHONE #: CHEMTEC:1-800-255-3924
DATE/ MSDS PREPARATION: Nov. 22, 2010
DATE/ MSDS REVISION: NEW

These products are sold to consumers for pool and spa maintenance use in containers of relatively small volume. This MSDS has been developed to address safety concerns affecting those individuals working in warehouses and other places where large numbers of these containers are stored, as well as those affecting potential users of this product in industrial /occupational or manufacturing settings.

2. HAZARD IDENTIFICATION

WATER-BASED, NON-ACID SOLUTIONS: The following sections describe the hazards associated with the following kit components: **Solution # 2 Phenol Red pH Test; Solution # 4 Chlorine Neutralizer; Solution #5 Total Alkalinity Test; Solution # 6 Base Demand Test; Hardness Test Solution B; Cyanuric Acid Test Solution.**

EMERGENCY OVERVIEW: The product can mildly irritate contaminated tissue.

PHYSICAL DESCRIPTION: Clear, odorless solution. The colors of the specific solutions are as follows: red (Solution # 2 Phenol Red pH Test); colorless (Solution # 4 Chlorine Neutralizer, Solution # 6 Base Demand Test); blue (Solution #5 Total Alkalinity Test);

HEALTH HAZARDS: No significant health hazards are anticipated under typical circumstances of use or release response; contact with skin may cause mild irritation upon prolonged duration of contact. Contact with eyes can cause irritation and temporary redness.

FIRE HAZARDS: No known fire hazard.

PHYSICALHAZARDS: Negligible under typical circumstances of use or under anticipated emergency response situations.

ENVIRONMENTAL HAZARDS: No significant hazards to animal, plant or aquatic life.

2. HAZARD IDENTIFICATION (continued)

WATER-BASED, NON-ACID SOLUTIONS (Continued): The following sections describe the hazards associated with the following kit components: **Solution # 2 Phenol Red pH Test; Solution # 4 Chlorine Neutralizer; Solution #5 Total Alkalinity Test; Solution # 6 Base Demand Test; Hardness Test Solution B; Cyanuric Acid Test Solution.**

GLOBALLY HARMONIZED SYSTEM REVIEW:

CLASSIFICATION: Eye Irritant Category 2B – Irritant; Acute Toxicity Category 5.

LABELING: Symbol:. Not applicable. **Signal Word:** WARNING!

Hazard Statement: Causes eye irritation. May be harmful if swallowed.
Precautionary Statements: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. IF SWALLOWED: Call a POISON CONTROL CENTER or physician if you feel unwell.

OTHER HAZARDS (Cyanuric Acid Test Solution Only): This product contains a small amount of Mercuric Acetate. Exposure to mercury compounds may be harmful to unborn fetuses.

WATER-BASED, ACID SOLUTIONS: The following sections describe the hazards associated with the following kit components: **Solution #3 Acid Demand & Total Alkalinity Test.**

EMERGENCY OVERVIEW: This product is an acid that can cause severe skin burns and eye damage; vapors and mists of this product can cause irritation and damage the tissues of the respiratory system.

PHYSICAL DESCRIPTION: Clear, colorless, odorless solution.

HEALTH HAZARDS: This solution is corrosive. It can cause eye and skin burns; if vapors or mists are inhaled, it may cause severe respiratory tract irritation with possible burns. If ingested, this product may cause severe digestive tract irritation with possible burns.

FIRE HAZARDS: No known fire hazard.

PHYSICALHAZARDS: Negligible under typical circumstances of use/emergency response situations.

ENVIRONMENTAL HAZARDS: This solution can cause harm to aquatic life as it can substantially lower the pH of contaminated bodies of water, especially if large volumes are released into the environment. This product is acidic; it has the potential to severely irritate, burn, or kill contaminated lifeforms.

GLOBALLY HARMONIZED SYSTEM REVIEW:

CLASSIFICATION: Skin Corrosion/Irritation – Category 1; Acute toxicity/Oral – Category 4

LABELING:

Symbol:

Signal Word: DANGER!

Hazard Statement: Causes severe skin burns and eye damage.

Precautionary Statements: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. IF ON SKIN: Remove immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: Remove to fresh air and keep at rest in a position comfortable enough for breathing. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CONTROL CENER or doctor.

Prevention: Wear protective gloves and eye protection. Wash thoroughly after handling. Do not breathe vapors or mists. Do not east, smoke, or drink when using this product.

Storage: Store locked up.

OTHER HAZARDS: Prolonged or repeated skin contact may cause dermatitis.

2. HAZARD IDENTIFICATION (continued)

TABLETS: The following sections describe the hazards associated with the following kit components: **DPD #1 Test Tablets; DPD #3 Test Tablets.**

EMERGENCY OVERVIEW: This product can mildly irritate contaminated tissue.

PHYSICAL DESCRIPTION: White tablet.

HEALTH HAZARDS: No significant health hazards are anticipated under typical circumstances of use or release response; contact with skin may cause mild irritation upon prolonged duration of contact. Contact with eyes can cause irritation and temporary redness.

FIRE HAZARDS: No known fire hazard.

PHYSICALHAZARDS: Negligible under typical circumstances of use/ emergency response situations.

ENVIRONMENTAL HAZARDS: No significant hazards to animal, plant or aquatic life.

GLOBALLY HARMONIZED SYSTEM REVIEW:

CLASSIFICATION: Acute Toxicity Category 5.

LABELING:

Symbol:. Not applicable.

Signal Word: WARNING!

Hazard Statement:. May be harmful if swallowed.

Precautionary Statements: IF SWALLOWED: Call a POISON CONTROL CENTER or physician if you feel unwell.

OTHER HAZARDS (DPD #3 Test Tablets Only): Chronic ingestion of iodides (such as Potassium Iodide, a component of this product) may produce "iodism," which may be manifested by skin rash, running nose, headache and irritation of mucous membranes. Weakness, anemia, loss of weight, and general depression may also occur. Chronic ingestion of iodides during pregnancy has resulted in fetal death, severe goiter, and cretinoid appearance of the newborn. Potassium iodide, the main component of this product, may cause sensitization by inhalation. and by skin contact.

SOLVENT-BASED SOLUTIONS: The following sections describe the hazards associated with the following kit components: **Hardness Test Solution A.**

EMERGENCY OVERVIEW: This product can mildly irritate contaminated tissue; may cause moderate irritation upon prolonged exposure.

PHYSICAL DESCRIPTION: Dark purple, oily liquid with no distinct odor.

HEALTH HAZARDS: No significant health hazards are anticipated under typical circumstances of use or release response; contact with skin may cause mild to moderate irritation, depending on the duration of contact. Contact with eyes can cause irritation and temporary redness. Inhalation of this product can cause central nervous system effects; ingestion may result in kidney damage as well as central nervous system effects.

FIRE HAZARDS: No known fire hazard.

PHYSICALHAZARDS: Negligible under typical circumstances of use/anticipated emergency response situations.

ENVIRONMENTAL HAZARDS: No significant hazards to animal, plant or aquatic life.

GLOBALLY HARMONIZED SYSTEM REVIEW:

CLASSIFICATION: Eye Irritant Category 2B – Irritant; Skin Irritant Catego4y 3; Acute Toxicity Category 4.

LABELING: Symbol:. See symbol at right. **Signal Word:** WARNING!

Hazard Statement: Harmful if swallowed. Causes eye irritation. Causes mild skin irritation.

Precautionary Statements: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. IF ON SKIN: If skin irritation occurs, seek medical advice/attention. IF SWALLOWED: Call a POISON CONTROL CENTER or physician if you feel unwell. Rinse mouth.

2. HAZARD IDENTIFICATION

OTHER HAZARDS: The lethal dose in adult humans for ethylene glycol (the main component of this product) is about 100 ml. Swallowing this product may cause nausea, vomiting or diarrhea. Excessive exposure via ingestion may cause central nervous effects, cardiopulmonary effects, and kidney damage. If ethylene glycol is heated or misted in work areas that are poorly ventilated, respiratory irritation and symptoms such as headache and nausea may occur. Repeated excessive exposure to ethylene glycol may cause irritation of the upper respiratory tract. In humans, effects have been reported on the central nervous system, including nystagmus (involuntary, rapid, rhythmic movement of the eyeball). Skin allergies can develop to Ethylene Glycol upon repeated dermal exposures.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

WATER-BASED SOLUTIONS: Solution # 2 Phenol Red pH Test; Solution #3 Acid Demand & Total Alkalinity Test; Solution # 4 Chlorine Neutralizer; Solution #5 Total Alkalinity Test; Solution # 6 Base Demand Test; Hardness Test Solution B; Cyanuric Acid Test Solution.

COMPONENT	CAS NUMBER	EINECS #	% (w/w)	Kit Component
Non-Aqueous/Essential Ingredient Components				
Phenol Red	34487-61-1	252-057-8	<0.1%	**Solution #2 Phenol Red PH Test**
Hydrochloric acid	7647-01-0	231-595-7	<1.0%	**Solution #3 Acid Demand & Total Alkalinity Test**
Sodium Thiosulfate	7772-98-7	231-867-5	<0.1%	**Solution # 4 Chlorine Neutralizer**
Bromophenol blue, sodium salt	62625-2809	263-653-2	<0.1%	**Solution # 5 Total Alkalinity Test**
Sodium Bicarbonate	144-55-8	205-633-8	<1.0%	**Solution # 6 (Base Demand Test)**
Tetrasodium Salt of Ethylenediamine Tetraacetic Acid	64-02-8	200-573-9	<1.0%	**Hardness Test Solution B**
Melamine	108-78-1	203-615-4	<0.1%	**Cyanuric Acid Test Solution**
Mercuric Acetate	1600-27-7	216-491-1	<0.1%	
Other Ingredients				
Water	7732-18-5	231-791-2	>98%	Comprises the aqueous component of all water-based solutions in B7773 Test Kit items.
Other ingredients that are below 1.0% in concentration (or below 0.1% in concentration for carcinogens), All ingredients are listed per the requirements of regulations pertinent to MSDS preparation.			Balance	

TABLETS: DPD #1 Test Tablets; DPD #3 Test Tablets.

COMPONENT	CAS NUMBER	EINECS #	% (w/w)	Kit Component
Essential Ingredient Component s				
N,N-Diethyl-p-phenylenediamine sulfate	6065-27-6	228-500-6	<5.0%	**DPD #1 Test Tablets**
Potassium Iodide	7681-11-0	231-659-4	<50.0%	**DPD #3 Test Tablets**
Other Ingredients				
Other ingredients that are buffers, fillers, tableting aids, and pH adjusters. All hazardous ingredients are listed per the requirements of regulations pertinent to MSDS preparation (i.e., more that 1% in concentration, or more than 0.1% in concentration for carcinogens).			Balance	Comprises the remainder of both tablet items.

SOLVENT-BASED SOLUTIONS: Hardness Test Solution A

COMPONENT	CAS NUMBER	EINECS #	% (w/w)	OTHER
Ethylene Glycol	107-21-1	203-473-3	>99	NE
Calmagite	3147-14-6	Not applicable	<1.0%	NE

4. FIRST AID MEASURES

ALL TEST KIT COMPONENTS:

EYES: Hold contaminated eyes open and flush with copious amounts of water for 15 minutes. "Roll" eyes during flush.

SKIN: Flush area with warm, running water. Continue rinsing with water for at least 15 minutes, if any evidence of redness or irritation occurs.

INHALATION: Obtain fresh air. If necessary, blow nose.

INGESTION: Drink copious amounts of water. Contact professional medical personnel or the local poison control center immediately.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.

SPECIFIC COMPONENTS:

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:

- **Solution #3 Acid Demand & Total Alkalinity Test:** Depending on route and duration of exposure, pre-existing skin or respiratory conditions are most apt to be aggravated by overexposure to this product.

5. FIRE-FIGHTING MEASURES

ALL TEST KIT COMPONENTS:

NFPA FLAMMABILITY CLASSIFICATION: Not flammable.

RECOMMENDED FIRE EXTINGUISHING MEDIA: Water Spray, Water Jet, Dry Powder, Foam, Carbon Dioxide, Halon, or any other.

UNSUITABLE FIRE EXTINGUISHING MEDIA: None known.

UNUSUAL HAZARDS IN FIRE SITUATIONS: When involved in a fire, this material may produce irritating vapors and toxic gases (e.g., carbon monoxide, carbon dioxide, oxides of sulfur).

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

RECOMMENDATIONS TO FIREFIGHTERS: Wear Self Contained Breathing Apparatus and full protective equipment for fire response. Move containers from fire area if it can be done without risk to personnel. Contaminated equipment should be rinsed thoroughly with water before returning to service.

NFPA RATING

NFPA RATING, GROUP 1: The NFPA Rating on the top left pertains to the following kit components: **Solution # 2 Phenol Red pH Test; Solution # 4 Chlorine Neutralizer; Solution #5 Total Alkalinity Test; Solution # 6 Base Demand Test; Hardness Test Solution B; Cyanuric Acid Test Solution; DPD #1 Test Tablets; DPD #3 Test Tablets.**

NFPA RATING

NFPA RATING, GROUP 2: The NFPA Rating on the right pertains the following kit components: **Solution #3 Acid Demand & Total Alkalinity Test.**

NFPA RATING

NFPA RATING, GROUP 3: The NFPA Rating on the bottom left pertains the following kit components: **Harness Test Solution A.**

6. ACCIDENTAL RELEASE MEASURES

ALL TEST KIT COMPONENTS:

RESPONSE TO INCIDENTAL RELEASES: Wear gloves and safety glasses when cleaning-up spills. Use caution during clean-up; contaminated floors and items may be slippery.

RESPONSE TO NON-INCIDENTAL RELEASES: Respond to non-incidental chemical releases of this product, such as the simultaneous destruction of several pallets, by clearing the impacted area and contacting appropriate emergency personnel.

ENVIRONMENTAL PRECAUTIONS: Avoid response actions that can cause a release of a significant amount of the substance (1 liter/1 kg or more) into the environment.

6. ACCIDENTAL RELEASE MEASURES (Continued)

SPECIFIC COMPONENTS:

WATER-BASED, NON-ACID SOLUTIONS: Solution # 2 Phenol Red pH Test; Solution # 4 Chlorine Neutralizer; Solution #5 Total Alkalinity Test; Solution # 6 Base Demand Test; Hardness Test Solution B; Cyanuric Acid Test Solution.
RESPONSE PROCEDURES FOR ANY RELEASE: Sponge spilled compound with a damp polypad or other absorbent. **SPILL RESPONSE EQUIPMENT:** Polypad or other absorbent material, if needed.

WATER-BASED, ACID SOLUTION: Solution #3 Acid Demand & Total Alkalinity Test
RESPONSE PROCEDURES FOR ANY RELEASE: Sponge spilled compound with a damp polypad or other absorbent. If needed, contaminated areas or equipment may be neutralized with dilute alkaline solutions of soda ash (sodium carbonate, Na2CO3), or lime (calcium oxide, CaO). **SPILL RESPONSE EQUIPMENT:** Polypad or other absorbent material, Neutralizing agent (e.g., sodium carbonate or lime), if needed.

TABLETS: DPD #1 Test Tablets; DPD #3 Test Tablets.
RESPONSE PROCEDURES FOR ANY RELEASE: If necessary, sweep up spilled tablets or pick up tablets with gloved hands. **SPILL RESPONSE EQUIPMENT:** Broom and dustpan.

SOLVENT-BASED SOLUTIONS: Hardness Test Solution A.
RESPONSE PROCEDURES FOR ANY RELEASE: Sponge spilled compound with a damp polypad or other absorbent. **SPILL RESPONSE EQUIPMENT:** Polypad or other absorbent material, if needed.

7. HANDLING AND STORAGE

ALL TEST KIT COMPONENTS:

HYGIENE PRACTICES: Keep out of reach of children**.** Do not smoke, drink, eat, or apply cosmetics in the chemical use area. Avoid inhalation of vapors, mists and sprays (or dusts and particulates, in the case of the tablet components). Use in well-ventilated area. Avoid contact with skin or eyes. Remove contaminated clothing promptly. Clean up any spilled product immediately.

HANDLING RECOMMENDATIONS: Only small quantities of this product are used to test pools and spas**.** Employees must be appropriately trained to use this product safely as needed.

STORAGE RECOMMENDATIONS: Ensure all containers are correctly labeled. Store container in cool, dry place away from direct sunlight, sources of intense heat, or where freezing is possible. Store this product away from incompatible chemicals (See Section 10, Stability and Reactivity).

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures).

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

U.S. NATIONAL EXPOSURE LIMITS:

COMPONENT	ACGIH TLV (ppm)	OSHA PEL (ppm)	NIOSH REL (ppm)	OTHER
Ethylene Glycol in **Hardness Test Solution A**	100 mg/m3 Ceiling (aerosol only)	NE	NE	NE
Mercuric Acetate; (as Hg; listed under Mercury, inorganic compounds) in **Cyanuric Acid Test Solution**	0.025 mg/m^3, Skin	0.1 mg/m^3, C	0.1 mg/m^3, C; Vapor, skin	BEI : Total inorganic mercury in urine; prior to shift – 35 µg/g creatinine. Total inorganic mercury in urine; end of shift at end of workweek – 15 µg/g creatinine.
Hydrochloric acid in **Solution #3 Acid Demand & Total Alkalinity Test** (for Hydrogen Chloride)	2 ppm C	5 ppm C	5 ppm C	NE
ALL OTHER CHEMICAL COMPONENTS LISTED IN SECTION 3	NE	NE	NE	NE

8. EXPOSURE CONTROL AND PERSONAL PROTECTION (Continued)

INTERNATIONAL EXPOSURE LIMITS:

COMPONENT	Exposure Limit (United Kingdom Compliance Note EH 40)	Federal Republic of Germany (DFG) Maximum Concentration Values in the Workplace (MAKs)	OTHER
Ethylene Glycol in **Hardness Test Solution A**	NE	10 ppm (C); skin	NE
Mercuric Acetate (as Hg; listed under Mercury, inorganic compounds); in **Cyanuric Acid Test Solution**	TWA 0.05 mg/m3;STEL 0.15 mg/m3; (Jan. 1993)	0.1 mg/m³	AUSTRALIA:TWA 0.05 mg(Hg)/m3;Skin (Jan. 1993) JAPAN:TWA 0.05 mg(Hg)/m3 (Jan. 1993)
Hydrochloric acid in **Solution #3 Acid Demand & Total Alkalinity Test** (for Hydrogen Chloride)	See OTHER	2 ppm C	OEL-AUSTRALIA:TWA; OEL-DENMARK:STEL 5 ppm (7 mg/m^3) OEL-FINLAND:STEL 5 ppm (7 mg/m^3);Skin OEL-FRANCE:STEL 5 ppm; OEL-GERMANY:TWA 5 ppm; OEL-HUNGARY:STEL 5 mg/m^3; OEL-JAPAN:STEL 5 ppm ; OEL-THE NETHERLANDS:TWA 5 ppm; OEL-THE PHILIPPINES:TWA 5 ppm; OEL-POLAND:TWA 5 mg/m^3 OEL-RUSSIA:STEL 5 ppm; OEL-SWEDEN:STEL 5 ppm; OEL-SWITZERLAND:TWA 5 ppm, STEL 10 ppm; OEL-THAILAND:TWA 5 ppm; OEL-TURKEY:TWA 5;OEL-UNITED KINGDOM:TWA 5 ppm (7 mg/m^3, ;STEL 5 ppm (7 mg/m^3)
ALL OTHER CHEMICAL COMPONENTS LISTED IN SECTION 3	NE	NE	NE

ALL TEST KIT COMPONENTS:

ENGINEERING CONTROLS: Use this product in well-ventilated environment.

RESPIRATORY PROTECTION: None needed under routine circumstances of use.

HAND PROTECTION: Rubber, latex, or neoprene gloves should be used when prolonged contact is anticipated.

EYE PROTECTION: Splash goggles or safety glasses with side shield are recommended if splashes or sprays are anticipated.

BODY PROTECTION: None needed under typical situations of use or handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

WATER-BASED, NON-ACID SOLUTIONS: Solution # 2 Phenol Red pH Test; Solution # 4 Chlorine Neutralizer; Solution #5 Total Alkalinity Test; Solution # 6 Base Demand Test; Hardness Test Solution B; Cyanuric Acid Test Solution.

PHYSICAL STATE: Liquid.
COLOR: Various.
ODOR: None.
pH: 5.0-8.0.
BOILING POINT: Approximately 100°C (212°F).
MELTING POINT: Approximately 0°C (32 °F).
REFRACTIVE INDEX: Not applicable.
VISCOCITY: ≈ 0.890 cP at about 25 °C.
FLASH POINT: Not applicable.

LOWER EXPLOSIVE LIMIT (LEL): Not applicable.
UPPER EXPLOSIVE LIMIT (UEL): Not applicable.
AUTOIGNITION TEMPERATURE: Not applicable.
VAPOR PRESSURE: ≈17.5 mmHg at 20°C.
VAPOR DENSITY (air = 1): ≈17.3 g/m^3 at 20°C.
SPECIFIC GRAVITY (water = 1): Approximately1.0.
EVAPORATION RATE (water = 1): ≈1.0
COEFFICIENT OIL/WATER DISTRIBUTION (PARTITION COEFFICENT): Not established.

WATER-BASED, ACID SOLUTION: Solution #3 Acid Demand & Total Alkalinity Test; Same as above, except pH is below 2.0.

9. PHYSICAL AND CHEMICAL PROPERTIES (Continued)

TABLETS: DPD #1 Test Tablets; DPD #3 Test Tablets.

PHYSICAL STATE: Solid.
COLOR: White.
ODOR: None.
pH: 5-7 (1 tablet in 10 mL water).
BOILING POINT: Not applicable.
MELTING POINT: Not applicable.
REFRACTIVE INDEX: Not applicable.
VISCOCITY: Not applicable.
FLASH POINT: Not applicable.
LOWER EXPLOSIVE LIMIT (LEL): Not applicable.
UPPER EXPLOSIVE LIMIT (UEL): Not applicable.
AUTOIGNITION TEMPERATURE: Not applicable.
VAPOR PRESSURE: Not applicable.
VAPOR DENSITY (air = 1): Not applicable.
SPECIFIC GRAVITY (water = 1): Not applicable.
EVAPORATION RATE (water = 1): Not applicable.
COEFFICIENT OIL/WATER DISTRIBUTION (PARTITION COEFFICENT): Not applicable.

SOLVENT-BASED SOLUTIONS: Hardness Test Solution A.

PHYSICAL STATE: Oily Liquid.
COLOR: Dark purple.
ODOR: None.
pH: 5.8-6.1.
BOILING POINT: Approximately197.6°C (338°F).
MELTING POINT: Approximately -13°C (9 °F).
REFRACTIVE INDEX: Not applicable.
VISCOCITY: ≈ 0.890 cP at about 25 °C.
FLASH POINT: 111 °C (232 °F), Closed Cup
LOWER EXPLOSIVE LIMIT (LEL): 3.2%
UPPER EXPLOSIVE LIMIT (UEL): 15.3%
AUTOIGNITION TEMPERATURE: 398 °C (748 °F)
VAPOR PRESSURE: ≈0.06 mmHg at 20°C.
VAPOR DENSITY (air = 1): 2.14
SPECIFIC GRAVITY (water = 1): Approximately1.1.
EVAPORATION RATE (water = 1): No information.
COEFFICIENT OIL/WATER DISTRIBUTION (PARTITION COEFFICENT): Not established.

10. STABILITY AND REACTIVITY

ALL TEST KIT COMPONENTS:

RELATIVE STABILITY (AT STANDARD TEMPERATURES AND PRESSURES): Normally stable.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS CHEMICAL DECOMPOSITION PRODUCTS: Not applicable.

CONDITIONS TO AVOID: Avoid contact with incompatible chemicals.

SPECIFIC TEST KIT COMPONENTS:

WATER-BASED, NON-ACID SOLUTIONS: Solution # 2 Phenol Red pH Test; Solution # 4 Chlorine Neutralizer; Solution #5 Total Alkalinity Test; Solution # 6 Base Demand Test; Hardness Test Solution B; Cyanuric Acid Test Solution.

INCOMPATIBILITIES: Strong oxidizers, strong acids and compounds that react with water.

WATER-BASED, ACID SOLUTION: Solution #3 Acid Demand & Total Alkalinity Test.

INCOMPATIBILITIES: Hydrochloric acid solutions, such as this product, are highly reactive with strong bases, metals, metal oxides, hydroxides, amines, carbonates and other alkaline materials. Incompatible with materials such as cyanides, sulfides, sulfites, and formaldehyde.

TABLETS: DPD #1 Test Tablets; DPD #3 Test Tablets.

INCOMPATIBILITIES: Strong acids, strong oxidizers, diazonium salts; diisopropyl peroxydicarbonate; oxidants; bromine and chlorine trifluorides; fluorine perchlorate; calomel (mercurous chloride); potassium chlorate; metallic salts; tartaric and other acids.

SOLVENT-BASED SOLUTIONS: Hardness Test Solution A.

INCOMPATIBILITIES: Strong oxidizers and strong acids; also not compatible with isocyanates, aliphatic amines, caustics.

11. TOXICOLOGY INFORMATION

CARCINOGENICITY STATUS: The following table summarizes the carcinogenicity listing for the components of this product. "NO" indicates that the substance is not considered to be, or suspected to be, a carcinogen by the listed agency.

CHEMICAL	IARC	NTP	NIOSH	OSHA	OTHER	Kit Component
Mercuric Acetate	IARC 3; Unclassifiable as Human Carcinogen	NO	NO	NO	A4; Not Classifiable as Human Carcinogen, ACGIH MAK-3B: Substances in which in vitro or animal tests yield some evidence of carcinogenicity, but no conclusive rating can be given.	**CYA Acid Test Solution**
Hydrochloric acid (for Hydrogen Chloride)	IARC 3; Unclassifiable as Human Carcinogen	NO	NO	NO	A4; Not Classifiable as Human Carcinogen, ACGIH	**Solution #3 Acid Demand & Total Alkalinity Test**
Ethylene Glycol	NO	NO	NO	NO	TLV-4 (Not Classifiable as a Human Carcinogen)	**Hardness Test Solution A**
ALL OTHER CHEMICAL COMPONENTS LISTED IN SECTION 3	NO	NO	NO	NO	NO	Various

REPRODUCTIVE TOXICITY INFORMATION: The chemicals in the components of this kit listed below have the following reproductive toxicity data; if not specifically listed, no such data currently exist for the constituent.

Potassium Iodide (DPD #3 Test Tablets): Iodine salts (such as Potassium Iodide) can cause deformity, illness, and death of a fetus if consumed by a pregnant woman.

Melamine (CYA Reagent): May offer a possible risk of impaired fertility under certain circumstances of exposure. Known to cause reproductive and tumorigenic effects in laboratory animals.

Mercuric Acetate (CYA Reagent): Exposure to mercury compounds may be harmful to unborn fetuses. Known to cause reproductive and tumorigenic effects in laboratory animals.

Hydrochloric Acid (Solution #3 Acid Demand & Total Alkalinity Test): Laboratory tests of hydrochloric acid show the following teratogenicity data: Embryo or Fetus: Stunted fetus, Inhalation, rat TCL0=450 mg/m3/1H; Specific Developmental Abnormalities: homeostatis, ihl-rat TCL0=450 mg/m3/1H (female 1 days pre-mating).

Ethylene Glycol (Hardness Test Solution A): An expert panel convened by the NTP's Center for the Evaluation of Risks to Human Reproduction concluded 2/13/03 that developmental and reproductive risks stemming from exposure to the chemicals propylene glycol and ethylene glycol are negligible.

TOXICOLOGY DATA: The following data are available for the chemical constituents of this product's components. Data are given only for substances present in greater than 1 percent concentration within each kit component.

POTASSIUM IODIDE
(DPD #3 Test Tablets)
LDL [Mouse] - Route: Oral; Dose: 1862 mg/kg
LDL[Rabbit] - Route: Oral; Dose: 916 mg/kg

ETYLENE GLYCOL
(Hardness Test Solution A)
Draize test, rabbit, eye: 500 mg/24H Mild
Draize test, rabbit, eye: 100 mg/1H Mild
Draize test, rabbit, eye: 0.012 ppm/3D
Draize test, rabbit, eye: 1440 mg/6H Moderate
Oral, mouse: LD50 = 5500 mg/kg
Oral, rat: LD50 = 4700 mg/kg
Skin, rabbit: LD50 = 9530 uL/kg

DEGREE OF IRRITATION: Solution #3 Acid Demand & Total Alkalinity Test - Severely irritating to corrosively damaging, depending on the duration of exposure. **All Other Test Kit Components:** Mild to moderate, depending on duration of exposure.

ALL TEST KIT COMPONENTS:

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: None known.

SENSITIZATION POTENTIAL: Not applicable.

12. ECOLOGICAL INFORMATION

WATER-BASED, NON-ACID SOLUTIONS and TABLETS: **Solution # 2 Phenol Red pH Test; Solution # 4 Chlorine Neutralizer; Solution #5 Total Alkalinity Test; Solution # 6 Base Demand Test; Hardness Test Solution B; Cyanuric Acid Test Solution; DPD #1 Test Tablets; DPD #3 Test Tablets.**

TOXICITY TO TERRESTRIAL LIFE: Based on available data, this product is not anticipated to be harmful to contaminated plants or animals. Prudent practice would be to minimize all releases to the environment.

TOXICITY TO AQUATIC LIFE: Based on available data, this product is not anticipated to be harmful to contaminated aquatic plants or animals. Prudent practice would be to minimize all releases to the environment.

MOBILITY, PERSISTENCE, AND DEGRADABILITY: This product contains is mobile and presents limited hazards to the environment; however, good hygiene practices should be implemented to prevent all accidental releases to the environment.

BIOACCUMULATION AND BIOCONCENTRATION POTENTIAL: It is not anticipated that this product will bioaccumulate or bioconcentrate significantly in the environment.

WATER-BASED, ACID SOLUTION: **Solution #3 Acid Demand & Total Alkalinity Test.**

TOXICITY TO TERRESTRIAL LIFE: This solution is an acid. Based on available data, this product may be harmful to contaminated plants or animal, upon exposures to large volumes or of prolonged duration.

TOXICITY TO AQUATIC LIFE: Based on available data, this product may be harmful to contaminated aquatic plants or animals, upon exposures to large volumes. Because this product is an acid, releases of relatively large volumes of this product into the environment can lower the pH and severely impact aquatic life in the adjacent area.

MOBILITY, PERSISTENCE, AND DEGRADABILITY: When released into the soil, the components of this product are not expected to biodegrade. When released into the soil, hydrochloric acid may leach into groundwater.

BIOACCUMULATION AND BIOCONCENTRATION POTENTIAL: It is not anticipated that this product will bioaccumulate or bioconcentrate significantly in the environment.

SOLVENT-BASED SOLUTIONS: **Hardness Test Solution A.**

TOXICITY TO TERRESTRIAL LIFE: Based on available data, this product may be harmful to contaminated plants or animal, upon exposures to large volumes or of prolonged duration.

TOXICITY TO AQUATIC LIFE: Based on available data, this product may be harmful to contaminated aquatic plants or animals, upon exposures to large volumes. The following aquatic toxicity data are available for components of this product:

ETHYLENE GLYCOL: The LC50/96-hour values for fish are over 100 mg/l.

MOBILITY, PERSISTENCE, AND DEGRADABILITY: When released into the soil, Ethylene Glycol (the main component of this product) is expected to readily biodegrade. When released into the soil, Ethylene Glycol leaches into groundwater. When released into the soil, this material is not expected to evaporate significantly. When released into the water, this material is expected to have a half-life between 1 and 10 days. Ethylene Glycol has a log octanol-water partition coefficient of less than 3.0. When released into water, this material is not expected to evaporate significantly. When released into water, this Ethylene Glycol (the main component of this product) is expected to readily biodegrade. When released into the air, Ethylene Glycol is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life between 1 and 10 days.

BIOACCUMULATION AND BIOCONCENTRATION POTENTIAL: It is not anticipated that this product will bioaccumulate or bioconcentrate significantly in the environment.

13. DISPOSAL CONSIDERATIONS

ALL TEST KIT COMPONENTS:

WASTE HANDLING RECOMMENDATIONS: Prepare, transport, treat, store, and dispose of waste product according to all applicable local, U.S. State and U.S. Federal regulations, the applicable Canadian standards, or the appropriate standards of the nations of the European Community.

13. DISPOSAL CONSIDERATIONS (Continued)

ALL TEST KIT COMPONENTS:

WATER-BASED, NON-ACID SOLUTIONS and TABLETS: Solution # 2 Phenol Red pH Test; Solution # 4 Chlorine Neutralizer; Solution #5 Total Alkalinity Test; Solution # 6 Base Demand Test; Hardness Test Solution B; Cyanuric Acid Test Solution; DPD #1 Test Tablets; DPD #3 Test Tablets.

EPA RCRA WASTE CODE: Not applicable. **EUROPEAN WASTE CODE:** Not applicable.

WATER-BASED, ACID SOLUTION: Solution #3 Acid Demand & Total Alkalinity Test.

EPA RCRA WASTE CODE: Not applicable (if household waste); otherwise, D002 (Characteristic, Corrosive). **EUROPEAN WASTE CODE:** 20 03 (Other municipal wastes)

SOLVENT-BASED SOLUTIONS: Hardness Test Solution A.

EPA RCRA WASTE CODE: Not applicable. **EUROPEAN WASTE CODE:** Not applicable.

14. TRANSPORT INFORMATION

TEST KIT INFORMATION:

DEPARTMENT OF TRANSPORTATION HAZARDOUS MATERIALS SHIPPING REGULATIONS: This product, as it is normally shipped, meets the definition of SMALL QUANTITY EXCEPTION. As noted above, small quantities of this product's components are not subjected to other requirements of the Hazardous Materials Regulations (Subchapter C) when the maximum quantity per inner receptacle is limited to 30 mL (liquids) and meets the other conditions of small quantity exception packaging. Refer to 49 CFR 173.4 and 173.4a for specific information on packaging small quantity materials.

LABEL: SMALL QUANTITY EXCEPTION.

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK (2008): Not applicable.

MARINE POLLUTANT STATUS: No component is designated as a DOT Marine Pollutant.

CANADIAN TRANSPORTATION INFORMATION: The small quantity exception requirements described above are also applicable for Canadian shipments.

IATA DESIGNATION: This product, as it is normally shipped, meets the definition of SMALL QUANTITY EXCEPTION. As noted above, small quantities of this product's components are not subjected to other requirements of the Dangerous Good Code when the maximum quantity per inner receptacle is limited to 30 mL (liquids) and meets the other conditions of small quantity exception packaging. Refer to Dangerous Goods Code Chapter 2.7 for specific information on packaging small quantity materials.

15. REGULATORY INFORMATION

OTHER IMPORTANT U.S. REGULATIONS

CERCLA REPORTING REQUIREMENTS: Hydrochloric Acid (Solution #3 Acid Demand & Total Alkalinity Test) - 5000 lb/2270 kg RQ; Ethylene Glycol (**Hardness A Test Solution**) - 5000 lb/2270 kg; **All Other Chemicals Listed in Section 3 -**Not applicable.

SARA REPORTING REQUIREMENTS: The following reporting requirements are applicable to the components of this product:

CHEMICAL	SECTION 302 (40 CFR 355 Appendix A)	SECTION 304 (40 CFR Table 302.4)	SECTION 313 (40 CFR 372.65)
Hydrochloric Acid (**Solution #3 Acid Demand & Total Alkalinity Test);** (for Hydrogen Chloride)	500 lb TPQ (Hydrogen Chloride, gas only)	5000 lb/2270 kg RQ.	Hydrochloric acid – aerosol mist only.
Ethylene Glycol (**Hardness A Test Solution**)	NO	Yes; 5000 lb/2270 kg	YES
Mercuric Acetate (**CYA Acid Test Solution**)	500 lb lower threshold TPQ; 10,000 lb upper threshold TPQ	NO	YES
ALL OTHER CHEMICALS LISTED IN SECTION 3	NO	NO	NO

15. REGULATORY INFORMATION (Continued)

WATER-BASED, NON-ACID SOLUTIONS and TABLETS: Solution # 2 Phenol Red pH Test; Solution # 4 Chlorine Neutralizer; Solution #5 Total Alkalinity Test; Solution # 6 Base Demand Test; Hardness Test Solution B; Cyanuric Acid Test Solution; DPD #1 Test Tablets; DPD #3 Test Tablets.

311/31 2 FOR PRODUCT: Not applicable.

CALIFORNIA SAFE DRINKING WATER ACT (PROPOSITION 65) STATUS: Cyanuric Acid Test Solution - Mercuric acetate (a chemical in this kit component) is listed (as mercury compound) This product contains a chemical known to the state of California to cause birth defects or other reproductive harm. **All Other Test Kit Components -** No component of this product is known to the State of California to cause cancer or other reproductive harm.

INTERNATIONAL REGULATIONS: CANADIAN DSL/NDSL INVENTORY STATUS: The listed components of this product are on the DSL/NDSL Inventory. **CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** The components of this product are not on the CEPA Priorities Substances Lists. **CANADIAN WHMIS CLASSIFICATION:** Skin or Eye Irritation [Class D; Division 2, Subdivision B]. See symbol to right.

WATER-BASED, ACID SOLUTION: Solution #3 Acid Demand & Total Alkalinity Test.

SARA SECTION 311/312 FOR PRODUCT: Acute Health Hazard; chronic health hazard; corrosive hazard.

CALIFORNIA SAFE DRINKING WATER ACT (PROPOSITION 65) STATUS: No component of this product is known to the State of California to cause cancer or other reproductive harm.

INTERNATIONAL REGULATIONS: CANADIAN DSL/NDSL INVENTORY STATUS: The listed components of this product are on the DSL/NDSL Inventory. **CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** The components of this product are not on the CEPA Priorities Substances Lists. **CANADIAN WHMIS CLASSIFICATION: - E** (**Corrosive Material**) (See symbol to right).

SOLVENT-BASED SOLUTIONS: Hardness Test Solution A.

SARA SECTION 311/312 FOR PRODUCT: Acute Health Hazard.

CALIFORNIA SAFE DRINKING WATER ACT (PROPOSITION 65) STATUS: This product does not contain any component that is specified on the California Proposition 65 list of carcinogens or reproductive toxins.

INTERNATIONAL REGULATIONS: CANADIAN DSL/NDSL INVENTORY STATUS: The listed components of this product are on the DSL/NDSL Inventory.**CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** The components of this product are not on the CEPA Priorities Substances Lists. **CANADIAN WHMIS CLASSIFICATION:** Skin or Eye Irritation [Class D; Division 2, Subdivision B]. See symbol to right.

DATE/ MSDS PREPARATION: June. 10, 2015
SUPERCEDES: Nov. 22, 2010

16. OTHER INFORMATION

DEFINITION OF TERMS AND ABBREVIATIONS

ALL SECTIONS: OSHA:U.S. Federal Occupational Safety and Health Administration. WHMIS: Canadian Workplace Hazardous Materials Standard. GHS: Globally Harmonized System of Classification of Chemical Substances.

SECTION 2: CAS Number: Chemical Abstract Service Number, which is used by the American chemical Society to uniquely identify a chemical. EINECS: European Inventory of Existing Commercial Substances.

SECTION 3: HAZARDOUS MATERIALS IDENTIFICATION SYSTEM RATING: This is a rating system used by industry to summarize physical and health hazards to chemical users and was originally developed by the National Paint and Coating Association. 0 = No Significant Hazard. 1 = Slight Hazard. 2 = Moderate Hazard. 3 = Severe Hazard. 4 = Extreme Hazard.

SECTION 5: NFPA: National Fire Protection Association. NFPA FLAMMABILITY CLASSIFICATION: The NFPA uses the flash point (Fl.P.) and boiling point (BP) to classify flammable or combustible liquids. Class IA: Fl.P. below 73°F and BP below 100°F. Class IB: Fl.P. below 73°F and BP at or above 100°F. Class IC: :Fl.P. at or above 73°F and BP at or above 100°F. Class II: : Fl.P. at or above 100°F and below 140°F. Class IIIA: Fl.P. at or above 140°F and below 200°F. Class IIIB: Fl.P. at or above 200°F. NFPA HAZARDOUS MATERIALS RATING: This is a rating system used to summarize physical and health hazards to firefighters. 0 = No Significant Hazard. 1 = Slight Hazard. 2 = Moderate Hazard. 3 = Severe Hazard. 4 = Extreme Hazard.

SECTION 8: NE:Not established. ACGIH: American Conference of Government Industrial Hygienists; TWA: Time-Weighted Average (over an 8-hour work day); STEL: Short-Term Exposure Limit (15 minute average, no more than 4-times daily and each exposure separated by one-hour minimally); C: Ceiling Limit (concentration not to be exceeded in a work environment). PEL: Permissible Exposure Limit. NIOSH: National Institute of Occupational Safety and Health; REL: Recommended Exposure Limit; IDLH: Immediately Dangerous to Life and Health Concentrations. *Note*: In July 1992, a court ruling vacated the more protective PELs set by OSHA in 1989. Because OSHA may enforce the more protective levels under the "general duty clause", both the current and vacated levels are presented in this document. ppm: Parts per Million. mg/m^3: Milligrams per cubic meter. mppcf: Millions of Particles per Cubic Foot. BEI: Biological Exposure Limit. EL: Exposure Limit (United Kingdom). Federal Republic of Germany (DFG) Maximum Concentration Values in the Workplace (MAKs)

SECTION 9: pH: Scale (0 to 14) used to rate the acidity or alkalinity of aqueous solutions. For example, a pH value of 0 indicates a strongly acidic solution, pH of 7 indicates a neutral solution, and a pH value of 14 indicates an extremely basic solution. FLASH POINT: Temperature at which a liquid generates enough flammable vapors so that ignition may occur. AUTOIGNITION TEMPERATURE: Temperature at which spontaneous ignition occurs. LOWER EXPLOSIVE LIMIT (LEL): The minimal concentration of flammable vapors in air which will sustain ignition. UPPER EXPLOSIVE LIMIT (UEL): The maximum concentration of flammable vapors in air which will sustain ignition.≈: Approximately symbol.

SECTION 11: CARCINOGENICITY STATUS: NTP: National Toxicology Program. IARC: International Agency for Research on Cancer. REPRODUCTIVE TOXICITY INFORMATION: Mutagen: Substance capable of causing chromosomal damage to cells. Embryotoxin: Substance capable of damaging the developing embryo in an overexposed female. Teratogen: Substance capable of damaging the developing fetus in an overexposed female. Reproductive toxin: Substance capable of adversely affecting male or female reproductive organs or functions. TOXICOLOGY DATA: LD*xx*or LC*xx*: The Lethal Dose or Lethal Concentration of a substance which will be fatal to a given percentage (*xx*) of exposed test animals by the designate route of administration. This value is used to access the toxicity of chemical substances to humans. TD*xx*or TC*xx*: The Toxic Dose or Toxic Concentration of a substance which will cause an adverse effect to a given percentage (*xx*) of exposed test animals by the designate route of administration.

SECTION 13: RCRA: Resource Conservation and Recovery Act. The regulations promulgated under this act under Act are found in 40 CFR, Sections 260 ff, and define the requirements of hazardous waste generation, transport, treatment, storage, and disposal. EPA RCRA Waste Codes: Defined in 40 CFR Section 261.

SECTION 15: CERCLA: Comprehensive Environmental Response Compensation and Liability Act (a.k.a. "Superfund") and SARA: (Superfund Amendment and Reauthorization Act). The regulations promulgated under this Act are located under 40 CFR 300 ff. and provide "community right-to-know" requirements. DSL/NDSL: Canadian Domestic Substances and Non-Domestic Substances Lists.