

# 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):** NUTRI-PHITE P SOIL  
**CHEMICAL NAME/CLASS:** Inorganic/Organic Acid Solution  
**PRODUCT NUMBER:** 0-40-0  
**PRODUCT USE:** Fertilizer  
**SUPPLIER/MANUFACTURER'S NAME:** BIAGRO WESTERN SALES, INC.  
**ADDRESS:** 35803 Road 132  
Visalia, CA 93292  
**EMERGENCY PHONE:** CHEMTREC: 1-800-424-9300  
**BUSINESS PHONE:** (209) 635-4784  
**FAX PHONE:** (209) 625-9255  
**DATE OF PREPARATION:** May 14, 1998

### 2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	% w/w	EXPOSURE LIMITS IN AIR					
		ACGIH		OSHA		IDLH mg/m <sup>3</sup>	OTHER mg/m <sup>3</sup>
		TLV mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	PEL mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>		
Inorganic Acid	40 - 60	NE	NE	NE	NE	NE	NE
Organic Acid	10 - 20	NE	NE	NE	NE	NE	NE
Water and other components. Each of the other components are present in less than 1 percent concentration (or 0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).	Balance	None of the other components contribute significant, additional, hazards at the concentrations present in this product. All pertinent hazard 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

C = Ceiling Limit

See Section 16 for Definitions of Terms Used

NOTE (1): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1993 format.

NOTE (2): Though information in this document is proprietary, **ALL** pertinent hazard information is provided in the following MSDS sections, per the requirements of the U.S. Federal Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Workplace Hazardous Materials Identification System. This information will be released when the conditions of the Standard are met.

### 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** This clear, colorless, odorless liquid is highly corrosive. This solution can irritate, redden, and burn skin, eyes, and other contaminated tissue. This product is not flammable or reactive; however, if exposed to high temperatures, toxic decomposition products (e.g., carbon oxides, phosphorus compounds) will be generated. Persons who respond to releases of this product must protect themselves from inhalation of the acid mists, especially in areas which are downwind of the spill. Extreme caution must be used when responding to spills. Emergency responders must wear the proper personal protective equipment suitable for the situation to which they are responding.

**SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE:** The chief routes of overexposure to this product are via inhalation of mists or sprays generated by this product and contact with skin or eyes. The symptoms of overexposure, via route of entry, are as follows:

**INHALATION:** If mists or sprays of this solution are inhaled, this product may cause pulmonary irritation, irritation of the mucus membranes, coughing, and a sore throat. Damage to the tissues of the respiratory system may occur, especially after prolonged overexposures or exposures to high concentrations of mists or sprays of this solution. Pulmonary edema, chemical pneumonitis, and other adverse health consequences may occur after severe overexposures. Additional inhalation symptoms may include the following: laryngitis, headache, nausea, and vomiting.

**CONTACT WITH SKIN or EYES:** Contact with the eyes will cause irritation, pain, reddening and possibly, blindness. Skin contact may cause reddening, discomfort, and irritation. Skin contact can also cause chemical burns, blistering of the skin and possible scarring. The Organic Acid component of this solution is a potential allergen. Prolonged or repeated skin contact can lead to the development of allergy-like symptoms (e.g., dermatitis).

**SKIN ABSORPTION:** Skin absorption is not a significant route of exposure for any component of this product.

**INGESTION:** Ingestion is not anticipated to be a likely route of exposure to this product. If ingestion does occur irritation and burns of the mouth, throat, esophagus, and other tissues of the digestive system will occur immediately upon contact. Symptoms of such over-exposure can include nausea, vomiting, diarrhea. Ingestion of large volumes of this product may be fatal.



**INJECTION:** Accidental injection of this product, via laceration or puncture by a contaminated object, may cause pain and irritation in addition to the wound.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms.** In the event of exposure, the following symptoms may be observed:

**ACUTE:** This solution is corrosive and can be severely irritating and damaging to eyes, skin, mucous membranes, and any other exposed tissue. Skin contact can cause chemical burns, blisters, and scars; eye contact may cause blindness. If inhaled, irritation of the respiratory system may occur, with coughing, and breathing difficulty. Severe overexposures by inhalation and ingestion may be fatal.

**CHRONIC:** Persistent irritation, dermatitis (reddening and inflammation of the skin), and other allergy-like skin reactions may result from repeated exposures to this solution. See Section 11 (Toxicological Information) for additional data.

**TARGET ORGANS:** Skin, eyes, respiratory system.

HAZARDOUS MATERIAL INFORMATION SYSTEM			
HEALTH		(BLUE)	3
FLAMMABILITY		(RED)	0
REACTIVITY		(YELLOW)	0
PROTECTIVE EQUIPMENT			X
EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		SEE SECTION 8
For routine applications of this solution.			

**See Section 16 for Definition of Ratings**

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

### 4. FIRST-AID MEASURES

**SKIN EXPOSURE:** If the product contaminates the skin, immediately decontaminate the affected area with running water. The minimum recommended flushing time is at least 15 minutes. If necessary, remove exposed or contaminated clothing, taking care not to contaminate eyes.

## 4. FIRST-AID MEASURES (Continued)

**EYE EXPOSURE:** If this product enters the eyes, open the contaminated individual's eyes while under gentle running water. Use sufficient force to open eyelids. Have the contaminated individual "roll" eyes. Minimum flushing is for 15 minutes.

**INHALATION** If vapors, mists or sprays of this product are inhaled, remove the contaminated individual 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 is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Victim should drink milk, egg whites, or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow.

Contaminated individuals must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of the label and MSDS to physician or health professional with victim.

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## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable.

**AUTOIGNITION TEMPERATURE:** Not applicable.

**FLAMMABLE LIMITS** (in air by volume, %):

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

**FIRE EXTINGUISHING MATERIALS:**

Water Spray: YES

Foam: YES

Halon: YES

Carbon Dioxide: YES

Dry Chemical: YES

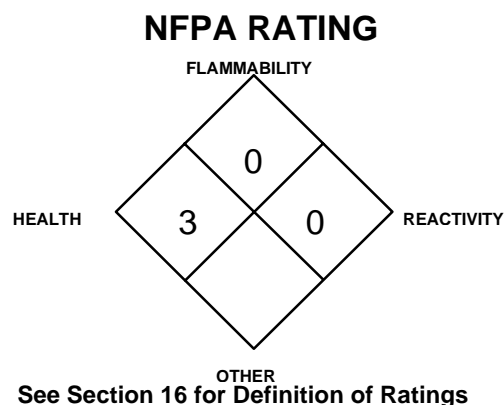
Other: Any "ABC" Class.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** This product is corrosive and presents a severe contact-hazard to firefighters. When involved in a fire and exposed to extremely high temperatures, the components of this product will decompose to produce acidic vapors and toxic gases (e.g., phosphorous oxides, carbon monoxide).

Explosion Sensitivity to Mechanical Impact: Not applicable.

Explosion Sensitivity to Static Discharge: Not applicable.

**SPECIAL FIRE-FIGHTING PROCEDURES:** 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. If necessary, neutralize any contaminated fire-response equipment with sodium bicarbonate or other acid-neutralizing agent before returning such equipment to service.



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## 6. ACCIDENTAL RELEASE MEASURES

**RELEASE RESPONSE:** In case of a release, clear the affected area and protect people. Uncontrolled releases should be responded to by appropriately trained personnel in proper personal protective equipment, using pre-planned procedures.

In terms of small, incidental releases (e.g., 1 gallon from a leaking container), the minimum personal protective equipment should be as follows: gloves, goggles, face shield, and appropriate body protection (e.g., boots, Tyvek suit). For large, non-incidental releases (e.g., 55-gallon drum), Minimum Personal Protective Equipment for should be **Level B: triple-gloves (rubber gloves and nitrile gloves, over latex gloves), chemically resistant suit and boots, hard-hat, and Self Contained Breathing Apparatus).**

Absorb spilled liquid with polypads or other suitable absorbent materials. Neutralize area with sodium bicarbonate or other acid neutralizing agent. If necessary, dike the spill to prevent releases from contaminating environmentally sensitive areas. Rinse area with water. Test area with litmus paper. If the litmus paper turns red, repeat neutralization process. Decontaminate the area thoroughly. Place all spill residue in an appropriate container and seal. Dispose residue in accordance U.S. Federal, State, or local procedures and appropriate Canadian standards (see Section 13, Disposal Considerations).

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

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### **7. HANDLING and STORAGE**

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

**STORAGE AND HANDLING PRACTICES -- NON-BULK CONTAINERS:** All employees who handle this material should be trained to handle it safely. Open containers and drums slowly, on a stable surface. Open drum bunks carefully, to relieve any pressure build-up which may have developed during storage. All containers of this product must be properly labeled. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see Section 10, Stability and Reactivity). Material should be stored in secondary containers or in a diked area, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Keep container tightly closed when not in use. Inspect all incoming containers before storage to ensure that containers are properly labeled and are not damaged.

**INTERMEDIATE BULK CONTAINERS AND PROCESS EQUIPMENT:** Ensure material in bulk containers and process lines is properly labeled. Close all valves tightly when product is not being used. Determine that lines are not contaminated with incompatible materials before use in operations involving this product. Secondary containment (dikes and berms) should be used. Periodic inspection and maintenance of bulk containers and process equipment must be conducted.

**TANK CAR SHIPMENTS:** Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Exposure Controls - Personal Protection). All loading and unloading equipment must be inspected prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level and wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tank (for unloading) must be verified to be correct for receiving this product and be properly prepared prior to starting the transfer operations. Hoses must be verified to be clean and free of incompatible chemicals prior to connection to the tank car or vessel. Valves and hoses must be verified to be in the correct positions before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operation. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

**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, if necessary. Collect all rinsates and dispose of according to applicable U.S. Federal, State, or local procedures and appropriate Canadian standards (see Section 13, Disposal Considerations).

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### **8. EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation to prevent inhalation of sprays or mists. All operations should be directed at minimizing the generation of aerosols, sprays, or mists. Use corrosion-resistant ventilation and other engineering controls. Eyewash stations/safety showers should be near areas where this product is used or sprayed.

**RESPIRATORY PROTECTION:** None required under normal circumstances of use. If operations generate aerosols, mists, or sprays which cause exposures in excess of the guidelines listed in Section 2 (Composition and Information on Ingredients), respiratory protection may be needed (e.g., air-purifying respirator with an acid-gas cartridge and prefilter) and must comply with the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the appropriate standards of Canada and its Provinces.

**EYE PROTECTION:** Splash goggles or safety glasses. Wear face shield for operations involving more than 1 gallon of this solution in which splashes or sprays can be generated.

**HAND PROTECTION:** Wear Neoprene 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 (i.e. cover-alls, or rubber apron).

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## 9. PHYSICAL and CHEMICAL PROPERTIES

RELATIVE VAPOR DENSITY (air = 1): Not established

DENSITY: 10.95 lb/gal.

SOLUBILITY IN WATER: Completely soluble.

VAPOR PRESSURE, mm Hg @ 20°C (68°F): Not established.

ODOR THRESHOLD: Not applicable.

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

APPEARANCE AND COLOR: This is a clear, colorless odorless liquid.

HOW TO DETECT THIS SUBSTANCE (warning properties): Litmus paper will turn red upon contact with this solution.

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EVAPORATION RATE (n-BuAc = 1): < 1.0

MELTING/FREEZING POINT: < 0°C (32°F)

BOILING POINT: > 100°C (212°F)

pH: < 1.0

## 10. STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: When exposed to extremely high temperatures, the components of this product will decompose to produce acidic vapors and toxic gases (e.g., phosphorous oxides, carbon oxide).

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong bases, strong oxidizers, strong reducers, and water-reactive materials.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Exposure to extreme temperatures and incompatible materials.

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

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## 11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The specific toxicology data available for components greater than 1% in concentration are as follows.

**ORGANIC ACID:**

Skin-Rabbit, adult 500 mg/24 hours; Moderate irritation effects

Eye effects-Rabbit, adult 750 mg/24 hours; Severe irritation effects

Oral-Rat LD<sub>50</sub>: 3 g/kg

Intraperitoneal-Rat LD<sub>50</sub>: 883 mg/kg

Subcutaneous-Rat LD<sub>50</sub>: 5500 mg/kg

Oral-Mouse LD<sub>50</sub>: 5040 mg/kg

Intraperitoneal-Mouse LD<sub>50</sub>: 903 mg/kg

**ORGANIC ACID (Continued):**

Subcutaneous-Mouse LD<sub>50</sub>: 2700 mg/kg

Intravenous-Mouse LD<sub>50</sub>: 42 mg/kg

Oral-Rabbit, adult LDLo: 7000 mg/kg

Intravenous-Rabbit, adult LD<sub>50</sub>: 330 mg/kg

**INORGANIC ACID:** No toxicology data are currently available for this component of this product.

SUSPECTED CANCER AGENT: This product's components are not found on the following lists: U.S. FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA and therefore are neither considered to be nor suspected to be cancer-causing agents by these agencies

IRRITANCY OF PRODUCT: This product can be severely irritating and corrosive to contaminated tissue upon prolonged or repeated exposure.

SENSITIZATION TO THE PRODUCT: The Organic Acid component of this product is a potential skin sensitizer. Prolonged or repeated skin contact can result in the development of allergy-like skin reactions (e.g., dermatitis, rashes).

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.

Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.

Teratogenicity: This product is not reported to produce teratogenic effects in humans. effects.

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

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which 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 which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.*

## 11. TOXICOLOGICAL INFORMATION (Continued)

**ACGIH BIOLOGICAL EXPOSURE INDICES:** Currently, there are no ACGIH Biological Exposure Indices (BEIs) associated with the components of this product.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Preexisting respiratory problems, dermatitis, other skin disorders, and conditions involving the Target Organs (See Section 3, Hazard Identification) can be aggravated by exposure to this product.

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and eliminate overexposure. The following evaluations may be useful: lung function tests, chest x-rays.

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## 12. ECOLOGICAL INFORMATION

WORK PRACTICES MUST PREVENT UNINTENTIONAL, ENVIRONMENTAL RELEASES.

**ENVIRONMENTAL STABILITY:** The components of this solution are relatively stable, but will decompose over time to generate other inorganic compounds. The following environmental data are available for the components of this product:

**ORGANIC ACID:** Water Solubility = 59.2% (20°C); 84% (100°C). Biological Oxygen Demand (BOD): 40%, 5 days; 60%, 10-20 days. The Organic Acid biodegrades quite rapidly. It is dangerous to aquatic life in high concentrations. Lowers pH in water but does not dissociate to any great extent.

**INORGANIC ACID:** Water solubility: 425 g/ 100 cc (20EC)

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** This solution is corrosive and poses a severe contact hazard to terrestrial lifeforms. Animals exposed to this product will experience tissue damage, burns, and may be killed. Refer to Section 11 (Toxicology Information) for additional data on this product's components. Plants growing in soils contaminated with this product may be adversely effected or destroyed.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** This solution is strong acidic and can be detrimental to aquatic life. A release of this product in a river or other body of water will kill fish and other aquatic life. Additional information regarding aquatic toxicity of components of this product is as follows:

**ORGANIC ACID:**

Food Chain Concentration Potential: Very Low

Aquatic TLm (immersion-shore crab) 48 hrs, salt water 160 ppm

(immersion-goldfish) 4 hr, fresh water 894 ppm killed

Waterfowl toxicity: No data available

TLm (immersion, shore crab) = 160 ppm/ 48 hours/ salt water

TLm (immersion, goldfish) = 894 ppm/ 4 hours/ fresh water/ killed

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## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations or those of Canada and its Provinces. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

**U.S. EPA WASTE NUMBER:** D002, for wastes consisting only of this product.

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## 14. TRANSPORTATION INFORMATION

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

**PROPER SHIPPING NAME:** Corrosive liquid, n.o.s.

**HAZARD CLASS NUMBER and DESCRIPTION:** 8 (Corrosive)

**UN IDENTIFICATION NUMBER:** UN 1760

**PACKING GROUP:** II

**DOT LABEL(S) REQUIRED:** Corrosive

**NORTH AMERICAN EMERGENCY RESPONSE GUIDE NUMBER (1996):** 154

**MARINE POLLUTANT:** This product does not contain any products which are designated by the Department of Transportation to be Marine Pollutants as per 49 CFR 171.101, Appendix B.

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for preparation of Canadian shipments.

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## 15. REGULATORY INFORMATION

### ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The components of this product are not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization.

U.S. SARA THRESHOLD PLANNING QUANTITY: Not applicable.

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

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 are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: No.

California - Permissible Exposure Limits for Chemical Contaminants: No.

Florida - Substance List: No.

Illinois - Toxic Substance List: No.

Kansas - Section 302/313 List: No.

Massachusetts - Substance List: No.

Michigan - Critical Materials Register: No.

Minnesota - List of Hazardous Substances: No.

Missouri - Employer Information/Toxic Substance List: No.

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

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.

Pennsylvania - Hazardous Substance List: No.

Rhode Island - Hazardous Substance List: No.

Texas - Hazardous Substance List: No.

West Virginia - Hazardous Substance List: No.

Wisconsin - Toxic and Hazardous Substances: No.

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

ANSI LABELING (Z129.1): **DANGER!** CORROSIVE MATERIAL! LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. MAY CAUSE LUNG DAMAGE.. Do not get into eyes, on skin or clothing. Avoid breathing spray or mist. Do not take internally. Use with adequate ventilation and employ respiratory protection when exposed to the mist or spray. When handling, wear chemical splash goggles, face shield, rubber gloves and protective clothing. Do not transfer to unlabeled containers. Wash thoroughly after handling. Keep container closed when not in use. **FIRST-AID:** In case of contact, immediately flush skin or eyes for at least 15 minutes. If inhaled, move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If ingested, do not induce vomiting. **IN CASE OF FIRE:** Use dry chemical, CO<sub>2</sub>, or alcohol foam. **IN CASE OF SPILL:** Neutralize residue with acid neutralizing agent. Place residue in suitable container. Refer to MSDS for additional information.

### ADDITIONAL CANADIAN REGULATIONS:

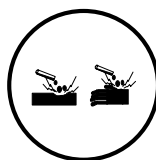
CANADIAN DSL/NDSL INVENTORY STATUS: The components of this product are on the DSL/NDSL Lists.

OTHER CANADIAN REGULATIONS: Not applicable.

CANADIAN ENVIRONMENTAL PROTECTION AGENCY (CEPA) PRIORITIES SUBSTANCES LISTS: The components of this product are not on the CEPA Priorities List

CANADIAN WHMIS SYMBOLS:

**Class E:** Corrosive



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## 16. OTHER INFORMATION

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
(619) 565 - 0302

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Biagro Western Sales, Inc. assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, Biagro Western Sales, Inc. assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

## 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. It is used for computer-related searching.

### EXPOSURE LIMITS IN AIR:

**ACGIH** - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. **TLV** - Threshold Limit Value - an airborne concentration of a substance which 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 (**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 which 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 causes 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:

**Human and Animal Toxicology:** 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: **LD<sub>50</sub>** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC<sub>50</sub>** - 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/m<sup>3</sup>** 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 **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** 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 Information:** **BEI** - ACGIH 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. **Ecological Information:** **EC** is the effect concentration in water. **BCF** = Bioconcentration Factor, which is used to determine if a substance will concentrate in lifeforms which consume contaminated plant or animal matter. Coefficient of Oil/Water Distribution is represented by **log K<sub>ow</sub>** or **log K<sub>oc</sub>** and is used to assess a substance's behavior in the environment.

### REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **U.S.:** **EPA** is the U.S. Environmental Protection Agency. **DOT** is the U.S. Department of Transportation. **SARA** is the Superfund Amendments and Reauthorization Act. **TSCA** is the U.S. Toxic Substance Control Act. **CERCLA (or Superfund)** refers to the Comprehensive Environmental Response, Compensation, and Liability Act. Labeling is per the American National Standards Institute (**ANSI Z129.1**). **CANADA:** **CEPA** is the Canadian Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **TC** is Transport Canada. **DSL/NDSL** are the Canadian Domestic/Non-Domestic Substances Lists.