JASCO MSDS

MATERIAL SAFETY DATA SHEET

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

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED):	**JASCO METAL ETCH**
CHEMICAL NAME/CLASS:	Phosphoric Acid Solution
PRODUCT CODE:	0700-0702
PRODUCT USE:	Metal cleaner and surface preparation
SUPPLIER/MANUFACTURER'S NAME:	**HOMAX PRODUCTS, Inc.**
ADDRESS:	200 Westerly Rd. Bellingham, WA 98226
CHEMTREC EMERGENCY NO.:	1-800-424-9300 (United States) 1-703-527-3887 (International Collect)
BUSINESS PHONE:	1-800-729-9029
DATE OF PREPARATION:	March 8, 2004

This product is sold to consumers for household use in containers of relatively small volume (i.e. 5 gallon or less in size). 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 settings. All pertinent health, safety and environmental information have been presented in this document, per the requirements of the US Federal OSHA Hazard Communication Standard (29 CFR 1910.1200) and Canadian WHMIS.

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	% w/w	EXPOSURE LIMITS IN AIR						
			ACGIH-TLV		OSHA-PEL		NIOSH		
			TWA	STEL	TWA	STEL	TWA	STEL	IDLH
			mg/m^3	mg/m^3	mg/m^3	mg/m^3	mg/m^3	mg/m^3	mg/m^3
Phosphoric acid	7664-38-2	15 - 40	1	3	1	NE	1	3	1000
Ethylene glycol monobutyl ether	111-76-2	3 - 7	97 skin	NE	240 skin	NE	24 skin	NE	700 ppm
Ethoxylated octyl phenol	9063-89-2	1 - 5	NE	NE	NE	NE	NE	NE	NE
Water and ingredients present in concentrations of less than 1%(or less than 0.1% if carcinogens)		Balance	The ingredients in the balance of this product do not contribute any significant, additional hazards beyond those described fully in this document. All pertinent health, safety and environmental information have been presented, per the requirements of the US Federal OSHA Hazard Communication Standard (29 CFR 1910.1200) and Canadian WHMIS (12 and Schedule I to the Controlled Products Regulations).						

NE = Not Established. See Section 16 for Definitions of Terms Used.

NOTE (1): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 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:

PHYISCAL DESCRIPTION: This product is a viscous water-white liquid with a slight hydrocarbon odor.

HEALTH HAZARD: This product is highly acidic and can cause severe corrosive burns to the eyes, skin, respiratory system, gastrointestinal tract. This product is harmful if swallowed, inhaled, or absorbed through the skin. This product and its vapors can affect the central nervous system, liver, cardiovascular system, and blood and blood-forming organs.

FIRE HAZARD: This product does not significantly contribute to the intensity of a fire.

REACTIVITY HAZARD: The product is stable under ordinary conditions. This product is not compatible with strong bases or oxidizers.

ENVIRONMENTAL HAZARD: This product is does not normally present a significant hazard to aquatic or terrestrial life in consumer quantities.

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE:

The most significant routes of occupational overexposure are inhalation and contact with skin and eyes. The symptoms of overexposure to this product are as follows:

INHALATION: If vapors, mists or sprays of this solution are inhaled, irritation to the respiratory tract can occur. Symptoms of exposure can include coughing, sneezing, choking, shortness of breath and nasal discomfort. Prolonged or repeated exposure can result in chemical burns to the respiratory tract. Chemical burns to the respiratory system can occur if large amounts are inhaled. High concentrations of Ethylene glycol monobutyl ether, a component of this product, can cause central nervous system depression characterized by headache, nausea, dizziness, confusion, unconsciousness, coma, and death.

CONTACT WITH SKIN OR EYES: This product is corrosive, and can severely irritate or burn skin and eyes. If this product contaminates the eyes, irreversible eye injury can occur. Corneal damage and blindness can result. The severity of skin injury depends on the duration of exposure; contact can result in redness, pain, ulceration and scarring.

SKIN ABSORPTION:. Ethylene glycol monobutyl ether, a component of this product can potentially be absorbed through the skin. Ethylene glycol monobutyl ether can cause liver, kidney and blood disorders; it is also known to cause central nervous system effects (although these are not anticipated to occur due to the low concentration in this solution). Symptoms of skin absorption exposure can include those described under “Inhalation”, “Contact with Skin or Eyes,” and “Ingestion”.

INGESTION: Though an unlikely route of occupational exposure, if this product is swallowed, severe irritation of, or severe corrosive burns to, the mouth, throat, and other tissues of the gastro-intestinal system can occur. Ingestion of large amounts can cause irritation, pain, vomiting, and diarrhea. Ingestion of this product could be fatal. If vomiting results in aspiration, chemical pneumonia could follow.

INJECTION: Accidental injection of this product can cause burning, reddening, and swelling in addition to the wound. Symptoms of such exposure can include those described under “Contact with Skin or Eyes”.

Hazardous Materials Identification System (HMIS)

Health	**3***
Flammability	**0**
Physical Hazard	**0**
Protective Equipment	**C/D**

See Section 16 for Definition of Ratings

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

ACUTE: Depending on the duration of contact, overexposures can severely irritate, or cause severe corrosive burns to, the eyes, skin, mucous membranes, and any other exposed tissue.

CHRONIC: Prolonged or repeated skin overexposure to this product can cause dermatitis (dry, red skin). Ethylene glycol monobutyl ether, a component of this product, can cause liver, kidney and blood disorders.

TARGET ORGANS: Acute: Eyes, skin, mucous tissue, central nervous system. Chronic: Liver, kidneys, lymphoid system, blood and blood-forming organs.

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 if any adverse effects occur. Take a copy of label and MSDS to physician or health professional with victim.

SKIN EXPOSURE: If this product contaminates the skin, immediately begin decontamination with running water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention if any adverse exposure symptoms develop.

EYE EXPOSURE: If this product enters 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. Victim must seek medical attention.

INHALATION: If vapors, mists, or sprays of this product are inhaled, remove victim to fresh air. Victim must seek immediate medical attention if any adverse exposure symptoms develop. 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. DO NOT INDUCE VOMITING, unless directed by medical personnel. Have victim rinse mouth with water, if conscious. Never induce vomiting or give a diluent (e.g., water) to someone who is unconscious, having convulsions, or unable to swallow. If contaminated individual is convulsing, maintain an open airway and obtain immediate medical attention.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with pre-existing skin disorders, eye problems, impaired liver, kidney, respiratory or lymphoid system function can be more susceptible to health effects associated with overexposures to this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure. Provide oxygen, if necessary. Pulmonary function tests, chest X-rays, and nervous system evaluations can prove useful. Consultation with an ophthalmologist is recommended if eye exposure leads to tissue damage.

5. FIRE-FIGHTING MEASURES

FLASH POINT: None.

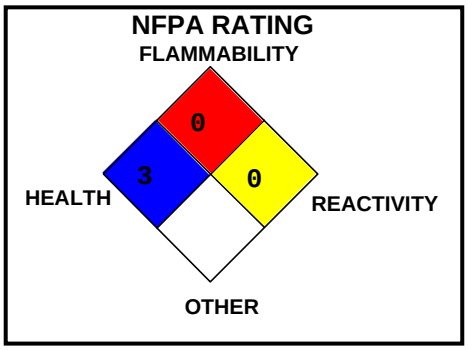
AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %):

Lower: 1.1 % (Ethylene glycol monobutyl ether)
Upper: 10.6% (Ethylene glycol monobutyl ether)

FIRE EXTINGUISHING MATERIALS: This material will not significantly contribute to the intensity of a fire. The product requires considerable pre-heating before ignition and combustion will occur. Use extinguishing material suitable to the surrounding fire.

Water Spray: OK	Carbon Dioxide: OK
Foam: OK	Dry Chemical: OK
Halon: OK	Other: Any "ABC" Class



See Section 16 for Definition of Ratings

UNUSUAL FIRE AND EXPLOSION HAZARDS: When involved in a fire, this material can decompose and produce irritating fumes, acidic vapors, and toxic gases (e.g., Carbon monoxide, Carbon dioxide, Phosphorous oxides). This product may react with metals to produce highly flammable Hydrogen gas.

Explosion Sensitivity to Mechanical Impact: Not sensitive under normal conditions.
Explosion Sensitivity to Static Discharge: Not sensitive under normal conditions.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move containers from fire area if it can be done without risk to personnel. Prevent product contamination with metal. 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: Trained personnel using pre-planned procedures should respond to uncontrolled releases. Proper protective equipment should be used. In case of a spill, clear the affected area and protect people.

RESPONSE TO INCIDENTAL RELEASES: Personnel who have received basic chemical safety training can generally handle small-scale releases, such as 1 container of this product. Respond to incidental chemical releases by wearing gloves, goggles, and appropriate body protection.

RESPONSE TO NON-INCIDENTAL RELEASES: Respond to non-incidental chemical releases of this product, such as the simultaneous puncturing of several containers, by clearing the impacted area and contacting appropriate emergency personnel. Clean up should only be done by qualified personnel. Responders should wear the level of protection appropriate to the type of chemical released, the volume of the material spilled, and the location where the incident has occurred. Minimum Personal Protective Equipment should be Level B: triple-gloves, chemical resistant apron, boots, and splash goggles and Self-Contained Breathing Apparatus. Level B should also be used when oxygen levels are below 19.5% or are unknown.

RESPONSE EQUIPMENT AND PROCEDURES: Absorb or neutralize spilled liquid with suitable materials. Decontaminate the area thoroughly. Prevent spill rinsate from contamination of storm drains, sewers, soil or groundwater. Place all spill residues 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 ON YOU or IN YOU. Wash thoroughly after using this product. Do not eat or drink while using this material. Avoid generating mists and sprays of this product. Remove contaminated clothing immediately.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to use it safely. Open containers carefully on a stable surface. Use corrosion-resistant equipment during transfer and use of this product. When preparing or diluting acid solutions, such as this product, the acid should be added slowly to the water with gentle stirring to prevent overheating, and spattering of the solution. Walls, floors, and systems in storage area should be constructed of acid resistant materials. Empty containers may contain residual liquid; 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). Keep container tightly closed when not in use. 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 if necessary. Collect all rinsates and dispose of according to applicable U.S. Federal, State, or local procedures or appropriate Canadian standards.

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). Ensure eyewash/safety shower stations are available near areas where this product is used.

RESPIRATORY PROTECTION: None needed under normal conditions of use. Use NIOSH approved respirators if ventilation is inadequate to control dusts, mists, fumes or vapors. Maintain airborne contaminate concentrations below guidelines listed in Section 2 (Composition and Information on Ingredients). Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres use of a full-face-piece pressure/demand SCBA or a full face-piece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (29 CFR 1910.134). The following NIOSH recommendations for Phosphoric Acid (a component of this product) is provided for further information:

Up to 25 mg/ m3: Supplied-air respirator in continuous flow mode.

Up to 50 mg/m3: Full-face-piece respirator with high-efficiency particulate filter, or full face-piece Self Contained Breathing Apparatus, or full face-piece supplied-air respirator.

Up to 1000 mg/m3: Positive pressure, full-face-piece supplied-air respirator.

Emergency or planned entry into unknown concentrations or IDLH conditions: Positive pressure, full-face-piece Self Contained Breathing Apparatus

8. EXPOSURE CONTROLS - PERSONAL PROTECTION - continued

EYE PROTECTION: For consumer use, wearing eye protection (such as splash goggles) is advisable. However, for specific industrial applications, enhanced eye protection may be necessary. Use approved safety goggles or safety glasses, as described in OSHA 29 CFR 1910.133. If necessary, refer to U.S. OSHA 29 CFR 1910.133, or appropriate Canadian standards.

HAND PROTECTION: For consumer use, wearing protective gloves is recommended. For specific industrial applications, wear chemical impervious gloves (e.g., Neoprene, nitrile). If necessary, refer to U.S. OSHA 29 CFR 1910.138 or the appropriate standards of Canada.

BODY PROTECTION: For consumer use, no specific body protection is normally needed. For specific industrial applications, body protection is not normally needed. Use body protection appropriate for task (e.g., Tyvek suit, rubber apron). If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136.

HMIS PERSONAL PROTECTIVE EQUIPMENT RATING: Industrial Use: C/D (eye, hand and body protection/ face-shield).

9. PHYSICAL and CHEMICAL PROPERTIES

RELATIVE VAPOR DENSITY (air = 1): >1
EVAPORATION RATE (BuAc=1): 0.1(Ethylene glycol monobutyl ether)
SPECIFIC GRAVITY: 1.04
SOLUBILITY IN WATER: completely soluble

MELTING/FREEZING POINT: NA
BOILING POINT: 206^0F (97^0C)
VOC , less water and exempt: 565 g/L
wt% VOC: 4.0%

VAPOR PRESSURE, mm Hg @ 24°C**:** 0.88 mmHg (Ethylene glycol monobutyl ether)
pH: << 7 (strongly acidic)
ODOR THRESHOLD: NA
COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): 0.83 (Ethylene glycol monobutyl ether)
APPEARANCE, ODOR AND COLOR: This product is a viscous water-white liquid with a slight hydrocarbon odor.
HOW TO DETECT THIS SUBSTANCE (warning properties): The appearance and odor of this product can act as warning properties in the event of an accidental release. Additionally, pH paper will turn red when in contact with this solution.

10. STABILITY and REACTIVITY

STABILITY: Stable under normal circumstances of use and handling.
DECOMPOSITION PRODUCTS: Thermal decomposition of this product can generate carbon monoxide, carbon dioxide and phosphorous oxides.
MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product is not compatible with strong bases and strong oxidizers.
HAZARDOUS POLYMERIZATION: Will not occur under normal conditions
CONDITIONS TO AVOID: Avoid contact with incompatible chemicals.

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

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following toxicology information is available for components greater than 1% in concentration.

The following data are available for Ethylene glycol monobutyl ether:
Skin-Rabbit, adult 500 mg open Mild irritation effects
Inhalation-Rat TCLo: 200 ppm/6H (female 6-15D post): Reproductive effects
Inhalation-Rabbit, adult TCLo: 100 ppm/6H (female 6-18D post): Teratogenic effects
Oral-Woman TDLo: 600 mg/kg
Inhalation-Human TCLo: 195 ppm/8H:Gastrointestinal tract effects
Inhalation-Human TCLo: 100 ppm: NOSE, Eye effects, Central nervous system effects
Oral-Rat LD50: 470 mg/kg
Inhalation-Rat LC_{50}: 2900 mg/m3
Intraperitoneal-Rat LD_{50}: 220 mg/kg
Intravenous-Rat LD_{50}: 340 mg/kg

11. TOXICOLOGICAL INFORMATION - continued

The following data are available for Ethylene glycol monobutyl ether (continued):
Inhalation-Mouse LC_{50}: 700 ppm/7H
Subcutaneous-Mouse LDLo: 500 mg/kg
Oral-Rabbit, adult LD_{50}: 300 mg/kg
Skin-Guinea Pig, adult LD_{50}: 230 mg/kg

The following data are available for Phosphoric Acid:

Skin-Rabbit, adult 595 mg/24H severe irritation effects
Eye effects-Rabbit, adult 119 mg severe irritation effects
Oral-Man TDLo: 1286 mL/kg
Unreported-Man LDLo: 220 mg/kg
Oral-Rat LD_{50}: 1530 mg/kg
Skin-Rabbit, adult LD_{50}: 2740 mg/kg

SUSPECTED CANCER AGENT: 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	ACGIH	OSHA	CA PROP 65
Phosphoric acid	NO	NO	NO	NO	NO	NO
Ethylene glycol monobutyl ether	NO	NO	NO	A3	NO	NO
Ethoxylated octyl phenol	NO	NO	NO	NO	NO	NO

IRRITANCY OF PRODUCT: This product can be severely irritating to contaminated tissue. Prolonged exposure can lead to tissue damage in the form of severe corrosive burns.

SENSITIZATION TO THE PRODUCT: The components of this product are not reported to be sensitizers.

TOXICOLOGICAL SYNERGISTIC PRODUCTS: None.

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 expected to produce mutagenic effects in humans when used as instructed. Ethylene glycol monobutyl ether, a component of this product, is reported to cause mutagenic effects in test micororganisms exposed to high doses.
Embryotoxicity: This product is not expected to produce embryotoxic effects in humans when used as instructed.
Teratogenicity: This product is not expected to cause teratogenic effects in humans when used as instructed. Ethylene glycol monobutyl ether, a component of this product, is reported to cause teratogenic effects in test animals exposed to relatively high doses.
Reproductive Toxicity: This product is not expected to cause reproductive effects in humans when used as instructed.

A mutagen is a chemical that causes permanent changes to genetic material (DNA) such that the changes will propagate through generational 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 EXPOSURES INDICES (BEIs): There is no BEI established for any component of this product at this time.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY:. When released into the soil, this material can leach into the groundwater. When released into the environment, the product's acidity can be readily reduced by natural water hardness minerals. The resulting phosphate compounds generated for Phosphoric acid (a component of this product), however, can persist indefinitely. Hydrochloric acid will evaporate extensively from soil surfaces. During transport though soils phosphoric acid solutions will dissolve some soil materials, such as carbonate-based materials. Other environmental data for the components of this product is as follows:

12. ECOLOGICAL INFORMATION - continued

Ethylene glycol monobutyl ether: This substance can biodegrade to a moderate extent. The bioconcentration factor (BCF) is estimated to be less than 100 (specifically 2.5) ; Koc (estimated) = 67. This substance is not anticipated to bioaccumulate significantly.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: This product can be harmful to terrestrial plant and animal life if large volumes of it are released into the environment. Refer to Section 11, "Toxicological Information", for specific animal data.

EFFECT OF CHEMICAL ON AQUATIC LIFE: This product can be harmful to animal life if large volumes of it are released into an aquatic environment. The following ectotoxicity data is available for the components of this product.

Hydrochloric acid:
Bluegill/Sunfish: 3.6 mg/L (48 Hr-Lethal)
Bluegill/Sunfish: LC_{50}: 96 Hr, pH 3.0-3.5
Phosphoric acid:
Mosquito Fish: LC_{50} = 138 mg/L/96 hours, unspecified
Ethylene glycol monobutyl ether:
LC_{50}/96-hour levels for fish are over 100 mg/L; the material is not expected to be toxic to aquatic life.
Invertebrate: 2500mg/L 24 hours; EC100 (abundance) – Water flea (Daphnia magna)
Algal: 911000µg/L 48 hour Cryptomonad
LC_{50} goldfish: 1650 mg/L/96 hours
LC_{50} Bluegill sunfish: 1490 mg/L 96 hours
LC_{50} tidewater silversides: 1250 mg/L

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: **Consumer Waste:** Dispose of according to pertinent state and local household waste and requirements**. Industrial Use:** Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations or with regulations of Canada.

EPA WASTE NUMBER: Wastes consisting only of this material are RCRA code D002, however the specific RCRA codes depend on the exact nature of the discarded material.

14. TRANSPORTATION INFORMATION

THIS PRODUCT IS HAZARDOUS PER 49 CFR 172.101, THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME:	Corrosive liquids, acidic, inorganic n.o.s. (Phosphoric acid)
HAZARD CLASS NUMBER and DESCRIPTION:	8 (Corrosive)
UN IDENTIFICATION NUMBER:	UN 3264
DOT LABEL(S) REQUIRED:	Corrosive
PACKAGING GROUP:	III

NORTH AMERICAN RESPONSE GUIDEBOOK NUMBER (2000): 154
MARINE POLLUTANT: No component is designated as a DOT Marine Pollutant.

Corrosive material products shipped in containers less than 4 L (1 gallon) net capacity each for liquids or not over 5.0 kg (11 pounds) for solids: Per 49 CFR 173.154, Limited Quantities of corrosive materials (Class 8) in **Packing Group III**, with an inner package not over 4 L (1 gallon) net capacity each for liquids or not over 5.0 kg (11 pounds) neat capacity each for solids, packed in strong outer packaging are exempted from labeling requirements and specification packaging requirements, unless offered for transportation by aircraft. Limited quantities are not subject to Subpart F (Placarding). Each package must be packed in strong outer packaging and can not exceed 30 kg (66 pounds) gross weight.
Consumer commodities: A limited quantity that conforms to the paragraph above and is a consumer commodity (per 49 CFR 171.8) can be renamed "Consumer commodity" and reclassified as an ORM-D Material. In addition to the exceptions for labeling and placarding provided by paragraph 173.151, shipments of ORM-D Material are not subject to the shipping paper requirements of subpart C of part 172 of this subchapter, unless the material meets the definition of a hazardous substance, hazardous waste, marine pollutant, or are offered for transportation and transported by aircraft. Additional exceptions, as provided in §173.156 may also apply.

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is considered as dangerous goods, per Transport Canada regulations. Use above U.S. DOT information for Canadian shipments.

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:

EPA REPORTING REQUIREMENTS: The following reporting requirements are applicable to 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)
Phosphoric acid	RQ 5000 lbs.	YES	NO
Ethylene glycol monobutyl ether	NO	NO	YES
Ethoxylated octyl phenol	NO	NO	NO

U.S. SARA SECTION 311/312 FOR PRODUCT: Acute health hazard; delayed health hazard

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

OTHER U.S. FEDERAL REGULATIONS: None.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of this product is listed on the Proposition 65 Carcinogen or Adverse Reproductive effects list.

ANSI LABELING (Z129.1):

DANGER! CORROSIVE. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. SEVERE EYE, SKIN AND RESPIRATORY TRACT IRRITANT.

LABEL PRECAUTIONS:

Do not breathe fumes, dusts, vapors or mist. Inhalation can cause lung damage. Can cause chemical burns to all body tissue. Do not swallow or take internally. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Keep container closed. Use only in a well-ventilated area.

ENVIRONMENTAL HAZARDS: Do not discharge effluent containing this product into streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

ADDITIONAL CANADIAN REGULATIONS:

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

CANADIAN WHMIS SYMBOLS:

D2B: Poisonous and infectious material - other effects - toxic

E: Corrosive material

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

PREPARED BY: ADVANCED CHEMICAL SAFETY, Inc.
7563 Convoy Court
San Diego, CA 92111
(858)-874-5577

DATE OF PRINTING January 10, 2007

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 that uniquely identifies each compound.

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which 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 **(C)**. Skin absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration.

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

IDLH - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **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. **O**ccupational **S**afety and **H**ealth **A**dministration (**OSHA**). NIOSH issues exposure guidelines called **R**ecommended **E**xposure **L**evels (**REL**s). 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 cause 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: **LD_{50}** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC_{50}** - 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^3** 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**, **LDo**, **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **BEI** - Biological Exposure Indices, represent the levels of determinants 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.

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

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act **(SARA)**; the Canadian Domestic/Non-Domestic Substances List **(DSL/NDSL)**; the U.S. Toxic Substance Control Act **(TSCA)**; Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act **(CERCLA or Superfund)**; and various state regulations. This section also includes information on the precautionary warnings that appear on a material's industrial package label