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): **4000-M**

CHEMICAL NAME/CLASS: EDTA Solution
PRODUCT CODE NUMBER: 4093
PRODUCT USE: Printed Wiring Board Chemistry

SUPPLIER/MANUFACTURER'S NAME: **ELECTROCHEMICALS, Inc.**
ADDRESS: 5630 Pioneer Creek Drive
Maple Plain MN 55359

EMERGENCY PHONE: 1-800-424-9300 (**CHEMTREC**)
BUSINESS PHONE: 763-479-2008
DATE OF REVISION: December 4, 2006

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	% w/w	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			
			TLV mg/m^3	STEL mg/m^3	PEL mg/m^3	STEL mg/m^3	IDLH mg/m^3	OTHER mg/m^3
Sodium Hydroxide	1310-73-2	1	NE	2 (C)	2	2 (C) (Vacated 1989 PEL)	10	NIOSH REL = 2 DFG MAK=2
Trisodium Nitrilotriacetate	5064-31-3	<1	NE	NE	NE	NE	NE	NE
EDTA, water and other low hazard constituents less than 1%.		Balance	NE	NE	NE	NE	NE	NE

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

NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This clear, straw-colored solution contains components which are irritating , and can be damaging to contaminated tissue. Ingestion of large quantities can be fatal. In the event of fire or spill, adequate precautions must be taken. If involved in a fire, this product may decompose to produce sodium oxides and toxic gases (carbon monoxide, carbon dioxide). Emergency responders must wear the proper personal protective equipment suitable for the situation to which they are responding

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of occupational overexposure are inhalation, and contact with skin and eyes. The symptoms of over-exposure to this product 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 exposures or exposures to high concentrations of this solution. Additional inhalation symptoms may include the following: laryngitis, headache, nausea, and vomiting. Severe inhalation over-exposures can lead to chemical pneumonitis, pulmonary edema, and death.

CONTACT WITH SKIN or EYES: Contact with the eyes will cause irritation, pain, reddening and possibly, blindness. Depending on the duration of skin contact, skin overexposures may cause reddening, discomfort, and irritation . Repeated skin-overexposures can result in dermatitis (inflammation and reddening of the skin).

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 fore 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:

HAZARDOUS MATERIAL INFORMATION SYSTEM

HEALTH	(BLUE)	3
FLAMMABILITY	(RED)	0
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT		D

EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		

For routine industrial applications

ACUTE: Depending on the duration of contact, over-exposures can irritate or burn the eyes, skin, mucous membranes, and any other exposed tissue. If inhaled, irritation of the respiratory system may occur, with coughing, and breathing difficulty. Eye contact can cause blindness. Severe inhalation and ingestion over-exposures may be fatal.

CHRONIC: Persistent irritation and redness may result from repeated exposures to this solution.

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

4. FIRST-AID MEASURES

SKIN EXPOSURE: If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Do not interrupt flushing. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention.

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

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

4. FIRST-AID MEASURES (Continued)

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 large quantities of water. If milk is available, victim should drink it after drinking water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow.

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

5. FIRE-FIGHTING MEASURES

FLASH POINT, °C (method): Not flammable.

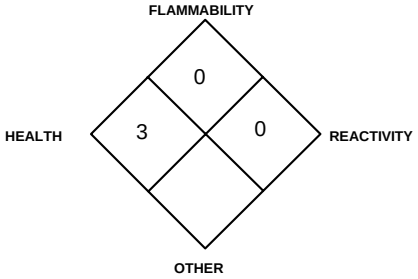
AUTOIGNITION TEMPERATURE, °C: Not flammable.

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

FIRE EXTINGUISHING MATERIALS:

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

NFPA RATING



UNUSUAL FIRE AND EXPLOSION HAZARDS: This solution is corrosive, and presents a severe contact hazard to fire-fighters. When involved in a fire, this material may decompose and produce irritating vapors, oxides of sodium, toxic nitrogen compounds, and toxic gases (carbon monoxide, carbon dioxide).

Explosion Sensitivity to Mechanical Impact: Not sensitive.
Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Chemical resistant clothing may be necessary. If this product is involved in a fire, fire run-off water should be contained to prevent possible environmental damage.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a large spill, clear the affected area, protect people, and respond with trained personnel.

In the event of a non-incidental release, minimum Personal Protective Equipment 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 residue with citric acid or other caustic neutralizing agent. Decontaminate the area thoroughly. Test area with litmus paper to ensure complete neutralization. Place all spill residue in an appropriate container. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (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 hands after handling this product. Do not eat or drink while handling this material. Remove contaminated clothing immediately.

7. HANDLING and STORAGE (Continued)

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Avoid breathing vapors or mists generated by this product. Use in a well-ventilated location. Open containers slowly, on a stable surface. Containers of this product must be properly labeled. 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. Keep container tightly closed when not in use. Wash thoroughly after using this material. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. If appropriate, post warning signs in storage and use areas. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Empty containers may contain residual liquid, therefore empty containers should be handled with care.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment using caustic neutralizing agent, followed by a triple-rinse with water, before maintenance begins. Collect all rinsates and dispose of according to applicable Federal, State, or local procedures.

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: Maintain airborne contaminant concentrations below exposure limits listed in Section 2 (Composition and Information on Ingredients). If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, or applicable State regulations. Use supplied air respiration protection during response procedures to non-incidental releases and if oxygen levels are below 19.5% or are unknown.

EYE PROTECTION: Splash goggles or safety glasses. Face shields recommended when using quantities of this solution in excess of 1 gallon.

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

BODY PROTECTION: Use body protection appropriate for task. An apron, or other impermeable body protection is suggested. Full-body chemical protective clothing is recommended for emergency response procedures.

9. PHYSICAL and CHEMICAL PROPERTIES

RELATIVE VAPOR DENSITY (air = 1): Equal to water.
SPECIFIC GRAVITY (water = 1): 1.24
SOLUBILITY IN WATER: Completely soluble.
VAPOR PRESSURE, mm Hg @ 20 °C: 18
ODOR THRESHOLD: Not available.
EVAPORATION RATE (n-BuAc = 1): Similar to water.
FREEZING/MELTING POINT: < 0 °C
BOILING POINT: 104 °C
pH: 13.0
LOG WATER/OIL DISTRIBUTION COEFFICIENT: Not available.

APPEARANCE AND COLOR: This product is a clear, straw-colored solution with properties similar to water. This product has a slight ammonia odor.
HOW TO DETECT THIS SUBSTANCE (warning properties): Litmus paper will turn blue-purple upon contact with this solution.

10. STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Sodium oxides and toxic gases (carbon monoxide, carbon dioxide).

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product is not compatible with strong acids, strong oxidizers, aluminum, and other metals.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Contact with incompatible materials.

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

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Additional toxicology information for components greater than 1 percent in concentration is provided below.

SODIUM HYDROXIDE:
Eye Irritancy (monkey) = 1% solution/ 24 hours; severe
Skin Irritancy (rabbit) = 500 mg/ 24 hours; severe
Eye Irritancy (rabbit) = 4 grams; mild
Eye Irritancy (rabbit) = 1% solution; severe
Eye Irritancy (rabbit) = 0.05 mg/ 24 hours; severe

SODIUM HYDROXIDE (continued):
Eye Irritancy (rabbit) = 1 mg/ 24 hours; severe
Eye Irritancy (rabbit) = 100 mg with rinse; severe
Cytogenetic Analysis System test (parenteral, grasshopper) = 20 mg
LD_{50} (intraperitoneal, mouse) = 40 mg/kg.
LDLo (oral, rabbit) = 500 mg/kg.

SODIUM NITRILOTRIACETATE:
TDLo (oral, rat) = 39000 mg/kg; reproductive effects
TDLo (oral, rat) = 70300 mg/kg; neoplastic effects
LD_{50} (oral, rat) = 1100 mg/kg
LD_{50} (intraperitoneal, rat) = 254 mg/kg
LD_{50} (oral, mouse) = 681 mg/kg
LD_{50} (oral, monkey) = 750 mg/kg

SUSPECTED CANCER AGENT: Sodium Nitriloacetate (a chemical similar to Sodium Nitrilotriacetate, a component of this product) is on the IARC-2B list (Possibly Carcinogenic to Humans). The components of this solution are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and therefore are not considered to be, nor suspected to be, cancer causing agents by these agencies.

IRRITANCY OF PRODUCT: This product is severely irritating to contaminated tissue, especially after prolonged contact.

SENSITIZATION TO THE PRODUCT: The components of this product are not known to be sensitizers with repeated or prolonged use.

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

Mutagenicity: This product is not reported to produce mutagenic effects in humans. Animal mutation data are available for Sodium Hydroxide and Sodium Nitrilotriacetate (components of this product each present in 1% or less); the data was obtained during clinical studies on specific animal tissues exposed to high doses of these compounds.
Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.
Teratogenicity: This product is not reported to cause teratogenic effects in humans.
Reproductive Toxicity: This product is not reported to cause reproductive toxicity effects in humans. Clinical studies on test animals exposed to relatively high doses of Sodium Nitrilotriacetate (a component of this product) indicate adverse reproductive effects.

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.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing dermatitis may be aggravated by over-exposure to this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate over-exposure.

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

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and reduce over-exposure.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: Sodium hydroxide can react with carbon dioxide in the air to form sodium carbonate. Sodium Nitrilotriacetate will decompose into a variety of organic compounds. Additional environmental data are available as follows:

SODIUM HYDROXIDE: K_{OW} = too low to be measured. Water solubility = 9 g/0.9 mL water. BOD: None.

SODIUM NITRILOACETATE (a chemical similar to Sodium Nitrilotriacetate, a component of this product)**:** Water solubility = 660g/L (20°C).

12. ECOLOGICAL INFORMATION (Continued)

EFFECT OF MATERIAL ON PLANTS or ANIMALS: This solution can be harmful to plant and animal life if this product is released into the environment. Refer to Section 11 (Toxicology Information) for specific information on this product's components and effects on test animals.

EFFECT OF CHEMICAL ON AQUATIC LIFE: This solution can substantially raise the pH of an aquatic environment and can be extremely toxic to fish and aquatic plants. Additional aquatic toxicity data is available as follows:

SODIUM HYDROXIDE:
Acute Hazard Level:
Lethal pH (goldfish) = 10.9
Lethal pH (bluegill) = 10.5
LC_{100} (*Cyprimus carpio)* = 180 ppm/24 hr/25 °C
TL_m (mosquito fish) = 125 ppm/96 hr (fresh water)
TL_m (bluegill) = 99 mg/L/48 hr (tap water)

13. DISPOSAL CONSIDERATIONS

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

EPA WASTE NUMBER: D002 applicable to wastes consisting only of this solution.

14. TRANSPORTATION INFORMATION

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

PROPER SHIPPING NAME:	CAUSTIC ALKALI LIQUID N.O.S.(CONTAINS SODIUM HYDROXIDE)
HAZARD CLASS NUMBER and DESCRIPTION:	8
UN IDENTIFICATION NUMBER:	UN1719
PACKING GROUP:	III
DOT LABEL(S) REQUIRED:	CORROSIVE
EMERGENCY RESPONSE GUIDE NUMBER, 2004:	154

MARINE POLLUTANT: This product does not contain any components which are designated by the Department of Transportation to be Marine Pollutants (per 49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Refer to information above for Canadian Shipments.

15. REGULATORY INFORMATION

SARA REPORTING REQUIREMENTS: This product is subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

COMPONENT	SARA 302	SARA 304	SARA 313
Sodium Nitrilotriacetate	No	No	No
Sodium Hydroxide	No	Yes	No

SARA Threshold Planning Quantity: Not applicable.

TSCA INVENTORY STATUS: The components of this solution are listed on the TSCA Inventory.

CERCLA REPORTABLE QUANTITY (RQ): Sodium Hydroxide = 1000 lbs.

OTHER FEDERAL REGULATIONS: Not applicable.

15. REGULATORY INFORMATION (Continued)

STATE REGULATORY INFORMATION: The components of this solution are covered under the specific State regulations denoted below.

Alaska - Designated Toxic and Hazardous Substances: Sodium Hydroxide
California - Permissible Exposure Limits for Chemical Contaminants: Sodium Hydroxide
Florida - Substance List: Sodium Hydroxide
Illinois - Toxic Substance List: Sodium Hydroxide
Kansas - Section 302/313 List: Sodium Hydroxide
Massachusetts - Substance List: Sodium Hydroxide, Sodium Nitrilotriacetate
Minnesota - List of Hazardous Substances: Sodium Hydroxide
Missouri - Employer Information/Toxic Substance List: Sodium Hydroxide
New Jersey - Right to Know Hazardous Substance List: Sodium Hydroxide
North Dakota - List of Hazardous Chemicals, Reportable Quantities: Sodium Hydroxide
Pennsylvania - Hazardous Substance List: Sodium Hydroxide
Rhode Island - Hazardous Substance List: Sodium Hydroxide
Texas - Hazardous Substance List: Sodium Hydroxide
West Virginia - Hazardous Substance List
Wisconsin - Toxic and Hazardous Substances: Sodium Hydroxide

CALIFORNIA PROPOSITION 65: The components of this solution are not on the California Proposition 65 lists.

LABELING (Precautionary Statements): **DANGER!** MAY BE FATAL IF SWALLOWED. CAUSES EYE BURNS AND SKIN IRRATATION. HARMFUL IF INHALED. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing vapors or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves , goggles, face-shield, and appropriate body protection. FIRST-AID: In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. IN CASE OF FIRE: Use water fog, dry chemical, CO_2, or "alcohol" foam. IN CASE OF SPILL: Absorb spill with inert material or caustic neutralizing agent and place in suitable container. Consult Material Safety Data Sheet for additional information.

TARGET ORGANS: Respiratory system, skin, eyes.

WHMIS SYMBOLS:

16. OTHER INFORMATION

PREPARED BY: ELECTROCHEMICALS, INC.
5630 Pioneer Creek Drive, Maple Plain, MN 55359
763-479-2008

DATE OF PRINTING: December 4, 2006

All statements, technical information and recommendations herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed. **THE FOLLOWING IS MADE IN LIEU OF ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PURPOSE.** Seller's and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Before using, user shall determine the suitability of the product for its intended use, and user assumes all risks and liability whatsoever in connection therewith.

NEITHER SELLER NOR MANUFACTURER SHALL BE LIABLE EITHER IN TORT OR IN CONTRACT FOR ANY LOSS OR DAMAGE, DIRECT, INCIDENTAL OR CONSEQUENTIAL, ARISING OUT OF THE USE OR THE INABILITY TO USE THE PRODUCT.

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**. Skin adsorption 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. **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.

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the **N**ational **F**ire **P**rotection **A**ssociation (**NFPA**). 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. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause death. **BEI** - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Other acronyms used are: **Superfund Amendments and Reauthorization Act (SARA)**; the **Toxic Substance Control Act (TSCA)**; Marine Pollutant status according to the **DOT**; California's Safe Drinking Water Act (**Proposition 65**); the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)**; and various state regulations. This section also includes information on the precautionary warnings which appear on the material's package label.