

# LAKELAND

## CHEMICAL SPECIALTIES, INC.

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### MATERIAL SAFETY DATA SHEET

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#### SECTION 1: PRODUCT IDENTIFICATION

PRODUCT NAME: A-3000 WATER TREATMENT MICROBICIDE  
CHEMICAL NAME: AQUEOUS GLUTARALDEHYDE SOLUTION  
CHEMICAL FAMILY: ALDEHYDES  
FORMULA: C H O  
5 8 2  
MOLECULAR WEIGHT 100.11  
DOT SHIP NAME: INDUSTRIAL PROCESS WATER TREATMENT  
NONE

#### SECTION 2: HAZARDOUS INGREDIENTS

GLUTARALDEHDE TLV 0.2 PPM/CEILING OSHA & ACGIH  
CAS#111-30-8 HAZARD: IRRITANT, SENSITIZER, HARMFUL IF INHALED OR SWALLOWED

#### SECTION 3: PHYSICAL/CHEMICAL PROPERTIES

BOILING POINT: 100.5C FREEZING POINT: -7C (20F)  
213F PERCENT VOLATILES BY VOLUME:100  
SOLUBILITY IN WATER: 100% AT 20C VAPOR DENSITY (AIR = 1): 0.07  
SPECIFIC GRAVITY: 1.042 @20/20°C EVAPORATION RATE: (BUTYL ACETATE=1) 0.8  
APPEARANCE/ODOR: TRANSPARENT COLORLESS LIQUID  
SHARP, FRUITY, MEDICINAL

#### SECTION 4 : FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): NONE (AQUEOUS SYSTEM)  
EXTINGUISHER MEDIA: NON-FLAMMABLE (AQUEOUS SOLUTION): AFTER WATER EVAPORATES,  
REMAINING MATERIAL WILL BURN. USE ALCOHOL-TYPE OR ALL-PURPOSE  
TYPE FOAM, APPLIED BY MANUFACTURER'S RECOMMENDED TECHNIQUES.  
FOR LARGE FIRES. USE CARBON DIOXIDE OR DRY CHEMICAL MEDIA  
FOR SMALL FIRES.  
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE KNOWN  
SPECIAL FIRE FIGHTING PROCEDURES USE SELF CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING.

**SECTION 5: HEALTH HAZARD DATA**

**EXPOSURE LIMITS:**

**GLUTARALDEHYDE: 0.02 PPMV CEILING**

**OSHA & ACGIH**

**METHANOL: 200PPM TWA(SKIN), OSHA & ACGIH**

**EFFECTS OF SINGLE OVEREXPOSURE:**

**SWALLOWING:**

**MODERATELY TOXIC. MAY CAUSE MODERATE TO MARKED IRRITATION AND POSSIBLE CHEMICAL BURNS OF THE MOUTH, THROAT, ESOPHAGUS, AND STOMACH. THERE WILL BE DISCOMFORT OR PAIN IN THE CHEST AND ABDOMEN, NAUSEA, VOMITING, DIARRHEA, DIZZINESS, FAINTNESS, DROWSINESS, THIRST, WEAKNESS, CIRCULATORY SHOCK, COLLAPSE AND COMA.**

**ASPIRATION INTO THE LUNGS MAY OCCUR DURING INGESTION OR VOMITING, RESULTING IN LUNG INJURY.**

**SKIN ABSORPTION:**

**NO EVIDENCE OF HARMFUL EFFECTS FROM AVAILABLE INFORMATION.**

**INHALATION:**

**VAPOR IS IRRITATING TO THE RESPIRATORY TRACT, CAUSING STINGING SENSATION IN THE NOSE AND THROAT, DISCHARGE FROM THE NOSE, POSSIBLY BLEEDING FROM THE NOSE, COUGHING, CHEST DISCOMFORT AND TIGHTNESS, DIFFICULTY WITH BREATHING, AND HEADACHE. HEATING THE SOLUTION MAY RESULT IN MORE IRRITANT EFFECTS.**

**SKIN CONTACT:**

**BRIEF CONTACT MAY CAUSE MODERATE IRRITATION WITH ITCHING, LOCAL REDNESS AND POSSIBLE SLIGHT SWELLING.**

**EYE CONTACT:**

**LIQUID WILL CAUSE A SEVERE AND PERSISTENT CONJUNCTIVITIS, SEEN AS EXCESS REDNESS AND MARKED SWELLING OF THE CONJUNCTIVA WITH PROFUSE DISCHARGE. SEVERE CORNEAL INJURY MAY DEVELOP, WHICH COULD PERMANENTLY IMPAIR VISION IF STINGING SENSATIONS IN THE EYE WITH EXCESS TEAR PRODUCTION, BLINKING, AND POSSIBLY A SLIGHT EXCESS REDNESS OF THE CONJUNCTIVA.**

**EFFECTS OF REPEATED OVEREXPOSURE:**

**REPEATED SKIN CONTACT MAY CAUSE A CUMULATIVE DERMATITIS.**

**MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:**

**SKIN CONTACT MAY AGGRAVATE AN EXISTING DERMATITIS. INHALATION OF MATERIAL MAY AGGRAVATE ASTHMA AND INFLAMMATORY OR FIBROTIC PULMONARY DISEASE**

**SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION:**

**STUDIES IN HUMANS HAVE SHOWN THAT GLUTARALDEHYDE IS NEITHER PHOTOTOXIC NOR A PHOTOSENSITIZER. SUBCHRONIC DRINKING WATER STUDIES IN RATS, MICE AND DOGS USING CONCENTRATIONS UP TO 1000 PPM SHOWED NO EVIDENCE FOR ANY TARGET ORGAN TOXICITY. IN VITRO STUDIES FOR GENOTOXICITY USING A VARIETY OF ASSAYS HAVE GIVEN RESULTS VARYING FROM NO ACTIVITY, THROUGH EQUIVOCAL, TO WEAKLY POSITIVE; HOWEVER, ALL IN VITO STUDIES FOR GENOTOXICITY HAVE BEEN UNIFORMLY NEGATIVE. SEVERAL DEVELOPMENTAL TOXICITY STUDIES HAVE DEMONSTRATED THAT AT MATERNALLY NONTOXIC DOSES, GLUTARALDEHYDE DOES NOT PRODUCE FETOTOXIC, EMBRYOTOXIC OR TERATOGENIC EFFECTS. IN A TWO-GENERATION REPRODUCTION STUDY INVOLVING CONTINUOUS EXPOSURE OF CD RATS TO GLUTARALDEHYDE UP TO 1000PPM, IN DRINKING WATER THERE WERE EFFECTS ON PARENTAL BODY WEIGHT AND FOOD CONSUMPTION AT 1000PPM (DUE TO AN AVERSION TO THE TASTE), BUT NO ADVERSE EFFECTS ON REPRODUCTIVE PERFORMANCE. IN A CHRONIC (2 YEAR) CONTINUOUS DRINKING WATER COMBINED CHRONIC TOXICITY-ONCOGENICITY STUDY USING FISCHER 344 RATS, THERE WAS NO EVIDENCE FOR NONONCOGENIC TARGET ORGAN TOXICITY. THE ONLY POSSIBLE ONCOGENICITY-RELATED FINDING WAS AN INCREASE IN THE INCIDENCE OF LARGE GRANULAR CELL LYMPHOCYTIC LEUKEMIA IN FEMALE, BUT NOT MALES, RATS. THE PATTERN ON THE RESPONSE SUGGESTS**

THAT IT DOES NOT REPRESENT DIRECT CHEMICAL CARCINOGENIC ACTIVITY BUT, RATHER, A MODIFYING INFLUENCE ON THE EXPRESSION OF THIS SPONTANEOUS AND COMMONLY OCCURRING NEOPLASM IN THE FISCHER 344 RAT. REPEATED APPLICATIONS OF AQUEOUS SOLUTION OF GLUTARALDEHYDE TO THE RAT SKIN FOR 20 DOSAGES OVER A 28-DAY PERIOD AT 50,100 OR 2150 MG/KG/DAY PRODUCED MILD LOCAL INFLAMMATORY EFFECTS BUT NO EVIDENCE FOR TARGET ORGAN OR TISSUE SYSTEMIC TOXICITY.

**OTHER EFFECTS OF OVEREXPOSURE:**

MAY CAUSE SKIN SENSITIZATION IN A SMALL PORTION OF INDIVIDUALS AND PRESENT AS AN ALLERGIC CONTACT DERMATITIS. THIS USUALLY RESULTS FROM CONTACT WITH THE LIQUID, BUT OCCASIONALLY THERE MAY A REACTION TO GLUTARALDEHYDE VAPOR. WILL CAUSE SIGNS AND SYMPTOMS OF AN ASTHMATIC ATTACK IN HYPER-REACTIVE INDIVIDUALS.

**EMERGENCY AND FIRST AID PRODUCES:**

**SWALLOWING:** DO NOT INDUCE VOMITING. DO NOT GIVE ANYTHING TO DRINK. OBTAIN MEDICAL ATTENTION WITHOUT DELAY.

**SKIN:** IMMEDIATELY REMOVE CONTAMINATED CLOTHING AND SHOES. WASH SKIN WITH SOAP AND WATER. OBTAIN MEDICAL ATTENTION. WASH CLOTHING BEFORE REUSE. DISCARD CONTAMINATED LEATHER ARTICLES SUCH AS SHOES AND BELT.

**INHALATION:** REMOVE TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION IF NOT BREATHING. IF BREATHING IS DIFFICULT, OXYGEN MAY BE GIVEN BY QUALIFIED PERSONNEL. OBTAIN MEDICAL ATTENTION.

**EYES:** IMMEDIATELY FLUSH EYES WITH WATER AND CONTINUE WASHING FOR AT LEAST 15 MINUTES. DO NOT REMOVE CONTACT LENSES, IF WORN. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPHTHALMOLOGIST.

**NOTE TO PHYSICIAN:** THE HAZARDS OF THIS MATERIAL ARE DUE MAINLY TO ITS SEVERE IRRITANT PROPERTIES ON SKIN AND MUCOSAL SURFACES. MODERATELY TOXIC BY SWALLOWING. DUE TO THE SEVERELY IRRITATING OR CORROSIVE NATURE OF THE MATERIAL, SWALLOWING MAY LEAD TO ULCERATION AND INFLAMMATION OF THE UPPER ALIMENTARY TRACT WITH HEMORRHAGE AND FLUID LOSS. ALSO, PERFORATION OF THE ESOPHAGUS OR STOMACH MAY OCCUR, LEADING TO MEDIASTITIS OR PERITONITIS AND THE RESULTANT COMPLICATIONS. ANY MATERIAL ASPIRATED DURING VOMITING MAY CAUSE LUNG INJURY. THEREFORE, EMESIS SHOULD NOT BE INDUCED MECHANICALLY OR PHARMACOLOGICALLY. IF IT IS CONSIDERED NECESSARY TO EVACUATE THE STOMACH CONTENTS, THIS SHOULD BE DONE BY MEANS LEAST LIKELY TO CAUSE ASPIRATION (E.G., GASTRIC LAVAGE AFTER ENDOTRACHEAL INTUBATION).

**SECTION 6: REACTIVITY DATA**

**STABILITY:** STABLE

**CONDITION TO AVOID:** AVOID HIGH TEMPERATURE AND EVAPORATION OF WATER.

**INCOMPATIBILITY:** (MATERIALS TO AVOID): STRONG ALKALIES AND ACIDS CATALYZES AN ALDOL-TYPE CONDENSATION (EXOTHERMIC, BUT NOT EXPECTED TO BE VIOLENT)

**HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:**

**BURNING CAN PRODUCE THE FOLLOWING:**

**CARBON MONOXIDE AND/OR CARBON DIOXIDE**

**CARBON MONOXIDE IS HIGHLY TOXIC IF INHALED; CARBON DIOXIDE IN SUFFICIENT CONCENTRATIONS CAN ACT AS AN ASPHYXIANT.**

**HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.**

**CONDITIONS TO AVOID: TEMPERATURES ABOVE 100°C.**

**ALTHOUGH POLYMERIZATION MAY OCCUR, IT IS NOT HAZARDOUS.**

**SECTION 7: SPILL OR LEAK PROCEDURES**

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: WEAR SUITABLE PROTECTIVE EQUIPMENT.**

**TOXIC TO FISH; AVOID DISCHARGE TO NATURAL WATERS. VERY LOW CONCENTRATIONS (5PPM OR LESS OF GLUTARALDEHYDE) CAN BE DEGRADED IN A BIOLOGICAL TREATMENT SYSTEM. THUS SMALL SPILLS CAN BE FLUSHED WITH LARGE QUANTITIES OF WATER. LARGE QUANTITIES OR "SLUG" CAN BE HARMFUL TO THE TREATMENT SYSTEM. THUS, LARGE SPILLS SHOULD BE COLLECTED FOR DISPOSAL. IT MAY ALSO BE POSSIBLE TO DECONTAMINATE SPILLS MATERIAL BY CAREFUL APPLICATION OF AQUEOUS SODIUM HYDROXIDE, DIBASIC AMMONIUM PHOSPHATE SOLUTION, OR AMMONIUM BISULFITE, DEPENDING ON CONDITIONS, CONSIDERABLE HEAT AND FUMES CAN BE LIBERATED BY THE DECONTAMINATION REACTION.**

**WASTE DISPOSAL METHODS: ATOMIZE INTO A VERY HOT INCINERATOR FIRE OR MIX WITH A SUITABLE FLAMMABLE SOLVENT, AND INCINERATE WHERE PERMITTED UNDER APPROPRIATE FEDERAL, STATE, AND LOCAL REGULATIONS. HIGH WATER CONTENT MAY DAMPEN FLAME.**

**SECTION 8: SPECIAL PROTECTION INFORMATION**

**RESPIRATORY PROTECTION: (SPECIFY TYPE): USE SELF-CONTAINED BREATHING APPARATUS IN HIGH VAPOR CONCENTRATIONS. IF SELF-CONTAINED BREATHING APPARATUS IS NOT AVAILABLE, MSHA/NIOSH APPROVED AIR PURIFYING RESPIRATOR EQUIPPED WITH AN ORGANIC VAPOR CARTRIDGE SHOULD BE USED.**

**VENTILATION: GENERAL (MECHANICAL) ROOM VENTILATION IS EXPECTED TO BE SATISFACTORY IF THIS MATERIAL IS KEPT IN COVERED EQUIPMENT OR IF THE SOLUTION IS HIGHLY DILUTED. HOWEVER, IF VAPORS ARE STRONG ENOUGH TO BE IRRITATING TO THE NOSE (OR EYES), THE TLV IS PROBABLY BEING EXCEEDED AND SPECIAL VENTILATION MAY BE REQUIRED.**

**PROTECTIVE GLOVES: RUBBER, NITRILE (NBR), BUTYL, POLYETHYLENE**

**EYE PROTECTION: MONOGOGGLES OR FACESHIELD**

**OTHER PROTECTIVE EQUIPMENT: CHEMICAL APRON, EYE BATH, SAFETY SHOWER, RUBBER BOOTS.**

**SECTION 9: SPECIAL PRECAUTIONS**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: DANGER!**

**CORROSIVE, CAUSES IRREVERSIBLE EYE DAMAGE, CAUSES SKIN IRRITATION HARMFUL IF INHALED, HARMFUL IF SWALLOWED, PROLONGED OR FREQUENTLY REPEATED SKIN CONTACT MAY CAUSE ALLERGIC REACTION IN SOME INDIVIDUALS.**

**CAUSES ASTHMATIC SIGNS AND SYMPTOMS IN HYPER-REACTIVE INDIVIDUALS ASPIRATION MAY CAUSE LUNG DAMAGE.**

**DO NOT GET IN EYES, ON SKIN, ON CLOTHING. AVOID BREATHING VAPOR. DO NOT SWALLOW. WEAR GOGGLES, PROTECTIVE CLOTHING, AND RUBBER GLOVES. WASH THOROUGHLY WITH SOAP AND WATER BEFORE REUSE.**

**OTHER PRECAUTIONS: CAUTION!**

PLASTIC CONTAINERS, IF PRESENT, MAY CAUSE STATIC IGNITION HAZARD. DO NOT HANDLE OR EMPTY CONTAINER IN THE PRESENCE OF FLAMMABLE VAPORS.

LABORATORY STUDIES, USING AN ODOR TEST PANEL, INDICATED GLUTARALDEHYDE VAPORS IN AIR MAY BE "IRRITATING" TO HUMAN AT ABOUT 0.3PPM IN AIR; THE TLV HAS BEEN ESTABLISHED AS 0.2PPM CEILING. THUS, IF VAPORS ARE CONCENTRATED ENOUGH TO BE IRRITATING, THE TLV IS PROBABLY BEING EXCEEDED.

#### SECTION 10: REGULATORY INFORMATION

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION, AND LIABILITY ACT OF 180 (CERCLA) REQUIRES NOTIFICATION OF THE NATIONAL RESPONSE CENTER OF RELEASE OF QUANTITIES OF HAZARDOUS SUBSTANCES EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITIES (RQ'S) IN 40 CFR 302.4.

COMPONENTS PRESENT IN THIS PRODUCT AT A LEVEL WHICH COULD REQUIRE REPORTING UNDER THE STATUTE ARE :           NONE

SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III REQUIRES EMERGENCY PLANNING BASED ON THRESHOLD PLANNING QUANTITIES (TPQ'S) AND RELEASED REPORTING BASED ON REPORTABLE QUANTITIES (RQ'S) IN 40 CFR 355 (USED FOR SARA 302,304,311 AND 312).

COMPONENTS PRESENT IN THIS PRODUCT AT A LEVEL WHICH COULD REQUIRE REPORTING UNDER THE STATUTE ARE:           NONE

SUPERFUND AMENDMENT AND REGULATION ACT OF 1986 (SARA) TITLE III REQUIRE SUBMISSION OF ANNUAL REPORTS OF RELEASE OF TOXIC CHEMICALS THAT APPEAR IN 40 CFR 372 (FOR SARA 313). THIS INFORMATION MUST BE INCLUDED IN ALL MSDS THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

COMPONENTS PRESENT IN THIS PRODUCT AT A LEVEL WHICH COULD REQUIRE REPORTING UNDER THE STATUTE ARE:           NONE

TOXIC SUBSTANCE CONTROL ACT (TSCA) STATUS: THE INGREDIENTS OF THIS PRODUCT ARE THE TSCA INVENTORY.

NOTE:  
THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET REFLECTS THE LATEST INFORMATION AND DATA THAT WE HAVE ON HAZARDS, PROPERTIES, AND HANDLING OF THIS PRODUCT UNDER THE RECOMMENDED CONDITIONS OF USE. ANY USE OF THIS PRODUCT OR METHOD OF APPLICATION WHICH IS NOT DESCRIBED IN THE PRODUCT DATA SHEET IS THE RESPONSIBILITY OF THE USER.

THIS MATERIAL SAFETY DATA SHEET WAS PREPARED TO COMPLY WITH THE OSHA HAZARD COMMUNICATION REGULATIONS.

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