MATERIAL SAFETY DATA SHEET

PRODUCT: ACETIC ACID

_________________________ EMERGENCY ASSISTANCE ____________________________

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL:

GOLDEN PACIFIC: (510) 887-3862 OR CHEMTREC: (800) 424-9300 (24HRS)

SECTION 1: PRODUCT INFORMATION

TRADE NAME (COMMON NAME): ACETIC ACID (VARIOUS GRADES).
CHEMICAL NAME AND/OR SYNONYM: ACETIC ACID AQUEOUS SOLUTION.
CAS NUMBER: 64-19-7 (OF ACETIC ACID).
FORMULA: CH₃COOH+H₂O
MOLECULAR WEIGHT: 60.05 (ACETIC ACID)

SECTION 2: FIRST AID MEASURES

INHALATION: REMOVE TO FRESH AIR. IF NOT, BREATHING, GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN IF QUALIFIED OPERATOR IS AVAILABLE.
INGESTION: DO NOT INDUCE VOMITING. GIVE TAP WATER, MILK (2-3 GLASSES), MILK OF MAGNESIA OR EGG WHITES BEATEN WITH WATER. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
SKIN: IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR FIFTEEN MINUTES, WHILE REMOVING CONTAMINATED CLOTHING. WASH CLOTHING BEFORE REUSE.
EYES: IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST FIFTEEN MINUTES. IF IRRITATION PERSISTS, FLUSH AN ADDITIONAL FIFTEEN MINUTES.
SEEK MEDICAL ASSISTANCE FOR INHALATION, INGESTION, AND IRRITATION.

SECTION 3: HAZARDS INFORMATION

HEALTH-
INHALATION: VAPOR CAUSES IRRITATION TO EYES, NOSE, AND THROAT; CAN AFFECT RESPIRATORY RESPONSE, CAUSE COUGHING AND CHEST PAINS.
TLCO, HUMAN=816 PPM/3M, LC50 MOUSE=5620 PPM/1HR.
INGESTION: SEVERE PAIN IN MOUTH, GULLET, STOMACH; POSSIBLE CIRCULATORY COLLAPSE, UREMIA AND DEATH (HUMAN).
LD50 (ORAL-RAT)=3310 MG/KG.
SKIN: CONCENTRATED SOLUTION CAUSES SEVERE BURNS IF NOT PROMPTLY WASHED OFF. VAPOR MAY BLACKEN SKIN AND EXPOSED TEETH. DILUTE SOLUTIONS MAY CAUSE DERMATITIS IN SOME SENSITIVE INDIVIDUALS.
LD50 (SKIN-RABBIT)=1060 MG/KG.
EYES: CAUSES SEVERE BURNS. MAY CAUSE PERMANENT CORNEAL INJURY, WHICH MAY BE FOLLOWED BY BLINDNESS. HIGH VAPOR CONCENTRATIONS MAY RESULT IN CONJUNCTIVITIS.
PERMISSIBLE CONCENTRATION: AIR (SEE SECTION 10)
OSHA/TWA: 10 PPM
ACGIH/TLV: 10PPM
BIOLOGICAL: NONE ESTABLISHED
UNUSUAL CHRONIC TOXICITY: IRRITATION OF RESPIRATORY TRACT, CHRONIC BRONCHITIS, EROSION OF THE TEETH.

FIRE AND EXPLOSION-
FLASH POINT: 40 DEGREES C (CLOSED CUP)
AUTO IGNITION TEMPERATURE: 426-465 DEGREES C (DATA SOURCES ONLY)
FLAMMABLE LIMITS IN AIR (% BY VOL.): LOWER- 5.4, UPPER- 16.0
UNUSUAL FIRE AND EXPLOSION HAZARDS: SEE HAZARDOUS DECOMPOSITION PRODUCTS, SECTION 7, GIVES OFF FLAMMABLE VAPOR ABOVE ITS FLASH POINT (104 DEGREES F). IT IS DANGEROUS IN CONTACT WITH CHROMIC ACID, SODIUM PEROXIDE, NITRIC ACID OR OTHER OXIDIZING MATERIALS.

SECTION 4: PRECAUTIONS & PROCEDURES

FIRE EXTINGUISHING AGENTS RECOMMENDED: WATER SPRAY, FOAM, CO2, OR DRY CHEMICAL.
FIRE EXTINGUISHING AGENTS TO AVOID: WATER IN A SOLID STREAM WILL SCATTER AND SPREAD FIRE, USE WATER SPRAY.
SPECIAL FIRE FIGHTING PRECAUTIONS: USE WATER SPRAY TO COOL CONTAINERS EXPOSED TO FIRE AND TO PROTECT THOSE INVOLVED IN FIRE-FIGHTING. INVOLVED PERSONNEL SHOULD WEAR SELF-CONTAINED BREATHING APPARATUS AND EYE PROTECTION AND FULL PROTECTIVE CLOTHING, AS NEEDED. WATER MAY BE USED TO DILUTE SPILLED MATERIAL, TO REDUCE FLAMMABILITY AND TO DISSIPATE IRRITATING VAPORS EVOLVING FROM THE FIRE.
VENTILATION: PROVIDE ADEQUATE EXHAUST VENTILATION TO MEET TLV/TWA REQUIREMENTS. LOCAL EXHAUST: FROM FLOOR AND LOW SPACES. MECHANICAL (GENERAL) EXHAUST: FLOOR-MOUNTED FAN OR BLOWER. MATERIAL SHOULD PREFERABLY BE USED IN AN EXHAUSTED HOOD. EQUIPMENT SHOULD BE EXPLOSION-PROOF AND EXHAUST DUCTS SHOULD BE ACID-RESISTANT.
NORMAL HANDLING: AVOID BREATHING VAPORS. AVOID LIQUID OR VAPOR CONTACT EYES, SKIN, OR CLOTHING. USE WITH ADEQUATE VENTILATION. KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME (ALSO, ELECTRICAL EQUIPMENT AND WIRING). WEAR PERSONAL PROTECTIVE EQUIPMENT AS NEEDED.
STORAGE: STORE IN CLOSED CONTAINER IN A WELL-VENTILATED AREA. OUTDOORS OR DETACHED STORAGE IS PREFERRED. KEEP ABOVE ITS FREEZING POINT (62 DEGREES F) TO AVOID RUPTURE OF CARBOYS AND GLASS CONTAINERS DUE TO EXPANSION UPON SOLIDIFICATION. IF FROZEN, THAW BY CAREFULLY MOVING CONTAINER TO WARM AREA.
SPILL OR LEAK (ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT-SECTION 5): PROVIDE ADEQUATE VENTILATION. CLEAN-UP PERSONNEL SHOULD WEAR SELF-CONTAINED BREATHING APPARATUS AND PERSONAL PROTECTIVE EQUIPMENT TO PREVENT LIQUID CONTACT. USE WATER SPRAY TO DISPENSE VAPORS AND PROTECT INVOLVED PERSONNEL AND TO REDUCE FLAMMABILITY. ELIMINATE IGNITION SOURCES. SMALL SPILLS: CAN BE NEUTRALIZED WITH SODA ASH OR SODIUM BICARBONATE. LARGE SPILLS: SHOULD BE CONTAINED AND COLLECTED IN COVERED CONTAINERS, IF POSSIBLE, THEN LABELED FOR EVENTUAL WASTE DISPOSAL.
SPECIAL: PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS: SIGNAL WORD:
DANGER: WATER DILUTED ACID CAN REACT WITH METALS TO PRODUCE HYDROGEN GAS. LABEL INSTRUCTIONS READ: CAUSES SEVERE BURNS. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. COMBUSTIBLE. POISON.

SECTION 5: PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: WHERE VAPORS ARE BELOW 500 PPM, USE A CHEMICAL CARTRIDGE, ORGANIC VAPOR RESPIRATOR WITH FULL FACEPIECE OR A SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE. NIOSH-APPROVED. VAPORS IN 1000 PPM REQUIRE AN AIR-SUPPLIED RESPIRATOR WITH FULL FACE-PIECE. APPROVED BY NIOSH. ESCAPE CONDITIONS CALL FOR NIOSH-APPROVED GAS MASK WITH ORGANIC VAPOR CANISTER OR SELF-CONTAINED BREATHING APPARATUS.
EYE AND FACE: FOR MATERIAL HANDLED NORMALLY IN CLOSED VENTILATED SYSTEM, WEAR SAFETY GLASSES WITH NONPERFORATED SIDE SHIELDS. FOR LEAK, SPILL OR OTHER EMERGENCY, WEAR CHEMICAL SAFETY GOGGLES OR FULL FACE SHIELD TO GUARD AGAINST SPLASHING. DO NOT WEAR CONTACT LENSES UNDER THESE CONDITIONS.
HANDS, ARMS, AND BODY: WEAR IMPERVIOUS GLOVES (RUBBER OR NEOPRENE) AND RUBBER APRON. IN CASE OF LEAK, SPILL OR EMERGENCY SITUATIONS WITH POSSIBILITY OF CONTACT WITH THE MATERIAL, ADD FULL IMPERVIOUS CLOTHING.

OTHER CLOTHING AND EQUIPMENT: RUBBER BOOTS, DEPENDING ON CONDITIONS. EYEWASH STATIONS AND SAFETY SHOWERS SHOULD BE PROVIDED IN AREAS OF USE OR HANDLING. PROVIDE PROTECTIVE CARRIERS FOR HANDLING MATERIAL IN GLASS BOTTLES.

SECTION 6: PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS): LIQUID
APPEARANCE AND ODOR: CLEAR, COLORLESS LIQUID WITH A SOUR, PUNGENT ODOR RESEMBLING VINEGAR.
BOILING POINT: 117.9 DEGREES C (OF 100% ACETIC ACID)
MELTING POINT: 16.7 DEGREES C (OF 100% ACETIC ACID)
VAPOR DENSITY (AIR=1): 2.07
VAPOR PRESSURE (MMHG AT 20 DEGREES C): 11.4
SOLUBILITY IN WATER: COMPLETE
% VOLATILES BY VOLUME (AT 20 DEGREES C): 100
EVAPORATION RATE (ETHER=1): 11.0
SPECIFIC GRAVITY (H2O=1): (LIQUID) 1.05
PH (AQUEOUS SOLUTION): 2.4 @ 1.0M
2.9 @ 0.1M
3.4 @ 0.01M

SECTION 7: REACTIVITY DATA

STABILITY: STABLE
CONDITIONS TO AVOID: NONE
INCOMPATIBILITY (MATERIALS TO AVOID): STRONG OXIDIZING AGENTS, HYDROXIDES, AMINES, OXIDES, CARBONATES. AVOID CONTAMINATION WITH ACETALDEHYDE, CHROMIC ACID AND ALKALIES.
HAZARDOUS DECOMPOSITION PRODUCTS: WE WOULD EXPECT BURNING TO PRODUCE CARBON MONOXIDE AND/OR CARBON DIOXIDE.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.
CONDITIONS TO AVOID: NONE

SECTION 8: HAZARDOUS INGREDIENTS (MIXTURES ONLY)

MATERIAL OR COMPONENT/CAS #: N/A

SECTION 9: ENVIRONMENTAL

DEGRADABILITY/AQUATIC TOXICITY: BOO5 (G/G): 0.34-0.88 STD. DILUTION/SEWAGE SEED.
AQUATIC TOXICITY RATING: TLM96: 100-10PPM TLM96=LETHAL CONCENTRATION (50% KILL) 96 DAYS!
OCTANOL/WATER PARTITION COEFFICIENT: 0.17
ETA HAZARDOUS SUBSTANCE? YES (CLEAN WATER ACT SEC. 311)
IF SO REPORTABLE QUANTITY: 5000# (OF 100% ACETIC ACID) (40 CFR 116-117)
WASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE, AND LOCAL DISPOSAL OR DISCHARGE LAWS): TREATMENT OR DISPOSAL OF WASTE GENERATED BY USE OF THIS PRODUCT SHOULD BE REVIEWED IN TERMS OF APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS. USERS ARE ADVISED TO CONSULT WITH APPROPRIATE REGULATORY AGENCIES BEFORE DISCHARGING, TREATMENT OR DISPOSING OF THIS MATERIAL. WHERE PERMITTED UNDER-MENTIONED REGULATIONS, WASTE MATERIAL CAN BE INCINERATED IN A FURNACE (SUPPLEMENTARY FUEL MAY BE NECESSARY FOR BURNING); OR NEUTRALIZED WASTE DISPOSED OF IN AN APPROVED CHEMICAL WASTES LANDFILL.
RCRA STATUS OF UNUSED MATERIAL IF DISCARDED: NOT A “HAZARDOUS WASTE”.
HAZARDOUS WASTE NUMBER (IF APPLICABLE): N/A (40 CFR 261)

SECTION 10: REFERENCES
PERMISSIBLE CONCENTRATIONS REFERENCES:
TLV: ACGIH 1978-88 LIST, “THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES...”.
NIOSH REGISTRY (RTECS), 1981-82, ACCESSION NO. AF1225000, “ACETIC ACID”
DOT CLASSIFICATION: CORROSIVE MATERIAL I.D. NO. UN2790 (49 CFR 261).

GENERAL:
MERCK INDEX, 10TH ED., 1983
VERSCHUEREN: “HANDBOOK OF ENVIRONMENTAL DATA ON ORGANIC CHEMICALS”, 2ND ED., 1983, VAN NOSTRAND REINHOLD.
US COAST GUARD: CHRIS MANUAL, ENTRY; “ACETIC ACID”.

SECTION 11: ADDITIONAL INFORMATION

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NOT FOR FOOD OR DRUG USE.

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