ALLEGIANCE BUFFERED 10% FORMALIN

RICHARD-ALLAN SCIENTIFIC

Revised: 8/1/2004

MSDS **Material Safety Data Sheet**

MATERIAL SAFETY DATA SHEET

BUFFERED 10% FORMALIN

RICHARD-ALLAN SCIENTIFIC
4481 CAMPUS DRIVE
KALAMAZOO, MICHIGAN 49008
(800) 522-7270 8:00 AM TO 5:00 PM EST

CHEMTREC: (800) 424-9300 24 HOURS SERVICE

1. SUBSTANCE IDENTIFICATION

SUBSTANCE: ALLEGIANCE BUFFERED 10% FORMALIN

CATALOG NUMBERS: C4320-101, C4320-105, 9400-1, 9400-5, 9400-55, 9411, AND 9415

TRADE NAMES/SYNONYMS: FORMALDEHYDE 4% SOLUTION.

CHEMICAL FAMILY: ALDEHYDE, ALIPHATIC

MIXTURE, AQUEOUS

MOLECULAR FORMULA: HCHO

MOLECULAR WEIGHT: 30.03

2. COMPOSITION AND INGREDIENTS INFORMATION

WATER	CAS# 7732-18-5	95.0%
FORMALDEHYDE	CAS# 50-00-0	4.0%
METHANOL	CAS# 67-56-1	<1.0%
MONOBASIC SODIUM PHOSPHATE	CAS# 10049-21-5	<1.0%
DIBASIC SODIUM PHOSPHATE	CAS# 7558-79-4	<1.0%

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4):
HEALTH 2
FIRE 1
REACTIVITY 0

FORMALIN IS A 10% DILUTION OF FORMALDEHYDE 37% SOLUTION WITH BUFFERING SALTS ADDED. THE FORMALDEHYDE CONTENT IS 4% BY WEIGHT. FORMALIN 10% IS A CLEAR, COLORLESS SOLUTION WITH A SLIGHTLY PUNGENT ODOR. TOXIC BY INGESTION DUE TO THE METHANOL INHIBITOR. FORMALDEHYDE IS A KNOWN HUMAN CARCINOGEN (IARC & NTP). FORMALIN IS TOXIC BY INHALATION, TOXIC IF SWALLOWED, MAY BE FATAL IF SWALLOWED, CAUSES EYE BURNS, MAY CAUSE BLINDNESS, STRONG SENSITIZER, CAUSES

IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. REPEATED OR PROLONGED EXPOSURE INCREASES THE CANCER RISK.

PRIMARY ROUTES OF EXPOSURE: INHALATION, INGESTION, SKIN AND EYE CONTACT.

ACUTE EFFECTS:
INGESTION MAY CAUSE BURNING OF THE MOUTH, THROAT AND STOMACH. DEGENERATIVE CHANGES OF THE LIVER, HEART, BRAIN, AND DAMAGE OF THE SPLEEN, PANCREAS, CENTRAL NERVOUS SYSTEM AND KIDNEYS. DEATH CAN OCCUR IN HOURS OR DAYS. ACUTE EFFECTS OF METHANOL CAN CAUSE BLINDNESS AND CENTRAL NERVOUS SYSTEM DEPRAVATION. ACUTE EFFECTS DUE TO INHALATION AND SKIN AND EYE CONTACT RANGE FROM IRRITATION OF EYES, SKIN, AND MUCUS MEMBRANES TO BURNING, DIFFICULTY BREATHING, RESPIRATORY TRACT INJURY, DISCOLORATION OF SKIN, ROUGHNESS AND FIRST DEGREE BURNS. AGGRAVATED SENSITIZATION RESPONSE (EXTREME DIFFICULTY BREATHING, EXTREME RASH AND IRRITATION IS ALSO NOTED).

CHRONIC EFFECTS:
REPEATED INGESTION OF SMALL QUANTITIES MAY CAUSE GASTROINTESTINAL IRRITATION, VISUAL IMPAIRMENT AND BLINDNESS AND OTHER SYSTEMIC EFFECTS. REPEATED EXPOSURE INCREASES THE CANCER RISK, AND CAN ALSO LEAD TO CONJUNCTIVITIS, DERMATITIS, METABOLIC ACIDOSIS, SECOND DEGREE BURNS, NUMBNESS, A PERSISTENT ITCHING RASH, HEADACHES, STOMACH ACHES, SERIOUS RESPIRATORY IMPAIRMENT, KIDNEY INJURY, AND PULMONARY SENSITIZATION. NEUROPSYCHOLOGICAL EFFECTS MAY INCLUDE SLEEP DISORDERS, IRRITABILITY, ALTERED SENSE OF BALANCE, MEMORY DEFICITS, LOSS OF CONCENTRATION AND MOOD ALTERATIONS. MENSTRUAL DISORDERS AND SECONDARY STERILITY HAVE OCCURRED IN WOMEN.

POTENTIAL HEALTH EFFECTS:

INHALATION IS HIGHLY TOXIC SENSITIZER, MAY CAUSE DIFFICULTY IN BREATHING, A BURNING SENSATION IN THE NOSE AND THROAT, AND COUGHING. VERY HIGH CONCENTRATIONS MAY BE FATAL.

EYE CONTACT MAY CAUSE SEVERE EYE BURNS.

SKIN CONTACT MAY CAUSE IRRITATION, RASH OR BURNING SENSATION.

INGESTION:
CAUSES BURNING OF THE MOUTH, THROAT AND STOMACH. MAY CAUSE VOMITING AND DIARRHEA, UNCONSCIOUSNESS AND EVEN DEATH.

4. FIRST-AID PROCEDURES

INHALATION:
REMOVE FROM EXPOSED AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT:
FLUSH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER, OCCASIONALLY LIFTING UPPER AND LOWER LIDS FOR AT LEAST 15-20 MINUTES. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION.

SKIN CONTACT:
REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH EFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER. IF IRRITATION PERSISTS SEEK MEDICAL ATTENTION.

INGESTION:
IF SWALLOWED, IF CONSCIOUS, INDUCE VOMITING BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT. INSURE HEAD IS LOWER THAN HIPS TO PREVENT ASPIRATION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. CALL A

PHYSICIAN IMMEDIATELY.

5. FIREFIGHTING PROCEDURES

FIRE AND EXPLOSION HAZARD:
MODERATE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.
VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK. VAPOR-AIR MIXTURES ARE EXPLOSIVE.

FLASH POINT: >208 DEG. F (TCC)

UPPER EXPLOSIVE LIMIT: 73%
LOWER EXPLOSIVE LIMIT: 7%

FLAMMABILITY CLASS (OSHA): NA

FIRE FIGHTING MEDIA:
DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR REGULAR FOAM (1993 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5). FOR LARGER FIRES, USE WATER SPRAY, FOG OR REGULAR FOAM (1993 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FIRE RESPONSE PROCEDURES:
MOVE CONTAINER FROM FIRE AREA IF YOU CAN DO IT WITHOUT RISK. APPLY COOLING WATER TO SIDES OF CONTAINERS THAT ARE EXPOSED TO FLAMES UNTIL WELL AFTER FIRE IS OUT. EXTINGUISH ONLY IF FLOW CAN BE STOPPED. USE FLOODING AMOUNTS OF WATER AS A FOG, SOLID STREAMS MAY BE INEFFECTIVE. COOL CONTAINERS WITH FLOODING AMOUNTS OF WATER, APPLY FROM AS FAR A DISTANCE AS POSSIBLE. AVOID BREATHING VAPORS, KEEP UPWIND. FIRE FIGHTERS SHOULD WEAR FULL PROTECTIVE CLOTHING AND NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS WITH FULL-FACE PIECE OPERATED IN THE PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE. WATER SPRAY CAN BE USED TO EXTINGUISH FIRES AND COOL FIRE-EXPOSED CONTAINERS. WATER MAY BE USED TO FLUSH SPILLS AWAY FROM EXPOSURES AND TO DILUTE SPILLS TO NON-FLAMMABLE MIXTURES.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
VAPORS ARE EXPLOSIVE AND EXTREMELY TOXIC. FORMALDEHYDE DECOMPOSES IN HEAT OF FIRE RELEASING TOXIC FORMIC ACID.

6. ACCIDENTAL RELEASE PROCEDURES

SMALL SPILL:
SHUT OFF IGNITION SOURCES. DO NOT TOUCH SPILLED MATERIAL. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. DON RESPIRATOR. VENTILATE THE AREA OF SPILL OR LEAK. USE WATER SPRAY TO REDUCE VAPORS. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO SEALED CONTAINERS FOR DISPOSAL.

LARGE SPILLS:
RESTRICT PERSONS NOR WEARING PROTECTIVE EQUIPMENT FROM AREA OF SPILL OR LEAK UNTIL CLEAN UP IS COMPLETE. REMOVE ALL IGNITION SOURCES. TAKE UP SPILLS WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO SEALED CONTAINERS FOR DISPOSAL. VENTILATE AREA OF SPILL OR LEAK AFTER CLEAN-UP IS COMPLETE. FOR A VERY LARGE SPILL, CALL FIRE DEPARTMENT IMMEDIATELY.

REPORTABLE QUANTITY: (RQ) 1000 LBS (FORMALDEHYDE)

THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) SECTION 304 REQUIRES THAT A RELEASE EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THIS SUBSTANCE BE IMMEDIATELY REPORTED TO THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STATE EMERGENCY RESPONSE COMMISSION (40 CFR 355.40). IF THE RELEASE OF THIS SUBSTANCE IS REPORTABLE UNDER CERCLA SECTION 103 (WHICH FORMALDEHYDE IS), THEN THE NATIONAL RESPONSE CENTER MUST ALSO BE NOTIFIED IMMEDIATELY AT

800-424-8882 OR 202-426-2675 IN THE METROPOLITAN WASHINGTON, D.C. AREA
(40 CFR 302.6)

7. HANDLING AND STORAGE

GENERAL HANDLING:
DO NOT GET IN EYES. AVOID CONTACT WITH SKIN AND CLOTHING. AVOID BREATHING MIST OR VAPOR. ONE-GALLON CONTAINERS SHOULD BE STORED IN AN UPRIGHT POSITION TO PREVENT LEAKAGE. FOR FIVE-GALLON CONTAINER, AFTER INSTALLATION, DO NOT REMOVE SPIGOT. STORE WITH SPIGOT IN DOWN POSITION. STORE IN A WELL-VENTILATED PLACE, AWAY FROM SOURCES OF IGNITION AND DIRECT SUNLIGHT. STORE AT 59 DEG. F TO 86 DEG. F (15 DEG. C TO 30 DEG. C). KEEP AWAY FROM HEAT, SPARKS AND FLAME. USE ONLY WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. SINCE EMPTY CONTAINERS RETAIN PRODUCT RESIDUE, ASSUME EMPTIED CONTAINERS TO HAVE THE SAME HAZARD QUALITIES AS FULL CONTAINERS.

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. FOR ASSISTANCE, CONTACT THE DISTRICT DIRECTOR OF THE ENVIRONMENTAL PROTECTION AGENCY.

8. EXPOSURE CONTROL (PERSONAL PROTECTIVE EQUIPMENT)

VENTILATION:
PROVIDE LOCAL EXHAUSTS OR PROCESS ENCLOSURE VENTILATION TO MEET THE PUBLISHED EXPOSURE LIMITS. VENTILATION EQUIPMENT MUST BE EXPLOSION-PROOF AND SHOULD MEET THE REQUIREMENTS IN 29 CFR 1910.1048 (F).

RESPIRATOR:
THE FOLLOWING RESPIRATORS ARE THE MINIMUM LEGAL REQUIREMENTS AS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION FOUND IN 29 CFR 1910, SUBPART Z.

UP TO 7.5 PPM:
FULL FACEPIECE WITH CARTRIDGES OR CANISTERS SPECIFICALLY APPROVED FOR PROTECTION AGAINST FORMALDEHYDE.

EMERGENCIES:
SELF-CONTAINED BREATHING APPARATUS WITH POSITIVE PRESSURE FULL FACEPIECE. COMBINATION SUPPLIED-AIR FULL FACEPIECE POSITIVE PRESSURE RESPIRATOR WITH AUXILIARY SELF-CONTAINED AIR SUPPLY.

FIRE FIGHTING:
SELF-CONTAINED BREATHING APPARATUS WITH POSITIVE PRESSURE IN FULL FACEPIECE.

ESCAPE:
SELF-CONTAINED BREATHING APPARATUS IN DEMAND OR PRESSURE DEMAND MODE. FULL-FACE MASK, FRONT OR BACK MOUNTED TYPE WITH INDUSTRIAL SIZE CANISTER SPECIFICALLY APPROVED FOR PROTECTION AGAINST FORMALDEHYDE.

THE FOLLOWING RESPIRATORS AND MAXIMUM USE CONCENTRATIONS ARE RECOMMENDATIONS BY THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, NIOSH POCKET GUIDE TO CHEMICAL HAZARDS, OR NIOSH CRITERIA DOCUMENTS.

THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION (NIOSH-MSHA).

AT ANY DETECTABLE CONCENTRATION:
ANY SELF-CONTAINED BREATHING APPARATUS THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE. ANY

SUPPLIED-AIR RESPIRATOR THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

FOR FIRE FIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE AND HEALTH CONDITIONS:

ANY SELF-CONTAINED BREATHING APPARATUS THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

ANY SUPPLIED-AIR RESPIRATOR THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

CLOTHING:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE (IMPERVIOUS) CLOTHING AND EQUIPMENT TO PREVENT ANY POSSIBILITY OF SKIN CONTACT WITH THIS SUBSTANCE. PROTECTIVE CLOTHING SHOULD MEET THE REQUIREMENTS FOR PERSONAL PROTECTIVE EQUIPMENT IN 29 CFR 1910.1048(H).

GLOVES:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE. PROTECTIVE GLOVES SHOULD MEET THE REQUIREMENTS FOR PERSONAL PROTECTIVE EQUIPMENT IN 29 CFR 1910.1048(H).

EYE PROTECTION:
EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES AND A FACESHIELD TO PREVENT CONTACT WITH THIS SUBSTANCE. PROTECTIVE GLOVES SHOULD MEET THE REQUIREMENTS FOR PERSONAL PROTECTIVE EQUIPMENT IN 29 CFR 1910.1048 (H).

EMERGENCY WASH FACILITIES:
WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES AND/OR SKIN MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN AND QUICK DRENCH SHOWER WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE. PROTECTIVE EYE EQUIPMENT SHOULD MEET THE REQUIREMENTS FOR PROTECTIVE CLOTHING AND EQUIPMENT IN 29 CFR 1910.1048(H).

EXPOSURE LIMITS:

FORMALDEHYDE:
20 PPM IDLH
0.75 PPM OSHA TWA
2 PPM OSHA 15 MINUTE STEL
0.3 PPM ACGIH C
0.5 PPM (0.6 MG/M3) DFG MAK TWA
1 PPM (1.2 MG/M3) DFG MAK 5 MINUTE PEAK, MOMENTARY VALUE, 8 TIMES/SHIFT

MEASUREMENT METHOD:
PARTICULATE FILTER/IMPINGER (2)
VISIBLE SPECTROPHOTOMETRY
(NIOSH VOL. III #3500).

ALSO:
XAD-2(R) TUBE
TOLUENE
GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION
(NIOSH VOL. III #2541).

METHYL ALCOHOL (METHANOL):
200 PPM (260 MG/M3) OSHA TWA (SKIN)

250 PPM (328 MG/M3) OSHA STEL

200 PPM (260 MG/M3) ACGIH TWA (SKIN)
250 PPM (328 MG/M3) ACGIH STEL

200 PPM (260 MG/M3) NIOSH RECOMMENDED TWA (SKIN)
250 PPM (325 MG/M3) NIOSH RECOMMENDED STEL

200 PPM (262 MG/M3) DFG MAK TWA (SKIN)
400 PPM (524 MG/M3) DFG MAK 30 MINUTE PEAK, AVERAGE VALUE, 4 TIMES/SHIFT

MEASUREMENT METHOD:
SILICA GEL TUBE
WATER
GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION (NIOSH VOL. III #2000, METHANOL).

9. PHYSICAL AND CHEMICAL PROPERTIES

DESCRIPTION: COLORLESS LIQUID WITH A SLIGHTLY PUNGENT ODOR.

M.W.: 30.03

MELTING POINT: 0 DEG. C (ESSENTIALLY SAME AS WATER)

BOILING POINT: 212 DEG. F (100 DEG. C)

SPECIFIC GRAVITY: CA. 1.0

VAPOR PRESSURE: ABOUT 25 MM/Hg

pH: 6.9-7.1

VAPOR DENSITY: ESSENTIALLY LIKE WATER

SOLUBILITY IN WATER: COMPLETE

FLASH POINT: >200 DEG. F

10. STABILITY AND REACTIVITY INFORMATION

REACTIVITY:
FORMALDEHYDE SOLUTIONS ARE STABLE IN CLOSED CONTAINERS UNDER NORMAL TEMPERATURES AND PRESSURES; MAY OXIDIZE SLOWLY ON EXPOSURE TO AIR.

INCOMPATIBILITIES:

ACETYL BROMIDE: VIOLENT REACTION WITH FORMATION OF HYDROGEN BROMIDE.

ALKYL ALUMINUM SOLUTIONS: VIOLENT REACTION.

ALUMINUM: CORRODES.

BARIUM PERCHLORATE: DISTILLATION YIELDS HIGHLY EXPLOSIVE ALKYL PERCHLORATE.

BERYLLIUM HYDRIDE: VIOLENT REACTION, EVEN AT -196 DEG. C.

BROMINE: VIGOROUSLY EXOTHERMIC REACTION.

CALCIUM CARBIDE: VIOLENT REACTION.

CHLORINE: POSSIBLE IGNITION AND EXPLOSION HAZARD.

CHLOROFORM AND SODIUM HYDROXIDE: EXPLOSIVE REACTION.

CHROMIUM TRIOXIDE (CHRONIC ANHYDRIDE): POSSIBLE IGNITION.

CYANURIC CHLORIDE: VIOLENT REACTION.

DICHLOROMETHANE: POSSIBLE IGNITION AND EXPLOSION.

DIETHYL ZINC: POSSIBLE IGNITION AND EXPLOSION.

HYDROGEN PEROXIDE + WATER: EXPLOSION HAZARD.

IODINE + ETHANOL + MERCURIC OXIDE: EXPLOSION HAZARD.

LEAD: CORRODES.

LEAD PERCHLORATE: EXPLOSION HAZARD.

MAGNESIUM: VIOLENT REACTION.

MAGNESIUM CARBONATE: POSSIBLE VIOLENT REACTION.

MAGNESIUM (POWDERED): MIXTURES ARE CAPABLE OF DETONATION.

METALS: INCOMPATIBLE.

NICKEL: POSSIBLE IGNITION IN THE PRESENCE OF NICKEL CATALYST.

NITRIC ACID (CONCENTRATED):
MIXTURES OF GREATER THAN 25% ACID MAY DECOMPOSE VIOLENTLY.

NITROMETHANE: VIOLENT REACTION.

NOx: MAY FORM EXPLOSIVE REACTION.

OXIDIZERS (STRONG): FIRE AND EXPLOSION HAZARD.

PERCHLORIC ACID: EXPLOSION HAZARD.

PERFORMIC ACID: POSSIBLE VIOLENT REACTION.

PHOSPHOROUS TRIOXIDE: POSSIBLE VIOLENT REACTION AND IGNITION.

PLASTICS, RUBBER, COATINGS: MAY BE ATTACKED.

POTASSIUM: POSSIBLE DANGEROUS REACTION.

POTASSIUM HYDROXIDE + CHLOROFORM: EXOTHERMIC REACTION.

POTASSIUM TERT-BUTOXIDE: FIRE AND EXPLOSION HAZARD.

SODIUM + CHLOROFORM: POSSIBLE EXPLOSION.

SODIUM HYPOCHLORITE: EXPLOSION HAZARD.

SODIUM METHOXIDE + CHLOROFORM: VIOLENT REACTION.

SULFURIC ACID: FIRE AND EXPLOSION HAZARD.

ZINC: EXPLOSION HAZARD.

DECOMPOSITION:
THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE UNBURNED FORMALDEHYDE AND OTHER TOXIC PRODUCTS OF ORGANIC SUBSTANCES.

POLYMERIZATION: HAZARDOUS POLYMERIZATION WILL NOT OCCUR.

11. TOXICOLOGICAL INFORMATION

FORMALDEHYDE:

IRRITATION DATA:
150 (MICRO)G/3 DAYS INTERMITTENT SKIN-HUMAN MILD
2 MG/24 HOURS SKIN-RABBIT SEVERE
540 MG OPEN SKIN-RABBIT MILD
50 MG/24 HOURS SKIN-RABBIT MODERATE
4 PPM/5 MINUTES EYE-HUMAN
1 PPM/6 MINUTES NONSTANDARD EXPOSURE EYE-HUMAN MILD
750 (MICRO)G/24 HOURS EYE-RABBIT SEVERE
750 (MICRO)G EYE-RABBIT SEVERE
10 MG EYE-RABBIT SEVERE.

TOXICITY DATA:
17 MG/M3/30 MINUTES INHALATION-HUMAN TCLO
300 (MICRO)G/M3 INHALATION-MAN TCLO
203 MG/M3 INHALATION-RAT LC50
400 MG/M3/2 HOURS INHALATION-MOUSE LC50
400 MG/M3/2 HOURS INHALATION-CAT LCLO
92 MG/M3 INHALATION-MAMMAL LC50
270 MG/KG SKIN-RABBIT LD50
108 MG/KG ORAL-WOMAN LDLO
100 MG/KG ORAL-RAT LD50
42 MG/KG ORAL-MOUSE LD50
260 MG/KG ORAL-GUINEA PIG LD50
420 MG/KG SUBCUTANEOUS-RAT LD50
300 MG/KG SUBCUTANEOUS-MOUSE LD50
350 MG/KG SUBCUTANEOUS-DOG LDLO
240 MG/KG SUBCUTANEOUS-RABBIT LDLO
87 MG/KG INTRAVENOUS-RAT LD50
48 MG/KG INTRAVENOUS-RABBIT LDLO
30 MG/KG INTRAVENOUS-CAT LDLO
70 MG/KG INTRAVENOUS-DOG LDLO
16 MG/KG INTRAPERITONEAL-MOUSE LDLO
477 MG/KG UNREPORTED-MAN LDLO
800 MG/KG PARENTERAL-FROG LDLO
MUTAGENIC DATA (RTECS)
REPRODUCTIVE EFFECTS DATA (RTECS)
TUMORIGENIC DATA (RTECS).

CARCINOGEN STATUS:
OSHA CARCINOGEN; ANTICIPATED HUMAN CARCINOGEN (NTP); HUMAN LIMITED EVIDENCE, ANIMAL SUFFICIENT EVIDENCE (IARC-GROUP 2A). EPIDEMIOLOGICAL STUDIES AND CASE REPORTS INDICATE AN EXCESS OCCURRENCE OF A NUMBER OF CANCERS, BUT EVIDENCE FOR INVOLVEMENT OF FORMALDEHYDE IS STRONGEST FOR NASAL AND NASOPHARYNGEAL CANCER. A SIGNIFICANT INCIDENCE OF SQUAMOUS CELL CARCINOMA OF THE NASAL CAVITY WAS INDUCED IN RATS EXPOSED TO FORMALDEHYDE GAS.

LOCAL EFFECTS: CORROSIVE-INHALATION, SKIN, EYE, INGESTION.

ACUTE TOXICITY LEVEL:
HIGHLY TOXIC BY INHALATION; TOXIC BY DERMAL ABSORPTION AND INGESTION.

TARGET EFFECTS:

SENSITIZER-RESPIRATORY, DERMAL. POISONING MAY ALSO AFFECT THE KIDNEYS.

AT INCREASED RISK FROM EXPOSURE:
PERSONS WITH ASTHMA, CHRONIC SKIN DISEASE OR PREEXISTING LUNG DISEASE.

METHYL ALCOHOL (METHANOL):

IRRITATION DATA:
20 MG/24 HOURS SKIN-RABBIT MODERATE
40 MG EYE-RABBIT MODERATE
100 MG/24 HOURS EYE-RABBIT MODERATE.

TOXICITY DATA:
86,000 MG/M3 INHALATION-HUMAN TCLO
300 PPM INHALATION-HUMAN TCLO
64,000 PPM/4 HOURS INHALATION-RAT LC50
1000 PPM INHALATION-MONKEY LCLO
50 MG/M3/2 HOURS INHALATION-MOUSE LCLO
44,000 MG/M3/6 HOURS INHALATION-CAT LCLO
15,800 MG/KG SKIN-RABBIT LD50
393 MG/KG SKIN-MONKEY LDLO
428 MG/KG ORAL-HUMAN LDLO
143 MG/KG ORAL-HUMAN LDLO
6422 MG/KG ORAL-MAN LDLO
3429 MG/KG ORAL-MAL TDLO
4 MG/KG ORAL-WOMAN TDLO
7 MG/KG ORAL-MONKEY LD50
5628 MG/KG ORAL-RAT LD50
7300 MG/KG ORAL-MOUSE LD50
14,000 MG/KG ORAL-RABBIT LD50
7500 MG/KG ORAL-DOG LDLO
9800 MG/KG SUBCUTANEOUS-MOUSE LD50
2131 MG/KG INTRAVENOUS-RAT LD50
4710 MG/KG INTRAVENOUS-MOUSE LD50
8907 MG/KG INTRAVENOUS-RABBIT LD50
4641 MG/KG INTRAVENOUS-CAT LDLO
7529 MG/KG INTRAPERITONEAL-RAT LD50
10,765 MG/KG INTRAPERITONEAL-MOUSE LD50
1826 MG/KG INTRAPERITONEAL-RABBIT LD50
3556 MG/KG INTRAPERITONEAL-GUINEA PIG LD50
8555 MG/KG INTRAPERITONEAL-HAMSTER LD50
868 MG/KG UNREPORTED-MAN LDLO
MUTAGENIC DATA (RTECS)
REPRODUCTIVE EFFECTS DATA (RTECS).

CARCINOGEN STATUS: NONE.

LOCAL EFFECTS: IRRITANT-SKIN, EYE.

ACUTE TOXICITY LEVEL:
SLIGHTLY TOXIC BY INHALATION, DERMAL ABSORPTION, AND INGESTION.

TARGET EFFECTS: CENTRAL NERVOUS SYSTEM DEPRESSANT; NEUROTOXIN.

AT INCREASED RISK FROM EXPOSURE: PERSONS WITH KIDNEY EYE OR SKIN DISORDERS.

12. ECOLOGICAL INFORMATION

FORMALDEHYDE HAS HIGH ACUTE TOXICITY TO AQUATIC LIFE. INSUFFICIENT DATA ARE AVAILABLE TO EVALUATE OR PREDICT THE SHORT-TERM EFFECTS OF FORMALDEHYDE TO PLANTS, BIRDS, OR LAND ANIMALS.

CHRONIC TOXIC EFFECTS MAY INCLUDE SHORTENED LIFESPAN, REPRODUCTIVE PROBLEMS, LOWER FERTILITY, AND CHANGES IN APPEARANCE OR BEHAVIOR. CHRONIC EFFECTS CAN BE SEEN LONG AFTER FIRST EXPOSURE TO A TOXIC CHEMICAL.(AQUIRE DATABASE, ERL-DULUTH, U.S. EPA., PHYTOTOX).

13. DISPOSAL GUIDELINES

RCRA: NOT REGULATED AS A HAZARDOUS WASTE

THE INFORMATION OFFERED HEREIN IS FOR THE PRODUCT AS SHIPPED. USE AND/OR ALTERATIONS TO THE PRODUCT SUCH AS MIXING WITH OTHER MATERIALS MAY SIGNIFICANTLY CHANGE THE CHARACTERISTICS OF THE MATERIAL AND ALTER THE RCRA CLASSIFICATION AND THE PROPER DISPOSAL METHOD.

14. TRANSPORT INFORMATION

NOT REGULATED BY DOMESTIC GROUND TRANSPORTATION. REGULATED BY AIR TRANSPORTATION AS FOLLOWS.
AVIATION REGULATED LIQUID, NOS, (FORMALIN) UN3334, 9

15. REGULATORY INFORMATION

SARA TITLE III (SUPERFUND AMENDMENT AND REAUTHORIZATION ACT):

SECTION 302 AND 304:
EXTREMELY HAZARDOUS SUBSTANCE LIST (40 CFR 355): LISTED

SECTION 311:
HAZARD CATEGORIZATION (40 CFR 370): ACUTE, CHRONIC, AND FIRE

SECTION 313:
TOXIC CHEMICALS LISTING (40 CFR 372.65): LISTED AS A TOXIC CHEMICAL

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT):
SECTION 102(A) HAZARDOUS SUBSTANCES (40 CFR 302.4): LISTED
REPORTABLE QUANTITY: 1,000 POUNDS.
SECTION 101(14) REPORTABLE QUANTITY: 1,000 LBS

RCRA (RESOURCE CONSERVATION AND RECOVERY ACT.):
40 CFR 261.33 HAZARDOUS WASTE NUMBER: U122

NJ-RTK (NEW JERSEY- STATE RIGHT TO KNOW):
ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST: LISTED
SUBSTANCE #: 0946

TSCA (TOXIC SUBSTANCE CONTROL ACT): LISTED AS A TOXIC SUBSTANCE

OTHER REGULATORY INFORMATION:
500 POUNDS SARA SECTION 302 THRESHOLD PLANNING QUANTITY
1000 POUNDS SARA SECTION 304 REPORTABLE QUANTITY
100 POUNDS CERCLA SECTION 103 REPORTABLE QUANTITY
SUBJECT TO SARA SECTION 313 ANNUAL TOXIC CHEMICAL RELEASE REPORTING
SUBJECT TO CALIFORNIA PROPOSITION 65 CANCER AND/OR REPRODUCTIVE TOXICITY WARNING AND RELEASE REQUIREMENTS- (JANUARY, 1988)

16. OTHER INFORMATION

BUFFERED 10% FORMALIN, AS MANUFACTURED BY RICHARD-ALLAN SCIENTIFIC, IS

INTENDED FOR LEGAL USE IN LABORATORIES AND MANUFACTURING ENVIRONMENTS.

S/P BUFFERED 10% FORMALIN

REVISION: AUGUST 2004