MATERIAL SAFETY DATA SHEET

PRODUCT: FORMALDEHYDE 37% (METHANOL 14%)
(FOR INDUSTRIAL USE ONLY)

EMERGENCY ASSISTANCE

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL:

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

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

DESCRIPTION: FORMALDEHYDE 37% (W/METHANOL 14%)
PRODUCT TYPE: FORMALDEHYDE SOLUTION
APPLICATION: GENERAL PURPOSE

MANUFACTURER/SUPPLIER INFORMATION

BORDEN CHEMICAL, INC.
155 WEST A STREET, BLDG. A-1
SPRINGFIELD, OR 97477

EMERGENCY PHONE NUMBER

POISON CONTROL CENTER
1-800-228-5635 EXT. 261

FOR ADDITIONAL HEALTH, SAFETY, OR REGULATORY INFORMATION, CALL 541-744-3256.

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

% BY WEIGHT
50-00-0 *FORMALDEHYDE 30 – 50
67-56-1 *METHANOL 10 – 30

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

APPEARANCE: LIQUID
ODOR: PUNGENT

WARNING
COMBUSTIBLE
HARMFUL IF INHALED.
CAN CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION.
CAUSES CHEMICAL BURNS TO EYES.
MAY BE HARMFUL IF ABSORBED THROUGH SKIN.
SKIN IRRITANT.
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK, 1996, NO: 132

HMIS RATING
HEALTH = 3 (SERIOUS)
FLAMMABILITY = 2 (MODERATE)
REACTIVITY = 1 (SLIGHT)
CHRONIC = *

3.2 POTENTIAL HEALTH EFFECTS

GOLDEN PACIFIC QUALITY PRODUCTS, HAYWARD, CA 94545
IMMEDIATE HAZARDS:

INGESTION: MAY BE HARMFUL IF SWALLOWED. IF ACCIDENTALLY SWALLOWED, BURNS OR IRRITATION TO MUCOUS MEMBRANES, ESOPHAGUS OR GI TRACT CAN RESULT. INGESTION MAY CAUSE BLINDNESS. CAN CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION.

INHALATION: HARMFUL IF INHALED. CAN CAUSE IRRITATION OF NOSE, THROAT AND LUNGS. CAN CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION.

SKIN: MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN. CAUSES IRRITATION.

EYES: CAUSES CHEMICAL BURNS.

METHANOL  67-56-1
CAN CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION. SIGNS AND SYMPTOMS MAY INCLUDE HEADACHE, DIZZINESS, NAUSEA, VOMITING, UNCONSCIOUSNESS AND ASPHYXIATION. REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OCCUPATIONAL OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE.

DELAYED HAZARDS:

FORMALDEHYDE  50-00-0
POTENTIAL CANCER HAZARD
RATS CHRONICALLY EXPOSED TO 14 PPM FORMALDEHYDE CONTRACTED NASAL CANCERS. BASED ON ANIMAL DATA AND LIMITED EPIDEMIOLOGICAL EVIDENCE, NTP AND IARC HAVE LISTED FORMALDEHYDE AS A PROBABLE HUMAN CARCINOGEN. OSHA REGULATES FORMALDEHYDE AS A POTENTIAL HUMAN CARCINOGEN.

MAY CAUSE ALLERGIC REACTION. SOME REPORTS SUGGEST THAT FORMALDEHYDE MAY CAUSE RESPIRATORY SENSITIZATION, SUCH AS ASTHMA, AND THAT PRE-EXISTING RESPIRATORY AND SKIN DISORDERS MAY BE AGGRAVATED BY EXPOSURE.

OSHA HAS IDENTIFIED 0.5 PPM AS THE “ACTION LEVEL”, 29 CFR 1910.1048. PLEASE REFER TO THE OSHA STANDARD FOR GUIDANCE APPLICABLE TO YOUR SPECIFIC OPERATIONS.

METHANOL  67-56-1
DELAYED HAZARDS
POSSIBLE REPRODUCTIVE DISORDERS FROM PROLONGED EXPOSURE. MAY CAUSE LUNG DAMAGE BASED ON ANIMAL DATA. PRE-EXISTING RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE. MAY CAUSE LIVER DAMAGE BASED ON ANIMAL DATA. MAY CAUSE KIDNEY DAMAGE BASED ON ANIMAL DATA. MAY CAUSE BLINDNESS IF SWALLOWED. --SEE FOOTNOTE C.

FOOTNOTE C: AS OF THE DATE OF ISSUANCE OF THIS DOCUMENT, THIS MATERIAL HAS NOT BEEN LISTED BY NTP, CLASSIFIED BY IARC NOR REGULATED BY OSHA AS A CARCINOGEN.

SECTION 4: FIRST AID MEASURES

INGESTION: IF ACCIDENTALLY SWALLOWED, DILUTE BY DRINKING LARGE QUANTITIES OF WATER. IMMEDIATELY CONTACT POISON CONTROL CENTER OR HOSPITAL EMERGENCY ROOM FOR ANY OTHER ADDITIONAL TREATMENT DIRECTIONS.

INHALATION: IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH – TO – MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN: IMMEDIATELY REMOVE ALL CONTAMINATED CLOTHING, INCLUDING SHOES. WASH THE AFFECTED AREA OF THE BODY WITH SOAP OR MILD DETERGENT AND LARGE
QUANTITIES OF WATER FOR AT LEAST TWENTY MINUTES. CONTACT A PHYSICIAN IF IRRITATION PERSISTS. IF THERE ARE CHEMICAL BURNS, COVER THE AREA WITH STERILE, DRY DRESSINGS AND GET MEDICAL ATTENTION IMMEDIATELY.

EYES: IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST FIFTEEN MINUTES. EYELIDS SHOULD BE HELD APART DURING IRRIGATION TO ENSURE WATER CONTACT WITH ENTIRE SURFACE OF EYE AND LIDS. GET MEDICAL ATTENTION IMMEDIATELY.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: 62.2 C (144 F) TAC CC
FLASH POINT (SETA): 61.1 C (142 F)
LOWER EXPLOSION LIMIT: APPROX. 7%
UPPER EXPLOSION LIMIT: APPROX. 70%
AUTOIGNITION TEMPERATURE: ABOUT 420 C

COMBUSTIBLE
KEEP AWAY FROM HEAT AND FLAME.
IN CASE OF FIRE, USE WATER SPRAY, DRY CHEMICAL, “ALCOHOL” FOAM OR CO2. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ALWAYS WEAR APPROPRIATE PROTECTIVE EQUIPMENT. ELIMINATE ALL IGNITION SOURCES AND VENTILATE THE AREA TO REDUCE THE POTENTIAL FOR EXPOSURE, FIRE AND EXPLOSION. RECOVER AND REUSE AS MUCH LIQUID AS POSSIBLE. LARGE QUANTITIES: ENCLOSURE WITH DIKING MATERIAL TO PREVENT SEEPAGE INTO SEWER SYSTEMS, SURFACE/GROUND WATER OR NATURAL BODIES OF WATER. IF POSSIBLE NEUTRALIZE WITH DILUTE (5%) SOLUTIONS OF AMMONIUM HYDROXIDE, SODIUM HYDROXIDE, SODIUM BISULFITE OR SODIUM SULFITE. SMALL QUANTITIES: SOAK UP WITH ABSORBENT MATERIAL (VERMICULITE, DRY SAND, EARTH) AND REMOVE TO A CHEMICAL DISPOSAL AREA. FOLLOW ALL EMERGENCY NOTIFICATION AND REPORTING REGULATIONS.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING
HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICES. THESE PRACTICES INCLUDE AVOIDING UNNECESSARY EXPOSURE AND REMOVAL OF THE MATERIAL FROM EYES, SKIN, AND CLOTHING. WASH THOROUGHLY AFTER HANDLING.

INHALATION: DO NOT BREATHE VAPOR. USE WITH ADEQUATE VENTILATION.
SKIN: AVOID CONTACT WITH SKIN AND CLOTHING.
EYES: DO NOT GET IN EYES.

7.2 STORAGE
STORAGE TEMPERATURE DEPENDS ON METHANOL CONTENT AND SHOULD BE CONTROLLED TO AVOID PRECIPITATION OR VAPORIZATION. SEE TECHNICAL BULLETIN FOR RECOMMENDED STORAGE TEMPERATURES. REMOVE PLUG SLOWLY TO RELIEVE PRESSURE.
FORMALDEHYDE SOLUTIONS WILL START TO PRECIPITATE PARAFORMALDEHYDE IF STORED BELOW THEIR RECOMMENDED STORAGE TEMPERATURES MAKING THE FREEZING POINT DIFFICULT TO DETERMINE.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 EXPOSURE CONTROLS

ENGINEERING CONTROLS: THE FOLLOWING EXPOSURE CONTROL TECHNIQUES MAY BE USED TO EFFECTIVELY MINIMIZE EMPLOYEE EXPOSURE: LOCAL EXHAUST, VENTILATION, ENCLOSED SYSTEM DESIGN, PROCESS ISOLATION AND REMOTE CONTROL IN COMBINATION WITH APPROPRIATE USE OF PERSONAL PROTECTIVE EQUIPMENT AND
PRUDENT WORK PRACTICES. THESE TECHNIQUES MAY NOT NECESSARILY ADDRESS ALL
ISSUES PERTAINING TO YOUR OPERATIONS. WE, THEREFORE, RECOMMEND THAT YOU
CONSULT WITH EXPERTS OF YOUR CHOICE TO DETERMINE WHETHER OR NOT YOUR
PROGRAMS ARE ADEQUATE.
IF AIRBORNE CONTAMINANTS ARE GENERATED WHEN THE MATERIAL IS HEATED OR
HANDLED, SUFFICIENT VENTILATION IN VOLUME AND AIR FLOW PATTERNS SHOULD BE
PROVIDED TO KEEP AIR CONTAMINANT LEVELS BELOW ACCEPTABLE CRITERIA.

8.2 PERSONAL PROTECTION

WHERE AIR CONTAMINANTS CAN EXCEED ACCEPTABLE CRITERIA, USE NIOSH/MSHA
APPROVED FULL FACEPIECE RESPIRATORY PROTECTION EQUIPMENT. RESPIRATORS
SHOULD BE SELECTED BASED ON THE FORM AND CONCENTRATIONS OF CONTAMINANTS
IN AIR IN ACCORDANCE WITH OSHA 29CFR 1910.1048(G) RESPIRATORY PROTECTION, OSHA
29CFR 1910.134 OR OTHER APPLICABLE STANDARDS OR GUIDELINES. INCLUDING ANSI
STANDARDS REGARDING RESPIRATORY PROTECTION. WEAR CHEMICAL SPLASH
GOGGLES OR SOME OTHER TYPE OF COMPLETE PROTECTION FOR THE EYE IF CONTACT IS
LIKELY. WEAR PROTECTIVE (IMPERVIOUS) GLOVES AS REQUIRED TO PREVENT SKIN
CONTACT. WHERE HIGH CONCENTRATIONS OF HAZARDOUS INGREDIENTS MAY BE
PRESENT, SUCH AS IN AN EMERGENCY, FULL BODY PROTECTION SHOULD BE WORN.

OTHER PROTECTIVE EQUIPMENT: EYE WASH FOUNTAIN, SAFETY SHOWER.
REUSEABLE PROTECTIVE CLOTHING SHOULD BE CLEANED AND VENTILATED AFTER ANY
FORMALDEHYDE CONTAMINATION.

SEE OSHA 29CFR 1910.1048(H) PROTECTIVE EQUIPMENT AND CLOTHING AND OSHA 29CFR
1910.1048(I) HYGIENE PROTECTION FOR OTHER SPECIFIC REQUIREMENTS BASED ON THE
FORM OF FORMALDEHYDE, THE CONDITIONS OF USE AND THE HAZARDS TO BE
PREVENTED.

8.3 EXPOSURE GUIDELINES

FORMALDEHYDE  50-00-0
ACGIH TLV: 0.3 PPM (0.37 MG/M3) CEILING A2 – SEE APPENDIX A
OSHA PEL: 0.75 PPM (0.9 MG/M3) TWA; 2 PPM (2.5MG/M3) 15MIN STEL

METHANOL  67-56-1
ACGIH TLV: SKIN – 200 PPM (262 MG/M3) TWA; 250 PPM (328 MG/M3) STEL
OSHA PEL: 200 PPM (260 MG/M3) TWA
REMANDED PEL: SKIN – 200 PPM (260 MG/M3) TWA; 250 PPM (310 MG/M3) STEL
OSHA 1989 PEL REMANDED, BUT IN EFFECT IN SOME STATES.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: COLORLESS, LIQUID
ODOR: PUNGENT
ODOR THRESHOLD: NOT AVAILABLE
SPECIFIC GRAVITY: 1.0775-1.0865
PH: 2.5-3.6
FREEZING POINT: SEE STORAGE SECTION
SOLUBILITY IN WATER: INFINITE
OCTANOL/WATER PARTITION COEFFICIENT: NOT AVAILABLE
VAPOR PRESSURE @ 25C: ABOUT 40 MM/HG 39C
VAPOR DENSITY (AIR=1): ABOUT 1
EVAPORATION RATE (BUTYL ACETATE=1): SIMILAR TO WATER
BOILING POINT: ABOUT 100 C

SECTION 10: STABILITY AND REACTIVITY
NORMALLY STABLE, BUT MAY FURTHER REACT AT HIGH TEMPERATURES TO FORM METHANOL, FORMIC ACID, OR MethylalS. AT LOW TEMPERATURES WILL SELF-POLYMERIZE TO FORM PARAFORMALDEHYDE.

**INCOMPATIBILITIES:** REACTS WITH MANY COMPOUNDS. REACTION WITH PHENOL, STRONG ACIDS, OR ALKALIS MAY BE VIOLENT. REACTION WITH HYDROCHLORIC ACID MAY FORM BIS-CHLOROMETHYL ETHER, AN OSHA REGULATED CARCINOGEN.

**DECOMPOSITION PRODUCTS INCLUDE:** CO, CO2

**HAZARDOUS POLYMERIZATION:** WILL NOT OCCUR

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**SECTION 11: TOXICOLOGICAL INFORMATION**

SEE SECTION 3 HAZARDS IDENTIFICATION INFORMATION.

**FORMALDEHYDE** 50-00-0

LC50: RAT = 203 MG/M3 (RTECS)
LD50: ORAL-RAT = 0.8 G/KG (MERCK); SKIN-RABBIT = 20 G/KG (SAX)

**METHANOL** 67-56-1

LC50: RAT = 64000 PPM/4H (SAX)
LD50: ORAL-RAT = 5628 MG/KG; SKIN-RABBIT = 20 G/KG (SAX)

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**SECTION 12: ECOLOGICAL INFORMATION**

FORMALDEHYDE IS HIGHLY TOXIC TO ALGAE, PROTOZOA, AND OTHER UNICELLULAR ORGANISMS AND SLIGHTLY TOXIC TO FISH. IN THE ATMOSPHERE THE MATERIAL IS RAPIDLY DEGRADED BY PHOTOLYSIS AND PHOTOOXIDATION. FORMALDEHYDE IS MOBILE IN THE SOIL. IN WATER OR SOIL, FORMALDEHYDE IS BIODEGRADED IN A FEW DAYS. EXPERIMENTS PERFORMED ON A VARIETY OF FISH AND SHRIMP SHOW NO BIOCONCENTRATION OF FORMALDEHYDE.

**ECOTOXICITY:**

ALGAE (SCENEDESMUS): TOXIC: 0.3-0.5 MG/1

ARTHROPODA (DAPHNIA): TOXIC: 2 MG/1

FISH (GUPPIES): TLM = 50-200 MG/1

**ENVIRONMENTAL FATE:**

BOD5 = 60% OF THOD
= 0.6-1.07 STANDARD DILUTION AT <260 MG/1

**OCTANOL/WATER PARTITION COEFFICIENT** = 0.35 (LKOW)

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**SECTION 13: DISPOSAL CONSIDERATIONS**

RECOVER FREE LIQUID. ABSORB RESIDUE AND DISPOSE OF ACCORDING TO LOCAL, STATE/PROVINCIAL, AND FEDERAL REQUIREMENTS.

EMPTY CONTAINER: MAY CONTAIN EXPLOSIVE VAPORS. DO NOT CUT, PUNCTURE, OR WELD ON OR NEARBY.

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**SECTION 14: TRANSPORT INFORMATION**

**14.1 U.S. DEPARTMENT OF TRANSPORTATION (DOT)**

THE DATA PROVIDED IN THIS SECTION IS FOR INFORMATION ONLY AND MAY NOT BE SPECIFIC TO YOUR PACKAGE SIZE. YOU WILL NEED TO APPLY THE APPROPRIATE REGULATIONS TO PROPERLY CLASSIFY YOUR SHIPMENT FOR TRANSPORTATION.

FORMALDEHYDE, SOLUTIONS, 8, UN2209, III, RQ FORMALDEHYDE/METHANOL, NA ERG(1996) : 132

**14.2 CANADIAN TRANSPORTATION OF DANGEROUS GOODS (TDG)**

FORMALDEHYDE SOLUTIONS
SECTION 15: REGULATORY INFORMATION

15.1 U.S. FEDERAL REGULATIONS
OSHA HAZARD COMMUNICATION STANDARD 29CFR 1910.1200
THIS MATERIAL IS A “HEALTH HAZARD” AND/OR A “PHYSICAL HAZARDS” AS
DETERMINED WHEN REVIEWED ACCORDING TO THE REQUIREMENTS OF THE
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION 29 CFR PART 1910.1200 “HAZARD
COMMUNICATION” STANDARD.

SARA TITLE III: SECTION 311/312
FIRE HAZARD
IMMEDIATE HEALTH HAZARD
DELAYED HEALTH HAZARD

SARA TITLE III SECTION 313 AND 40 CFR PART 372
THIS PRODUCT CONTAINS THE FOLLOWING TOXIC CHEMICAL(S) SUBJECT TO THE
REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND
AMENDMENTS AND REAUTHORIZATION ACT OF 1986, AND SUBPART C- SUPPLIER
NOTIFICATION REQUIREMENTS OF 40 CFR PART 372.
FORMALDEHYDE 50-00-0 37.00%
METHANOL 67-56-1 13.98%

TSCA SECTION 8(B) INVENTORY
ALL REPORTABLE CHEMICAL SUBSTANCES ARE LISTED ON THE TSCA INVENTORY.
WE RELY ON CERTIFICATIONS OF COMPLIANCE FROM OUR SUPPLIERS FOR CHEMICAL
SUBSTANCES NOT MANUFACTURED BY VENDOR OR MANUFACTURER.

15.2 CANADIAN REGULATIONS
WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)
THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF
THE CONTROLLED PRODUCTS REGULATION (CPR) AND THE MSDS CONTAINS ALL THE
INFORMATION REQUIRED BY THE CPR.
CLASS D, DIV 1A
CLASS D, DIV 2A, 2B
CLASS B, DIV 3

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
ALL REPORTABLE CHEMICAL SUBSTANCES ARE LISTED ON THE DOMESTIC SUBSTANCES
LIST (DSL) OR OTHERWISE COMPLY WITH CEPA NEW SUBSTANCE NOTIFICATION
REQUIREMENTS.

NATIONAL POLLUTANT RELEASE INVENTORY (NPRI)
THIS PRODUCT CONTAINS THE FOLLOWING CHEMICAL(S) SUBJECT TO THE REPORTING
REQUIREMENTS OF THE CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
SUBSECTION 16(1), NATIONAL POLLUTANT RELEASE INVENTORY.
FORMALDEHYDE 50-00-0 37.00%
METHANOL 67-56-1 13.98%

SECTION 16: OTHER INFORMATION

USER’S RESPONSIBILITY
HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) REQUIRE THAT THE
INFORMATION CONTAINED ON THESE SHEETS BE MADE AVAILABLE TO YOUR WORKERS.
EDUCATE AND TRAIN YOUR WORKERS REGARDING OSHA AND WHMIS PRECAUTIONS.
INSTRUCT YOUR WORKERS TO HANDLE THIS PRODUCT PROPERLY. CONSULT WITH
APPROPRIATE EXPERTS TO GUARD AGAINST HAZARDS ASSOCIATED WITH USE OF THIS
PRODUCT AND ITS INGREDIENTS.
NOTICE

GOLDEN PACIFIC EXPRESSLY DISCLAIMS ALL EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE PRODUCT OR INFORMATION PROVIDED HEREIN, AND SHALL UNDER NO CIRCUMSTANCES BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

DO NOT USE INGREDIENT INFORMATION AND/OR PERCENTAGES IN THE MSDS AS A PRODUCT SPECIFICATION. FOR SPECIFICATION INFORMATION REFER TO A PRODUCT SPECIFICATION SHEET AND/OR CERTIFICATE OF ANALYSIS.

ALL INFORMATION APPEARING HEREIN IS BASED UPON DATA OBTAINED FROM THE MANUFACTURER AND/OR RECOGNIZED THECHNICAL SOURCES. WHILE THE INFORMATION IS BELIEVED TO BE ACCURATE, GOLDEN PACIFIC MAKES NO REPRESENTATIONS AS TO ITS ACCURACY OR SUFFICIENCY. CONDITIONS OF USE ARE BEYOND GOLDEN PACIFIC’S CONTROL. AND THEREFORE USERS ARE RESPONSIBLE TO VERIFY THIS DATA UNDER THEIR OWN OPERATING CONDITIONS TO DETERMINE WHETHER THE PRODUCT IS SUITABLE FOR THEIR PARTICULAR PURPOSES AND THEY ASSUME ALL RISKS OF THEIR USE, HANDLING, AND DISPOSAL OF THE PRODUCT, OR FROM THE PUBLICATION OR USE OF, OR RELIANCE UPON, INFORMATION CONTAINED HEREIN. THIS INFORMATION RELATES ONLY TO THE PRODUCT DESIGNATED HEREIN, AND DOES NOT RELATE TO ITS USE IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY OTHER PROCESS.

END OF MSDS