



7320 -34 -5

U.S./CANADA VERSION

EFFECTIVE: 08/20/96

PRINTED: 10/17/96

PRINTED FOR..... ASTRO CHEMICALS INC  
64-70 SHAWS LANE  
SPRINGFIELD MA 01104

===== 1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION =====

PRODUCT NAME.....: TETRAPOTASSIUM PYROPHOSPHATE, DRY  
SYNONYMS.....: TETRAPOTASSIUM DIPHOSPHATE; POTASSIUM PYRO-  
PHOSPHATE; TKPP  
INFORMATION PROVIDED BY...: FMC CORPORATION  
1735 MARKET STREET  
PHILADELPHIA PA 19103  
(215) 299-6000

EMERGENCY PHONE NUMBERS

CHEMTREC.....: (800) 424-9300  
MEDICAL.....: (303) 595-9048 CALL COLLECT  
PLANT/OTHER.....: (908) 541-3000 CALL COLLECT (CARTERET, NJ)

===== 2. COMPOSITION/INFORMATION ON INGREDIENTS =====

CAS # AND COMPONENTS.....: TETRAPOTASSIUM PYROPHOSPHATE  
CAS # 7320-34-5

===== 3. HAZARD IDENTIFICATION =====

EMERGENCY OVERVIEW.....: PRODUCT IS NOT CONSIDERED HAZARDOUS BY KNOWN  
GOVERNMENTAL DEFINITIONS. HOWEVER, CONTINUOUS  
CONTACT MAY CAUSE SKIN IRRITATION.  
HEALTH EFFECTS.....: MINIMALLY TO MODERATELY IRRITATING TO EYES.  
SKIN IRRITATION FROM CONTINUOUS CONTACT HAS BEEN  
REPORTED DURING MANUFACTURING WHEN PROTECTIVE  
MEASURES FOR CONTACT OR PERSONAL HYGIENE  
PROCEDURES ARE NOT FOLLOWED.  
HUMAN INDUSTRIAL EXPERIENCE HAS SHOWN NO  
SIGNIFICANT INHALATION HAZARD OR SKIN IRRITATION  
WHEN EXPOSURES ARE PROPERLY CONTROLLED.  
EXPOSURE MONITORING INDICATES THAT THE AMOUNT OF  
RESPIRABLE DUST IN THE PRODUCT IS LOW.

===== 4. FIRST AID MEASURES =====

EYES.....: FLUSH WITH WATER FOR AT LEAST 15 MINUTES.  
IF IRRITATION OCCURS AND PERSISTS, CONTACT  
A MEDICAL DOCTOR.  
SKIN.....: WASH WITH PLENTY OF SOAP AND WATER. GET MEDICAL  
ATTENTION IF IRRITATION OCCURS AND PERSISTS.  
INHALATION.....: REMOVE TO FRESH AIR. IF BREATHING DIFFICULTY  
OR DISCOMFORT OCCURS AND PERSISTS, CONTACT A  
MEDICAL DOCTOR.  
INGESTION.....: DRINK 1 OR 2 GLASSES OF WATER. NEVER GIVE  
ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.  
IF ANY DISCOMFORT PERSISTS, OBTAIN MEDICAL



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<p>=====</p> <p>NOTES TO PHYSICIAN.....:</p> <p>=====</p>	<p>4. FIRST AID MEASURES =====</p> <p>ATTENTION.</p> <p>LARGE DOSES MAY CAUSE NAUSEA, VOMITING AND DIARRHEA. SYSTEMIC ORAL TOXICITY IS EXTREMELY RARE AND HAS CONSISTED OF ACIDOSIS AND HYPOCALCEMIC TETANY.</p>	
<p>=====</p> <p>EXTINGUISHING MEDIA.....:</p> <p>SPECIAL FIREFIGHTING.....:</p> <p>    PROCEDURES</p> <p>DEGREE OF FIRE AND.....:</p> <p>    EXPLOSION HAZARD</p> <p>HAZARDOUS DECOMPOSITION...:</p> <p>    PRODUCTS</p> <p>=====</p>	<p>5. FIRE FIGHTING MEASURES =====</p> <p>PRODUCT IS NONCOMBUSTIBLE</p> <p>NOT APPLICABLE</p> <p>NONE</p> <p>NONE</p>	
<p>=====</p> <p>PROCEDURE FOR RELEASE.....:</p> <p>    OR SPILL</p> <p>=====</p>	<p>6. ACCIDENTAL RELEASE MEASURES =====</p> <p>MATERIAL SHOULD BE SWEEPED UP FOR SALVAGE OR DISPOSAL.</p>	
<p>=====</p> <p>HANDLING.....:</p> <p>=====</p> <p>VENTILATION.....:</p> <p>=====</p> <p>STORAGE.....:</p> <p>=====</p>	<p>7. HANDLING AND STORAGE =====</p> <p>ANIMAL STUDIES AND MANUFACTURING EXPERIENCE INDICATE THAT EXPOSURE TO THE PRODUCT MAY RESULT IN EYE AND SKIN IRRITATION UNDER NORMAL CONDITIONS OF USE. IN THE EVENT OF CONTACT, IMMEDIATELY FLUSH EYES WITH WATER; WASH OFF SKIN.</p> <p>CONTROL MEASURES SUCH AS LOCAL EXHAUST VENTILATION MAY BE REQUIRED WHERE EXCESSIVE AIRBORNE DUST LOADING MAY BE PRESENT.</p> <p>THE PRODUCT SHOULD BE STORED IN A CLEAN DRY AREA TO MAINTAIN PRODUCT QUALITY AND TO PREVENT POSSIBLE CONTAMINATION BY OTHER CHEMICALS.</p>	
<p>=====</p> <p>CONTROL MEASURES.....:</p> <p>=====</p> <p>RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT</p> <p>RESPIRATORY.....:</p> <p>=====</p>	<p>8. EXPOSURE CONTROLS/PERSONAL PROTECTION =====</p> <p>PREVENT EYE AND SKIN CONTACT. SEVERE AGITATION OR DISPERSION INTO THE WORK ENVIRONMENT MAY REQUIRE ENCLOSURE OF THE PROCESS AND/OR LOCAL EXHAUST VENTILATION AT THE SOURCE. IF WORK ENVIRONMENT CONTROLS ARE NOT IMPLEMENTED, THEN PERSONAL PROTECTION FROM INHALATION, SKIN AND EYE CONTACT WILL BE NECESSARY.</p> <p>USE APPROVED DUST RESPIRATORY PROTECTION IF RELEASE OF THE PRODUCT INTO THE WORK AREA IS</p> <p>(CONTINUED) PAGE 02</p>	



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===== 8. EXPOSURE CONTROLS/PERSONAL PROTECTION =====

EXPECTED.  
 EYES.....: WEAR CHEMICAL GOGGLES, WHEN AIRBORNE DUST IS EXPECTED.  
 GLOVES.....: USE IMPERVIOUS GLOVES WHEN CONTINUOUS CONTACT IS EXPECTED.  
 SPECIAL CLOTHING...: USE LONG SLEEVE WORK SHIRT TO REDUCE EXPOSED AND EQUIPMENT SKIN AREA.  
 FOOTWEAR.....: NO SPECIAL REQUIREMENT

===== 9. PHYSICAL AND CHEMICAL PROPERTIES =====

MELTING/FREEZING POINT...: 1090C  
 BOILING POINT.....: OVER 1500C  
 VAPOR PRESSURE.....: NON-VOLATILE  
 VAPOR DENSITY (AIR=1)...: NON-VOLATILE  
 ROOM TEMPERATURE.....: WHITE POWDER OR GRANULES

APPEARANCE AND STATE

ODOR.....: NONE  
 SPECIFIC GRAVITY (H2O=1): BULK DENSITY 0.96 G/ML  
 SOLUBILITY IN H2O % BY WT: 65 @ 25C  
 % VOLATILES.....: NON-VOLATILE  
 EVAPORATION RATE.....: NON-VOLATILE  
 (BUTYL ACETATE=1)  
 PH (AS IS).....: NOT APPLICABLE  
 PH (1% SOLUTION).....: 10.5  
 ODOR THRESHOLD.....: NOT APPLICABLE  
 DENSITY (G/ML).....: 0.96-1.2  
 PARTITION COEFFICIENT...: NOT AVAILABLE  
 N-OCTANOL/WATER  
 FLASH POINT.....: NON COMBUSTIBLE  
 AUTOIGNITION TEMPERATURE.: NON COMBUSTIBLE  
 FLAMMABLE LIMITS UPPER..: NOT APPLICABLE  
 (AIR) LOWER...: NOT APPLICABLE  
 EXPLOSIVE PROPERTIES.....: NONE  
 OXIDIZING PROPERTIES.....: NONE  
 SOLUBILITY.....: NOT AVAILABLE  
 - FAT SOLUBILITY  
 (SOLVENT - OIL)

===== 10. STABILITY AND REACTIVITY =====

STABILITY.....: STABLE  
 HAZARDOUS POLYMERIZATION.: WILL NOT OCCUR  
 CONDITIONS TO AVOID.....: NONE  
 MATERIALS TO AVOID.....: NONE  
 MAJOR CONTAMINANTS THAT..: NONE  
 CONTRIBUTE TO INSTABILITY  
 INCOMPATIBILITY.....: NONE  
 HAZARDOUS DECOMPOSITION..: NONE



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===== 10. STABILITY AND REACTIVITY =====		
<p>PRODUCTS                      SENSITIVITY TO MECH.....: NONE                      IMPACT                      SENSITIVITY TO STATIC....: NONE                      DISCHARGE</p>		
===== 11. TOXICOLOGICAL INFORMATION =====		
<p>EYE CONTACT.....: MODERATELY IRRITATING (RABBIT)                      FMC STUDY I86-0930                      SKIN CONTACT.....: NON-IRRITATING (RABBIT)                      FMC STUDY I88-1006                      SKIN ABSORPTION.....: LD50 &gt; 2000 MG/KG (RABBIT)                      FMC STUDY I88-1007                      INHALATION.....: LC50 &gt; 1.10 MG/L (4 HR, RAT)                      FMC STUDY I93-1757                      INGESTION.....: LD50 = 2980 MG/KG (RAT)                      ACUTE EFFECTS FROM.....: TETRAPOTASSIUM PYROPHOSPHATE (TKPP) HAS LOW                      OVEREXPOSURE ORAL, DERMAL AND INHALATION TOXICITY. TKPP                      IS IRRITATING TO THE EYES, AND NON-IRRITATING                      TO THE SKIN, HOWEVER, PROLONGED CONTACT WITH                      THE SKIN MAY CAUSE IRRITATION.</p>		
<p>CHRONIC EFFECTS FROM.....: CHRONIC EXCESSIVE DRAL EXPOSURE TO VERY HIGH                      OVEREXPOSURE LEVELS OF TKPP CAUSED KIDNEY DAMAGE, ULCERATION                      (EFFECTS CONSIDERED OF THE TONGUE, AND ENLARGEMENT OF THE SALIVARY                      INCLUDE: GLANDS IN LABORATORY ANIMALS. DAMAGE CAUSED BY                      SENSITIVITIES, TKPP TO THE TONGUE AND SALIVARY GLANDS, HAS BEEN                      CARCINOGENICITY, ATTRIBUTED TO ITS ALKALINITY. HOWEVER, TKPP IS                      TERATOGENICITY, RECOGNIZED BY THE U.S. FOOD AND DRUG ADMINISTRA-                      MUTAGENICITY, TION AS A GRAS (GENERALLY RECOGNIZED AS SAFE)                      SYNERGISTIC FOOD ADDITIVE.                      PRODUCTS, AND ANY                      MEDICAL CONDITIONS                      GENERALLY RECOGNIZED                      AS BEING AGGRAVATED                      BY EXPOSURE.)</p>		
===== 12. ECOLOGICAL INFORMATION =====		
<p>ENVIRONMENTAL FATE.....: INORGANIC PHOSPHATES IN CONTACT WITH THE SOIL,                      SUB-SURFACE OR SURFACE WATERS MAY BE TAKEN UP                      BY PLANTS AND UTILIZED AS ESSENTIAL NUTRIENTS.                      PHOSPHATES MAY ALSO FORM PRECIPITATES, USUALLY                      WITH CALCIUM OR MAGNESIUM. THE RESULTANT                      COMPOUNDS ARE INSOLUBLE IN WATER AND BECOME A                      PART OF THE SOIL OR SEDIMENT. THE TERM                      BIODEGRADABILITY, AS SUCH, IS NOT APPLICABLE TO                      INORGANIC COMPOUNDS.</p>		
<p>ENVIRONMENTAL EFFECTS.....: FISH TOXICITY:</p>		



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===== 12. ECOLOGICAL INFORMATION =====

96 HR LC50 > 100 MG/L, PRACTICALLY NON-TOXIC  
 (RAINBOW TROUT & MENDIA, INLAND SILVESIDE)  
 FMC STUDIES I89-1091, & - 1090  
 INVERTEBRATE ACUTE TOXICITY:  
 96 HR LC50 > 100 MG/L, PRACTICALLY NON-TOXIC  
 (MYSID SHRIMP)  
 FMC STUDY I89-1089  
 48 HR EC50 > 100 MG/L, PRACTICALLY NON-TOXIC  
 (DAPHNIA MAGNA)  
 FMC STUDY I89-1092  
 TKPP IS CONSIDERED TO HAVE LOW TOXICITY TO  
 AQUATIC AND ESTUARINE SPECIES. INORGANIC  
 PHOSPHATES INCLUDING TKPP, AT HIGH CONCENTRA-  
 TIONS IN THE ENVIRONMENT HAVE THE POTENTIAL TO  
 CAUSE EUTROPHICATION IN AQUATIC SYSTEMS. THIS  
 CONDITION IS CHARACTERIZED BY EXCESSIVE ALGAL  
 GROWTH, AND SUBSEQUENT DECREASES IN OXYGEN  
 LEVELS. IN GENERAL, PROPER USE AND DISPOSAL OF  
 TKPP SHOULD POSE NO ADVERSE ECOLOGICAL RISK.

===== 13. DISPOSAL CONSIDERATIONS =====

WASTE DISPOSAL METHOD....: THIS PRODUCT DOES NOT PRESENT A DANGER OR HAZARD  
 FOR DISPOSAL. EXCEPT FOR FOOD APPLICATIONS,  
 SALVAGE AND RETURN TO CONTAINER, PROCESS OR  
 RECYCLE FOR OTHER USES. MAY BE DISPOSED OF IN  
 LANDFILLS ACCORDING TO APPLICABLE REGULATIONS.

===== 14. TRANSPORT INFORMATION =====

DOT PROPER SHIPPING NAME.: NOT REGULATED AS A HAZARDOUS MATERIAL  
 IATA.....: NOT REGULATED AS A HAZARDOUS MATERIAL  
 IMDG.....: NOT REGULATED AS A HAZARDOUS MATERIAL  
 DOT CLASSIFICATION.....: NOT REGULATED AS A HAZARDOUS MATERIAL PER  
 U.S. DOT  
 DOT LABELS.....: NOT REQUIRED  
 DOT MARKING.....: NOT REQUIRED  
 DOT PLACARD.....: NOT REQUIRED  
 UN NUMBER.....: NONE  
 HAZARDOUS SUBSTANCE/RQ...: NOT LISTED  
 49 STCC NUMBER.....: NOT APPLICABLE  
 PRECAUTIONS TO BE TAKEN..: NONE  
 IN TRANSPORTATION  
 OTHER SHIPPING.....: NONE  
 INFORMATION



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===== 15. REGULATORY INFORMATION =====

OSHA

EXPOSURE LIMITS

SUBSTANCE(S).....: TETRAPOTASSIUM PHOSPHATE

OSHA PEL-TWA.....: NOT APPLICABLE

STEL.....: NOT APPLICABLE

CEILING.....: NOT APPLICABLE

SKIN DESIGNATION.: NOT APPLICABLE

ACGIH TLV-TWA.....: NOT APPLICABLE

STEL.....: NOT APPLICABLE

CEILING.....: NOT APPLICABLE

SKIN DESIGNATION.: NOT APPLICABLE

TARGET ORGAN EFFECTS.....: NOT APPLICABLE

CARCINOGENIC POTENTIAL...: NONE

REGULATED BY OSHA.....: NO

LISTED ON NTP REPORT...: NO

IARC GROUP 1, 2A, 2B...: NO

U.S. EPA REQUIREMENTS

RELEASE REPORTING

CERCLA (40 CFR 302)

LISTED SUBSTANCE(S)....: NOT LISTED

RQ.....: NOT APPLICABLE

CATEGORY.....: NOT APPLICABLE

RCRA WASTE NO.....: NOT APPLICABLE

UNLISTED SUBSTANCE(S)..: NOT APPLICABLE

RQ.....: NOT APPLICABLE

CHARACTERISTIC...: NOT APPLICABLE

RCRA WASTE NO.....: NOT APPLICABLE

SARA TITLE III SEC 313

(40 CFR 372).....: NOT LISTED

LISTED TOXIC CHEMICAL...: NOT LISTED

INVENTORY REPORTING

SARA TITLE III SEC 311/312

(40 CFR 370)

SUBSTANCE(S).....: NOT LISTED

HAZARD CATEGORY.....: NOT APPLICABLE

PLANNING THRESHOLD.....: NOT APPLICABLE

EMERGENCY PLANNING

SARA TITLE III SEC 302-303

(40 CFR 355)

LISTED SUBSTANCE(S)....: NOT APPLICABLE

RQ.....: NOT APPLICABLE

PLANNING THRESHOLD.....: NOT APPLICABLE

U.S. TSCA STATUS.....: LISTED ON INVENTORY

CANADA

INGREDIENT DISCLOSURE LIST

SUBSTANCE(S).....: NOT LISTED

CONTROLLED PRODUCT.....: NO

HAZARD SYMBOLS.....: NOT APPLICABLE

CLASS & DIVISION.....: NOT APPLICABLE



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===== 15. REGULATORY INFORMATION =====

PRODUCT IDENTIFICATION NO: NOT APPLICABLE  
 DOMESTIC SUBSTANCE LIST.: LISTED  
 CEPA PRIORITY LIST.....: NOT LISTED  
 CARCINOGENICITY  
   ACGIH APPENDIX A.....: NO  
   A1 - CONFIRMED HUMAN...: NOT LISTED  
   A1 - SUSPECTED HUMAN...: NOT LISTED  
 IARC GROUP 1 OR 2.....: NOT LISTED  
 LABEL LANGUAGE (US/CANADA)  
   HEALTH.....: PRODUCT IS IRRITATING TO THE EYES.  
   PHYSICAL.....: NOT APPLICABLE  
   HANDLING AND STORAGE...: STORE CLEAN DRY AREA. FOR FOOD APPLICATIONS  
                                   STORE AWAY FROM POSSIBLE CONTAMINATION.  
   FIRST AID.....: IN CASE OF EYE OR SKIN CONTACT , FLUSH WITH  
                                   PLENTY OF WATER. IF IRRITATION PERSISTS,  
                                   OBTAIN MEDICAL ASSISTANCE.  
 STATE REGULATIONS.....: CONTAINS CHEMICALS FROM CALIFORNIA "PROP 65"  
                                   LISTS OF CARCINOGENS AND REPRODUCTIVE TOXINS;  
                                   PPM MAXIMUM ARSENIC 3, CADMIUM 2 AND LEAD 0.7.

===== 16. OTHER INFORMATION =====

PRODUCT USES.....: DETERGENT BUILDER, SEQUESTANT, DISPERSANT,  
                                   MOISTURE BINDER FOR MEAT, EMULSIFIER AND  
                                   SUSPENDING AGENT IN FOODS, ETC.  
                                   MAY BE USED TO TREAT DRINKING WATER UP TO  
                                   17.4 MG/L.

NFPA 704  
   HEALTH.....: 2  
   FLAMMABILITY.....: 0  
   REACTIVITY.....: 0  
   SPECIAL HAZARD.....: NONE  
   (DEGREE OF HAZARD  
    0 = NO HAZARD  
    4 = SEVERE HAZARD)

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)  
   HEALTH.....: 2\*  
   FLAMMABILITY.....: 0  
   REACTIVITY.....: 0  
   PERSONAL PROTECTION INDEX (PPI): E  
   (SAFETY GLASSES, GLOVES, AND DUST  
    RESPIRATOR)

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THE CONTENTS AND FORMAT OF THIS MSDS ARE IN ACCORDANCE WITH OSHA HAZARD COMMUNICATION AND CANADA'S WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS).