Sigma Chemical Co. P.O. Box 14508 St. Louis, MO 63178 USA Phone: 314-771-5765 MATERIAL SAFETY DATA SHEET SECTION 1. - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - -CATALOG #: B6634 NAME: P-P-BIPHENOL CRYSTALLINE SECTION 2. - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -CAS #: 92-88-6 MF: C12H10O2 EC NO: 202-200-5 SYNONYMS ANTIOXIDANT DOD * ASM DOD * P,P'-BIPHENOL * 4,4'-BIPHENOL * (1,1'-) Tj ET BT /PjCourie 4,4'-DIHYDROXYBIPHENYL * P-DIHYDROXYDIPHENYL * 4,4'-DIHYDROXYDIPHENYL * P,P'-DIPHENOL * 4,4'-DIPHENOL * USAF DO-30 * SECTION 3. - - - - - - - - HAZARDS IDENTIFICATION - - - - -LABEL PRECAUTIONARY STATEMENTS HARMFUL HARMFUL IN CONTACT WITH SKIN. IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN. IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE. WEAR SUITABLE PROTECTIVE CLOTHING. IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN. IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN. IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN. SECTION 5. - - - - - - - FIRE FIGHTING MEASURES - - - - - - - -EXTINGUISHING MEDIA WATER SPRAY. CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM. SPECIAL FIREFIGHTING PROCEDURES WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES. UNUSUAL FIRE AND EXPLOSIONS HAZARDS EMITS TOXIC FUMES UNDER FIRE CONDITIONS. SECTION 6. - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - -WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES. SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL. AVOID RAISING DUST. VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE. EVACUATE AREA. SECTION 7. - - - - - - - HANDLING AND STORAGE- - - - - - - - -REFER TO SECTION 8. SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - -SAFETY SHOWER AND EYE BATH. MECHANICAL EXHAUST REQUIRED.

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DO NOT BREATHE DUST. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. AVOID PROLONGED OR REPEATED EXPOSURE. NIOSH/MSHA-APPROVED RESPIRATOR. COMPATIBLE CHEMICAL-RESISTANT GLOVES. CHEMICAL SAFETY GOGGLES. STORE IN A COOL DRY PLACE. KEEP TIGHTLY CLOSED. WASH THOROUGHLY AFTER HANDLING. SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -APPEARANCE AND ODOR SOLID. PHYSICAL PROPERTIES 280 - 285 C MELTING POINT: SECTION 10. - - - - - - - - STABILITY AND REACTIVITY - - - - -STABILITY STABLE. INCOMPATIBILITIES OXIDIZING AGENTS HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS CARBON MONOXIDE, CARBON DIOXIDE HAZARDOUS POLYMERIZATION WILL NOT OCCUR. SECTION 11. - - - - - - - TOXICOLOGICAL INFORMATION - - -ACUTE EFFECTS CAUSES SKIN IRRITATION. HARMFUL IF ABSORBED THROUGH SKIN. CAUSES EYE IRRITATION. MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. MAY BE HARMFUL IF INHALED. MAY BE HARMFUL IF SWALLOWED. TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED. RTECS #: DV4725000 4,4'-BIPHENYLDIOL TOXICITY DATA NTIS** OTS0534530 ORL-RAT LD50:4920 MG/KG IPR-MUS LD50:100 MG/KG NTIS** AD277-689 SKN-RBT LD50:1780 MG/KG TXAPA9 28,313,1974 ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION. SECTION 12. - - - - - - - ECOLOGICAL INFORMATION - - - - - - -DATA NOT YET AVAILABLE. SECTION 13. - - - - - - DISPOSAL CONSIDERATIONS - - - - -CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. SECTION 14. - - - - - - - - TRANSPORT INFORMATION - - - - - - -CONTACT SIGMA CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION. SECTION 15. - - - - - - - REGULATORY INFORMATION - - - - - - -EUROPEAN INFORMATION HARMFUL R 21 HARMFUL IN CONTACT WITH SKIN. R 36/37/38 IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN. S 26 IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE. S 36 WEAR SUITABLE PROTECTIVE CLOTHING.

REVIEWS, STANDARDS, AND REGULATIONS OEL=MAK EPA TSCA SECTION 8(B) CHEMICAL INVENTORY EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001 SECTION 16. - - - - - - - OTHER INFORMATION- - - - - - - - -THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. SIGMA, ALDRICH, FLUKA SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE. COPYRIGHT 2001 SIGMA-ALDRICH CO. LICENSE GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY