

AN ABSTRACT OF A THESIS

DETERMINATION OF KINETICS OF ACETYLATION OF 4-HYDROXYBENZOIC ACID USING ACETIC ANHYDRIDE IN A HEAT TRANSFER MEDIUM

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Master of Science in Chemical Engineering

High temperature polymers find themselves a wide range of uses in recent decades. 4-acetoxybenzoic acid (PABA) is used as a monomer for the polymerization of one such thermo tropic polymer. Information on polycondensation of already prepared PABA is available in the literature. But the information about *in situ* preparation of PABA by acetylation of 4-hydroxybenzoic acid (PHBA) using acetic anhydride for subsequent polymerization is inaccessible in the literature. The present thesis was conducted to find the reaction kinetics of the above-mentioned reaction carried out in a heating solvent Therminol-66. The reaction was carried out in a 3-liter batch reactor and the reaction mixture was sampled at regular time intervals. Reaction mechanism was determined by gravimetric analysis of the samples and the dependence of the reaction rate on acetic anhydride concentration was determined using nuclear magnetic resonance (NMR) spectrometry. The specific rate constant and the activation energy of the reaction were then determined to find the complete rate equation for the reaction.

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IN A HEAT TRANSFER MEDIUM**

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