

SYNTHESIS OF A DIHYDROXYIMIDE MODEL COMPOUND, POTENTIAL POLYMER IDEAL FOR COVALENTLY BONDING TO A NONLINEAR OPTICAL SIDE CHAIN. *D. Ho, D. Koh, M. Illingsworth**, Department of Chemistry, dieuho@msn.com, orangenamu@hotmail.com, mlisch@rit.edu.

Synthesis of a model compound amic acid (AA) from sublimed 4-fluorophthalic anhydride and 3, 3'-dihydroxy-4,4-diaminobiphenyl (HAB) in tetrahydrofuran (THF) was performed under anhydrous conditions using flowing nitrogen at room temperature. The model compound was imidized and a pendant group, a nonlinear optical (NLO) side chain, was attached via the Mitsunobu reaction under anhydrous conditions in THF at room temperature. Thin Layer Chromatography (TLC) and Nuclear Magnetic Resonance (NMR) spectra results confirm the presence of the model compound AA and the imide model compound. At this point, the model compound is not presented in any literature. The Mitsunobu product is currently under investigation to confirm the presence of the covalently bonded system of aromatic imide and nonlinear optical side chain. A polymer of the model compound can be made and an attachment of NLO to the polymer backbone will yield a nonlinear optical polymer system. This nonlinear optical polymer system has many uses due to its properties of high glass transition temperature, frequency-doubling capabilities, outstanding chemical stability, and mechanical properties. In convenience, synthesis of the nonlinear optical polymer system can be performed as a one-pot reaction.

Symposium